Review Article

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Archaeological Practices and Societal Challenges

Abstract: Archaeology and archaeological work are tightly linked to contemporary societal challenges. Archaeology has much to contribute to the understanding, contextualising and working out of global challenges from migration to environmental change. In parallel to how archaeology impacts society, the society, societal changes, and challenges impact archaeology and its public mission of preserving and interpreting the physical and curating the informational archaeological record. Similarly, they impact archaeological practices, that is how archaeology is done in practice. This article draws attention to the need to comprehend what the increasing diversity and multiplicity of links between archaeological practices, knowledge work, and contemporary societal challenges implies for the understanding of how archaeology is achieved and archaeological knowledge is produced. The discussion is based on input collected from 50 members of the COST Action Archaeological Practices and Knowledge Work in the Digital Environment (www.arkwork.eu) who shared their views on how archaeology can contribute to solving contemporary societal challenges and what societal changes and challenges are likely to affect the field of archaeology during the next 5 years. In addition to a continuing need to increase the understanding of archaeological practices and their implications, distilling the outcomes of the state of the art into shared, validated, and actionable lessons learned applicable for societal benefit remains another major challenge.

Keywords: societal challenges, future, archaeology, archaeological practices, challenges, society, change

1 Introduction

Archaeology and material cultural heritage have often enjoyed a particular status as a form of legacy that has captured the public imagination (Schiffer, 2017) and has become the *locus* for the expression and negotiation of international, national, and intra-national cultural identities, for public policy regarding the preservation and management of cultural resources, as well as for societal value in the context of education, tourism, and leisure. The material presence of cultural heritage assets, the range of archaeological collections in museums around the world, the monumentality of the major archaeological sites, and the popular interest in the material past are only few of the reasons why archaeology has in many cases become a linchpin in the discussions on how emerging digital technologies and digitisation can be leveraged for societal benefit. In relation to the contemporary global challenges, it has become increasingly

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apparent that the societal relevance of archaeology and material cultural heritage stretch far beyond its traditional contexts of relevance in scholarly research, culture and higher education.

The aim of this article is to draw attention to the need to comprehend what the increasing diversity and multiplicity of links between archaeological practices, knowledge work, and contemporary societal challenges pointed out in recent literature, which implies for the understanding of how archaeology is achieved and archaeological knowledge is produced. The discussion is based on input collected from the members of the COST Action Archaeological Practices and Knowledge Work in the Digital Environment (www.arkwork.eu) who shared their views on how archaeology can contribute to solving contemporary societal challenges and what societal changes and challenges are likely to affect the field of archaeology during the next 5 years. On the basis of these collected reflections, we argue that a comprehensive understanding of how archaeology is practised and how archaeological data and information comes into being is a necessary prerequisite for understanding both the opportunities and limits of the shifting grounds of how archaeology can inform other practices and fields beyond its traditional domain and spheres of influence. Consequently, it unfolds as a central premise to effectively mobilise archaeological knowledge for societal benefit.

1.1 Studying Archaeological Practices and Knowledge Work in the Digital Environment

There is considerable emerging knowledge on different aspects pertaining to the nature and the process of the emergence of how archaeological remains are documented, digitised, preserved, and made available; how the documentation and the archaeological collections *per se* are used to create knowledge on past practices in the field and the human past; and how knowledge is utilised by a broad range of stakeholders from land development and academia to tourism and education in the context of their day-to-day activities. On-going national and international initiatives like the COST Action ARKWORK and parallel research conducted in the context of projects and infrastructures like DARIAH, ARIADNE+, and COST Action SEADDA have contributed to the consolidation of our understanding of archaeological practices and their societal implications, whereas it also instigated new multidisciplinary research. Bringing together research groups from a wide range of disciplinary backgrounds for studying archaeological knowledge work in different European countries, from ethnology (e.g. Davidović, 2009; Hamilakis & Anagnostopoulos, 2009) and archaeology (e.g. Beale & Reilly, 2017; Berggren, 2009; Edgeworth, 2006; Holtorf, 2006) to museum and information studies (e.g. Friberg & Huvila, 2019; Huvila, 2006; Khazraee, 2019) and beyond, has contributed to the emergence of novel common ground and understanding of how archaeology is practised in contemporary society.

