The Promotion of Archaeological Syntheses

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1 Background Scene Setting

1.1 The Need for Synthesis

The need for synthetic publication of recent development-led fieldwork results has long been recognised within the sector. This has only increased over the last decade as the sheer number of planning-determined excavations conducted *per annum* in England has become widely appreciated (plus their varying regional coverage; e.g. Smith *et al*. 2016, 1-9; Darvill *et al*. 2019; Gosden & Green 2021, 29-72). Equally relevant, at least for later prehistory and Roman times across much of Southern England, is that settlement densities were evidently far higher than earlier researchers could ever have conceived of (Evans 2012 and *et al*. 2023; Aldred *et al*. 2023). In the face of 'so much more past' and its amassed 'grey literature' (see Donnelly 2016: Thorpe 2019), the need for synthetic studies is made all the more pressing.

A sound *Business Case* can clearly be made for further archaeological syntheses (see 2.5 below). While sites are now seeing publication at a much greater rate than in the early years of development-led fieldwork, the majority still appear as single site publications. Given the current scale of investment within archaeology, this will only realise its full potential – and avoid duplication of effort and resources – through higher-level appraisal. Not only do such studies have the capacity to enable decision-making and future fieldwork research prioritisation (e.g. Fulford & Holbrook 2018), but will surely in better understanding of the past. This in turn can further better informed planning advice and decisions, as well as providing portals for public/citizen access to 'their pasts'.

The importance of such syntheses in creating new past narratives was recognised as one of the six themes of the Historic England and the Chartered Institute for Archaeologists' report, *The World after PPG16: 21st-century Challenges for Archaeology* (Wills 2018). Improving synthesis has since been re-affirmed as part of the framework of the project's strategic initiatives (Hinton 2023, 19). With Thomas' paper, 'It's not Mitigation! …', also stressing the essential need for synthesis in archaeology's research cycle (2019, 337-38), this document explores means by which fieldwork syntheses can be further promoted (and funded) in England's archaeology and its development-led practice. It is underpinned by a belief that strong syntheses will only occur when as many skills, viewpoints and understandings are brought to bear on a problem as possible. Curators, developer-funded archaeologists, museum professionals, members of national bodies (EH, HE, *etc*.) and universities need to come together, pooling (and pulling) resources and expertise to more fully understand the past.

1.2 Workshops

In March of 2021, an initial document on this theme, *C21 and Synthesis*, was compiled by Chris Gerrard (UAUK) and Christopher Evans (British Academy). This arose from information provided by universities (contacted through UAUK) and from an on-line meeting held the month before; the latter involving 14 participants representative of fieldwork units, universities and public bodies. The points and issues arising the informed a day's workshop – *How do we Learn? A Workshop on Archaeological Fieldwork Syntheses* – organised by Evans

and Chris Gosden, and jointly hosted by the Society of Antiquaries, Historic England and the British Academy, in January of the following year was held in the Society's Burlington House premises. Occurring in the immediate aftermath of a COVID-lockdown, it involved 30 invited participants (in person; with it having open-access coverage on-line).

The workshop amounted to a review of recent development-generated fieldwork syntheses. Including international, national and regional studies, amongst the meeting's other announced themes was whether archaeology is achieving what is now needed for research purposes and if the mass of new information is changing the way we think about Britain's past. Also, how essential is greater consistency in HERs and specialist recording practices, the challenges posed by 'big-data' and the historiography of its application; plus, that when we drill down in greater detail for regional/local studies, is current 'grey literature' adequate to the task? In addition, the workshop's afternoon session included contributions relating to Planning and Infrastructure Projects (S. Bryant), University Interfaces (V. Cummings) and Citizen Science and Community Initiatives (S. Perry).

Arising from these meetings, and in the consultation responses to this document (see Appendix 4), there clearly is a broad desire within the sector to reshape how archaeology is conducted in the country.

1.3 PPS 5 and the Southport Report

Widely citing PPS5's emphasis on the value and understanding arising from excavation results – as opposed to the ethos of 'preservation by record' – the 2011 Southport Report covered many of the same points (see also Andrews *et al*. 2020). Apart from that some sites don't warrant stand-alone publication and are most appropriately synthetically 'grouped', these ranged from the need to link public data-sets, funding to support commercial/academic collaboration and to 'encourage/fund synthesis and thematic publication of commercially funded work by relevant university departments and specialists'. It included, moreover, proposals for the development of regional resource centres or hubs and, too, that English Heritage was considering commissioning university and other experts to contribute to syntheses and act as research advisers on panels in manner comparable to their regional science advisers.

2 Synthesis - Modes and Variability

The aim here is certainly not to be unduly prescriptive or formulaic and, under the 'umbrella heading' of synthetic study, there clearly is great variability of scale and scope (and ambition).

2.1 Scoping and Definition

With the overarching aim of throwing new light on the human past, for the purposes of this document archaeological synthesis can be defined in simple geographical/spatial terms as *a summary of an archaeological investigation, or a study of particular class/es of evidence (e.g. finds analysis, thematic, chronological and other specialist studies), that includes an assessment of primary and secondary archaeological data beyond the notional boundary of a single development-led investigation*. The summary would normally include relevant sources, in addition to HER data alone and mapping.

Below a representative range of synthetic scenarios and examples of good practice are outlined. It includes the geographically based categories of local, sub-regional, regional and national syntheses, each of which will be considered below. It also includes syntheses that are thematic, period-based and/or encompass specific evidence classes (e.g. artefact studies).

