Old Excavation Data – What Can We Do? An Introduction

Edeltraud Aspöck[1]

Archaeological fieldwork is at the heart of the archaeological discipline. An enormous number of excavation projects was carried out over time, steadily increasing our knowledge about the past and producing large archives of documentation. Through new developments in information technology many analogue documentation techniques are now carried out digitally, adding new challenges of long-term preservation. However, digital technologies also present new opportunities when it comes to sharing and disseminating resources from fieldwork archives for re-use.

This book is about the digital integration of resources from archaeological fieldwork projects in the Eastern Mediterranean region and Near Eastern countries. It includes projects that integrate fieldwork resources for providing open data for reuse in new projects,[2] a case study about integration of excavation resources in a GIS for advanced spatio-temporal analysis[3] and the presentation of software solutions for integration of excavation legacy data for analysis, sharing and long-term preservation.[4]

All papers share a concern with the heterogeneity of resources from archaeological fieldwork, and they present different strategies to overcome this challenge. Frequently discussed topics are the specific idiosyncrasies of excavation data facing a digitisation project as well as issues around data modelling and levels of data integration.

With the casual wording 'old excavation data' for the workshop and book title, we refer to all types of resources from previous archaeological fieldwork campaigns, both digital and analogue. Such resources may typically be recording sheets, photos, maps, field diaries and drawings. These can also be referred to as 'legacy data'. Legacy data depends on an outdated piece of software or operating system and often lacks documentation.[5] These data are therefore difficult to access. With archaeological fieldwork being increasingly carried out digitally,[6] it is important to consider that software and formats may be short-lived, and standards of good practice in data management must be observed to guarantee long-term preservation of digital resources.[7]

Because legacy data is present in obsolete formats, the term is sometimes used in a derogatory way; however, this is not the way we see it. When it comes to data from archaeological fieldwork, we deal with important information about our cultural heritage, which because of the destructive nature of excavation in many instances may be irreplaceable. In Near Eastern/Eastern Mediterranean archaeology, where almost two centuries of excavations have produced an abundance of data from thousands of sites over a wide chronological range, it is imperative to take measures for their preservation.

1 Austrian Academy of Sciences, Institute for Oriental and European Archaeology, edeltraud.aspoeck@oeaw.ac.at.

2 Helgestad, this volume; Aspöck et al., this volume.

3 Kucera et al., this volume.

4 Frey, this volume; Prosser – Schloen, this volume.

5 E.g. Schmidt – Bennöhr 2008, 109.

6 E.g. Averett et al. 2016.

7 E.g. IANUS; ADS.

Why We Organised a Workshop on Old Excavation Data

This volume is based on a workshop titled 'Old Excavation Data – What Can We Do?' held on 28th April 2016 at the 10th International Congress on the Archaeology of the Ancient Near East (ICAANE) in Vienna. The idea for the workshop came about as part of our work on the 'A Puzzle in 4D' project, which aims to digitise the resources from the Austrian long-term excavation project at Tell el-Daba, Egypt to make them available online with open access. At the beginning of the project, we analysed Tell el-Daba analogue and digital resources, as well as the excavation and documentation methodology, to find an approach to structure the archive and organise the digitisation process. We faced many questions: How should we organise the data, which standards are in use and which are the most sensible to use? How should we organise the digitisation process of a vast number of analogue resources, including some complicated and deteriorating materials such as colour film negatives? The high number of analogue resources prevents us from digitising all analogue resources during the current project, but which are the relevant criteria for selection of materials? Which software solutions exist for collecting metadata, or information about the digital objects? Which are the most appropriate for our project, and do we need to turn to a proprietary solution? Can we find open source software or should we create our own solution specifically tailored to the needs of the Tell el-Daba material?