At the same time, however, the significant national, sub-disciplinary, and methodological differences in archaeological knowledge work highlighted by the on-going work and the similarly broad variety of perspectives relating to archaeological and archaeology-related practices emerging from the cross-disciplinary work beyond the traditional domain of material cultural heritage has led to an increasing diversification of the field. This means that the work of investigating archaeological practices and knowledge work is currently at an embryonic stage.

The following discussion on the societal role of archaeology and the impact of societal challenges on archaeological practices is based on views collected from the members of COST Action Archaeological Practices and Knowledge Work in the Digital Environment (www.arkwork.eu). The participants of the network consist of over 200 experts of archaeological practices from a broad range of disciplinary backgrounds from archaeology to information science, museum studies, computer science, and business studies, including researchers and practitioners from 30 European countries. The views of the Action participants were collected using an online survey with two open-ended questions: (1) "From your perspective, what is the role and value of archaeology in helping to solve contemporary societal problems?"; (2) "What societal changes and challenges are likely to affect archaeology and archaeological practices the most during the next 5 years?" In addition, the respondents were asked to indicate whether they identified themselves as being an archaeologist or not. Sixty-four percent (32/50) of the experts identified themselves

as archaeologists, whereas the rest described themselves as non-archaeologists. The experts shared their opinions as individuals, not as representants of specific institutions or countries.

2 Archaeology in the Service of Society

A breakdown of the views collected from the expert group to the question on the role and value of archaeology in helping to solve contemporary societal problems suggests that archaeology has a potential to make diverse contributions. However, rather than providing direct solutions to problems that are in effect many times unsolvable, its contribution lies in that archaeology can give perspective to contemporary debates. The primary role of archaeology and archaeological practices is still to provide evidence-based knowledge of how people lived in the past. As one of the experts pointed out, "I don't believe that archaeology is supposed to solve contemporary societal problems, but it can and absolutely does enrich society in many ways." Questions about social inequality, gender, norms, acceptable choices, migration, environmental exploitation, ecological and social sustainability, and for example, distribution of resources are not exclusive for our generation but have followed humanity throughout its history. Doing archaeology can help us to understand, as one expert noted that, "we are not alone with our problems … people in far worse conditions than we live in[, have] survived and thrived." Archaeology provides a "database" of how past civilisations dealt with their societal problems and provides insights into how their choices were successful, how they failed, and what consequences past decisions and actions had on them. In that sense, it can be used to "future-proof" contemporary actions and decisions (Rehman & Ryan, 2015), develop and test hypotheses, and to eventually "design" desirable futures that last. Similarly, to how contemporary land development in many countries is expected to be preceded by impact assessments on natural environment and cultural heritage, a comparable impact assessment could be done from the premises of what is known from the past on the broader consequences of environmental exploitation.

A critical element of how archaeology can inform contemporary debate is through how it can increase our self-awareness, as well as to shape and help to build our collective identity. "Archaeology is very close to the idea of self-awareness/identity," it can provide a sense of belonging and reveal that societies have always changed and faced misfortunes, like for instance, that people have always migrated and mixed. It can also help to understand the contemporary state of affairs and their underpinnings. As an identity-shaping enterprise, archaeological insights and doing archaeology can, as one of the experts underlined, function as an antidote to non-justified supremacist and racist ideas. Its focus on the past and present in a long-term continuum provides a basis for looking beyond immediate short-term costs and benefits focusing instead on the societal challenges in their full perspective.

Even if many of the experts who contributed with their views emphasised the indirect nature of its impact, archaeology can also have a direct economic impact, for instance through tourism. One of the respondents mentioned that in countries with a rich cultural heritage, heritage tourism can constitute their main source of revenue. Others also called attention to the indirect individual and collective social benefits of engaging with archaeology for health and well-being.