2.2 National- and Sub-national-scale Syntheses

Both issued in 2007, Yates' *Land, Power and Prestige: Bronze Age Field Systems in Southern England* and Bradley's *The Prehistory of Britain and Ireland* were amongst the first synthetic national-level studies that drew widely upon the results of development-led fieldwork. In the years since the Southport Report, a small number of major national-level synthetic studies have been issued. Leaving aside Bradley *et al*.'s more wide-ranging/international *The Later Prehistory of North-West Europe …* study (see also Webley *et al*. 2012), these are notable for their ambition, and the diversity and scale of their funding, which includes (for archaeology) unprecedently large EU and Leverhulme grants, as well as significant Historic England funding.

The most ambitious such studies are the three-volumes of Reading's *New Visions of the Countryside of Roman Britain* (RRS; Smith *et al*. 2016; 2018; Allen *et al*. 2017; see also Fulford & Holbrook 2018) and Oxford's *English Landscapes and Identities: Investigating Landscape Change from 1500 BC to AD 1086* programme (EngLaId; Gosden & Green 2021; Green & Creswell 2021). Years in the making and demanding large team efforts (each commanding more than a million pounds of funding see *Business Case …* Inset, 2.5 below), it is estimated that a quarter to half of third of their time/budgets were expended upon the assembly of their respective data-bases. Both studies are 'totalising': comprehensive in relationship to the available data of their respective time frames, and they each include high-level analyses. Yet, they differ greatly in their approach and outputs.

At its core, despite its amassed 'big data' of over 900,000 records from primary and secondary datasets – including HERs - and cross-regional case study transects, EngLaId is essentially a platform for ideas concerning the nation's long-term 'historical' land-use trends. As such, in respects, it is akin to Fox's *The Personality of Britain* (1932). A notable aspect of EngLaId is its review of HERs as a source for research and synthesis (Cooper & Green 2016).

The RRS volumes are, in contrast, based upon published and grey literature excavation reports for England (plus Wales) and are organised in relationship to established geographic regions and, on that basis, successively present and characterise the range of Roman settlement types within each. Involving more detailed site-specific presentation and analyses, it is that much more relevant for fieldwork practice, with EngLaId oriented more to academic audiences. While the RRS volumes included analyses of the period's finds, neither it nor EngLaId involved any actual 'hands on' archival finds study.

Other notable published national synthetic studies are Blair's *Building Anglo-Saxon England* (2018), which also used published and grey literature excavation reports, together with historical sources; as does Rippon and colleagues' *Fields of Britannia* (2015) and *Planning in the Early Medieval Landscape* (2020). *Building Anglo-Saxon England* also demonstrates that, during the early years of the last decade, it was still possible for a single author to comprehensively synthesise and reinterpret significant aspects of the archaeological and historical evidence for a single period. Now, given recovery rates, this is highly unlikely.

The above-mentioned, published national syntheses provide important data and analysis as to the future requirements for synthesis at the national, sub-national and regional scales. The need for greater consistency in respect of fieldwork methodologies post-excavation analysis and HER data is a dominant theme. Issues of consistency include: the difficulties of using Roman pottery reports for the Roman Rural Settlement Project; the limitations of using HER data at below sub-national scale for the EngLaId project and Blair's statement concerning the implications of the variability of HER data: 'HERs . . . . proved to be problematic and deeply compromised'. Certainly, the lack of data consistency has implications in terms of both the additional resources required to assemble and clean data, and accordingly the range of questions that can be asked of it.

Further national-level studies that could be cited include Tipper's *The Grubenhauser in Anglo-Saxon England* (2004) and the Grave Goods project (Cooper *et al*. 2022), along with Gilchrist and Sloane's *Requiem* … of 2005 concerning monastic burials. Also, amongst finds-related studies, would be Tyers' *Medieval Glass Vessels in England* (2000) and Walton-Rogers' *Cloth and Clothing in Anglo-Saxon England* (2007). In addition, there are currently a number of important on-going thematic research projects that draw heavily on the results of recent fieldwork. One is Rewilding Later Prehistory (A. Cooper; UKRI Fellowship), to which can be added Ebb and Flow: Exploring Rivers in Later Prehistoric Britain (Leverhulme funded; C. Nimura), and Migrants of the North Sea World (pilot study, Fell funded; H. Hamerow & L. Ten Harkel).

2.3 Regional-scale Studies

Generally, there has been a relative paucity of regional synthesis for an academic/professional-audience, with regional/county studies largely appearing in more popular formats. A notable exception is Rippon's *Kingdom Civitas and County*, which like Blair's *Building Anglo-Saxon England*, has a holistic approach, using published and grey literature archaeological evidence, plus historical sources, place-names, the analysis of landscape patterns and some original finds-based research (Rippon 2018). Also of note are the four volumes of Oxford Archaeology's *The Thames Through Time* series (e.g. Lambrick 2009 see also e.g. Clay 2002; Farley 2010).