These were the most important questions we faced, which did not seem specific to the 'A Puzzle in 4D Project', but any project dealing with digitisation and preservation of resources from long-term excavation projects. Answers to questions of such a practical nature often do not find their way into publications, however, and whilst guides of good practice in digital archaeology address many issues related to best practices of data management, in particular in relation to long-term preservation of digital data, many of the questions raised were very specific to our project and not discussed in these guides. Online research of similar projects suggested that so far each project team had found their own solutions. Hence, with ICAANE arriving, we found the perfect occasion to invite researchers who have worked on similar projects to discuss problems and solutions to digitally integrate, preserve and publish excavation legacy data from sites across the Near

Fig. 1 Photo taken during the ICAANE workshop Old Excavation Data – What Can We Do? on 28th April 2016 (photo: A Puzzle in 4D 2016)

East for reuse by future generations of archaeologists. That we were dealing with a pressing issue was clearly demonstrated by very good attendance of our workshop Old Excavation Data – What Can We Do? despite several parallel sessions with appealing archaeological topics (Fig. 1). The final programme (see below) included presentations on resources from excavations in Iraq (Zaina, Helgestad, Pittman, Van Ess), Turkey and Syria (Prosser – Schloen), Syria (Marchetti), Greece (Frey) and Egypt (Aspöck et al., Kucera et al.). From the ten presentations at the workshop, six contributed to this volume. They discuss challenges for digital integration of old excavation documentation and the conceptual and technical solutions they developed based on archaeological case studies.

Digitising Fieldwork Archives Is for Access and Data Sharing

In the pre-digital age, visiting an archive to consult materials from archaeological excavations was a very time-consuming process. If it was not part of the archival policy to allow researchers to remove relevant documentation or make photocopies of the material, all work had to be carried out in the archive. In such cases, gathering primary fieldwork data involved going through large amounts of descriptions, drawings, plans, photographic materials or other analogue media and taking notes, often by hand, or making Xerox copies and photos. Often, the same material was consulted by multiple researchers, each of whom would make their own copies of the primary data.

With developments in information technology, the collection of data from analogue resources became easier. Researchers can now bring laptops for note-taking and recording data in databases. Digital cameras, scanners and even mobile phones allow taking large numbers of photos without straining a tight research budget, which may have limited the number of analogue photos that could be taken. Visiting archives is still a time-consuming part of the research process – and it needs to be emphasised that familiarising oneself with an archive is not only part of digitisation but also an important part of the research process[8] – but often the same material may be digitised multiple times for different research projects. While the development of new technologies has quickened this process, development of information technology also means that parts of the excavation documentation in an archive may be in digital form, potentially creating problems of access to the information if not curated properly.

The premier advantage of digital field documentation, considering resources born digital as well as digital copies of analogue material, is that resources can be replicated and shared easily between researchers. Hence the onset of digitisation and the internet has brought with it new possibilities for sharing information from previous, and many times much older, excavations. Instead of one researcher after another visiting an archive to collect data, we now have the possibility to make a single copy to be shared limitlessly with colleagues. Informal means of data sharing are frequent in archaeology. Researchers often privately share their data with others with whom they are friendly, based on personal trust that the data are high quality.[9] Because standards of data management in archaeology are rather informal, there is usually a lack of documentation of the data, which makes it necessary that the data are explained privately between colleagues. Sharing data via online platforms reaches a broad audience, however, requiring the data to be organised and documented adequately and consistently for others to understand. Archaeologists can then recognise that the data is of good quality and the information provided is reliable. Ideally, for archaeologists to develop trust in datasets for re-use, data should have sufficient metadata

[8] Whether it is an analogue or a digital archive, an important part of the research process is to learn about the organisation of the archive and the methods used to collect data. This information is necessary to evaluate the data and avoid the de-contextualisation and misuse of information. See also Frey, this volume; Zaina, this volume.

[9] Kansa – Kansa 2013.

describing the research context, i.e. about how the research process was performed.[10] This includes information about the methods of data collection and recording as well as about the person who conducted the work.