The critical importance of understanding archaeological practices from the perspective of their impact on archaeological knowledge and the society lies in that different ways of doing archaeology can have very different outcomes. The knowledge about the past, how the past should be understood in relation to the present, and how archaeological work and its results are framed and communicated in the public debate can be done in many different ways. Understanding these activities and their implications is essential for recognising their effect on how archaeology is achieved, archaeological knowledge is crafted, and what are its outcomes. The past can also be misrepresented and misused against the best scholarly and scientific knowledge. Explicating and deconstructing these actions – that are, in spite of their nature, related to archaeology and archaeological work – is equally central for understanding the limits and conditions of how archaeology operates. The effort of trying to understand justified, unjustified, justifiable, and unjustifiable archaeological and archaeology-related practices in their context underlines the interdisciplinarity of

that exercise. As the experts pointed out, achieving archaeology requires collaborating across disciplines – an observation that applies to the research on archaeological practices as well. But, even if the collected opinions diverged to a certain extent in this respect, as one of the respondents noted, "archaeology is one of the few fields doing absolutely brilliant work in relating to other disciplines, so that's something we should keep up in the next few years."

3 Societal Changes and Challenges Affecting Archaeology

The members of ARKWORK contributed also with their views on what current societal changes and challenges are likely to be affecting archaeological practices during the next 5 years. Restricted funding was mentioned in several reflections, which was also the case as to the unknowns related to the still on-going pandemic in spring 2020. Commercialisation and privatisation were seen as specific issues for archaeology that are bound to affect its conditions and operational headroom, but also on a profound level, its future perspectives as a collective undertaking within the society.

Unsolicited and unauthorised archaeology-related practices, performing archaeological work without proper competence, and commercial and populist misuse of pseudo-archaeological narratives were also mentioned as a challenge that threatens both the preservation of archaeological remains and discredits archaeology as a profession and a field of science and scholarship. As one respondent wrote, the "[r]ole and value of archaeology for contemporary societal problems is to scientifically define the past not leaving the space for pseudo history, vague narratives and misleading conclusions." Climate change is likely to increase the workload of archaeologists as it affects archaeological sites and makes their preservation increasingly difficult.

Digitalisation was also emphasised as a challenge for archaeological work. Although it provides opportunities, it is having a major impact on the management and interpretation of archaeological records and the communication of archaeology. "Archaeology is also subject to the influence of digital, to the use of new technologies to collect data, to analyze them and to monitor and manage them." "Digitalisation forces rethinking in our perceiving and interpreting archaeological records and demands a new visionary reorganisation of museums." Archaeological practices would need to continue to adapt to and thrive in an evolving digital media landscape. One of the experts also made a remark on the overall digitalisation of the society and how it challenges future archaeology not only to engage in digital stories of a non-digital past, but also to develop archaeological practices to tackle the contemporary digital presence as a future digital past.

In addition to digitalisation that unfolds as a simultaneously internal and external matter to archaeological practices, the reflections also pointed to other challenges that stem chiefly from the organisation of archaeological practices and less from the society at large. Gender roles and perspectives are not well balanced in archaeology at present. Transparency of archaeological work, equal opportunities for engagement in archaeology, and publishing findings are further examples of societal challenges that are not external but a part of the disciplinary practices and the discipline itself. The wider structural problems in research and higher education, from the defects in the scholarly publishing system, the unhealthy competition, and the questionable focus on quick results rather than pursuing higher levels of understanding the past plague archaeology just like they do in the case of other disciplines.

Many of the experts were also worried about the continuing relevance of archaeological work. Apart from direct counter-narratives and the discreditation of archaeological expertise, another challenge recurring in the reflections was the uncertainty of whether and to what extent the public will consider past civilisations and cultures, as well as the results of archaeological work, worthwhile in the future, in the aftermath of an extensive social change.

As a whole, the collected reflections point to the interdependence of archaeology and the society where it is practised. Technological, political, and economic fluctuations have an impact on archaeological work, how it can be practised, and how it will be used.

4 Emerging Archaeological Practices

There are multiple examples of emerging and evolving archaeological practices with links to the issues raised in the corpus of reflections collected for this article. Different branches of contemporary archaeology (e.g. González-Ruibal, 2018), including the archaeologies of conflict (Pollard & Banks, 2007), poverty (Orser, 2011), and migration (Burmeister, 2000), directly address societal challenges highlighted in the previous sections. One of the experts emphasised the opportunities related to the archaeology of the anthropocene and contemporary archaeology of pollution. These specific branches of archaeological inquiries and practices highlight not only the relevance of current archaeological perspectives with the specific societal challenges, but also their repercussions on the practices in the field *per se*. Postcolonialism, fundamental human rights, inequality, unfair distribution of wealth, power, access to knowledge, and indigenous rights are only few examples of where a clearer understanding of archaeological practices as a social practice (e.g. Mizoguchi & Smith, 2019) could allow approaching contemporary social realities in their full complexity.

