Chapter 1

What Is – and Isn't – Archaeology?

What Is Archaeology?

Archaeology is usually defined along the lines of 'the study of past cultures through the analysis of surviving material remains'. If a historian is someone who studies surviving *documents* to understand the past, so an archaeologist is someone who studies surviving *objects* (the formal term is 'material culture'). Digging deeper, this means that an archaeologist might study, at the large scale, an entire landscape to look at traces of, say, ancient agriculture, and, at the small scale, the microscopic remains of plant pollen from a particular site in that same landscape to understand the species of plants propagated by the people who once lived there. Along the way, the archaeologist of this imaginary landscape is likely to look at a mass of other evidence, too, down to the broken pots dumped in a disused well by way of the outline of the houses in an abandoned village. It is likely, too, that the imaginary archaeologist will find evidence of trade and exchange – perhaps some worked beads made of a stone that is foreign to the study area and in fact come from only a few specific locations hundreds of miles away, perhaps even from across the sea.

In this brief portrait, a host of different aspects of archaeology as a discipline, and archaeologists as a community, are touched on. Archaeology studies tangible, material things that one can pick up, touch, and feel; it also studies, through these surviving things, far more ephemeral concepts about people and places, cultures and communities. The aforementioned stone beads were worked by someone who had some artistic scheme for them in mind; the stones had been appealing enough for someone else to trade them, perhaps multiple times, over a long distance until

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they ended up in their final location. The archaeologists who found the beads then did so after a series of other processes that took them to that one site, in that one landscape. They will have planned to visit that site after a long period of research and planning; or they may have been led to it because of development or industry in the area; or even because of its chance discovery. The archaeologists had to have the training to be able to identify the beads and to excavate them in a controlled fashion, so the beads' exact location was recorded in relation to hundreds, perhaps thousands, of other materials found on site; they also had to have equipment and resources to get to the site in the landscape, along with permission from various government and/or private authorities to be there in the first place. Having completed their fieldwork, the archaeologists then had to take the beads away and analyze their structure in a laboratory to realize that the beads came from far away; they also had to compare their data with those of other archaeologists to understand the significance of the find. Having realized the significance of the discovery – or equally, having realized that the find is mundane and insignificant, because identical beads have been found on many similar sites both near and far away – the archaeologists will have written up the results of their exploration and discovery and published these results in a book or journal, as well as online in different formats. They may also have presented their findings in a lecture or at a conference, or even on a TV or radio show, podcast, or online video. The beads, meanwhile, will have remained in a laboratory to be conserved before being put on display or stored in a museum or archive.

This outline gives a sense of the different components of an archaeologist's life: project planning and management in advance of any work; fieldwork, exploring, and excavating an archaeological site; lab work, analyzing remains; and desk work, thinking about the meaning of a discovery before writing, speaking, and other forms of public engagement – both in person and online. A formalized understanding of all these skills can be gained from the UK *National Occupational Standards for Archaeology* (ISGAP 2012), which gives some idea of the diverse array of skills put into play by a modern archaeologist. There can be no doubt that it is this mix of practical and theoretical, physical and intellectual activities that represents one of the strongest appeals of archaeology to its practitioners.

So much for the basic truth of archaeology and archaeologists; what of the myth? Depending on whom you ask, archaeology is either incredibly lucky or utterly damned by being an eternally stereotyped profession – adventurous, perhaps even glamorous, and above all popular, considering the viewing figures for archaeology-themed TV shows and book sales: millions of people around the world are interested in archaeology. The profession has endlessly debated the rights and wrongs of this public perception of archaeology. This subject has even been tackled in a formal way by the über-archaeologist of archaeologists, Cornelius Holtorf (2005, 2007a). In 1999, the US-based Society for American Archaeology was so concerned about this issue that it commissioned a report exploring public perceptions and attitudes about archaeology, an exercise that was repeated in 2018 (see Ramos and Duganne 2000; SAA 2018). It is not the purpose of this book to debate the rights and wrongs of the mass representation of archaeology. However, a few pop-culture characteristics can

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usefully be noted that are of significance to the public understanding of what archaeology is and thus what archaeologists actually do.

Key within this is simply the fact that people *do* care about archaeology and, by default, about archaeologists – many people are interested in both the process and people. Secondary to this is the fact that this interest is overwhelmingly positive. Archaeology is a field that enjoys a special place of enduring, affectionate popular myth: we are the 'good guys', at least in European-influenced society (although the populations of many other countries do not always feel the same way, where the history of European colonial oppression means that archaeologists are often viewed with suspicion at best, and open hostility at worst). Not too many other professions have such an unequivocally positive place in popular culture; for every good TV cop or lawyer there is a bad one, for example. Even in comparable academic settings, archaeology has an enviable position – there are plenty of historians who would kill for the kind of media attention that archaeology regularly commands. On a slow news day, it is often an archaeological project or discovery that will be used to fill pages or airwaves, and major discoveries of new sites or finds consistently make headline news around the world.

Archaeology, truth be told, is generally seen as a distinct and even glamorous field; its practitioners are fortunate that people are rarely cynical about archaeology and archaeologists. To use a political analogy, this makes archaeology a tiny country that 'punches above its weight' on the global stage and enjoys a special relationship with many other nations. But this is an incredibly small community. Globally, there are no total recorded figures for professional archaeologists, because the sector is too small for government statisticians to track the industry (although specific albeit partial figures for some nations do exist, as discussed later), but a fair guess would be no more than 40,000 people globally employed in archaeology, with perhaps another 40,000 students of various types. To this should be added, however, hundreds of thousands of active volunteer archaeologists at work around the world, and many millions more consumers of archaeology through books, TV shows, and site visits.

Focus on: Eleanor Scerri (Germany)

I am Eleanor Scerri, and I am Head of the Pan-African Evolution Research Group at the Max Planck Institute for the Science of Human History in Jena, Germany. My Group is focused on understanding the emergence of our species and its major evolutionary stages up to the inception and spread of agriculture. I started this position in 2019 and since that time I have been building up my Group and its associated projects. The position is extremely varied. I do everything from budgeting, administration, and team management to networking, establishing new research cooperations and consortia, writing grants, planning fieldwork and conducting research, as well as supervising PhD students and, when time affords, teaching at the universities that I am affiliated with.

I grew up in Malta, which has a high density of spectacular archaeological sites. I was inspired by these from early childhood, which drove me to study

archaeology at the University of Malta. I took courses on human evolution, which crystallized my interest in this area. I received support to travel to the Natural History Museum in London in my final year, which turned into a career inflection point. On advice received there, I did an MA at the University of Southampton, where I stayed on to do a PhD. I worked part time in management through most of this, which really helped me to learn about budgeting, administration, and team leading. Along with the research skills I learned, these other experiences really helped me in my career.

I held three independent postdoctoral fellowships after my PhD, one in the United Kingdom, one in France, and one in Germany. Besides aiding scholarly independence, these positions gave me exposure to different labs and research cultures that really helped my professional growth. These experiences also allowed me to build a large research network that crossed different disciplines. Ultimately, this led to the development of my own research agenda, which I was able to translate into a successful bid for my own research group in 2019. One of the best parts of this new role means that I can help other promising young researchers.

My time is divided between working on my own research, my team's research projects (including supervising graduate students), and administration, which includes setting up/maintaining collaborations, writing grants, budgets, and planning fieldwork/research projects. I also set as much time as I can afford for collegial activities such as reviewing papers and grants. Finally, I participate in management and research school meetings at my institute as well. The best part of my role is being able to pursue the research that I love with the input of so many inspiring and talented young researchers and colleagues.

My top tip for pursuing a career in archaeology is a mixture of persistence, ensuring that you do not keep all your eggs in one basket, and being open to opportunities that you may not have initially envisaged taking. My career led me from Malta to the United Kingdom, to France, and finally to Germany, a pathway I never could have foreseen. Maintaining a diverse mixture of ideas, projects, and skills is also important. Maintaining a sense of humour and being able to step back is also critical. As with any strongly vocational career, working in archaeology can be wonderful, but it is important not to confuse your career with who you are as person.

Malta gained its independence the decade before I was born, and I grew up in the shadow of post-colonialism. Maltese scholars still face many challenges, and many end up accepting positions overseas due to a lack of funding and opportunities at home. The University of Malta has a research trust – every donation helps towards building a national science and humanities programme: https://researchtrustmalta.eu/. Together with my colleague Prof. Nicholas Vella in the Department of Classics and Archaeology at the University of Malta, I am also trying to help by building a major programme of archaeological research in Malta, providing key opportunities for young Maltese students and early career scholars.

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The History and Development of Archaeology as a Career

Until the early 1960s it was relatively simple to define what archaeology was and who archaeologists were. Archaeology, from its antiquarian origins in the eighteenth century onwards, involved a tiny group of people, all of them white, all of them middle or upper class, and virtually all of them men, working on the surviving evidence of past cultures, both excavated physical remains and surviving documents. A few of these people were paid to be archaeologists, but most had private incomes of one sort or another to support their research. And the majority of these people were based in universities and museums in affluent early industrialized nations, particularly Britain and the United States but also in other European colonial powers such as France and Germany, with a few permanent offices of these nations (historically referred to as 'schools', e.g., the British School of Archaeology in Iraq, now known as the British Institute for the Study of Iraq) scattered adjacent to the archaeology that these people were most interested in excavating, especially in major urban centres such as Rome, Athens, Jerusalem, and Baghdad. In the United States there was also dedicated research into the prehistoric civilizations of the Southwest – locations equally remote, both physically and conceptually in that period at least, from the urban centres of academia and government, where most researchers were based (see Figure 2).

Around these lucky few individuals circulated a far larger band of semi-professional archaeologists of much more varied background and ability, ranging from genuinely dedicated and able scholars to liars, charlatans, and thieves who saw in the burgeoning scientific discipline of archaeology a chance to get rich, get famous, or simply to have a good time (see Hudson 1981 for a sample discussion of this in the United Kingdom; Patterson 1994 or Neumann and Sanford 2001: 3–23 for a discussion of this in the United States). This period was, by all accounts, a hedonistic age enjoyed by a fortunate few, and it is the archaeological world depicted by people such as the novelist Agatha Christie, whose second husband, Max Mallowan, was one of the archaeologists in question (see Trümpler 2001). This is also the world that has inspired many modern depictions of archaeology, from the *Indiana Jones* and *Mummy* movies to the *Lara Croft/Tomb Raider* video games and movies, amid countless others.

Hesitantly at first in the 1950s and 1960s, then speeding up in the 1970s and 1980s, a series of occurrences changed the world of archaeology forever. Some of these changes came about from within the discipline of archaeology; others came from outside the community and were the result of much larger changes to society. Undoubtedly, the biggest impact came from the rise of the 'ownership debate', linked to the domestic reform of civil liberties, on the one hand, and the formalization of the legal protection of heritage sites, on the other. A major external driver of this process was also the wider decolonization process following the break-up of European colonial rule around the world following World War II, where many newly self-governing nations saw the protection and promotion of their distinctive cultural heritage to be a key part of their nation building.

Until the mid-1960s there was, effectively, no legal protection for antiquities in almost any country of the world – with precious few exceptions, the owners of

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Figure 2. The development of archaeology as a career: British archaeologist Mortimer Wheeler visiting an excavation while working as Director-General of the Archaeological Survey of India in the late 1940s. Wheeler was one of the first 'professional' archaeologists and also one of the first ever 'television archaeologists', appearing regularly on TV shows from the 1950s onwards (copyright UCL Institute of Archaeology 2010, courtesy of Ian Carroll).

land could pretty much do what they liked with historic materials on their property, and, as long as they had permission from the landowner to be there and thus did not break broader laws of trespass and theft, so could anyone visiting a property. Although, technically, many nations had some basic laws to prevent the movement of historic materials outside their home country (in the United Kingdom, for example, the Ancient Monuments Protection Act of 1882; in the United States, the Antiquities Act of 1906), in reality these laws were regularly flouted; in many cases a 'scientific' justification of 'research' was used for the removal of materials. As a result of a series of important sites being destroyed, however, there was increasing pressure to better protect historic sites, both above and below ground. This lobbying coincided with a far louder, larger, and fundamentally more important lobby for civil liberties, particularly for comprehensive legal (including property and voting) rights. A part of that battle included a fight, still shamefully not yet won in many corners of the world, for the control of cultural sites and remains by descendant, Indigenous communities – particularly the Indigenous communities of the Americas, Australasia, and elsewhere. This process includes battling for control of entire landscapes and seascapes covering hundreds of thousands of square miles and for the repatriation of stolen material items and even

human remains. The latter, held in their thousands in major Western museums and archives since their 'collection' by various colonial powers in the nineteenth and early twentieth centuries on the basis of, at best, pseudoscientific study, is one of the great historic crimes of archaeology, and remains an extremely emotive issue for descendant communities (see Atalay 2006b; Bruchac et al. 2010; Colwell-Chanthaphonh and Ferguson 2008; Gnecco and Ayala 2012; Gould 2020). This is now a topic of intense debate that has become actively political on a public scale, especially in relation to the museums of former colonial powers such as the United Kingdom. Millions of objects still reside in such museums with direct links to nations around the world, and those museums are facing growing calls for the repatriation of such materials – this is one of the most hotly debated topics in the early twenty-first-century cultural heritage community (see Hicks 2020; Procter 2020; Turnbull and Pickering 2010; Weiss and Springer 2020).