2.4 Sub-regional and Local Synthesis

An accepted output of development-led archaeology, a number of good sub-regional and local synthesis have been various issued or are on-going. Such syntheses can provide the foundations that enable local networks of synthesis to be convened. Aside from helping to refine research agendas, these have the capacity to reduce the resources required for other local and regional synthesis. The key to achieving this is to maximise the potential of the current planning and national infrastructure system (see below, Funding and Operational Models & Appendix 3). By way of exemplars, amongst these are:

On Track: The Archaeology of High Speed 1 – Relating the many sites discovered along the length of the HS1 route in Kent, involving a high level of synthetic context – with the participation of academics and other regional specialists – as reflected in its publication (Booth *et al*. 2011), this was an exemplary programme. Indeed, its project design anticipated many of the issues raised here (Foreman 2004).

Thames Estuary Sub-Regional Synthesis - Hepple's *Update and Revision of the Archaeological Research Framework for the Greater Thames Estuary* (Hepple 2010) is an example of a major sub-regional synthesis.

Funded principally by Historic England, it follows a similar process to the Regional Research Frameworks, although its focus is more geared towards the management of the wider historic environment. The project provides essential framework for planning and infrastructure development within – and in the vicinity of – the Thames Estuary.

The Till and Tweed valleys of Northumberland - A two volume sub-regional (*c*. 800km^2) multi-period landscape study that incorporates the results of development-led survey and excavation (Passmore & Waddington 2009 & 2012). One of the few published, sub-regional academic synthesis.

The A1 Leeming to Barton Improvement Scheme: Scotch Corner - The report of excavations of nationally significant Iron Age and Roman remains at Scotch Corner contains a number of important specialist syntheses and an overarching synthesis by the author, including a major review of the Conquest Period in the North-West (Fell 2020).

The A14 Cambridge to Huntingdon Improvement Scheme - The updated project design (UPD; MoLA/Headland 2019) for this major infrastructure project divides it into separate landscape block reports, but has also recognised that an overarching published synthesis would be needed to provide context. The forthcoming monograph report synthesises ideas arising from the project, comparing and contrasting with other sites in region and beyond.

Marsh Leys, Bedford - The discussion of the excavations at Marsh Leys, Kempston Bedfordshire (Luke *et al*. 2011) was/is still a model synthesis, including an assessment of the late Iron Age/Roman landscape for an area of *c*. 35squ km to the NE of the excavated area. Well-written and presented, it adds significantly to understanding of the local area, and also the Ouse Valley of the wider region.

Also, some of the reports issued through the Aggregates-Levy Sustainability Scheme between *c*. 1995 and 2010 include syntheses of development-led archaeology for historic counties or major river valleys. A good example is the archaeological and environmental synthesis of the Nene Valley (Meadows *et al*. 2009).

An important class of local, area-specific case studies of syntheses are those that have been published in the past decade concerned major historic towns/cities and their hinterlands. Most include a synthetic review of previous unpublished 'backlog' excavations. A major part of their funding has been from developers with significant contributions from Historic England and academic funding. Together, these studies provide what is probably the largest corpus of up-to-date high quality syntheses from development-led archaeology.

Exeter and its hinterland (Rippon & Holbrook 2021a & b) - Volume 1 is a period-based synthesis of the archaeological and documentary evidence; the second volume is a summary of the excavations carried out at Exeter between 2012 and 2019, together with specialist syntheses of a range of evidence classes. The two together present a model synthetic study in terms of scope and detail.

Bristol (Baker, Brett & Jones 2018) - A single volume synthesis of Bristol from *c*. AD950 until the 20th century based upon its archaeological, historic and architectural evidence, with 33 contributors.

Oxford (Mileson, Webley & Dodd 2020) - A synthesis of Oxford from the Late Saxon period based upon the results of eleven excavations within the city defences that took place between 2006 and 2016.

Cambridge - Arising from major development-funded excavations, two syntheses of portions of the city have been issued**.** The one, *Medieval to Modern suburban material culture and sequence at Grand Arcade* (Cessford & Dickens 2019), covers Cambridge's Medieval and post-Medieval extra-mural development within its southwestern sector. The other, *Hinterlands and Inland: …* (Evans & Lucas 2020), in addition to reviewing Roman Cambridge's development as a whole and presenting two major west-side sites – Vicar's Farm and New Hall – this provides synthetic summaries of 13 Iron Age and Roman sites within the Roman town's wesdtern hinterland.

Leicester (Buckley, Cooper & Morris 2021) - The publication of a major excavation (the largest within the historic city) undertaken 2003-06, together with evidence from earlier excavations, historic buildings and medieval cemeteries. These are used to provide a wide-ranging synthesis of the Roman and medieval city.

St Albans (Niblett & Thompson 2005) - Although nearly 20 years old, this is a model synthesis of one of the most important and complex historic cities. It is based on the Historic England-funded St Albans Urban Archaeological Data-base as complied by the authors.

Development-led (but not so-funded), amongst the best exemplars of village-based programmes are those for West Cotton, Raunds (Chapman 2010) and Botolph Bridge, Orton Longueville (Spoerry & Atkins 2015).

Fengate, Peterborough – *A Significant Suburb*

Including three large-scale recent development-funded excavations, in 2009 the Cambridge Archaeological Unit published its *Fengate Revisited* … volume (Evans *et al*. 2009). Appearing in the unit's Historiography and Fieldwork series, on the grounds that it included a précise of Wyman Abbott and E.T. Leeds' archives, the book also synthesised all the environs' fieldwork since Pryor's Fengate campaigns. With Fengate certainly a 'significant suburb', since that book was issued, eight organisations have worked in the area without a further overview study issued. Mechanisms need to be found via the planning process – or other means – to produce periodic synthetic overviews for this and other comparable long-term developments that impact areas of important known archaeological potential (see Section 6.2 & Appendix 3 below).