In conflict situations, archaeology may provide new perspectives and develop means to manage endangered archaeological heritage. Heritage can also play a crucial role in memorialisation and community building in post-conflict situations (e.g. in Barakat, 2020; Newson, & Young, 2017). At the same time, however, conflicts problematise the status of archaeology, its relevance, and the capacity of conventional structures to adapt to the precarious situation (González-Ruibal, 2018). When a state – the traditional guardian of cultural heritage – breaks down (see e.g. Kathem, 2020), the questions which arise are what comes instead and who should assume the responsibility of the preservation of archaeological sites and monuments, and likewise, the management of archaeological operations. In best case, the institutions have contingency plans and have made preparations ahead of foreseeable situations (cf. e.g. Teijgeler, 2006), but not all situations are foreseeable, and the execution of the plans is not always possible. Another pertinent question is the prioritisation of such activities and whose interests are served by particular practices and practitioners (Barakat, 2020; Constantinou, Demetriou, & Hatay, 2012). Perring and Van der Linde (2009) underline the importance of shared vision with everyone involved and heritage as care for the present society and livelihoods rather than curation for imagined needs of future generations. If archaeology aims to contribute to addressing cross-disciplinary and broader societal issues, it is crucial to understand what particular archaeological perspectives and practices do in those contexts, and what eventual positive and negative impacts they might have.

Even if extreme forms of conflict make the issues of agency, politics, and their implications particularly apparent and acute, the same set of questions of agency, legitimacy, and responsibilities is equally relevant in much less radical situations: in cases where the role and authorities of the state are deliberately dismantled and assets are privatised. Indicatively, there is ample evidence that archaeological practices have changed when field archaeology has been outsourced to private operators. Some of the changes have been positive and some have been heavily criticised (e.g. Börjesson & Huvila, 2019; Demoule, 2012; Rocabado, 2015; Schofield, Carman, & Belford, 2011; Zorzin & St-Pierre, 2017). The same applies when the management of archaeological sites is privatised (e.g. Gürsu, 2020). As a whole, still after 30 years after the Valletta Convention (Council of Europe, 1992), the long-term effects of contract-based organisation of archaeological practices are still to a large extent to be unravelled during the coming years.

A closer look at the economies of archaeological practices in the context of contract archaeology is also fruitful as a means to unpack prevailing assumptions of the practical circumstances and limits of archaeological work. In many of the reflections and the literature alike, financing is primarily discussed as a limit to archaeology and archaeology itself is portrayed as a hindrance to economic development. Only fairly seldom it is framed as an economic driver and asset, and when it is done, the contributions of archaeology are often passive and indirect and are realised through increased tourism or secondary use of archaeological assets in cultural production (Boytner, 2017; Gould & Burtenshaw, 2017). So far, there is much less evidence and research on the direct economic impacts of archaeological practices in the context of creative economies and "maximalist" (Carpentier, 2016) participatory endeavours.

There are many examples of how societal discontinuities provide insights into archaeological practices and highlight their fragility. A parallel and perhaps even more critical strength of the archaeological enterprise, outlined in multiple reflections, is its focus on long-term change and continuity. There are examples of how archaeologists have engaged in collaborating with nuclear power authorities (Holtorf, 2012) to inform the preservation of knowledge of hazardous forms of cultural heritage. A comparable example is the convergence of archaeological and scientific perspectives in the context of environmental research (Sandweiss & Kelley, 2012).

As a final perspective, archaeological practices do not only provide means to address archaeological and archaeology-related problems, the practices themselves can be useful in diverse societal contexts. Not only archaeological knowledge but also direct engagement with archaeological practices have an impact on education and the shaping of local and global cultural identities. Community archaeology and school collaborations are becoming increasingly common. Activism and different forms of "action archaeology" (Atalay, 2016; Sabloff, 2016) are gaining momentum. Many of the collected reflections emphasised how understanding the past helps to understand where we are coming from and, consequently, contributes to the understanding of contemporary challenges (Laužikas, Enqvist, Luengo, Šošić-Klindžić, & Toumpouri, 2022). Moreover, an archaeological mindset itself, of trying to understand what happened in the past on the basis of very limited evidence, can be equally helpful in understanding contemporary phenomena and the future alike.