In terms of the practice of archaeology as discussed in this book, the reform of the legal system had a greater impact in a different way. Until the 1960s, people practicing archaeology usually worked outside their home countries. Although funding and facilities might be based in, say, the United States or United Kingdom (and although materials might be shipped back to those locations), the majority of actual fieldwork was being done in other nations, particularly in the Middle East but also in Central and South America, the Indian subcontinent, Africa, and Australia. In this work, these individuals were simply following the established principles of their respective colonial empires. Following (and in some cases as a result of) the destruction, rebuilding, and colonial collapse of World War II and its aftermath, however, more and more archaeological sites began to be discovered in 'home' nations such as the United Kingdom and the United States. Some of these sites were discovered as a result of research, but an increasing number of discoveries came about as a result of accident, during new road or building construction or in the course of major landscape works such as dam construction and even new farming techniques, such as the introduction of mechanized deep ploughing in Britain, which led to countless sites being discovered in the post-war period. The rebuilding of many historic cities of Europe following the aerial bombardment and ground conflict of the war also led to such discoveries, as ruins were pulled down and new buildings, requiring deeper foundations, constructed in their place; our understanding of the ancient origins and layout of cities such as London was transformed as a result of such discoveries.

Meanwhile, post-war urban planners were also taking their toll on such heritage, as new road schemes, grids, and even entire new urban landscapes were laid out. The 1960s' focus on domestic archaeology also saw new approaches to the different types of sites being discovered, an expansion of what society as a whole understood as 'archaeology'. The dominance of classical archaeology began to wane under these circumstances, and new approaches and schools of thought emerged. On one hand, the detailed study of prehistoric civilizations became a key issue; on the other hand, 'historical archaeology' began to drive a very different approach to both classical and prehistoric archaeology. The differences in philosophy and approach of these three strands of archaeology created a theoretical divide that remains, to some extent, in the present day, and is discussed in more detail later.

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What Is – and Isn't – Archaeology?

By the late 1960s, the needless destruction of historic sites led to the rise of what became known as 'rescue archaeology' in the United Kingdom and 'salvage' archaeology in the United States and elsewhere. At the forefront of this movement in the United Kingdom at least were two organizations: RESCUE – the British Archaeological Trust (founded in 1971) and Save Britain's Heritage (founded in 1975). Philip Rahtz's famous book *Rescue Archaeology* (1974) brought the plight of archaeological sites under threat to a wider audience, and poet John Betjeman's involvement in the campaigns to save the architecturally significant Euston Arch and St Pancras Railway Station in central London similarly brought to light threats to historic buildings, especially those of more recent construction, such as those from the Victorian period (see Delafons 1997; Jones 1984). Central to this process was lobbying to enhance the legal protection of historic sites, particularly to create legal instruments specifically associated with the protection and preservation of historic materials. In the United States, a cornerstone of this process was – and remains to this day – the National Historic Preservation Act (1966), which established several key institutions: the Advisory Council on Historic Preservation, the State Historic Preservation Office, the National Register of Historic Places, and the Section 106 review process, a series of organizations and policies further strengthened by the enactment, three years later, of the National Environmental Policy Act (1969) (see King 2002, 2009, 2012; Neumann and Sanford 2001). Similarly, in the United Kingdom, a series of Historic Buildings Councils (one each for England, Scotland, and Wales) was created via the Historic Buildings and Ancient Monuments Act (1953), the forerunners of the modern national heritage bodies in the United Kingdom of Historic England, Historic Environment Scotland, and Cadw, which were established under the terms of the National Heritage Act (1983) and responsible, in particular, for key nationally important historic sites protected under the Ancient Monuments and Archaeological Areas Act (1979) (for archaeological sites and monuments) and the Planning (Listed Buildings and Conservation Areas) Act (1990) (for listed buildings) (see Hunter and Ralston 2006).

Even given such new legal protection, however, archaeology in this context remained woefully under-protected and under-funded for the next twenty years, until the formal rise of the 'polluter pays' principle in the late 1980s and early 1990s – the principle that the activities and organizations adversely affecting a historic site should pay for its monitoring, study, protection, and preservation whether in situ (being left in place) or by record (destroying the site but creating an extensive documentary archive of what was previously there) (see King 2016b: 60–62). Such a principle had its origins in much earlier, similar statutory protection for significant natural rather than historic environment sites and features such as parks and gardens, 'green belt' sections of countryside on the fringes of cities and important woodlands, and coastal and other major landscape features. In the United States, the drivers for such practices are laws such as the National Historic Preservation Act (1966, amended 1980 and 1992), the National Environmental Policy Act (1969), the Archaeological Resources and Historic Preservation Act (1974), and the Archaeological Resources Protection Act (1979) – at least, primarily when projects

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have an impact on federally managed lands and seas (also on projects in which there is some kind of federal involvement, in the form of federal funding or licensing arrangements). On private land in the United States, however, state laws and regulations (as well as Tribal and other local laws) that protect heritage vary widely from state to state, and a similar situation is in place in many other federal systems, such as in Australia and Canada. For example, in Canada there is little legislation at the federal (i.e., national government) level for the protection and preservation of historic sites and objects. Most heritage protection and preservation legislation here is enacted by the ten different provincial and three different territorial governments, each of which has its own legislation and policies to protect and preserve cultural heritage, including that of Canada's Indigenous communities (often referred to as First Nations) (see examples in Ferris 2003). Other nations around the world function in a very different manner. In India, for example, the overriding heritage legislation is that enacted and enforced at the national level, with the Ancient Monuments and Archaeological Sites and Remains Act of 1958 (AMASR) protecting sites and monuments of national importance and regulating archaeological excavations. This Act also regulates the functions of the Archaeological Survey of India – the government agency responsible for archaeological research and the conservation and preservation of cultural monuments in the country. China has a broadly similar, nationally led approach to that of India, with its Law on the Protection of Cultural Relics first enacted in 1982 and updated in 1992 and again in 2002 (see Underhill 2013: see also Yingying Jing (2019) on particular steps taken in China at the national level to protect its underwater cultural heritage).

In the United Kingdom, the arrival of dedicated protection for historic sites came about only in the 1990s thanks to a series of related pieces of government policy, Planning Policy Guidance (PPG) Notes No. 15 (*Planning and the Historic Environment*) (1994) and No. 16 (*Archaeology and Planning*) (1990) in England and Wales, Planning Advice Note (PAN) No. 42 (*Archaeology*) (1994) and National Planning Policy Guideline (NPPG) No. 5 (*Archaeology and Planning*) (1998) in Scotland, and Planning Policy Statement No. 6 (*Planning, Archaeology and the Built Heritage*) (1999) in Northern Ireland. These policies finally enshrined the principle of statutory payment for work on historic sites in advance of development – in the United Kingdom's case, on all land, irrespective of government, private, or other ownership – and led to the formalization of the cultural resource management (CRM) archaeology environment of the present, alongside its corollary, the curatorial archaeological community charged with monitoring such work. In 2010, PPGs 15 and 16 in England and Wales were replaced with one overarching but essentially similar piece of guidance covering the entire 'historic environment' (i.e., archaeological sites, historic buildings, and historic parks, gardens, and landscapes): Planning Policy Statement (PPS) 5: *Planning for the Historic Environment*. This policy in turn was replaced in 2012 (and updated in 2018 and again in 2019) with the *National Planning Policy Framework* (NPPF), and at the time of writing in 2020, this policy framework is again under review by the government.

Similarly, in 2010 in Scotland, PAN 42 and NPPG 5 were replaced with Scottish Planning Policy, an overarching planning framework in which heritage is one

component (as advised by the *Scottish Historic Environment Policy* [SHEP] of 2009). This policy was in turn updated and replaced in 2019 with the *Historic Environment Policy for Scotland* (HEPS). Similar laws, policies, and processes to those described previously for the United States and United Kingdom exist in many other nations around the world, covering both terrestrial and maritime archaeology. There are also particularly strong laws protecting Indigenous archaeology in many nations, most famously the Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act (1984) and the Commonwealth Native Title Act (1993) in Australia, and the Native American Graves Protection and Repatriation Act (1990) in the United States.

Archaeology also began to undergo change from the 1960s onwards as a result of broader social factors. Central to this was the rise of the 'new' universities – linked to new social mobility, itself the result of the baby boomer population explosion of post–World War II – and within these a vast increase in the number of university departments of, and courses on, archaeology. Until the 1960s there were both very few courses on, as well as jobs in, archaeology; after the 1960s there were more of both. Although this process was most visible in countries such as the United Kingdom, United States, and Australia, it was taking place in many other countries around the world.

Particularly in the United Kingdom, United States, and Australia – and, to a more varied extent, in other countries – the changes discussed previously also created a greater need for professional CRM archaeologists to advise on work in relation to development; the new demand for university courses similarly created a greater need for professional academic archaeologists based in universities to teach and undertake research. Although this was at first a mutually agreeable situation, the realities of the different pay, working conditions, and social status of these different types of archaeologists soon began to lead to a literal split, reflecting the existing split in conditions and locations, of the practice, methods, and theories of archaeology. The uneasy relationship between CRM archaeologists, on one hand, and academic archaeologists, on the other, is something that is returned to later in this chapter and has its origins in this period. Although all within the discipline agree that archaeology is, broadly, a social science tasked with studying the surviving physical remains of past societies, there can be no doubt that for certain sectors of the archaeological community, the primary focus is on research into these materials and the understanding these provide of their parent societies, whereas for other sectors of the archaeological community the primary focus is on managing and maintaining these historic materials (sometimes referred to as historic resources) in situ or by record. In truth, all archaeologists are involved, or at least should be involved, in all these different processes.

Archaeology, as a broader whole, has enjoyed an unprecedented intellectual, as well as technical, growth from the 1960s onwards, a process that has further sped up in the past decade thanks to the incredible recent advances in computer technology. The archaeologist of today benefits from a wealth of different theories, methods, practices, tools, and techniques developed over the past fifty

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years. Some of these advances have come from within the community and are of immense practical benefit. For example, the resistivity meter, which uses variations in an electric current passed through the soil to reveal evidence of buried features and structures, is really of use only to archaeologists and has been developed and refined largely within the discipline. In comparison, other advances have been developed by archaeologists in conjunction with other disciplines that have use for a particular technology – such as different forms of scientific dating technique, from the commonplace, such as dendrochronology and carbon-14 dating, to the rare and specialized, such as thermoluminescence, electron spin, and potassium-argon dating. Archaeology has also been unafraid to benefit from techniques and technologies developed entirely independent of it, one of the most useful recent examples being LiDAR (light detection and ranging), a form of ground-based and aerial laser-scanning survey. More recently, wider advances in data management, storage, and processing have transformed the nature of analytical work in archaeology, with reduced costs alongside enhanced miniaturization, mobility, and portability. The average archaeologist at work in 2020 has, just like the average citizen, access to an extraordinary array of digital tools for recording, storing, manipulating, and presenting data through commonly available mobile devices, computers, and 'cloud' access. The transformation in the past decade alone between the first and second editions of this book is startling, driven entirely by advances made outside the sector. For example, the improved capacity and versatility of the average mobile phone in 2020 versus 2010 is dramatic. Delving more deeply, within archaeology itself, advances have been as transformative, albeit less publicly visible. With exponentially improved digital data storage matched to advanced computing power have come dramatic advances in synthetic 'big data' analyses (including the use of machine learning) in archaeology, transforming our ability to compare data sets, to model landscapes, and so to predict patterns of human behaviour in the past and thus possible site locations and layouts. Put simply, archaeologists are undertaking more complicated analyses, utilizing more data, more quickly than ever before. And the pace of change in this field is remarkable, as it is in the wider technological landscape. If there is one crucial 'top tip' that I would emphasize between the first and second editions of this book, it is to focus on the use and manipulation of data in archaeology, including the use of Geographic Information Systems (GIS), which are a crucial tool of the discipline. An archaeologist with experience in digital data collection, management, and manipulation is always going to be welcome on any project, and they are unlikely to struggle to find work. And a third edition of this book published in 2031 is likely to point to even more dramatic changes in this field than seen between the first and second editions in 2011 and 2022.