2.4 Shorter Synthetic and Academic Reviews

Needing acknowledgment are the many journal papers that have been forthcoming from fieldwork syntheses; both arising as an ancillary off-shoot of more major programmes (e.g. Cooper 2016; Ten Harkel *et al.* 2016) and as stand-alone studies themselves (Caswell & Roberts 2018). Similarly, noteworthy are the many more general, often period-based academic overviews that draw upon development-led fieldwork results (e.g. Garrow 2006; Gilchrist 2012; Hamerow 2012; Nevell 2017; Carver 2019; Conneller 2021; Johnston 2021).

Casual inspection suggests that more than a hundred books and papers have been issued over the last two decades variously drawing upon development-led fieldwork in England. This can only be counted as a major success. Clearly, the results of commercial practice are widely appreciated and acknowledged by the wider archaeological sector, especially academia.

As is only appropriate, under the general rubric of 'synthesis' there is much variety. In most of these publications the mobilisation of recent fieldwork results is essentially 'exemplary'. They do not amount to detailed syntheses, sufficiently comprehensive to provide a basis of decision-making concerning the frequency/density of specific site types and what 'facts' can be established concerning them and their assemblages in order to authoritatively inform future fieldwork research orientation. Of such needs, it would have to be said that, for example, Reading's *Roman Rural Settlement* … series and Caswell and Roberts' 2018 MBA cemetery paper – plus some of the recent town/city hinterland studies (e.g. Rippon & Holbrook 2021) – approach being sufficiently detailed and comprehensive to provide a basis of such appraisal and decision-making.

It may well be if close-grained detailed syntheses are required by the sector, then these may have to somehow be specifically commissioned. Yet, there is equally an issue of whether authoritative syntheses need necessarily involve comprehensive mass-scale surveys. While for the purposes of regional/national distributional analyses and predictive modelling all sites of a period need register and characterisation, it may be that – effectively as case studies – only some of any set classification (and their assemblages) 'speak' clearly of the type as whole and, thereby, warrant more fulsome synthetic appraisal.

2.5 Types of Synthesis

Potentially encompassing both site- and artefact-focused studies, based on the above examples three main modes of syntheses can be distinguished:

Interpretative – While drawing upon recent 'insightful' findings, these are not necessarily comprehensive of all of a class of sites/monuments (e.g. long barrows) or artefacts (e.g. Samian Ware) under review.

Contextual – Based on period- or site/artefact-classification, and/or assemblage types within specific regions/sub-regions, these essentially provide broader context for recent findings.

Authoritative – These comprehensively overview all the significant findings of a specific classification/period. These will likely be conducted at a regional or national level, though specific sub-regional studies of this type can be envisaged.

While the results from all three modes of study analysis have the capacity to influence research priorities, through their comprehensive 'authority' the latter can more directly action future directives and decision-making. In this capacity, *synthesis represents an essential feedback stage in the archaeological process*. It is only through the understanding of sites in a broader context that their findings can be fully appreciated (i.e. their place in 'the pattern'). This in turn provides a basis of research prioritisation – and, potentially, information redundancy (i.e. what it can be said is now 'known') – to inform future fieldwork, achieve more insightful results and appropriately direct funding.

Synthesis – A Business Case Exercise

Strictly as a ballpark exercise, the Roman Rural Settlement programme (RRS) provides a basis to estimate the relative expense of syntheses. If saying it cost in the order of £1m to appraise the results of 20 years of Roman-related PPG16 fieldwork, then – if 20 years of development-led fieldwork as a whole represented some 5000 investigations *per annum,* at a cost of *c*. £120m each year, and of which *c*. 30% were Roman, with say 40% 'useable' for the RRS's purposes – this amounts to some £300m spent nationally on Roman archaeology up to 2012. Accordingly, its synthesis would then only represent a 0.3% cost of its data collection.

3 Facilitating Synthesis

The implementation of minor improvements within the existing operational framework of development-led archaeology would greatly facilitate synthetic studies, with the anticipation of AI applications having great potential.

3.1 Mechanisms Promoting Synthesis

Peer Review

Many development-led excavation monographs are not currently subject to anonymous peer-review, unlike local/county and national journal papers. Arguably the most important output of development-led archaeology for synthesis, academic peer review could serve to strengthen the synthetic element of such publications. By way of example, the East of England monograph series, East Anglian Archaeology (EAA) – a consortium of archaeology publishers in the region – has successfully funded academic peer reviews for all of its 200 + volumes. EAA also allocates the relevant local government archaeologists to ensure that that the reviewer's comments are taken on board by the author. Similar processes, involving the pooling of resources to establish editorial boards, could also be considered for other regions.

Excavation Monographs Access

Writing synthesis requires ready access to published excavation reports. Monographs of development-led excavation reports are currently issued by a wide variety of publishers, many of which do not allow free open access after fixed time periods from publication. Digital publication as pdfs also enables instant word searches, reducing the time and resources required to undertake research. It is therefore considered that open web-access via pdfs should occur within a maximum of five years following publication, preferably after two.