If online excavation archives are open access, researchers do not have to travel to distant places any more to carry out research on a specific site. With worldwide access to the internet, open fieldwork data allows archaeologists from any location, independent of their background, to carry out research on a specific site. This also includes single researchers with little or no funding, who may find it hard to afford multiple trips to museums and archives housing data from their site. This was one of the main challenges for re-using data from older excavations from the perspective of a single researcher, which was discussed at our workshop by F. Zaina.[11] Therefore provision of open data makes researchers more equal, and freely available data is seen as part of the democratisation of knowledge. On a more critical note, however, it has been argued that like with open access to publications, open data reproduces existing power structures because only affluent institutions have the necessary funds to perform the task of digitising large archives of excavation records and developing the necessary online platforms for their dissemination.[12] The availability of high quality records from excavations, rich with information and documentation, facilitates the research of a site when students and scholars looking for material to answer their research questions consult the resources and analyse them. We would argue that in Near Eastern archaeology, however, where sites are often excavated by foreign institutions, the provision of open data from field campaigns might be a way to give back to the states and communities where the fieldwork has been carried out.[13]

Different reasons led to the digitisation of excavation resources from the projects presented in this book:

- Access to excavation resources: Analogue excavation records must remain on site, so digital copies were required for researchers to carry out research year-round
- Digital re-unification of resources from a site that are currently spread across several museum collections
- Danger of loss of information because of deterioration of analogue carrier material, e.g. photo negatives
- Integration of analogue and digital excavation data for research
- Provision of open data

Online Sources for Archaeological Fieldwork Data from the Eastern Mediterranean and Near East

Several of the projects that were presented at the workshop and in this book provide open access to their online excavation archives to allow researchers to analyse or re-analyse individual contexts and records. In the landscape of online resources, such projects represent a minority.[14]

Generally, we can distinguish different types of online resources connected to excavation data. Several webpages aggregate information on archaeological sites and fieldwork projects, and they can be consulted to identify sites which would answer a particular research question. Examples are Fasti Online,[15] an online site database of excavations throughout the area of the Roman Empire

10 Faniel et al. 2013; compare also Witcher 2008.
11 Zaina, this volume.
12 Bevan 2015; Aspöck 2016.
13 Porter 2010.
14 AIAC 2014.
15 Fasti Online.

since 2000; the DEFC App[16] on Neolithic sites in Greece and Anatolia; and the TAY project,[17] which presents information on Turkish archaeological sites. The MEGA-Jordan webpage is an open access GIS for the inventory and management of archaeological sites there.[18] The amount and types of information available on these sites varies depending on the objectives of the project but also the information generally available from an archaeological site. Hence, the results might be just basic information such as location, name and period, but often there are bibliographic references, information about the institutions and people responsible for a site and links to related online resources. An exception to these examples is the DEFC App, which goes beyond resource discovery and allows researchers to explore data related to finds.[19] A starting point to identify resources from excavations that would be useful to answer a specific research question is to query such online databases.

It should also be mentioned that some institutions and projects provide collections of useful links to resources on Near Eastern archaeology such as the Electronic Texts and Ancient Near Eastern Archives (ETANA) project,[20] a multi-institutional electronic publishing project. The Digital Near and Middle Eastern Studies (DNMS)[21] webpage of the Centre for Near Eastern studies of the Philipps University of Marburg, Germany, also hosts an archive of digital resources. The Ancient World Online (AWOL) blog informs readers of new open access resources for the ancient Near East and Mediterranean regions.[22] Browsing online Near East archaeology resources indicates, however, there are more resources on ancient texts rather than archaeological fieldwork data.