Alongside such refinements to the ways in which archaeologists can find, identify, and interpret sites, there has been a great theoretical development in archaeology – how archaeologists think about the ways people lived their lives in the past. Archaeological theory often has a bad name, accused of being a

self-serving, overly complex, and wilfully confusing process designed to obscure, rather than interpret, the past. A detailed discussion of theory is outside the scope of this book, but at heart archaeological theory is a tool – just like the other, more immediately practical, tools discussed earlier – designed to help us better understand the past. Just as a practical technique such as a resistivity survey helps identify *where* walls or ditches once ran, so good archaeological theory can help give an insight into *why* people felt it necessary to construct those same walls or ditches. People's lives – and, particularly, motivations – are complex things at the best of times in present circumstances, where we share similar values, beliefs, and lifestyles; people's lives in the past, even the relatively recent past of only a few generations ago, are far harder to understand, and their motivations are incredibly difficult to identify. Archaeologists use theory to help explain at least some small part of the thoughts that lie behind the physical evidence of particular materials, places, or activities. An excellent introduction to theoretical archaeology comes in the form of two mystery novels written by the archaeologist Adrian Praetzellis, *Death by Theory* (2000) and *Dug to Death* (2003). A more conventional but easy-to-read introduction is Johnson's (2019) *Archaeological Theory: An Introduction*.

World Archaeology

Archaeology in the twenty-first century is a global profession. Virtually every nation on earth has some professional archaeologists at work, although as discussed earlier, no one knows how many there are in total. The focus of this book, as discussed in the Introduction, is primarily the United Kingdom, United States, and Australia, but this focus should not discourage any budding archaeologists reading this book anywhere in the world. If you want to become an archaeologist, then although some of the circumstances described in this book may not fit your particular country, the basic principles of why and how we do archaeology remain the same. Moreover, archaeology is an international, inclusive discipline. Within this, it acknowledges its past mistakes – and the behaviour of many European colonial archaeologists working in other countries in the nineteenth and twentieth centuries was disgraceful – and strives for a better future for all. No one, of any age, origin, or background, should ever feel discouraged from becoming involved in archaeology. No one should ever be told – at least not by an archaeologist – 'you cannot be involved'. The future of archaeology clearly lies in more and more archaeologists learning and working in their home nations around the world, rather than the current European-US-Australian dominance of practice and theory. The global growth areas for archaeology are the same as wider socio-economic growth and leadership areas: Asia (especially China), the Indian subcontinent, Africa, and South and Central America. All these regions already have well-established archaeological communities, but there is no doubt that it is these communities that will experience distinctively greater growth, come to relatively greater prominence, and become leaders in both archaeological practice and theory in the future, more so than the longer established European-US-Australian

archaeological communities. Although the practice of archaeology will undoubtedly continue in such locations, the future of archaeological leadership lies beyond these traditional centres of power of the discipline.

Focus on: Suzie Thomas (Finland)

I am Suzie Thomas, and I am an Associate Professor of Cultural Heritage Studies at the University of Helsinki, Finland. I moved to Helsinki in 2014, initially to take up a lectureship in Museum Studies, but I have since moved over to Cultural Heritage Studies and a tenure-track position. I am based right in the city centre, and I do fieldwork most years in Finnish Lapland. I teach Cultural Heritage Studies at the MA level, and I supervise PhD students on topics related to Cultural Heritage Studies and Museum Studies. I am also learning Finnish!

I loved history at school, and as I was not sure if I would like archaeology, I applied for a joint degree in Archaeology, Prehistory and Medieval History at the University of Sheffield, thinking that I could change courses if I wanted to once I had begun my studies. In the end archaeology won out, and I dropped the medieval history part of my BA. During my degree, I discovered that I was most interested (and got the best grades) in heritage-related courses, and so for my MA I decided to move to Newcastle University to study heritage education and interpretation. I stayed on for my PhD, which initially I did part-time due to lack of funding. This allowed me to get a part-time museum job, the experience from which proved invaluable. Since that time, I have had training through work in topics such as writing grant applications, teaching in higher education, and so on.

I had different museum jobs, first in the year between ending my BA and starting my MA and then later on, on a part-time basis while doing my PhD. My first full-time job post-PhD was as Community Archaeology Support Officer at the Council for British Archaeology in York. I stayed there for three years, gaining an incredible grounding in the issues and challenges around community participation in archaeology in Britain. Then I returned to academia with a research associate role in a project at the University of Glasgow, studying the illicit trade in antiquities. Returning to academic research was a steep learning curve, but I figured out the differences in the work culture and tried to adapt as well as I could. Two years later, I was lucky to be offered a permanent position at the University of Helsinki. In my search for a more stable position, I had to look outside the United Kingdom, and I had also applied for positions in the United States and Belgium. I have no regrets about moving. Now I am in a tenure-track post, which is a bit of a gamble after a permanent lectureship, but if all goes well I will have a fully tenured professorship in the end.

I am not sure that there is such a thing as an average working week for me. Sometimes I have courses to teach, which currently (2020) are entirely online due to the Covid-19 pandemic, but this is not always the case. In Finland, there are also certain pinch-points when the major national research funders

have their deadlines, so September and October tend to be filled with grant-application writing. In August most years I am in Lapland for at least a couple of weeks with fieldwork; I have an ongoing interest with several colleagues in the material remains of the Second World War in the far north, and their impact on local communities (see Figure 3). I also have a project running until next year in which we are developing a prototype portal and reporter for a Finnish version of the UK Portable Antiquities Scheme. My PhD looked at metal detecting and archaeology, so it is nice to continue with this theme in my new country.

My top tip for pursuing a career in archaeology is that you should not be afraid of taking an unusual path. I am not in the country where I started out in archaeology, and I not only transitioned from the third sector to academia, but also moved from my first degree in archaeology and prehistory to a much more heritage-focused career path. Speaking as someone who always wanted to work in academia and is grateful to be doing it now, I would say: expect it to be challenging. There are always more people than there are jobs, unfortunately. I think it is also sensible to have alternative plans in case your first dream does not quite come true. I was happy also working in museums and charities, but in my case, I got very lucky and got an opportunity to work in academia.

I am very excited about the two projects I have been most involved with in Finland. These are Lapland's Dark Heritage, https://blogs.helsinki.fi/lapland-dark-heritage/, and FindSampo: https://blogs.helsinki.fi/sualt-project/.

Figure 3. The realities of fieldwork, part 1: Volunteers at the public excavation of the Second World War military hospital site in Inari, Finnish Lapland, in 2016 (copyright Suzie Thomas 2021).

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Thematic Routes in Archaeology

The thousands of archaeologists at work today around the world comprise myriad different approaches to, and training in, archaeology. The particular issues of the different types of training involved are discussed in Chapter 2. However, it is worth briefly outlining the major different approaches – sometimes called schools or disciplines – of archaeology, how these approaches interrelate, and what the differences between these approaches mean for the employability of archaeologists (see Figure 4). Although it is possible to work within more than one of these approaches, the reality is that most professional archaeologists end up fairly firmly fixed within one from an early stage – usually when they decide for which university courses to apply or, at the latest, when they choose to go on to specialize as postgraduate students. Archaeology is such a broad field that to thrive, people inevitably must specialize. These different approaches are also, however, theoretical – concerned with variations in the differing conceptual approaches involved in interpreting the physical remains of the past – and so at times are also ideological/political: some members of these different groups have fundamental disagreements with the philosophies and physical approaches to the past of other groups, in the same manner as other people have fundamental disagreements over political or religious outlooks and beliefs. This can be a deadly serious issue – very occasionally, people have come to physical blows over such disagreements, but much more often there is formalized confrontation at academic symposia and through specialized books and media. However, it should also be noted that partly this is an issue of geography – these approaches or schools of archaeological approach are at least partly drawn along
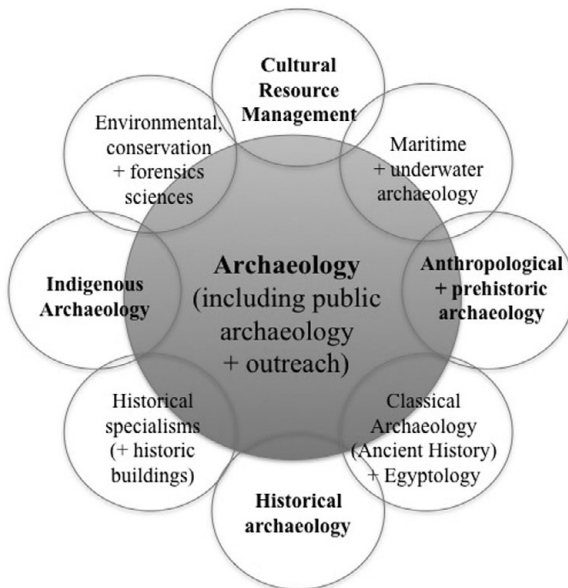

Figure 4. The major thematic groupings in archaeology and related disciplines.

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national lines and are also partly a question of regional environmental specialty – such as African, American, Asian, Australian, Chinese, European, or Indian archaeology.

Anthropological Archaeology

Anthropological archaeology is the study of the physical evidence of the human past before records began – an incredibly long span from millions (in terms of the general evolution of humans) and hundreds of thousands (in terms of the specific development of biologically modern humans) of years ago to, depending on where you look in the world, only thousands of years ago. In this sense, it is sometimes seen as the root of all other archaeological approaches – and it is certainly as influential (and contentious) as this implies. There are also marked differences in theoretical and practical approaches within anthropological archaeology and among the anthropological approaches of different countries. In the United States, where the term originates, this always has been the dominant force in academic archaeology and, indeed, the theoretical worldview of many other professional archaeologists, the focus of the majority of university departments and museums, a driving force of much theory and debate, and so the dominant influence on the majority of students. This is so much so that 'anthropological archaeology' is virtually synonymous with simply 'archaeology' in much of the United States, as well as in other countries with strong ties to the United States. In comparison, in the United Kingdom (and, to a lesser extent, in Australia and elsewhere), the term 'anthropological archaeology' is not commonly used; in these locations, the related disciplines of archaeology and anthropology are more clearly delineated, and the term 'anthropology' is usually used specifically for what, in the United States, is often termed 'cultural/social anthropology' (the study of living cultures through anthropological techniques). However, many of the theoretical and practical approaches of anthropological archaeology are shared with what is commonly known as prehistoric archaeology in the United Kingdom and Australia. Akin to the United States, prehistoric archaeology in these countries is the focus of many university departments and museums. This is also true of many other locations in the world – many nations of Europe and Asia, as well as parts of the Americas and Africa, for example, have an extremely strong focus on the study of prehistory.

The incredibly long time span of anthropological archaeology means that it is a focus of much development of both theory and practice – hence, its driving influence of much of the rest of wider archaeology. In terms of theory, the absence of written evidence, on one hand, and the complex, fragmentary, and ambiguous nature of the limited physical evidence, on the other, drives debate about how people lived and thought thousands or even hundreds of thousands of years ago. This same relative scarcity of evidence also drives much conflict about different theoretical approaches to the past.

In terms of practice, anthropological archaeology works closely with many related subjects and disciplines. These including geology, biology, physics, and chemistry in the study of ancient remains. A particular thematic focus in relation to biology is the study of biological or physical anthropology, for example, the

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study of human evolution and genetic/physical variations. A similar focus in relation to physics is then the study of the accurate dating of the past through different 'absolute' techniques of radiometric dating (based on the constant rate of decay of radioactive isotopes). Anthropological archaeologists also work with social science and humanities subjects, such as linguistics, in the study of ancient languages, and with art history in the study of ancient arts.

The diverse range of skills associated with anthropological archaeology, combined with its dominance of the university sector, means that anthropological archaeologists are employed in all the different career sectors of archaeology described in the following chapters. The dominance of this approach in the university sector also means that many different pre-university backgrounds are considered suitable for study in this field: newly arrived undergraduate students will come from a diverse array of backgrounds – some from the liberal arts and humanities, others from the sciences. Students of the latter in particular find anthropological archaeology, with its focus on applied science, especially appealing.

Historical Archaeology

If anthropological archaeology is the study of the physical evidence of the human past before records began, then historical archaeology is its natural partner – the study of cultures with some form of self-created documentary record. This makes historical archaeology hard to define (the date of first appearance of such documents varies enormously around the world) and also politically problematic: for example, what is the exact definition of 'writing' – the most commonly accepted form of documentary record – and how does this relate to other types of documentary evidence, such as art or even oral history? By seeking to define itself, historical archaeology runs the risk of making pejorative assumptions about different cultures and civilizations, of being biased towards documentary cultures and assuming that any culture without a written record is somehow lesser than others that possess such records. Historical archaeology also runs the risk of being biased towards Eurocentric approaches to the past in terms of documentary chronology – not a perception of the past in relation to the present shared by all civilizations and cultures. These are certainly the accusations that many Indigenous communities in the United States and Australia make against historical archaeology, and with good reason: the study of their civilizations by non-Indigenous, colonial archaeologists making such biased assumptions was a major contributor to the destruction of these same cultures in the past, as the 'findings' of archaeologists about these communities' lack of what, at the time, was accepted as documentary evidence – and so these communities' implicit primitiveness – was used to justify their destruction. Only more recently has the astounding evidence of oral, art historical, and other records of these cultures and their ways of perceiving the relationship of the past and the present begun to be appreciated. Modern historical archaeology works hard not to be biased in these ways, but the scars of past harm and the distrust this produces remain strong in many places around the world. Historical archaeology remains a complicated theoretical approach, combining theories and approaches of

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both anthropological and classical archaeology (and arguably a part of broader historical archaeology) alongside some of its own special skills.