Professional Standards and Guidance

CIFA have responded favourably to the idea of amending the relevant Standards and Guidance to ensure that the importance of synthesis is emphasised. An immediate priority is to identify a range of synthetic case studies that have been funded directly or indirectly by development-led archaeology and which can be promoted as good practice. The publication of every large-scale project will, in theory, include a substantial level of local/regional synthetic overview (e.g. major infrastructure or quarry-excavation programmes). These could be collectively presented on county/regional web-sites and, thereby, eventually contribute to more formal synthetic reviews (and also inhibit duplication of research effort).

3.2 Improving Base-line Data

As outlined, the major national synthesis publications have identified consistency of methodologies and HERs as issues that both increase the resources required for research-funded synthesis and limit the range or research questions that can be addressed. Issues concerning the need for greater consistency on development-led archaeology methodologies are addressed in 21CAP 4.3 but are also pertinent for this document.

HERs

Recording practices of what and how data are recorded vary, including the differing emphasis placed upon 'lumping' or 'splitting' and monument-based *vs*. event-based HERs. There is also significant variability between HERs in their emphases on thematic subjects and chronological periods. This has always been the case – and will probably continue to be to some extent – due to differences in geography, landscape, the history of the HER, the underlying nature of the historic environment and the type of threats to it. A more standard basis of recording is, however, essential to facilitate mass-data handling beyond the county scale.

Given the likelihood that HERs will soon be made a statutory service of local authorities, any proposed changes to improve their usefulness for research is unlikely to be a priority. However, a HE-led rapid survey of HER recording practice, followed by a programme to align future recording practice, would

be a start. Once activated, HE's Heritage Information Access Simplified programme (HIAS) will greatly facilitate this and, in the interim, the regional HER forums could be used to this end. This review should also extend to the charges now made by some counties' HERs; for what is arguably commercially derived research purposes, these are becoming prohibited – to the point of inhibiting synthesis – unless in receipt of major grant funding. Also in this regard, a means should be found to update HERs in the light of synthetic appraisals of their entries.

Data-base Legacy

In light of the effort and expense of compiling the data-bases for major synthetic programmes (e.g. RRS & EngLaId), it is imperative that a way is found for their maintenance and regular updating. HERs seem a likely solution and, failing this, Regional Research Networks could potentially provide another means; it being imperative, though, that ADS remains their main repository.

Mapping Needs

It is imperative that means of providing period-based regional digital mapping are explored. Ideally, these should extend to indicating site/settlement types (e.g. farmstead, crossroads settlement). Failing that, there should at least be a visual indication of those from which major and minor per-period assemblages have been forthcoming. One possibility would be to reactivate Bournemouth's AIP maps and use this as a basis to update coverage for the last 13 years.

The ability to generate map distributions is one reason why Portable Antiquities Scheme findings are a popular choice for student dissertations. Producing comparable maps of, for example, pottery types – for example, Grooved Ware or Food Vessel – would require more investment, but are clearly necessary to appreciate settlement/diverse land-use patterns. Similarly the EngLaId project used PAS spatial data, but struggled to find reliable sources for mapping pottery distributions, as sources were sparse or inconsistent. Identifying ways in which the gap between AIP and the current OASIS, in terms of the ability to generate distributions, would be helpful (see also Morrison *et al*. 2014 on the need and potential for GIS-integrated spatial data arising from fieldwork).

Report Procedures

Through CIFA, ALGAO and FAME, promote more standard usage of *minimal* reportage criteria (e.g. use of national period pottery-fabric types) and greater consistency generally, including site sampling and site distributional analyses (e.g. employment of volumetric/cubic-metre finds densities to facilitate inter-site comparison; see Fulford & Holbrook 2018).

Archives

Syntheses of all types and all geographical scales are ultimately dependant upon archaeological archives, both digital and physical. It is also recognised that good, object-based syntheses – as well as being important in their own right – are necessary to create more holistic regional- and national-scale syntheses. It is however crucial that there is consistency in terms of classification and typologies, and robust mechanisms for the assessment of significance of all classes of evidence within archives. It is also vital that there is sufficient consistency in terms of the methodologies used for data collection and its analysis such that – as a *minimum* – machine-learning can successfully be used to inform synthesis.

Synthesis Training

In the name of learning from experience, with programmes of mass-scale data-handling for synthetic purposes proving complicated – perhaps through either CIFA or HE – training courses should be offered by those who have already participated in such exercises.

National Overview

Consider establishing a National Advisory Panel involving the range of sector representatives and relevant academics (eventually including representatives of Regional Research Networks). Its first task should be to determine what kind of syntheses are needed to facilitate decision-making and research prioritisation within the sector and to help co-ordinate regional – and other – research networks and activities.

3.3 Archaeology and AI

Aside from its apparent ability to synthesize texts, artificial intelligence (AI) coding or bots have great potential to process large amounts of data, finding patterns that might be impossible in any other way. English archaeology already has such a mass of data in HERs and national repositories, making it ideal for AI approaches, if various problems can be overcome.

We see broad areas in archaeology in which AI might be applicable: systematic text searching of records available through OASIS and other sources; particularly, image recognition in a variety of forms, ranging from aerial photography, LiDAR to geophysics and site plans (e.g. Karamitrou *et al*. 2022; Kramer 2021). Such ventures in machine-learning and archaeology are currently being experimented in, for example, Southampton's Unpath'd Waters project (https://unpathdwaters.org.uk/; see also ARIADNEplus' mass 'data-mining': https://ariadne-infrastructure.eu/). Using a knowledge of the structure of sites and finds in a landscape of one period (something like the Romano-British period might be useful as much is known in many areas) will make it possible search for such patterns in others. Such approaches could both reveal unsuspected patterns in existing data and, potentially working from known areas to less well-known ones, allow for some element of *prediction* (see Chadwick & Green 2020; Chadwick forthcoming). This could be useful in developer-funded archaeology, allowing us to generate expectations with a new area for work, going beyond 'normative' desk-based assessments.