In several European states a central institution is responsible for collecting and archiving excavation data, and documentation must be deposited at that institution after the end of an excavation project.[23] In other countries, full excavation archives containing data on finds, stratigraphy and scientific reports are available with open access, which allow researchers to analyse or re-analyse individual contexts and records.[24] Fieldwork in Near Eastern/Eastern Mediterranean archaeology is frequently carried out by institutions foreign to the countries they are working in, such that there may be no official policy about long-term archiving of resources from fieldwork projects. For example, on the webpages of the ETANA project,[25] we read under 'Archaeological Projects' that a need to access archaeological data from excavations was identified during the conception of the website. "While individual archaeologists and dig sites were posting data on the web, there was, and still is not, an agreed upon archival storage mechanism or site".[26] There is no access to archaeological projects from this site, so it seems that inclusion of archaeological resources has not yet been completed.

Hence, at present in the field of Near Eastern archaeology it is very much down to the initiative of individuals, projects, site directors and institutions whether the documentation of an excavation is deposited in an archaeological data archive and whether it will be made available open access. The American data archive Open Context holds a significant number of excavation records from all over the world, but it is particularly rich in records from Near Eastern sites.[27] Open Context is a data publisher, and data can be explored and cited to the item level – each potsherd has its own URL.[28] This highly granular data dissemination is different to other repositories, where a whole

16 DEFC App; Aspöck – Masur 2015; Andorfer et al. 2016; Štuhec et al. 2016.
17 TAY.
18 MEGA-Jordan.
19 Aspöck – Masur 2015; Andorfer et al. 2016; Štuhec et al. 2016.
20 ETANA.
21 DNMS.
22 AWOL.
23 Fentress et al. 2016.
24 E.g. the British Archaeology Data Service ADS; or the e-depot for Dutch Archaeology EDNA.
25 ETANA.
26 ETANA.
27 OPEN CONTEXT.
28 Kansa – Kansa 2013.

excavation dataset may be considered one item, with one set of metadata for the whole package that has to be downloaded before research. Via the Open Context website, it is possible to explore excavation archives to the level of individual contexts and finds. The webpage is easy to query and includes several interfaces for data visualisation and download.

Idiosyncrasies of Archaeological Fieldwork Data: Challenges for Data Integration

The shared topic of all papers in this volume are the challenges in digitally integrating diverse analogue and digital resources from archaeological fieldwork projects. Resources from archaeological fieldwork are very heterogeneous, which complicates their digital integration.[29] The time and effort needed for digital integration of excavation data – be it from excavations of one or several sites – is often underestimated. During the process of digital integration many important decisions have to be made, and digitisation can be a valuable part of analysis.[30]

Heterogeneous fieldwork data results from a lack of an accepted standard methodology and recording system for archaeological fieldwork. It is a product of different research traditions in different archaeological subfields, and the situation is unlikely to change in the future. Many idiosyncrasies of excavation data are described in the chapters of this book and were discussed at the workshop:

- Different excavation methods were used across different sites, or they do not comply with a modern standard of stratigraphic excavation principles.[31]
- Excavation methodology of a long-term excavation project changed as methodologies evolved over time.[32]
- Projects at a site were carried out by several teams that came from different states, and hence excavation documentation is in different languages.[33]
- Generally, even if documentation is in the same language, different terminology was used for recording and describing the results.[34]
- Different classification systems were used among different teams and researchers, e.g. different find typologies or ways of periodisation.[35]
- Data were organised inconsistently; for example, jewellery is grouped with other jewellery in one dataset and with decorative items in another.[36]
- Fieldwork at a site started with analogue documentation and was over the years increasingly carried out digitally; hence the same type of resources exists in different formats (i.e. analogue, digitised surrogates of analogue resources, born digital ones).[37]
- There are different versions of documentation of the same physical object, for example the same find was drawn and reconstructed differently by different people and at different times.[38]
- Digital data exists in a plethora of file formats, many of which are obsolete or special proprietary formats that may be unreadable in the near future. Granularity of data from different sites varies and complicates creation of a data model for resources from many different fieldwork

29 E.g. Allison 2008; Plaza 2013; Felice – Fratta 2016.
30 Witcher 2008.
31 Kucera et al., this volume.
32 Aspöck et al., this volume.
33 Prosser – Schloen, this volume.
34 Aspöck et al. 2016; Prosser – Schloen, this volume.
35 Aspöck et al. 2016.
36 Prosser – Schloen, this volume.
37 Aspöck et al., this volume.
38 Aspöck et al., this volume.