'Modern' historical archaeology emerged in the United States in the late nineteenth and early twentieth century, through the study of the physical evidence of European colonization of the Americas (meaning within the post-1492 European impact across South, Central, and North America). At first, historical archaeology focused more on the earlier periods of historical archaeology – of the evidence of fifteenth-, sixteenth-, and seventeenth-century colonization and settlement. More recently, historical archaeology has expanded to encompass the study of the remains from the eighteenth, nineteenth, and even twentieth and twenty-first centuries, including sites of 'living memory' such as remains and documents of World War II and Cold War structures (even space debris), as well as twenty-first-century sites such as Ground Zero in New York. Historical archaeology is also strong in other former locations of European colonization, in particular, Australia, with the study of pre- and, in particular, post-1788 European arrival on the continent, as well as in some nations of Africa – in particular, South Africa, with its long history of Portuguese, Dutch, and later British colonization. Historical archaeology is also now a major focus of British archaeology (and, to a much lesser extent, elsewhere in Europe), with the study of the physical remains of the industrialization of that country and even its post-industrial world of the twentieth and twenty-first centuries on and even off-Earth. A growing field of study, for example, is that associated to the 'space race', including objects on, in orbit around, and off-Earth (see Gorman 2019). Contemporary historical archaeology has also become increasingly politicized of late. The connection of archaeological evidence to the study of, and responses to, climate change fall into this subject field, as do the studies of contested heritage mentioned in the Introduction. Such work blurs the traditional lines between archaeology and anthropology, between archaeology and history, and ultimately between the past, present, and future in its consideration of the archaeology of contemporary societies.

Central to historical archaeology is an inclusive approach to evidence. Although led by archaeology – by the study of physical remains – historical archaeology also uses documents of all kinds (e.g., texts and photos), oral and art histories, and anthropological sources – everything produced in some format by past societies. The physically rich remains of these more recent pasts make for incredible, in-depth understanding of wider civilizations as well as smaller communities and even groups or individuals of a type rare in prehistoric archaeology. Historical archaeology also uses many of the techniques – in particular, types of radiometric dating techniques – first developed by anthropological archaeology. And historical archaeology includes a number of subdisciplines and relationships with other disciplines: of the former, some historical archaeologists are specialists in particular types of surviving physical evidence such as historic buildings or ships; of the latter, there is a particularly close working relationship between historical archaeologists and many historians and art historians.

Once seen as very much the 'poor cousin' of anthropological archaeology, historical archaeology is now a significant focus of university departments and

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museums, a driving force of much theory and debate, and thus a significant influence on many students. The sheer mass of historical archaeology that surrounds us in many countries – from historic buildings to parks, gardens, and landscapes, to shipwrecks and even historic aircraft – also means that this approach to archaeology has growing political influence, as well as a growing part of the archaeological job market, with historical archaeologists employed in all the different career sectors of archaeology described in the following chapters. In some cases, anthropological archaeologists and historical archaeologists work together in the same university departments and other organizations (particularly true in the United Kingdom); in other cases, these groups work separately – for instance, in the United States, many historical archaeologists work not in anthropology departments but in combined historical archaeology and history departments.

Prospective students of historical archaeology, just as prospective anthropological archaeologists, tend to come from a diverse array of backgrounds. However, there can be no doubt that this approach attracts particularly those with an existing interest in history and art history – more students from a liberal arts background than the more science-oriented approaches of anthropological archaeology.

Classical Archaeology, Ancient History, and Egyptology

As mentioned above, classical archaeology and Egyptology – the study of the physical remains of the civilizations of ancient Egypt, Greece, and Rome – are the origin of 'professional' archaeology: this is where people were first paid a living to work as archaeologists. Since that heyday, and in particular in the last generation or so, the disciplines of classical archaeology and Egyptology have seen something of a decline of influence – falling student numbers, closing university departments, and a drop of interest in key related skills, such as ancient languages. Alongside this, however, has been a somewhat confusing trend towards greater popular interest in these subjects in terms of TV shows – turn on the Discovery Channel almost anywhere in the world and at any time of day and the likelihood is that you will find a show titled something such as 'Secrets of the Mummy'.

Classical archaeology remains a major force in global archaeology, in particular, within museum archaeology, where collections of classical-era materials remain a key component of many major international museums, such as the British Museum in London and the Louvre in Paris. The same is also true of Egyptology, discussed here with its sister discipline, classical archaeology, for reasons of clarity and brevity, but in truth a distinct subject of its own. There are, however, relatively few jobs in these fields in comparison with anthropological and historical archaeology. Although it may seem unfair, the truth is that even though graduating university students with a degree in classical archaeology or Egyptology are just as well trained as their classmates in these other specialties, they face a genuine problem of employability within the archaeological community, at least – CRM archaeology firms and local and national government offices of the types discussed in the following chapters generally prefer what they see as the more directly transferable skills of anthropological and historical archaeology. The irony is that, as noted earlier, many of the

approaches and skills of historical archaeology are also those of classical archaeology and Egyptology, with an inclusive approach to all kinds of physical evidence. In addition to this, students of classical archaeology and Egyptology also have additional language skills in one or more ancient and modern languages. Altogether, the package of skills presented by a classical archaeologist or Egyptologist should be extremely attractive to any prospective employer, archaeological or otherwise. But the fact remains that this is a – albeit gently – declining subject, for reasons no one quite understands. Either a cause or a consequence of this is that it also tends to be much more self-selecting than either anthropological or historical archaeology: those who choose to enter this field tend to have an existing interest in it, fed by specialist skills such as the language competency highlighted earlier.

Indigenous Archaeology

Nicholas (2008: 1660) defines Indigenous archaeology as 'an expression of archaeological theory and practice in which the discipline intersects with Indigenous values, knowledge, practices, ethics, and sensibilities'. In this sense, it arguably encompasses both non-Indigenous archaeologists who work with Indigenous communities and Indigenous archaeologists themselves, although this itself is an emotive issue: some archaeologists and Indigenous peoples alike might disagree with this definition. Indigenous archaeology emerged out of the broader civil rights movement among the Indigenous peoples of the world that is still actively being fought to this day. The longest histories of Indigenous archaeology are in the United States and Australia, although in various forms its fight continues in many nations of the world, and not just in commonly expected places such as former European colonies or in environmentally threatened locations such as the Arctic. For instance, some members of European groups such as Gypsy-Roma-Traveller communities certainly define themselves as Indigenous (and their distinctive cultures are under threat in similar ways); to a different extent, there is also a move towards 'Indigenous archaeologies' of more modern communities such as the modern 'traveller' groups of the 1960s onwards (distinct from the Gypsy-Roma-Travellers).

In terms of professional pathways in archaeology, it is the Indigenous archaeology, and Indigenous archaeologists, of the United States and Australia that are the focus of this book. This is not meant to be exclusive – it is simply recognition of the distinctive history of Indigenous archaeology among these communities, including a long history of political activism as well as academic study and self-definition (see, e.g., Nicholas 2010; Watkins 2000). Even though advances have been made, Indigenous archaeology is likely to – and needs to – advance still further. There are relatively few Indigenous archaeologists at work around the world, and few dedicated university departments, museums, or government offices. The laws to protect such communities and their cultural heritage around the world also remain relatively weak (especially in comparison with other types of cultural and natural heritage protection). Thus, there is still something of a self-denying process at work here: few Indigenous people become archaeologists, not because they are not interested in archaeology but because the opportunities for study and employment

are too few. Meanwhile, in general, Indigenous people also remain underrepresented among university students because of glaring disparities in wealth and pre-university education, and thus access to university. The solution to this imbalance is, simply, additional investment by the public and private sectors alike – in schools, in university courses, and in jobs in and open to Indigenous archaeologists, an investment that, with luck, will make the twenty-first century the century of Indigenous archaeologies. In the meantime, the few Indigenous archaeologists who do work in this field often have a background in broader anthropological or historical archaeology. To this they bring unique additional skills of use to all archaeologists at work everywhere in the world regarding Nicholas' aforementioned 'values, knowledge, practices, ethics, and sensibilities'. All archaeologists at all levels should thus be aware of at least the basics of Indigenous archaeology – take courses in, read books about, and ideally work alongside Indigenous archaeologists. This includes, crucially, learning – and committing to – the terms of engagement which Indigenous communities rightfully expect from those outside their communities who wish to work with them. Working with such communities is a privilege, not a right. It comes with obligations on the part of outsiders, and ought to be approached with sincerity and humility. Specific advice on such approaches is provided elsewhere in this book.

Cultural Resource Management

Given the preceding discussion of anthropological, historical, classical, and Indigenous archaeologies, this subsection on CRM might seem superfluous. As outlined earlier, all the aforementioned approaches to archaeology provide a broad-based university training that is sufficient for most professional archaeologists – including those employed in the field of CRM itself. Nonetheless, this is a major – arguably, now *the* major – field of employment in archaeology, and as such there are a growing number of archaeology departments that offer specialized training in CRM skills, both theory and practice, as well as a growing number of dedicated CRM departments and other organizations in their own right. There is also, most crucially, a clear theoretical, philosophical basis for this approach to archaeology – allied to, but distinctive within, the broader archaeological mindset and certainly as self-aware (the academic term is *reflexive*) as these anthropological, historical, classical, and Indigenous archaeologies.

The origins of CRM were discussed earlier; what is increasingly in question is the place of CRM within archaeology – not whether CRM should or should not occur, but, rather, whether CRM is a part of archaeology, something with its own intellectual focus, traditions, and concerns (see, e.g., the writings of Smith 2001, 2006). This book is not the place to discuss this complex topic. It is an issue worth bearing in mind, however, not least in terms of professional pathways in archaeology, because of its impact on the training of archaeologists. Most archaeologists around the world gain a mixed array of training that covers, to a greater or lesser extent, anthropological, historical, classical, and Indigenous archaeologies. Included within these is usually some training in, or at least awareness of, CRM, without

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CRM being the primary focus of study. The question is whether, as some in the industry attest, the balance should be switched: that professional archaeologists, at least those intending to work in certain sectors of archaeology, should rather take training primarily focused on practical and theoretical applications of CRM as understood through anthropological, historical, classical, and Indigenous archaeologies. This is a subtle but key distinction, and the argument is made based on employability – that too many university students graduate with a degree in archaeology but limited practical application suitable for a career in the world of CRM. The argument is that such students would be better off studying these other specialized approaches to archaeology within the more defined practical sphere of their application in real-world CRM circumstances, and included within this a theoretical/philosophical understanding of the uses of heritage in the past, present, and future worlds – a philosophical stance for CRM as clear-cut as that of the longer-established specialties of archaeology. Within this are major questions of not only the relationship of archaeology to related disciplines, such as history and anthropology, but, more broadly, the relationship of archaeology to the study and management of the natural environment, and thus how, in an increasingly uncertain and unstable world, we manage the environment in a sustainable and, above all, holistic (all-encompassing) manner. This is one of the major battlegrounds of the twenty-first-century archaeological community.

Maritime and Underwater Archaeology

Of all the different specialties of archaeology, maritime and underwater archaeology is one that is as well established in the public imagination as it is misunderstood by amateurs and professionals alike. For this reason, to clear up these misunderstandings, it is worth discussing here as a separate section, although in reality it is a part of the anthropological, historical, classical, and Indigenous approaches to archaeology explored earlier, with archaeologists from across these specialties using the tools and techniques described later.

Defining what this specialty is, the best description is one of the earliest (Bass 1966: 15):

> Archaeology under water, of course, should be called simply *archaeology* [original emphasis]. We do not speak of those working on the top of Nimrud Dagh in Turkey as mountain archaeologists, nor those at Tikal in Guatemala as jungle archaeologists. They are all people who are trying to answer questions regarding [hu]man's past, and they are adaptable in being able to excavate and interpret ancient buildings, tombs, and even entire cities with the artefacts they contain.... The basic aim of all these cases is the same. It is all archaeology.