5 Discussion

A comprehensive integrated understanding of how archaeologists and other stakeholders of archaeological information create and use knowledge is an essential premise for effectively integrating archaeological practices and perspectives for addressing contemporary and future societal challenges. It is simultaneously a question of mobilising archaeological expertise, data, and material collections and of being able to effectively produce archaeological knowledge without compromising other societal functions, including the use of land for the development of societal infrastructures. Even if the popular understanding of archaeology is focused on excavations and collection of empirical data, only a very small part of archaeological knowledge (i.e. what we know of the past human activities on the basis of their material remains) is created in the field. Currently, only a tiny proportion of archaeological surveys and excavations are initiated by researchers with the explicit aim of creating knowledge. Very much in the spirit of the Valletta Convention, most of the projects relate to land development – initiated rescue archaeology efforts to document archaeological remains for eventual use as an ingredient for non-specific future efforts of knowledge creation by archaeologists and a large number of stakeholders from the cultural industry to museums, researchers, the general public, and industries from cultural production, education, and tourism to land development and technology, as well as information and communication technology. Here, a pertinent question is – paraphrasing Florjanowicz (2015) – to what extent the contract archaeology – oriented Valletta Convention (Council of Europe, 1992) really meets the community-oriented Faro Convention (Council of Europe, 2005) and other international treaties, agendas, and principles, and why making them to meet is not entirely uncomplicated. Bringing together the expertise of researchers working in different disciplines and looking at different aspects of archaeological knowledge production and use in different countries, sub-disciplines, and professional areas is vital for overcoming the current widely acknowledged problems of integrating and linking heterogeneous and difficult to access local, national, regional, and discipline-specific datasets and collections of physical artefacts, literature, and other types of digital and non-digital information for the benefit of all stakeholders within and beyond archaeology. An integrated understanding of how archaeological knowledge is produced and used in different countries and contexts is a key to developing effective transnational and trans-disciplinary access to archaeological collections en masse and to opening European archaeological knowledge for international and interdisciplinary research based on archaeological data and collections (including large-scale comparative studies), use of the existing assets in

heritage contexts and education, and functional integration of archaeological information (for knowledge creation within and beyond archaeology) as a part of societal information infrastructures vital in addressing contemporary and future societal challenges.

Archaeology itself is facing multiple challenges in contemporary society. A more comprehensive understanding of how archaeology is practised and achieved in the contemporary digital environment is also a key for understanding those complications faced by the field as a whole. Concerns raised by the experts who participated in this study echo largely the concerns discussed in the literature. Digitalisation is a crucial question not only as a question of developing or appropriating technological tools and infrastructures but also as a question of rethinking what digitality does to archaeology. As Dennis (2020) underlines, it is important to seriously question and think about the ethical premises and repercussions of digitality from its own premises rather than assuming that old assumptions and procedures are enough. Huggett (2019) asks another pertinent question by calling attention to considering how to make digital archaeological scholarship resilient and essentially a sustainable endeavour even in the future.

To the extent the digitalisation-related challenges go beyond pure technical issues, they have many parallels to issues that pertain to the changing social context of archaeological work, including issues relating to topics like politics, gender, and equality. The politics of archaeology and how national and international politics affect archaeology have also very tangible impact on archaeological work and its conditions (cf. e.g., Schut et al, 2017) in terms of economic challenges described by several experts and, for instance, the related thrive measure and demonstrate its impact in measurable terms (e.g. Watson, 2019). Similarly, to digitality and human values, archaeology is not alone with these concerns and demands. They tie into the broader questions of the value of caring for culture, cultural knowledge, and the growing tendency to frame scientific and scholarly knowledge and knowing as political issues both in general (Stehr, 2015) and in archaeology (e.g. González-Ruibal, 2016; González-Ruibal, González, & Criado-Boado, 2018; Hamilakis, 2018) beyond the mere political use of science and scholarship, or archaeology and archaeological knowledge (see e.g. Boytner, Dodd, & Parker, 2010). For archaeology, the politicisation of knowledge pertains to the questions of who gets to decide of the limits of what counts as archaeology and archaeological knowledge (cf. e.g. Ferris & Dent, 2020), what are archaeological practices in relation to other practices (cf. Huvila & Huggett, 2018; Laužikas et al., 2018), and how important specific practices and knowledge are in relation to others. On a more general level, a key question is what direct and indirect consequences different regimes and practices of regulating knowledge and knowing have on archaeology and beyond.