projects, i.e. from some sites there is very little information available, whilst from other sites there is a full excavation archive according to modern standards. Analogue recording forms do not have the constraints of a database, and archaeologists eager to document may add many observations in a non-standardised way and in unusual places such as on photos.[39]

- Some forms of analogue documentation, such as diaries from fieldwork, resist formalisation because they can be very irregular due to handwritten accounts of several individuals and even occasional photos and sketches.[40]

Another problem for data modelling derives from the nature of the archaeological evidence: Archaeological evidence does not produce the same regularity of observations known in other scientific fields or in business, for example in a database of business customers.[41] Instead, some finds or archaeological features may occur only once, and others may be so plentiful that quantification is difficult, buckets of potsherds for example. As a result, archaeological databases based on a standard relational data model and software, e.g. Microsoft Access, use a case-tailored data representation – because few archaeologists are experts in data modelling – and may have a large number of cells, many of which may be empty because some observations were only made a limited number of times.

Approaches to Modelling and Integrating Archaeological Excavation Data

The authors of the articles in this book propose different solutions to the problems outlined above. The way they have taken to data integration has been determined by the aim of their respective project, for example: What will the digital resource be used for? Who is the audience – individuals, one or several research teams, or will it be provided openly via the internet and should therefore be understood on a global level to enable its re-use? Another decisive factor has of course been the financial and personal resources and constraints of a project.

J. M. Frey advocates that the digital archive should replicate the structures of existing analogue excavation archives rather than create a new way of organisation.[42] He argues that most excavation archives already function as an analogue form of a relational database. Hence, the software Archaeological Resource Cataloging System (ARCS)[43] for digitising and cataloguing excavation archives focuses on the archival document rather than its archaeological information. J. M. Frey rightly argues that scholars have always had to familiarise themselves with the recording system of a particular project if they wanted to research a site in-depth and make informed conclusions. He points out the danger of using de-contextualised information and drawing the wrong conclusions. The archivist was always only responsible for showing the researcher where to find resources, but not extracting and summarising the content on their behalf. The software ARCS allows using the digital archive in a similar way to an analogue one. It is open source and aims to facilitate integration of legacy data also for projects with limited funds. Data can be exported for archival storage at a data centre.

M. Prosser and S. Schloen introduce the item-based approach and the Online Cultural and Historical Research Environment (OCHRE) software, an XML database that allows for deeper integration of the data.[44] They discuss the pitfalls of the relational data model and argue that OCHRE's item-based data model is more flexible than the relational data model and particularly useful for the heterogeneous data archaeologists create. OCHRE records each unit of observation

39 Frey, this volume; Helgestad, this volume.
40 Frey, this volume.
41 Prosser – Schloen, this volume.
42 Frey, this volume.
43 ARCS.
44 OCHRE; Prosser – Schloen, this volume.

as a discrete database item, which can be recorded independently of any other item. Every database item can be identified and described with various properties, even if they only apply to that item. Because of this flexibility the item-based approach has shown to be particularly useful to integrate data from several excavation projects with many different organisational systems. OCHRE also serves as a repository for all project data and is secured by the Digital Library Development Center at the University of Chicago.

E. Aspöck and colleagues also find the relational data model too inflexible to model the complex relations in a long-term excavation project among the documentation, its analogue and digital derivatives and the physical reality it documents.[45] They use semantic technologies for data integration and the CIDOC CRM ontology[46] as the conceptual background. This allows modelling the resources of the Tell el-Daba excavations to create a network of information that is able to represent the complex relations among the different entities. Using an international standard increases the chances for preservation of the metadata semantics in the future as well as the interoperability of the data.