This quote comes from George Bass, author of what is arguably the first and still one of the best books on the subject, *Archaeology under Water* (1966). Bass goes on to explain that 'the problems presented . . . should be considered only as an extension of those already met and solved for dry land archaeology' (Bass 1966: 20).
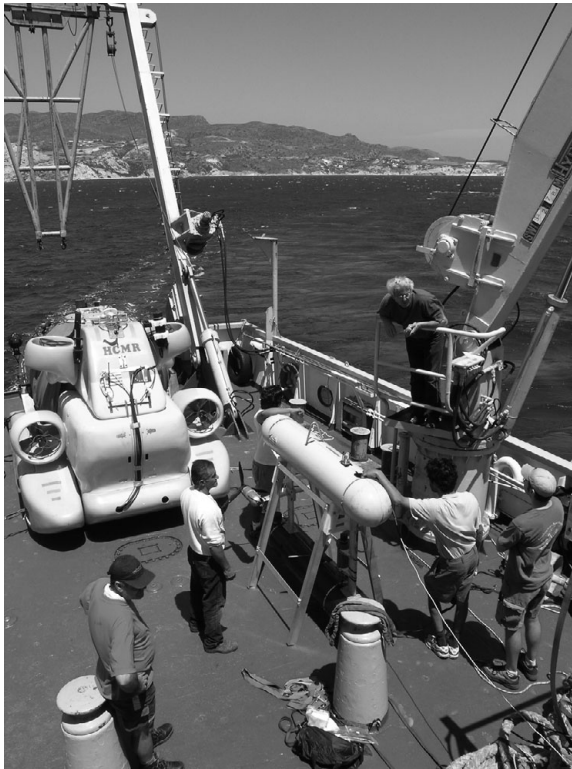
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Figure 5. The Greek national research vessel *Aegaeo* (operated by the Hellenic Centre for Marine Research) demonstrates the high-tech realities of modern-day maritime archaeology. Shown here are the human-occupied vehicle *Thetis* and the autonomous underwater vehicle *Seabed*. At the time, the *Aegaeo* was working off the coast of Milos in the Aegean, undertaking archaeological fieldwork (copyright Brendan Foley 2010).

Archaeology under water, therefore, is the subspecialty related to the technical practicalities of working in the marine zone – making sure one has the right planning, training, equipment, logistics, and backup to work safely and effectively in the marine environment (from the waterfront to the depths of the ocean), doing good archaeology with the right people, and bringing those people safely home at the end of the day (see Figure 5). Related to this, however, is the specialty of maritime archaeology. This is not a practical or technical concern, but rather a theoretical concern: the rationale for excavating different types of sites relating to the marine zone, including sites on dry land that ostensibly have nothing to do with the sea. Another of the key names in this specialty, Keith Muckelroy (1978: 4), defined it thus: 'Maritime archaeology . . . can be defined as the scientific study of the material remains of [hu]mans and [their] activities on the sea.'

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Maritime archaeologists and underwater archaeologists often work together, and often have the same skills, but need not – these two specialties are not indivisible. It is possible to do maritime archaeology on dry land (an example is Scandinavian Viking Age boat graves); it is equally possibly to do non-maritime archaeology under water (an example is the now-submerged remains of prehistoric settlements that were formerly on dry land but that became submerged owing to long-term sea level rise after the end of the last Ice Age). These definitions also help make clear what is *not* underwater or maritime archaeology: treasure hunting or looting. If any project – in any environment – involves as a primary objective the recovery of objects for sale or irretrievable dispersal, then, as discussed below in the section on ethics, this is not archaeology. Archaeology is a scientific discipline that undertakes systematic research into the human past for the common good of humanity. Randomly diving into the ocean to find things to sell does not meet these broad disciplinary aims.

In terms of professional pathways towards becoming a maritime or underwater archaeologist, therefore, it should be clear that prospective specialists in these fields need exactly the same skills as every other archaeologist – good schooling in a broad array of subjects allowing them to move on to at least a first, if not multiple, university degree in archaeology, anthropology, and related disciplines. Most undergraduate archaeology/anthropology degrees now include classes, in some cases optional courses, in underwater and/or maritime archaeology; there are also specialist MA/MSc programs around the world, and many active underwater/ maritime archaeologists also have PhDs in related topics.

The only things that can, in truth, be seen to distinguish underwater and maritime archaeologists from all other archaeologists are the following:

- *Conservation training*: Archaeological materials recovered from marine zone sites are often very fragile; certain types of 'wet' sites (on land as much as underwater) also contain substances such as the remains of organic materials not commonly found on archaeological sites. The excavation, recovery, stabilization, and conservation of such materials is complex, can be expensive, and requires highly specialized training (see Robinson 1998).
- *Diving training*: Those wishing to become underwater archaeologists need to learn how to dive. Initially, and for many practitioners (such as most academics), this can be the same training as for sports divers. There are numerous well-known international organizations that provide the qualifications to dive in most corners of the world – perhaps the best known of these is the Professional Association of Diving Instructors (PADI). However, for those wishing to work as CRM archaeologists in the marine zone, much more complex commercial dive training is necessary, required under various national laws, and the same as that for any other marine zone professional, from an offshore oil industry diver to a marine conservation officer. Such training can take weeks or months, is expensive (costing thousands), and includes learning how to use surface supply rather than SCUBA diving equipment. In the United Kingdom, such training

must be certified by the Health and Safety Executive, in the United States by the Occupational Safety and Health Administration, and in Australia by the National Offshore Petroleum Safety Authority.

- *Excavation training*: Archaeology under water involves the use of specialized equipment that necessitates training. This is distinct from diver training. Such archaeologists use tools such as water or air dredges to help remove silt and sand from around archaeological sites; they also learn how to handle tools such as tape measures, drawing boards, and pencils in the weightless marine environment. Many of the skills that we take for granted on a land excavation, such as simply drawing a sketch of a site or taking some notes and measurements, must be relearned for the underwater environment (see Bowens 2009).
- *Legal training*: Various distinctive laws govern the marine zone around the world. Some of these are generic and international – the most notable example is the United Nations Convention on the Law of the Sea (1982) that agrees to what the national marine boundary limits are and the rights of free passage through these areas. Other laws are national but generic – different laws on marine zone safety, environmental protection, and industrial regulation. Finally, many countries also have laws specific to marine zone heritage. In the United Kingdom, for example, there is the Protection of Wrecks Act (1973); in the United States, the Abandoned Shipwrecks Act (1988); in Australia, the (Commonwealth) Historic Shipwrecks Act (1976). In addition, many separate federal states/territories of the United States and Australia have their own similar laws. There are also distinctive government organizations involved in the management and monitoring of the marine zone, including its heritage – for example, in the United Kingdom, the Maritime and Coastguard Agency and the Marine Management Organization; in the United States, the Bureau of Ocean Energy Management, Regulation and Enforcement and the National Oceanographic and Atmospheric Administration; and in Australia, the Australian Maritime Safety Authority. There are also voluntary international agreements on maritime heritage – most notably, the UN Convention on the Protection of the Underwater Cultural Heritage (2001) (see Dromgoole 1999, 2013).
- *Marine zone safety training*: Working in the marine zone – anything from the edge of a river or lake, by way of the foreshore, right out to the middle of the ocean – requires an awareness of particular risks, and thus particular safety precautions, that need to be taken into consideration. At the most basic level, this might mean making sure that mobile phones work at the destination and that they are kept in a waterproof pouch alongside the phone number of the Coast Guard; at the upper end, this involves all the logistics of taking a suitably sized and equipped vessel into the deep ocean.
- *Survey training*: Marine geophysics – the science and technology of marine zone remote sensing and survey – is a distinctive, multibillion-dollar, high-tech industry. Underwater and maritime archaeologists do not necessarily need to be specialists in this field, but they do need to have a sound working knowledge

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of the basic technologies and techniques that can be used to identify and survey archaeological sites in the marine zone.

- *Technical training*: One of the major focuses of maritime archaeology is the study of ancient watercraft. Humans have been building different types of rafts, boats, and ships for thousands of years: the oldest remains of such vessels date back only a few thousand years to around 6000 BCE, but there is circumstantial evidence for prehistoric sea crossings in locations such as Australasia as long ago as 60,000–100,000 years ago. Archaeologists who choose to study the remains of ancient vessels need extensive training in the technical minutiae of such craft – the tools and techniques needed to construct such vessels, the names of different components, and so on (see McGrail 2001).
- *Vessel-handling training*: Some underwater and maritime archaeologists also have vessel-handling training. As with diving training, this is the same type of training as for other marine zone users and falls into amateur and commercial sectors. The amateur sector includes various yacht and powerboat handling/ratings and training, as managed by organizations such as the Royal Yachting Association in the United Kingdom, the US Sailing Association, or the Australian Sail Training Association. The professional sector includes a comprehensive array of larger vessel handling skills overseen by organizations such as the UK Merchant Navy Training Board, the US Merchant Marine Academy, and the Australian Maritime College.

In terms of who works as an underwater or maritime archaeologist, all the chapter-based job sectors that follow in this book employ individuals with these specialist skills. Because these specialties are all part of broader archaeology (and because a great deal of the globe is covered by or adjacent to water in some manner), it would be odd for such jobs not to be. CRM archaeologists specializing in the marine zone work all over the world in relation to marine zone industries such as the oil, gas, and minerals industries, as well as for shipping and dredging companies, and increasingly for energy companies, working in relation to offshore wind farms and tidal energy barrages (this is a distinctive growth area of marine zone CRM archaeology); academic underwater/maritime archaeologists research and teach these subjects; government underwater/maritime archaeologists advise developers and related sectors on maritime archaeology public policy and law and monitor the activities of other archaeologists; and public underwater/maritime archaeologists explain this subject to the wider community as well as involve people in fieldwork. Because of the latter group, there are active avocational underwater/maritime archaeology groups around the world that anyone interested in these specialties can join. To name but three examples, in the United Kingdom there is the Nautical Archaeology Society, in Australia the Australasian Institute of Maritime Archaeology, and in the United States, a host of regional societies, including the Advisory Council on Underwater Archaeology. Most other nations of the world have their own groups as well.

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Focus on: Carlos Ausejo (Peru)

I am Carlos Ausejo, and I am a maritime archaeologist, heritage specialist, and history professor who lives and works in Peru. Currently, I work at the Peruvian Centre for Maritime and Underwater Archaeology (CPAMS) as a board member and researcher. I also provide private consultancy on heritage and culture issues to companies interested in the protection and promotion of cultural heritage, and I work teaching history to the public.

I spent my childhood living very close to an archaeological complex. I always wondered what it was and what was done in that place, where it was forbidden as a child to explore. That did not stop my curiosity, and with my friends we would sneak in and walk around it. Those memories marked me deeply and guided my interest in archaeology. When I enrolled at university, I also developed my interest in photography, and I studied this subject professionally. When I finished my undergraduate degree, I devoted myself in parallel to photography and archaeology, which combined perfectly. Later on, my interest in maritime and underwater subjects awakened, and thus, I trained as a diver and followed some courses available in Latin America. Finally, I studied for my MA in maritime archaeology at UCL in London.

When I finished university for the first time after my BA in 1997, the possibilities of finding permanent work in archaeology in Peru were limited, so I participated in research projects while also working in photography. My experience led me to work for a large government archaeological project photographing Inca trails and sites. This is how my interest in cultural heritage management began. After returning to university for my MA, I continued developing my own private heritage company, teaching at the university, and together with some colleagues I formed an institution dedicated to maritime and underwater archaeology. Throughout my professional life I had three 'tours' in the now Ministry of Culture, the last being as General Director of Archaeological Heritage. My experience in the arts, academia, and abroad led me to understand that everything is connected, and the importance of making history in its broadest sense available to the public.

Currently, I am dedicated to CPAMS, to the private teaching of history, and to current affairs. I spend half of my time reading, researching, and reviewing the news, so that I can prepare the contents of my classes and my own research. The remaining half of my time I dedicate to teaching archaeology classes, to meeting different people, and to resolving people's queries in relation to heritage. What I enjoy most is talking to people of different background and age. This allows me to enrich my ideas, to be able to see other points of view, and to realize that you can always continue learning.

My top tip for pursuing a career in archaeology is that it is important to keep an open mind and to think outside the box; in that sense an archaeologist must be able to develop a great diversity of skills, for example, both to know how to lead groups of people and to have administrative skills. You must be able to

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communicate both to specialists and to the public, and in that line, to have a great capacity for empathy. Finally, you must be aware that heritage is not yours; it belongs to everyone, to all people, in very different ways.

Currently, together with my partner, we have an idea to develop a large repository of traditional oral stories from Peru so they can be heard by children and adults. The stories will be narrated in their original language (Quechua, Aymara, Spanish, and Amazonian languages) and will also be translated into other languages of our country. In this way the stories will be able to last, and everyone will have the possibility to hear them in their own language. We don't yet have a website or social media pages, but you can write to us at cause-jo@yahoo.com if you want to know more about the project.

Archaeology as a Career: The Contemporary Archaeology Job Market

Ask the average person in the street whom they think employs most of the archaeologists at work today and the answer is likely to be universities and museums. Follow up that question with the query, 'And do you think that industry is a major employer of archaeologists?' and the answer is likely to be, 'I don't imagine that many archaeologists are employed by industry.' In reality, almost the exact opposite is true, with, broadly, from most to least numbers of archaeologists employed, the running order being industry (by which I mean CRM archaeology – undertaking work in advance of new developments such as roads, houses, or pipelines), academia, local government, central government, professional and charitable (including educational and lobbying) organizations, and finally museums.