To understand the impact of the demands to give precedence to particular knowledge and ways of knowing and to de-prioritise and regulate others requires an in-depth understanding of the knowledge practices and how knowledge comes into being. This applies to the de-emphasis of archaeology and archaeological perspectives ahead of other priorities, lack of adequate funding, political uses of archaeological knowledge, and prioritisation of other societal questions. As Aitchison (2019) urges, there is undoubtedly a need for more systematic and effective lobbying of archaeological perspectives to make them better known outside the discipline itself. Similarly, as Blouet (2020) suggests, a similar measure of advocacy to explain the usefulness of archaeological practices for present and future archaeologists would be equally important.

At the same time, however, it is important to acknowledge that archaeology itself, similar to every other domain, is engaged in knowledge politics (cf. e.g. González-Ruibal et al., 2018; Hamilakis, 2018), and a careful scrutiny of archaeological practices is equally important for unfolding the consequences of archaeological practices and knowledge work, both beyond and within the domain itself. A closer scrutiny of how archaeology is practised and archaeological knowledge created can be helpful in looking back and, citing Murray (in Babić et al., 2017; Hølleland & Niklasson, 2020), protecting society from archaeology and archaeological perspectives, as much as it is necessary for understanding their positive and constructive potential. This could be achieved by studying archaeological practices from different disciplinary perspectives, through multiple theoretical and methodological lenses, and doing it "sideways" by conducting ethnographies of not only archaeological fieldwork but also of other archaeological practices by studying up the super-structures, colonisers, and decision-makers (Hølleland & Niklasson, 2020; Nader, 1972), and down the consequences and impact of archaeological practices in the society.

As a whole, the need of understanding of how archaeological knowledge is produced and used in different contexts is especially acute now when archaeological heritage is facing conflict and decay and is at stake in cultural resource and land management, the shaping and negotiation between national, infra-, and transnational cultural identities, public interpretation, formal and informal learning, tourism, and leisure. Postponing this work would lead to the investments in creating technologies, infrastructures, and standards for digitisation, preservation, and dissemination of archaeological knowledge failing to realise their expected benefits in the heritage sphere. Simultaneously, it becomes increasingly apparent that archaeological heritage is not valuable only for heritage purposes but archaeological collections, data, and practical skills, and competence can be applied to inform research and decision-making in a broad variety of contexts, far beyond the traditional kernel of the discipline. To attain a comprehensive understanding of its potential, it is necessary to continue the efforts to investigate archaeological practices and knowledge work in both intra-disciplinary and interdisciplinary contexts and to develop means to evaluate and understand their impact in detail.

6 Conclusion

Currently, it is very apparent that in spite of the current on-going efforts to consolidate the international multidisciplinary research community involved in the inquiry of archaeological practices, knowledge work, and digitalisation, there is much more work to be done to reach a comprehensive understanding of how archaeology is achieved and what repercussions specific archaeological practices have on archaeological information and eventually, what we know about the past and ourselves. Ensuring the effective knowhow transfer and synthesis of emerging research, and distilling the outcomes of the state of the art into shared, validated, and actionable "lessons learned" applicable for societal benefit, remain another major challenge.

The brief examples discussed in this article provide only a small glimpse to the extent of the domains and challenges where archaeological work and knowledge converge with contemporary societal challenges. They do, however, underline the constant importance of continuing and developing the interdisciplinary effort of investigating archaeological practices and knowledge work as a reflexive intra-disciplinary effort within archaeology itself and by conducting studies sideways, up, and down from different disciplinary and theoretical perspectives to develop a better understanding of the limits and opportunities of archaeological knowledge in the contemporary and future society. It is a prerequisite for ensuring the relevance and usefulness of infrastructures for preserving and disseminating archaeological knowledge and reaping the potential benefits of that work – and of archaeology itself.

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