B. E. Helgestad introduces the Ur Digitisation Project, which integrates information about objects from the ancient site of Ur that are currently dispersed over several museum collections.[47] Via the Ur webpage users can not only query and download integrated museum records, but additionally objects have been recorded in the database along with the integration of information found on excavation documentation regarding the archaeological context. In this case, the digital resource goes beyond what a traditional analogue excavation archive does by bringing together all the related material, as the data is indexed and relationships are auto-generated.

F. Zaina presents the perspective of a single researcher dealing with old excavation data. Working on resources from the excavations at the Near Eastern site of Kish in Iraq, which are held at a number of different archives, he outlines the problems a single researcher encounters during the research process, ranging from funding to institutional support. He introduces the research protocol and open online repository Mesopotamia Exploration Survey (MES), which he used for data organisation, analysis and storage. Zaina relates his experience to the theory of archive archaeology and highlights that when re-using archives, a researcher needs to have in mind the archive creators, their background and aims, as well as the background of the scholars that have previously been engaged.

M. Kucera and colleagues introduce an archaeological information system (AIS) for integration of resources from an early, pre-digital fieldwork campaign at Tell el-Daba, Egypt.[48] The AIS consists of a geographical information system (ArcGIS and ArcScene) interfaced with a stratigraphic sequencer (HMC+) for spatio-temporal analysis. They demonstrate how the AIS facilitates the reconstruction of missing stratigraphic information. As a novelty, the stratigraphic sequencer allows allocating stratigraphic units to time intervals. Hence, temporal analysis of the dataset can be carried out via time intervals, which is an advantage to previous sequencers, which were restricted to simple temporal relations.

Digitising: Organisation, Difficult and Vast Amounts of Material

One question that was discussed during the workshop was whether the digitisation of analogue material should be carried out in-house or done by professional companies. This is of course primarily a question of financial resources, but not only. Some projects have had parts or all of

45 A Puzzle in 4D; Aspöck et al., this volume.
46 Le Boeuf et al. 2015.
47 Ur Online; Helgestad, this volume.
48 Kucera et al., this volume; A Puzzle in 4D.

their digitisation done by professional companies.[49] Although this may look like a quick and easy solution, much effort by the responsible archaeologist is required to achieve satisfactory results. The process starts with getting test scans of the same archival material from several companies and evaluating them. This step already requires the responsible archaeologist to familiarise themselves with different scanning equipment as well as criteria for evaluating the test scans, information and prices of several companies. If original excavation documentation is digitised by a private company, overseeing the transport of archival material is also important. Similarly, having someone supervise the beginning of the scanning process at the private company has turned out to be beneficial in order to see ensure all instructions are understood and the material is handled properly.[50] A similar experience was had by the author when handing over a small batch of photographic material to a private company. Not all the instructions were carried out by the company, because they had not been fully understood and we only found out when we saw the results.

In this volume, B. E. Helgestad outlines the advantages of digitising archival resources internally. Besides avoiding the many administrative and logistic challenges when resources leave an institution, institutions benefit from the skills and expertise developed when digitisation is carried out in-house, and equipment can be re-used for other projects. Additionally, the project staff maintains full control over the process and can adapt workflows if necessary. Also, the digitisation workflow is fully integrated with all other parts of the project. From the experience with the 'A Puzzle in 4D' project the author can only support all these points.[51]

Some projects had to deal with difficult material such as old photo negatives. For example, the archive of the excavations at Uruk at the German Archaeological Institute contains photo negatives of all ages, formats and materials.[52] Many of these negatives have already deteriorated, and their preservation is endangered. Hence, the original negatives cannot be used by researchers anymore, and the original negatives need to be protected. In a project with the University of Applied Sciences in Berlin the photographic material of the Uruk excavations was evaluated to identify the different types of photographic materials, find which types are endangered and how to identify them.[53] They developed different workflows for the digitisation of these negatives and standards for conservation of the original material to prevent further deterioration.