There are, of course, problems and issues to be confronted in the application of AI to archaeological data. The most pressing is that very few archaeologists understand AI, the routines it uses and its results. Presumably a function of our present state of knowledge, this can be overcome once AI becomes more commonly applied. Our feeling at present is that it is better to work with archaeologists who are computer literate and can learn to use AI, rather than work with AI specialists who know nothing about archaeology. The second obvious problem is that, for text-search needs, the terminology used is inconsistent, changes over time and varies from one organisation to another. For visual images, an AI may well need training to distinguish archaeological features from other things in, for example, aerial photographs that might appear like an archaeological site or structure. Hopefully, these issues can be overcome once we start working with AI.

Overall, the potential for AI to trawl through and interrogate large data-sets of various kinds is enormous. It is only by implementing work of this kind that will we recognise the problems and start to overcome them.

4 Participation

Beyond the sector's unit professionals, acknowledged institutions and authorities (CIFA, HE & LAs), it is essential that 'others' also actively participate in both enabling and producing syntheses.

4.1 Universities

University-based archaeologists are well-placed to synthesise results in collaboration with commercial archaeologists and the wider historic environment sector (see e.g. Barker *et al*. 2016 on the role of universities). The majority of published synthetic overviews have been written by archaeologists in the university sector, often producing these studies with their students and with peers in mind as their target audience. Other notable examples of syntheses have rewritten key aspects of the archaeological past focussing on specific types of evidence recovered from developer-led archaeology, often produced by cross-sectorial teams. Academics have traditionally been able to use sabbaticals or buy-out their time with external grant-capture to produce such studies. This means they can dedicate all their time to doing this research and there can be a fairly quick production turn-around. Here it is worth noting that academic syntheses are typically either thematic or period-based, rather than regional, although the latter do exist (e.g. Rippon 2018). Finding funding for post-doctoral researchers to engage in synthesis will have two benefits: innovative forms of synthesis will be undertaken, and young members of the profession will learn more about the potentials and pitfalls of synthesis early in their careers. Most of the work on RRS and EngLaId was carried out by post-doctoral researchers, with excellent results.

Of collaborations between commercial units and the university sector in contributing to, or co-authoring, syntheses, it is important to note that regional expertise in universities is not necessarily co-located with that of their institution. Quite simply, academics work where they have been offered a position, not in the area they specialise in. Many, although not all, may run a research excavation in the region they are researching, or have connections with local museums if their research is artefact-based. Likewise, technical expertise and scientific facilities are often located in universities providing, for example, scientific dating, isotope and/or aDNA analysis. Those offering commercial services will advertise this on their web-sites, but again non-profit joint-project connections are valuable and can be sought out at an individual level (i.e. providing co-authored publications for the universities' REF entries and as a basis for their applying for more major research grants). *Facilitating further connections between commercial units and university departments is clearly in everyone's interests*.

Another dimension of collaboration might come from identifying and publicising student research projects – at all levels, including PhDs – that could be conducted on site archives held by commercial units, museums or other organisations. There are a number of collaborative doctoral awards on offer, which could allow for collaborations between universities and other organisations, resulting in synthesis. This would be an effective way of deepening regional connections, but it would again be assisted by a degree of co-ordination at national level, perhaps with UAUK working with CIFA and ALGAO to survey appropriate organisations for lists of potential projects. These might particularly emphasise finds work to address skills gaps in specialist post-excavation, as well as academic expertise in facets of material culture study.

University Input

Attempting to gauge the contribution of UK-related undergraduate dissertation topics, unfortunately data is only available for four universities – Leicester, UCL, Durham and UCLan – for 2021-22. Of these, only at the latter were UK-related topics dominant (75% *vs*. 25% international), with the others varying from 18-22%.

Stronger statistics are available for PhD topics (UAUK 2022). A total of 834 theses were completed between 2010 and July 2021 in UK archaeology departments. Of these, 590 were 'English topic-related' and, of which, 438 could be assessed for their content, with 186 (42.4%) consulting material archives in England. Estimating the value of this research, employing current UKRI doctoral studentship figures (though only a small proportion of these are UKRI-funded), at a minimum this amounts to *c*. £11m over the decade (C. Gerrard, pers comm.).

4.2. Consultants

Archaeological consultants now have a pivotal role formulating the framework of most major fieldwork programmes and the means/scope of their arising publication programmes. This is universal in the case of large infrastructure projects and, given the potential for these to include a significant synthetic component (see below), it is imperative that consultants are fully versed in the need for synthesis and arising regional/national thematic priorities.

4.3 Synthesis and the Public

The potential for members of the public to engage in archaeological synthesis is considerable, particularly in localities that are known to those undertaking the work. A considerable number of other disciplines have used the interested public to synthesise and critically examine data. A noteworthy exemplar is Galaxy Zoo (https://www.zooniverse.org/projects/zookeeper/galaxy-zoo/). This takes images of galaxies from the Hubble telescope and elsewhere, and aided by information on the web-site, making them available on a web-site so that people can classify the galaxies into different types.