The most recent survey of archaeological employment in the UK was conducted in 2018 and 2019 on behalf of the Chartered Institute for Archaeologists (CIFA), the Federation of Archaeological Managers and Employers (FAME), and Historic England (Aitchison 2019; Aitchison and Rocks-Macqueen 2020). At the time of writing, there is no more recent data, but the assumption must be that the global economic crisis precipitated by the Covid-19 outbreak of early 2020 onwards has, and will continue, to impact severely upon the sector for many years. While unquestionably now out of date, the 2018 data still provides a useful snapshot of the sector at that time, and it can also be usefully contrasted with the data presented in the first edition of this book from a decade earlier (2008), to show changes to the sector over time. This is shown in Table 1.

Care must be taken in any comparison of this data. The survey types and sizes vary significantly between 2008 and 2018, so an absolute correlation of the two datasets is not possible. But anecdotally, this overall balance of employment types and of changes between 2008 and 2018 would seem accurate. This was a period of significant economic volatility following the global economic crash of 2007–8 onwards (see Schlanger and Aitchison 2010), with a sustained drop in the total numbers of archaeologists employed. CRM archaeology grew and diversified in this period while local government significantly cut back, and academia evolved its

TABLE 1. Primary archaeological employment sectors in the United Kingdom, 2008 and 2018

	CRM + Freelance	Local government	Academia	Public, charity + other	Central government
2008	46%	31%	10%	8%	5%
2018	52%	16%	4%	18%	10%
% change 2008–18	up 6%	down 15%	down 6%	up 10%	up 5%

Sources: Aitchison 2019; Aitchison and Richards 2008.

free-market operating model, reducing its number of permanent staff but increasing the number of individuals on temporary or part-time contracts. These patterns are all broadly reflected in this data comparison. Of these different sectors, in the past decade industry continually employed the majority of archaeologists, and it also controlled the largest amount of money spent on archaeology, both directly – in terms of payment for archaeological services – and indirectly, in terms of government grants and awards. Fine-grained data on the funding for archaeology in any country are hard to find, but as a survey for England only in 2018 demonstrated, £7.1 billion in gross value added (GVA) was generated by heritage-related construction activities in England in 2018, with 6,000 people directly employed as archaeologists on such sites, together with an additional 24,000 architects, building and civil engineers, and chartered surveyors and a further 100,000 construction workers involved in heritage-related activities (see Historic England 2019). Another survey undertaken on behalf of the Association of Local Government Archaeological Officers (ALGAO) (see Rocks-Macqueen and Lewis 2019) revealed similar data: in 2018 commercial archaeology made a £218 million direct contribution to the economy, with 74 per cent (over 5,000 individuals) of all archaeologists in the United Kingdom at that time employed on sites connected to commercial archaeology. Broadly similar data are recorded from the Republic of Ireland, where CRM archaeology accounted for 89 per cent of jobs in 2007 (McDermott and La Piscopia 2008) and 63 per cent of jobs in 2012–14, the last such survey point (Cleary and McCullagh 2014: 42).[1] A similar pattern of such dominance is also visible in Australia, where CRM archaeology accounted for 49 per cent of jobs in 2004–5 (Ulm et al. 2005), for 52 per cent of jobs in 2012 (Ulm et al. 2013), and, most recently, for 55 per cent of jobs in 2015 (Mate and Ulm 2016). And this pattern continues in the United States, with 50 per cent of all archaeological jobs in CRM in 2004 (ARI 2005). It is worth noting, however, that this evidence from the United States is the oldest data compared in this book's

[1] Those seeking detailed comparisons of European archaeology will be interested in the project funded by the European Commission between 2012 and 2014 'Discovering the Archaeologists of Europe', although sadly, there are no such data for the period after 2014 (see York Archaeological Trust 2014).

second edition, since in comparison to the other nations here, there have not been comparable surveys of US archaeology in the mid-2010s. Anecdotally, all informal feedback the author receives indicates that the true figure of the CRM community in the United States is now likely to be much higher, accounting for around 60 per cent of all archaeological jobs, in line with other nations.

Exact figures on any aspect of archaeological employment are few and far between; both the best and virtually the only reliable data come from the surveys periodically sponsored by different professional organizations, such as the Chartered Institute for Archaeologists in the United Kingdom; the American Cultural Resources Association, Register of Professional Archaeologists, Society for American Archaeology, and Society for Historical Archaeology in the United States; and the Australian Archaeological Association and Australian Association of Consulting Archaeologists in Australia. These published surveys are for very specific locations, and no such comparable surveys have ever been undertaken for many nations of the world where thousands, if not tens of thousands, of archaeologists are at work. The closest that anyone has come to such a global analysis has been the work of the World Archaeological Congress, as reported in a special issue of *Archaeologies: Journal of the World Archaeological Congress* (vol. 10, no. 3) (see Aitchison 2014). A fascinating and unusual recent study is the book *Why Those Who Shovel Are Silent: A History of Local Archaeological Knowledge and Labor* (Mickel, 2021), which is based on six years of in-depth ethnographic work with current and former site workers at two major Middle Eastern archaeological sites – Petra in Jordan and Çatalhöyük in Turkey. And any survey of archaeologists at work in individual nations such as India or China, or at work in specific continents such as Africa or South America, would undoubtedly reveal many different patterns. Budding archaeologists in such locations should not be put off or misled by these very partial figures for specific places. The most recent, easily available of these sources are the following:

- Australia: *Another Snapshot for the Album: a Decade of Australian Archaeology in Profile Survey Data* (Mate and Ulm 2016). See also Smith and du Cros (1991) for wider contextual evidence.
- United Kingdom: *Discovering the Archaeologists of the United Kingdom 2012–2014* (Aitchison and Rocks-Macqueen 2014). See also Aitchison (2012, 2019), Aitchison and Rocks-Macqueen (2020), Cobb and Croucher (2020), and Everill (2012) for wider contextual evidence.
- Republic of Ireland: *Discovering the Archaeologists of Ireland 2012–2014* (Cleary and McCullagh 2014)
- United States: the Society for American Archaeology and Society for Historical Archaeology Salary Survey (ARI 2005) and the Register of Professional Archaeologists Needs Assessment (ARI 2006). See also Rocks-Macqueen (2014a) and Zeder (2000) for wider contextual evidence.

Drawing the data from these surveys together, it becomes clear that the following broad picture of the archaeological community (with a bias towards the CRM community in the data) may be drawn from these surveys but *not* about the world as a whole (see Table 2):

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TABLE 2. Comparison of the 2015 Australian, 2013 British, 2013 Irish, and 2004 US surveys of archaeologists

	Australia	United Kingdom	Republic of Ireland	United States
Survey period	2015	2013	2013	2004
Surveys size	355	234	362	2143
% of responses	48%	31%	50%	52%
Top two age groups	26–35, 14% 36–45, 17% (67% below 45)	30–39, 16% 40–49, 14.5% (average 42 years)	30–39, 49% 40–49, 26% (83% below 49)	below 40, 25% 40–49, 26% (average 47 years)
Top sector	55% CRM	59% CRM	63% CRM	50% CRM
Gender split	51% F 49% M	46% F 54% M	49% F 51% M	40% F 60% M
Average salary	A$96,171 (UK£53,444)	UK£27,814	€36,450 (UK£32,644)	No comparable data
Core qualification	97% BA/BSc	94% BA/BSc	98% BA/BSc	99.6% BA/MSc

Sources: Australia: Mate and Ulm (2016); Britain: Aitchison and Rocks-Macqueen (2014); Ireland: Cleary and McCullagh (2014); United States: ARI (2005).

Age: Most working archaeologists are aged between twenty-five and fifty years old (although there are much younger and much older archaeologists hard at work out there). The average age of survey respondents is the early to mid-forties, which says more about the profiles of those willing and able to respond to surveys than it does about the sector itself – from personal experience, particularly in CRM archaeology, the author meets far more twenty and thirty-year-olds, with older age profiles more common in academia and government. Closer examination of such data also reveals marked patterns that reflect wider demographics. Younger age groups are generally in more junior, more physically active roles in archaeology, and more often identify as women. As the age demographic ages, so does seniority of role, and alas the gender balance shifts in favour of people who identify as men, although over time this seniority/gender balance has been improving.

Ethnicity: In the surveys analysed, some 99 per cent of archaeologists define themselves as ethnically 'white' (i.e., of European origin), bearing in mind the previous qualifier that these data are gleaned from surveys in a few very specific Eurocentric counties and do not represent the global situation, where many people of widely different ethnic origins practice as professional archaeologists. Nonetheless, to put this in context, for the United Kingdom alone this is significantly at odds with the overall demographic make-up of the nation, the most recent 2011 census data reporting that Asian ethnic groups formed 7.5 per cent of the population, Black ethnic groups 3.3 per cent, mixed/multiple ethnic groups 2.2 per cent, and other ethnic groups 1.0 per cent – a total of 14 per cent 'non-white' groups. The lack of diversity in archaeology has been recognized for decades now in countries such as the UK, and attempts to improve this situation have made only limited success (see Benjamin 2003, 2004; Cobb 2015; Council for British Archaeology 2012). Surveys from Australia and the United States include wider demographics for Indigenous archaeologists from those nations. For example, in Australia in 2015, 2.8 per cent of respondents identified as Indigenous.

Gender: The split is roughly equal, with a gradually increasing number of people who identify as women over time in archaeology that, assuming the trend continues, will lead to more women overall working in the sector than men. However, as noted above, there are biases both between and within sectors of archaeology – CRM archaeology tends to have slightly more men, public archaeology slightly more women, and academia slightly more women (although anecdotal reports suggest that this is imbalanced internally, with more women in younger, junior positions and more men in older, more senior positions). Cobb and Croucher (2020: 95) also highlight considerable differences in gender balance per country: 'in some countries such as Greece, Italy, and Portugal, more than 70 percent of the workforce are women, whilst in others, women make up less than 40 percent of the workforce (e.g. Romania, Poland, Bosnia, and Herzegovina, Slovakia)'. Cobb and Croucher also note that 'where data is available, it is apparent that there is a global lack of

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women in senior, managerial, and professorial posts' (ibid.). There are also issues of gender recognition/identification here: all the surveys included in this comparison provided only a binary female/male choice. At the time of writing in mid-2020, the author is not aware of any comparable surveys that consider broader and/or fluid identities. One of the only published works to consider such issues is Cobb and Croucher (2016). Cobb and Croucher (2020: 96) also note that 'the "Digging Diversity 2017" study included an option to self-identify gender, which revealed that just under 2.5 percent of students and 0.7 percent of professionals in the study identified with a non-binary gender identity'.

Sexual Identity: Cobb and Croucher (2020: 96) note that 'sexuality has rarely been a parameter in labour market profiling. Consequently, little is currently known about this important area of identity within the profession globally'. One study that has examined this is Cobb's *Digging Diversity* work (Cobb 2015; Cobb and Croucher 2016). In the 2011 study, just under one in five respondents (professional and student) did not self-identify as heterosexual. This is considerably more diverse than the national picture in the United Kingdom. At the time of writing the second edition of this book in 2020, the author is not aware of any additional data on sexual identities in archaeology. It is important to flag here the related issue of specifically queer archaeology, a field that has challenged heteronormative approaches in archaeology (see, e.g., Dowson 2000, 2005). As Cobb and Croucher (2020: 108) note, 'Dowson (2000) is clear that a queer archaeology is not simply about researching different sexualities in the past; rather, it is about challenging methods and processes which are inherently heteronormative.' Given the lack of tangible data on sexual identities in global archaeology it is difficult to draw direct links between the demography of the archaeological community and the interpretation of the past, but simply put: there were clearly multiple different sexual identities in the past just as there are in the present. Given this, it is crucial that a multiplicity of such voices and perspectives is represented and indeed celebrated both in our community and through our work. Anything less is unacceptable – not on the grounds of political correctness but on the grounds of accuracy and authenticity.

(Dis)Ability: When I researched the first edition of this book in 2010, issues of dis(ability) were starting to enter the wider archaeological consciousness, and I included discussion of this issue in chapter 2, which I have expanded upon in the second edition. In 2020, thanks to the work of several individuals and organizations, most crucially the Enabled Archaeology Foundation, there is now a much wider and open consideration of how everyone can be involved in archaeology. In terms of the evidence base for (dis)abled archaeologists, this remains modest: Aitchison and Rocks-Macqueen (2014) and Cleary and McCullagh (2014) both reported that just over 2 per cent of surveyed archaeologists in the United Kingdom and the Republic of Ireland identified as having some (dis)ability (without fine-grained data on the different types of this (dis)ability), as compared with approximately 7 per cent of the entire UK

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workforce. For discussion of such issues in archaeology, see Cobb and Croucher (2020: 97–99), O'Mahony (2015, 2018), Phillips and Creighton (2012), and Rocks-Macqueen (2014b).