Processing digital project resources is part of the digitisation process. Files from fieldwork projects may exist in a series of obsolete or proprietary formats. It may be a challenge to access these data, and the help of a professional, such as a data specialist at a data repository, may be necessary. However, for those data that can be accessed, a series of guides advise on good practices and digital file formats suitable for long-term preservation.[54] It should be the aim of any digitisation project to use such formats, which can then ideally be used with most software solutions and hence is the precondition for re-use of the data. For cleaning and systematising data, free and simple tools are also available.[55]

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49 For example, a small batch of photographic material from Tell el-Daba had to be digitised quickly at the beginning of the project and was therefore given to a private company; parts of the Uruk maps and old archive material at the German Archaeological Institute (pers. comm. Margarete van Ess 2016).

50 Pers. comm. Margarete van Ess 2016.

51 The webpage of the 'A Puzzle in 4D' project (https://4dpuzzle.orea.oeaw.ac.at/archive) contains documentation of the project and information about the scanning process.

52 Pers. comm. Margarete van Ess 2016.

53 Bartels – Jüster 2011.

54 E.g. ADS; IANUS.

55 Prosser – Schloen, this volume.

This Book: Archaeological Case Studies and Archival Material

In this book, approaches to the integration of resources from archaeological fieldwork are presented with archaeological case studies. J. M. Frey discusses the integration of resources from Isthmia in Greece, a site where fieldwork has taken place since the 1950s, revealing evidence from prehistoric to modern times, but which is famous for the sanctuary of Poseidon as the site of the Isthmian games. M. Prosser and S. Schloen discuss three case studies, all based in Turkey and Syria with evidence ranging from the Neolithic to the Byzantine periods, where research in most cases started in the early 20th century with the exception of one site (Zincirli), which has been researched from the 1880s. Aspöck et al. and Kucera et al. work with the resources from the excavations at Tell el-Daba in Egypt, a site with evidence from the 12th to 18th Dynasties (early 2nd millennium BC), which has been excavated since 1966. Fieldwork at the site of ancient Ur, with evidence dating from 5500 to 300 BC, started in the mid-19th century, and the resulting resources are being united for the first time in the Ur online project reported by B. Helgestad. F. Zaina works with material from the excavations at ancient Kish, Iraq, many of which date to the first three decades of the 20th century.

Hence, most fieldwork-records of the projects discussed in this volume are from the early 20th century, but some are up to 160 years old. Dealing with archival data from older or long-term excavations also means that we are dealing with material from different eras of archaeological fieldwork. These resources also are a testimony of how archaeological fieldwork has been carried out over time. They show how archaeological features were recorded and categorised and how they were analysed and interpreted. This has important implications for those who work with these archives: they must consider the different theoretical and methodological backgrounds to the creation of the resources in comparison to contemporary archaeology. In particular where there is textual evidence, such as from many parts of prehistoric Eastern Mediterranean, information from texts may have heavily influenced the recording, categorisation and interpretation of the evidence.[56] For the same reason fieldwork archives also serve as sources about how archaeological thinking, knowledge and research practices developed, and their study can therefore contribute to our understanding of research history and epistemology of archaeology.[57]

Such information is hidden in field diaries, recording forms, photographs and illustrations. Hence, we have encouraged the contributors to this volume to illustrate their articles with examples from the archival material with which they are working. These images may reflect research practices of archaeologists in the past that are different from today. For example, at the excavations at Ur in the 1920s, photos of 'street scenes' were taken of excavation workers posing in the streets of ancient Ur.[58]

Coming from a different era of archaeological research, these photos also have their own aesthetic, differing from today's more standardised excavation photos. In this sense, this volume marries technological approaches to integrating legacy data with a presentation of insights into the riches of our old excavation archives. The latter should serve as a reminder that these old archives are valuable and rich resources that can be brought to a new form of life through digital technologies. It is also important, however, that they are not forgotten in the midst of the current hype around technological developments for archaeological fieldwork.

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56 Compare also Allison 2008; Witcher 2008.

57 Baird 2011; see Zaina, this volume.

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