Similar projects could, for example, be possible with aerial photographs, LiDAR or large-scale geophysical surveys to distinguish patterns and record them in a standard format (see e.g. Aym *et al*. 2014). This might be done in tandem with the results of AI (see above). Astronomers and others have a considerable amount of experience in the potentials and pitfalls of guiding people in citizen science initiatives of this kind (e.g. Smith 2014), but overall the potential is considerable once a procedure is established. There is also funding from various sources for work of this kind. In such cases, it would, of course, be necessary for results to be checked, but reliable results could then be fed to HERs, *etc*., and might form the basis for further work in the field or archive by local societies and groups. By the same token, with the aim of moving archaeology 'from an expert community to a community of experts' (Watson 2023, 71), local societies could be encouraged and supported to produced their own synthetic accounts (see also Watson's proposed model for broadening fieldwork's public-/benefit; *ibid*., 66-70).

The potential for the engagement of local archaeological societies in the process of synthesis at the local, sub-regional and regional scale is further considered below (Appendix 1). Amongst the greatest potential for these would be new town developments – in order to participate in the forging of new local community identities – and villages experiencing housing expansion. For both, syntheses should be in formats that can be posted on

community web-sites (see, e.g., St Margaret's Village History Archive: stmargaretshistory.org.uk/subject/village-archaeology), with village-based initiatives also having the potential to integrate programmes of test pitting (e.g. Lewis 2016).

Certainly, there will be a need to ensure access to data and outputs across the sector (via ADS?) for their dissemination to all audiences and participants – including giving local communities access to their own 'stories' – by FAIR principles (see Nicholson *et al*. 2023).

Archaeology on Furlough

During lockdown in 2020, Rob Wiseman coordinated a dozen online projects under the banner 'Archaeology on Furlough' (https://robwiseman6.wixsite.com/arch-on-furlough; Wiseman & Ronn 2020). With over 100 people taking part, these projects were carried out largely by staff furloughed from UK commercial units, working from their home computers with access only to publicly accessible online resources. They synthesised data on topics including Roman and Saxon burials, aurochs, sheepfolds, henges, Roman planting trenches, and Saxon houses. Some of the project reports have been deposited with the Cambridge University Library (https://www.repository.cam.ac.uk/handle/1810/307754). A survey of participants reflected on attributes of archaeological resources which made them easy to include in synthetic projects; it concluded that Open Access PDFs was most useful format. with printed articles and monographs the least.

5 Regional Research and Frameworks

Here the case is made for regional-level syntheses and the maintenance and development of Regional Research Frameworks (and Networks)

5.1 Regional Research

Given what is now the scale of the accrued fieldwork interventions and that the competition there is for major academic grants, until the problems of HERs' inconsistency data-access and data-base updating/maintenance are resolved, it may be that, for the immediate future, more regionally based syntheses should be prioritised.

Aside from having more manageable data-sets, there would be further grounds for privileging regional synthetic studies at this time. First, that for some periods (e.g. Iron Age/Roman) in parts of Southern England (e.g. the Cambs. Clay Plain and portions of the Thames Valley), the intensity of development-led fieldwork has been such that, based on predictive modelling (Aldred *et al*. 2023), upwards of 10% of the estimated total number of Iron Age and Romano-British settlements have now been excavated. Accordingly, this would seem a reasonable sample-threshold to set for a serious overview to inform the further excavation of such sites.

Second, most large-scale fieldwork projects are intrinsically concerned with long-term landscape development and settlement trends (i.e. multi-period). Yet, reflecting the structure of universities and their teaching and research-orientation, most academic-initiated syntheses (EngLaId aside) are single period-based.

Third, with the issued national-scale syntheses essentially taking a broad-brush approach to sites, 'grey literature' assessment reportage has largely been adequate for their purposes. The issue then arises that when, more regionally focused and needing to drill-down in greater

detail into site sequences, is grey literature sufficient for their study or are more developed publication-advanced site analyses required? This is certainly something that soon requires testing (this being anticipated as a component of HS2's post-excavation programme; J. Carver per comm.)

There are compelling reasons for concluding that a framework-based at the regional scale of between *c*. 5000sqkm and 10000sqkm – for the most part using the existing government regions – offers the greatest potential for the development of good archaeological synthesis as a product of development-led archaeological investigation. Reasons include:

- a critical mass of development-led archaeology in terms of the variety and high quality of projects,
- the potential to lever academic research funding and/or participation via local universities,
- the existence of Regional Research Frameworks, including existing infrastructures of formal and informal networks that involve most of the sector (see below, 5.2),
- the ability to potentially monitor and improve the quality and consistency of methodologies and standards that underpin synthesis (see below),
- the ability to engage and include local archaeology societies and the wider community via hybrid county-based conferences, county archaeology journals, programmes and events.

5.2 Regional Frameworks and Networks

The Regional Research Frameworks (RRFs) programme, based on Government regions, has been an important Historic England initiative since the mid 1990s. There are a number of useful regional syntheses within the RRFs' resource assessments. These are important, both in respect of the content of the syntheses themselves and the process of their development. This typically involves regional networks that include local government, the commercial archaeological sector and Historic England, with some input from the university sector.

Most RRFs have been updated at least once and, for the East of England, twice. However, even if in the unlikely event that resources were available for RRFs updates every decade, the current pace of new research advances – in addition to the scale, complexity and quantity of development-led archaeology – requires a more rapid and flexible approach if the national and local investment within RRFs, in terms of time and resources, is to be maintained.