Pay: Drawing on the data from Australia, Britain, and the Republic of Ireland only, the bottom 10 per cent of archaeologists are paid under UK£17,500 per year, and a significant, worrisome minority even less, earning around £11,000. The average annual wage for archaeologists in these countries lies somewhere between UK£27,814 (UK average) and UK£43,956 (Australian average) (a median salary range of A$80,000–90,000 (UK£43,956–49,474) (Mate and Ulm 2016), with the average wage for archaeologists in the Republic of Ireland sitting between these two poles at UK£33,667 (€37,680; Cleary and McCullagh 2014). This can be usefully compared with the average for all UK full-time workers of UK£32,700 – so, overall, in 2014 the average archaeologist earned 85 per cent of the UK average (Aitchison and Rocks-Macqueen 2014). The highest earnings reported were up to between UK£92,095 and UK£104,490 (€103,000 in Ireland and A$190,000 in Australia). Detail on the highest-paid archaeologists in Britain is not available, but Aitchison and Rocks-Macqueen (2014) report only the highest 10 per cent earning over UK£40,000. Cleary and McCullagh (2014) also add a crucial qualifying note that applies in all these circumstances: 'most of the work-force were earning less than even the average, the average salary being pushed up by a small number of well-paid senior positions'.

Sector employment: CRM archaeology is consistently the largest sector, amounting for more than 50 per cent of all careers, with academia and government following up as the second and third largest sectors (Cleary and McCullagh 2014).

Training and education: The majority of archaeologists, around 98 per cent, have a BA/BSc in archaeology or anthropology, and approximately 30–40 per cent also have an MA/MSc in a related specialty; a growing number – between 1 and 15 per cent of those surveyed – have a PhD.

Overall, a picture can be built of a young, dedicated, well-trained, and talented archaeological community that works very hard but for limited reward, with pay, benefits, and working conditions all lower than usual for university graduates (for virtually all are) of this calibre. However, job satisfaction, quality of life, and all other indicators of general happiness seem high for archaeologists (see Everill 2012). This is the crux of the issue: ask most archaeologists why they first became involved in archaeology and later got jobs within the discipline, and almost all will respond along the lines that they 'love' or are 'fascinated by' archaeology, have been since childhood, and rarely imagined doing anything else – a long-held dream made real. If asked about the pay or conditions, most will readily admit that these are at best a constant worry and at worse a genuine problem, particularly for those with family with whom they share financial responsibilities. The conclusion seems to be that most archaeologists are poor but happy, love but are frustrated by their jobs, and are surrounded by friends and family who are pleased that their loved ones are so committed to their chosen career but sad that this career does not respect or reward them better.

In terms of the prospective archaeologist considering a career in the discipline, the conclusion is then clearer-cut – archaeology is a vocation and, like all vocations, will involve sacrifice. But being a vocation, if you genuinely feel that this is your calling, then there is probably very little that will stop you from pursuing it, so the thing to do is to get the right mix of qualifications and experience possible to maximize your employability. The only people who should hesitate about pursuing a career in archaeology are thus those people already hesitating for a variety of reasons – if the vocational pull is not strong enough, or is not present at all, then no matter how exciting the subject, then ultimately those long hours, that poor pay, and that job insecurity are going to wear you down and you should know when to cut your losses and quit.

Within this, however, should come the qualifier of the un-surveyed minority, those former professional archaeologists who left the discipline to pursue careers elsewhere. There has never, to the author's knowledge, been a formal survey of such former archaeologists (especially as many continue on with archaeology in some informal capacity even after they leave paid archaeological employment), but anecdotal evidence suggests that the poor pay and job security are usually the driving forces in people leaving the profession but that no one had a particularly difficult struggle to find work in a different area after this, moving either directly or after retraining into employment that perhaps offers lower job satisfaction but provides at least much greater security and stability, and often much greater pay as well.

The Archaeological Mindset: The Pleasures of Archaeology

The archaeologists Trent de Boer (2004) and Paul Everill (2012) have provided an excellent and detailed overview of, respectively, UK and US CRM archaeologists (whom de Boer calls 'shovelbums' and Everill 'diggers'). Similarly, Smith and Burke (2007) sum up many of the characteristics of the Australian archaeological community (see also Baxter 2002; Holtorf 2005, 2007a, 2007b; Membury 2002; Russell 2002a, 2002b; Talalay, 2004; Zarmati 1995). De Boer and Everill, in particular, however, are focused on the specifics of the CRM archaeology community – the least known but undoubtedly most distinctive sector of the community rather than the wider whole.

Two things that archaeologists often get asked are, first, 'Why do you do archaeology?' and second, in relation to this, 'What is it like to do archaeology?' Although this entire book is broadly dedicated to answering the latter question, these questions are considered here briefly by making a few observations about the archaeological mindset and so the pleasures of archaeology – those things that keep people coming into the profession and going to work each day.

Dealing with the pleasures of archaeology – for these are the more tangible of the two motivations behind being an archaeologist – one of the most cited pleasures is the combination of mental and physical exercise that archaeology offers. The ability to, sometimes simultaneously, be involved in a deeply cerebral activity that also puts one out in the fresh air undertaking physical exertion is

hugely addictive and is one of the great attractions of archaeological fieldwork. Within this is also the flexibility of working that archaeology often offers: get the right position, and not only does one get that balance of metal and physical exercise, but one also gets to choose where, and most importantly when, to exercise brain, brawn, or both together, which usually translates into picking the places one would most like to visit in the most pleasant seasonal weather those places offer.

Moving on, another commonly cited appeal of archaeology is one that everyone has experienced first-hand at some point: the thrill of discovery. For some people, that thrill comes from collecting clothes, books, or music – stumbling across that rare record or volume in a store somewhere. For others, the thrill comes perhaps from visiting new places, being the first to explore undiscovered or little-known locations, or spotting a rare animal – this is certainly what drives many cavers and divers to probe ever deeper into the depths of the earth and the oceans, or birdwatchers to spend days waiting in a blind. All these and many more examples can be drawn in comparison with archaeology.

Going back to the first point about the appealing mixture of the mental and physical in archaeology in relation to the thrill of discovery moves this discussion into the other, somewhat intangible, question of the archaeological mindset. Here, two sometimes-contradictory motivations are at play. First, as Mortimer Wheeler (1954: 13) famously noted, 'the archaeologist is digging up, not things, but people'. Archaeologists have an inherent interest in people – all people, people now, but particularly people in the past, what they were up to, what they were thinking, and how those materials or physical marks in the landscape that survive reflect behaviour and cognition. Politely, interest such as this can be called curiosity; impolitely, nosiness. This means that the archaeologist is always 'at work' – every person met, and every place visited, has the potential to offer archaeological inspiration. This, in turn, is related to the generally outgoing character of most archaeologists, who like nothing more than to chat over a drink, to ponder at length on human nature. What makes the archaeological mindset so contradictory, however, is the other side of archaeological practice that seems so at odds with this person-driven, outgoing perspective: successful archaeologists combine with the above an equal love of complexity – of puzzle and problem solving, of sifting and sorting data from many different sources in a gigantic, multispectral matrix. A love of detail for detail's sake plays a part in this, especially in fieldwork, in which accuracy of recording and repetition of a prearranged, systematized, routine approach is necessary if an archaeological site is to be recorded accurately and systematically. This focus on detail and repetition at times makes for what borders on obsessive-compulsive behaviour among archaeologists, when rituals of repetition, collection, and characterization can begin to look like a low-level disorder – a sort of occupational anal-retentiveness – that under other circumstances might be treated by medical practitioners. Such disorders, however, are commonly associated with *asocial* behaviour. Thus, the archaeological mindset is a contradiction – at once outgoing and human-oriented, inward-looking and

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object-fixated. There is space within the community for all sorts – from the quiet and introspective to the loud and extroverted.

All the above, then, gives some sense of what it is like to do archaeology. The good days balance the mental and the physical, the social and asocial, the micro and macro perspectives at an interesting site in good weather, where the archaeologist works alongside responsive, enthusiastic colleagues to uncover new information. Under such circumstances, an archaeological project enjoys a unique and seductive rhythm of passing days, weeks, or even months or years, as the three-dimensional jigsaw of the site (or sites) being studied becomes daily more complex and the archaeologists have to daily respond to this – a real-time game infinitely more complex that any ever dreamed up by a computer-game designer, but with the same sense of quest, in some cases narrative, but above all an addictive lure. Into such a world are drawn the archaeologists at work around the world today (see Figure 6).
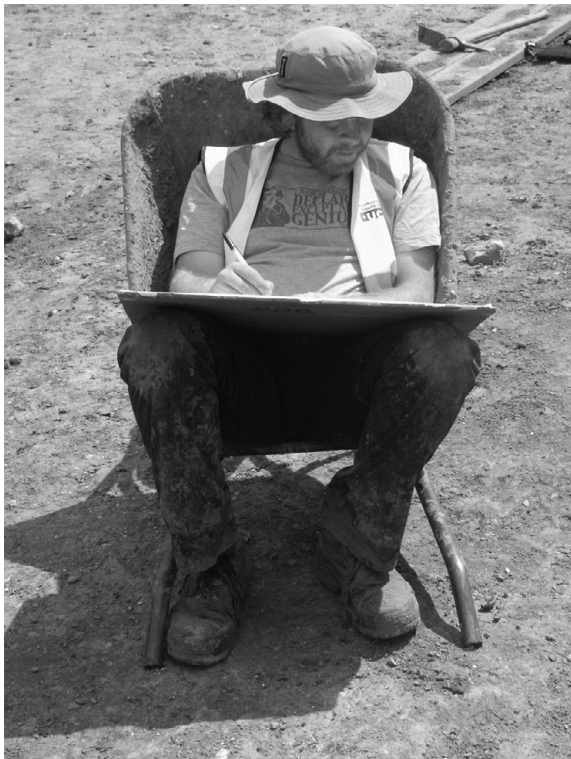

Figure 6. The archaeological mindset: The pleasures of archaeology are clearly visible here, where a CRM archaeologist uses an upended wheelbarrow as an improvised seat while updating site records on a sunny day in southeast England. Note, however, the amount of dried mud on the archaeologist's clothing – it had not been sunny all the time (copyright Archaeology South East UCL 2010, courtesy of Dominic Perring).

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What Isn't Archaeology? Archaeology and Ethics, Professional Standards, and Codes of Conduct

To conclude this chapter, it is worth defining what archaeology is *not*. The sad truth remains that archaeology is one of those fields of study, as well as forms of employment, that is surrounded by a fog of simply wrong- or at least muddle-headed thinking, pseudoscientific half-truths and outright lies, snake-oil merchants and con artists. Much of this is harmless and amusing: archaeologists should be no more worried about the latest TV show or film that misrepresents them than lawyers, doctors, or police officers should be concerned about comparable representations of their respective vocations. But there is a fringe, often a vociferous one, that is more harmful and is, frankly, a real worry.

On the one hand, such fringe activity involves the misrepresentation of archaeological (as well as broader scientific) data in support of a variety of myths and fables, some of these very ancient, such as various creation myths to do with a rich spread of gods, monsters, and aliens alike being responsible for the origins and antiquity of Earth and/or humankind. Material such as this sells amazingly well in the popular press and is irritating to archaeologists, although rarely directly harmful to actual archaeological sites (see Fagan 2006; Lovata 2007). Most people who write such junk thankfully seem to like to do so from the comfort of their homes rather than from the rigor of the field, office, or lab, and rarely if ever are willing to go out and check data to verify their misguided hypotheses.

On the other hand, there is a small but influential fringe involved in actual physical activity on archaeological sites that is by varying degrees damaging, destructive, and, frankly, disastrous. Some of this is state sanctioned (such as the Taliban destruction of the two statues of the Buddha carved into the cliffside at Bamiyan in Afghanistan in 2001) or even government licensed (Florida, for example, is burdened by a relic law of the 1960s that licenses treasure hunting off its coastline, to the immense frustration of its archaeological community), but much is the result of private enterprise driven by the pursuit of short-term financial profit – looting and treasure hunting. At one end of a sliding scale, this can comprise lone individuals or small groups looting on single sites or across small areas (see King 2016b: 120–22). At the opposite end of the scale is well-financed and formalized looting of archaeological sites by commercial organizations. Often working under the guise of what they would term legally legitimate salvage – increasingly and erroneously phrased as 'commercial archaeology' – these organizations feed the international trade in illicit antiquities, and some items eventually pass hands a sufficient number of times for them to become 'clean', entering the legitimate antiques trade in a similar way to money laundered by international crime and terror organizations. Such salvage occurs all over the world, above, across, and below water, and has of late spread into the deepest abysses of the oceans; there is no location or time period that is free from this scourge.

What is interesting is that in their own activities, and especially in their publicity, many such salvage organizations demonstrate that they do, in fact,

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know right from wrong and recognize that what they are doing is harmful and damaging. Numerous treasure-hunting organizations go to great ends to justify their activities by insisting that their work is necessary to protect heritage because such sites are already under threat from either human or natural processes, such as low-level looting, storm damage, and erosion – in other words, they argue that 'it is better that we pull this stuff out of the earth and sell it, since if we do not it is going to get destroyed anyway'. Such organizations also frequently attempt to give at least a veneer of archaeological respectability to their work, either employing archaeologists (or, at least, people with a range of real, as well as spurious, archaeological qualifications) or working with what, in passing, appear to be archaeological techniques, such as using site grids or recording finds in situ prior to recovery. When attacked by real archaeologists in the media or in other outlets such as government inquiries, such groups are also prone to vociferously claim persecution from an elite intellectual cabal bent on controlling sites in the protection of their own self-interests, a claim that collapses in the face of the overwhelming evidence discussed elsewhere in this book that most archaeologists are woefully under-paid and insecure in their jobs (if there was an international archaeological 'mafia' that decides who is in and who is out, would we not have sorted the labour laws in our favour ages ago?).

Thankfully, it is relatively easy to judge whether an individual or an organization is undertaking genuine archaeological work. There exists a wide variety of domestic, as well as international, codes of ethics and conduct, professional standards, treaties, conventions, and statutes for archaeologists. Choosing to undertake work that meets the terms of such standards costs an individual nothing – one does not have to pay a fee or join any organization to personally abide by such standards of ethics or codes of practice, although one can choose to formally join such groups – and adherence to such good practice can usually be demonstrated easily. For individuals and organizations, these standards are defined by the codes of conduct of various professional organizations that regulate archaeologists and their work. Examples of these include the Australian Archaeological Association's Code of Ethics, the UK Chartered Institute for Archaeologists Code of Conduct, the American Anthropological Association's Statements on Ethics: Principles of Professional Responsibility, the US Register of Professional Archaeologists Code of Conduct, the Society for American Archaeology's Principles of Archaeological Ethics, and the US Society for Historical Archaeology's Ethical Principles. There is also increasing recognition of the impact of what has become known as 'heritage crime' on communities. Police and justice systems are much better now at recognizing that the theft of materials from archaeological sites, far beyond the financial value of any objects looted, concerns a more profound theft of knowledge about our communal pasts. An object stolen from a site may sell for a precise sum of money on the black market, but the theft of the knowledge that surrounds that object were it to be left in situ, of the loss of long-term communal knowledge that its theft

represents, is priceless. Courts increasingly take such cultural heritage losses into account when sentencing those who loot historic sites.[2]

For entire nations, the situation is far less clear-cut, mainly because international law runs more on precedent than enforced statute – that is, nations tend to pick and choose what laws and treaties they sign on the basis of a variety of interests, and even if they do sign a treaty, ensuring – especially enforcing – and even simply monitoring good practice can be extremely difficult. However, some of the better-known and wider-ranging examples include, in chronological order:

- International Council on Monuments and Sites (ICOMOS) (1964) International Charter for the Conservation and Restoration of Monuments and Sites.
- United Nations Educational, Scientific and Cultural Organization (UNESCO) (1970) Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Cultural Property.
- UNESCO (1972) Convention Concerning the Protection of the World Cultural and Natural Heritage.
- Council of Europe (1985) Convention for the Protection of the Architectural Heritage of Europe (the Grenada Convention).
- Council of Europe (1992) Convention on the Protection of the Archaeological Heritage (the Valetta Convention).
- United Nations Economic Commission for Europe (UNECE) (1998) Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the Aarhus Convention).
- UNESCO (1999) Convention for the Protection of Cultural Property in the Event of Armed Conflict.
- Council of Europe (2000) European Landscape Convention.
- UNESCO (2001) Convention on the Protection of the Underwater Cultural Heritage.
- UNESCO (2003) Convention for the Safeguarding of the Intangible Cultural Heritage.
- Council of Europe (2005) Framework Convention on the Value of Cultural Heritage for Society (the Faro Convention).

Real archaeology, in fact, comes down to a relatively simple range of good practice and personal ethics. Although much argued about, none of these is a particularly radical suggestion. Not unlike all other forms of good behaviour in any community, it comes down to people choosing to act in a thoughtful and responsible manner, to respect one another and the environment, and to endeavour to make as small a physical impact as possible, so that there is something left for future generations. This is no different from the basic 'campsite rule' taught to many of us as children – to leave a site as good as, or ideally better than, we found it. What this means for professional archaeologists is the following, paraphrased from the CIfA *Code of Conduct* (2019).

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[2] See https://historicengland.org.uk/advice/caring-for-heritage/heritage-crime/tackling/ for case studies from England.

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Maintain, develop, and promote the highest standards of professional practice: Archaeologists try to be well informed, preparing for projects in advance by reading relevant literature. Throughout their career, this means that they will keep up to date on advances in archaeological ideas and techniques (a process known as 'continuing professional development', or CPD), and they will not agree to undertake archaeological work for which they are not adequately qualified. Once on a project, they will try their utmost to present archaeology to one another, as well as to the public, in a responsible and timely manner. They will tell people about their work quickly and in a clear and straightforward manner, keep a detailed and thorough record of their work, store materials and records appropriately, and reference as well as give appropriate credit for work done by others in final publications, which they will seek to publish quickly and make easily available in different formats.

This means that it should be easy for anyone to find out more about any archaeological project's location, aims, objectives, team members, funding sources, fieldwork, outcomes, conclusion, and the final site of deposit of the project archives. Any project for which this is not possible is, frankly, suspect.

Actively discourage and combat the trade in illicit antiquities: Archaeologists know and comply with all laws applicable to their professional activities. They do not engage in illicit or unethical dealings in antiquities, so they will not buy or sell artifacts recovered during either their own or others' fieldwork. More broadly, this means that they will be cautious about the financial benefits resulting from their work, especially if this seems to relate, in any way, to the recovery or sale of objects or materials recovered during archaeological fieldwork. But this does not mean, for instance, that they cannot or will not be paid to work on an archaeological site. So long as the primary intention of any project is to analyse a site, rather than recover materials for their own sake or to sell them to make a profit, then such paid work is legitimate.

This means that anyone involved in selling or buying materials recovered from an archaeological site, whether named or unnamed, is not an archaeologist. This also means that if an individual or project sets out with a primary motive to recover materials for sale, then that project is not an archaeological project and that person is not an archaeologist.

Work to preserve the scientific integrity of a total site: Archaeologists strive to conserve archaeological sites and material as a resource for study and enjoyment now and in the future and encourage others to do the same.

This means that when it is not possible to leave a site untouched or materials in place, archaeologists will seek to ensure the creation and maintenance of an adequate record through appropriate forms of research, recording, and dissemination of results. It also means that when destructive investigation is undertaken, those involved will endeavour to ensure that this destruction has the smallest possible impact on the archaeological site or remains.

Recognize the rights of communities to control access to and information on their cultural heritage: Archaeologists will take account of the legitimate concerns of groups whose material past may be the subject of archaeological investigation.

This means that archaeologists will work with communities that are involved in an area – be these communities near or far away – to plan any project, and that they will work with such communities to ensure that materials recovered from a site or other archives that result

from a project will be placed in the best possible location for community access in the future. This means involving descendant communities from the outset and acquiescing to their cultural expectations, even if this runs against common archaeological practice (for example, agreeing not to undertake analyses of human remains where such communities object to this practice). Communities, not archaeologists, own their cultural heritage, and real archaeologists recognize the overarching right of descendant and Indigenous communities to control remains as they see fit.

Personal Conduct in Archaeology

Above all else, archaeologists have a personal responsibility to behave in a manner that respects places and especially peoples – communities and individuals alike. As stated at the start of this chapter, archaeology is 'the study of past cultures through the analysis of surviving material remains'. Given this, just as medical doctors ascribe to the Hippocratic Oath, so too archaeologists ought to commit with similar seriousness to care for people and places alike. There are wide-ranging codes of conduct in archaeology available, and most organizations will ask anyone working with them, in either a voluntary or professional capacity, to commit to following such codes. The UK Chartered Institute for Archaeologists has some excellent examples available online (see CIfA 2017, 2018, 2019b); see also the work of DigVentures and British Women Archaeologists. The archaeologist Sarah Perry (2019) also has excellent advice on this subject, as do Kayt Hawkins and Cat Rees (2018). For those readers interested in, or about to work with Indigenous communities, there are also specific codes of conduct and ethics associated to such circumstances, such as those of the Canadian Archaeological Association (2020) or the Australian Archaeological Association (2020).

We study the past for the benefit of present and future generations – within this, we ought to seek proactively not to harm any people or places in the process of our discovery. Some of this means committing to the points raised above regarding the ethics of professional practice in relation to the sites, materials (including data), and communities with which we interact. For individuals, this definition can be usefully expanded to encompass a wider sensibility, including what can loosely be termed 'research ethics'. This means committing to the highest standards as practitioners of undertaking our work with integrity, sharing ideas and data freely, trusting others and being trusted – not stealing or plagiarizing others work or ideas. A different perspective on this is committing to invest as much in others as we invest in ourselves, through supporting people in a myriad of ways, both formal and informal – being collegiate, helping others, mentoring and advising one another, and being supported in return. There is a rich ecosystem in archaeology of mutual, non-pecuniary benefits. Any archaeologist worthy of the name constantly helps and supports others' lives and careers by giving advice, sharing contacts and networks, reviewing and critiquing people's writing or grant applications, and so on. Such a network is central to the lives of us all, the author included: it was only possible to write this book through the support of hundreds of different contacts built up by the author over the past quarter-

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century. Favours were given by others to help write this book; favours will be returned in due course.

This is the best of archaeology – but what of the worst? There are dark corners of archaeology that lie like shadows close to the brightest sunlight. Where there is friendship there is also enmity; where there is support there is also abuse. One of the most marked changes between the first and second editions of this book is the much greater public recognition that archaeology as a community has systematic-ally denied, and in some cases systematically sought to hide abuse by organizations and individuals. Such abuse has been perpetrated upon individuals in the past and, shamefully, still occurs in the present. This is part of the wider, ongoing cultural recognition around the world faced by countless organizations and groups – faith and community groups, military and scientific units and organizations, charities and businesses, single families, and multi-billion corporations. Archaeology continues to harbour abusers of the worst kind – those who use their power and influence to bully others on the basis of their background, ethnicity, gender, race, sexuality, and other characteristics, and those who abuse others for their own selfish desires, up to and including the most serious crimes of mental and physical, including sexual, abuse. Lives have been lost to suicide through such abuse; livelihoods and families destroyed through it.

Slowly, painfully, archaeology is undergoing its own #MeToo transition. This is a process, not an event, and within it we all have a personal responsibility to recognize the seriousness of the situation at hand and to proactively help deal with it. It is not enough to be a passive observer in this: passivity is tacit consent for abuse to continue. Each of us must be the change that we wish to see in our community. Our personal responsibilities can loosely be collated under the following three headings; see also the additional guidance on fieldwork codes of ethics in the appendices at the end of this book.

Personal behaviours: This means thinking seriously about how our personal behaviours, including our often unacknowledged, implicit biases, impact upon others. In part this means being self-reflective and questioning, striving to learn about others and to consider how we interact with them through empathy and respect. But this also means taking practical steps to put others at ease and to avoid putting them in situations that might compromise or jeopardize them, for example, choosing to meet new people in public, socially neutral environments where they can feel safe – a cafe in the middle of a town during the daytime rather than a bar at night. It may seem strange to non-archaeologists that such an obvious step of safeguarding even needs suggesting, but, alas, it does. The off-hours, deals-struck-over-drinks culture of archaeology is deep rooted, one of the historic characteristics of the profession that needs challenging.

Operational environments: This means the practical steps that we all ought to put in place when in charge of a working environment ourselves, or that we ought to expect to be put into place by others where we are not in charge. Everyone has a right to work in a non-threatening, safe, and secure environment. Much of this ought to (and often does) fall under the guise of 'health and safety': a workplace where the risks of being physically injured have been minimized, and where we

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have access to the basic human rights of water, food, and shelter. But to take this health and safety analogy further, there is much more that *can* be put into place but sadly often isn't: gender-neutral toilets; private spaces and facilities for religious observance, medical, or other personal needs (e.g., spaces for nursing mothers or easy access to menstrual health products on site[3]); and simply ensuring a non-threatening environment that has zero tolerance for the bullying of others on the basis of their background, ethnicity, gender, race, sexual orientation, or other characteristics. And some of this *is* down to personal responsibility – for example, publicly challenging non-inclusive language, jokes, and similar 'banter' when faced with it by colleagues.

Organizational frameworks: This means having frameworks, codes of conduct, reporting mechanisms, and other safety processes clearly in place, so that if an incident of abuse does arise it is handled as quickly, fairly, and transparently as possible. For those new to archaeology, this above all else ought to be the litmus test of appropriateness: if you are considering becoming involved in archaeological work, of any sort, then very early on you ought to be given a formal induction by those in authority on these safety processes, how these processes apply to you, and how you can put their measures into action – for example, having explained to you who is in charge, how to complain to them, and, crucially, how to complain *about* them if they compromise, threaten, or abuse you. If such processes are not explained to you, or if you feel that these processes are insufficient and/or cannot be challenged, then leave, and when in a safe mental/physical space, complain. No archaeology is more important than your personal safety and well-being.

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[3] See www.archaeologists.net/sites/default/files/Seeing_Red_Guide_FinalV1%20%282%29.pdf.