The current Historic England initiative to allow updates to the online RRFs via OASIS is an important and welcome step, enabling them to be more dynamic and responsive to the outcomes of development-led archaeological investigation. If this initiative is successful, it could well be advantageous to conduct more rapid reviews of RRFs within a time-frame of, say, every two to five years, in order to identify priorities for their updating.

Existing Regional Networks

The established infrastructure of Regional Research Frameworks could also be used to provide the basis for regional, sub-regional, local area and specialist syntheses, foster links between regional networks (see Appendix 1) and provide a library of links to relevant local and specialist syntheses. In addition, the Government regions currently provide the frame of reference for ALGAO regions and HER regional working parties. These often include Historic England, as well as other regional bodies such as the National Trust, Natural England/Defra and the Environment Agency.

Aligning Methodologies and Standards

Experience of the past two decades has shown that the ability to produce good synthesis is dependent to a significant extent upon the availability of appropriate data and information at a reasonably consistent standard. The geographical scale and presence of existing networks make regions appropriate to promote consistency of methodologies and practice for fieldwork, data collection, post-excavation analysis and publication formats. Templates and standards for synthesis could also be considered.

Consistency of practice could also facilitate networks of inter-operable syntheses at the regional, sub-regional and local-area scale, as well as for specialist and thematic syntheses. A measure of consistency at supra-regional and national scale could also be feasible in due course through inter-regional networking.

Historic Environment Records (HERs)

As outlined above, the regional HER forums, steered by Historic England, should be in a position to ensure a measure of alignment between the regions if required.

Funding

It is envisaged that the actual running costs of the operation of a 'formal' regional network would be in the range of *c*. £25–250k *per annum*, depending on its size and ambition. This would need to be raised from university – and other – research grants, central government (primarily Historic England) and the private sector. In the case of the universities, perhaps on a pilot basis, this would be justified on the grounds that such partnerships have enormous potential for IMPACT and REF collaborations. Moreover, collaboration with units and their fieldwork results could provide a basis for generating major research grants, which could then return substantial overhead funding to the 'host' institutions.

Encouraging Innovation

Experimentation and innovation in terms of the scope and scale of synthesis would be encouraged, including looking to nest more detailed local, geographically-based studies and specialist studies within broader frameworks and syntheses.

Enabling Regional Programmes of Virtual Training and Collaborative Networking

Building upon recent experience of virtual networking in the sector, it can be envisaged that significant improvements in the quality and quantity of syntheses from development-led archaeology could be achieved by relatively small and inexpensive initiatives focused on training and increased collaboration.

- The existing regional virtual networks mentioned above could also be used to initiate remote training programmes; for example, writers' workshops for report-writing and synthesis,

- Virtual networking and collaboration between contracting archaeological organisations working in the region could be initiated to discuss the research and methodological aspects on-going development projects – within a 'neutral' environment –and this could also be encouraged for new contractors operating in the region.

- Cross-sector (local government, commercial sector, HE and universities) virtual regional and sub-regional networks could also help to maintain input to RRFs through OASIS and contributing to periodic RRF reviews, as well as encouraging local, sub-regional and thematic synthesis. Active participation in local and regional research could also be linked to CPD and general career progression.

6 *Funding and Operational Models*

Appendix 2 below reviews what basis of funding its available for synthetic archaeological studies for a series of European counterparts. Based on these, the Dutch model would certainly seem optimal. Given, though, the Britain's current finances, this would not seem realistic in the near-future. Requiring greater specific announcement, grants for synthetic purposes are available through HE, Soc. Ants of London and other bodies, but these are relatively minor. As things currently stand, for more wide-ranging 'authoritative' studies academic grant institutions (e.g. the Leverhulme, AHRC, ERC, Marie-Currie) will remain the main source of funding. These though are subject to considerable competition and a number of UK-directed applications have recently been unsuccessful. Their criteria for success is essentially based on academic excellence and innovation, and not necessarily the 'worthiness' of the topic. Accordingly, units should consider partnering with universities for such applications; nonetheless, it is to be hoped that at least some can be undertaken on a genuinely joint collaborative basis, and not just academic 'data-mining' of fieldwork results. While as a funding source further addressed below, here what other means of synthetic funding might be available are largely explored.

6.1 Planning and National Infrastructure Systems

A suite of options is proposed for making the production of good archaeological synthesis a routine requirement of the current planning system. They include all stages of the planning process, from local plan policies, S106 legal agreements, planning conditions, to specifying the content of Written Schemes of Investigation (WSI; see Appendix 3).

It is believed that the current planning system can be used to require development-led archaeological investigations to produce/fund syntheses at the local area-scale. This is already the case within Nationally Significant Infrastructure Projects (NSIPs) which can require necessary synthesis to allow the development to be placed in its wider context; J. Hunter pers. comm). The case for using the provisions of the National Planning Policy Framework (NPPF 2022) and the National Planning Practice Guidance (NPPG 2019) to do this via the planning system is made below (Appendix 3). It is argued that local authorities can insist that appropriate synthesis is included within WSIs and Updated Project Designs (UPDs). However, the inclusion of appropriate references to the need for synthesis in the relevant CIFA standards and guidance would also strengthen the case.

In addition, it is likely that archaeological conditions on planning permissions can be used to require consistent methodologies and synthesis for large development sites, and land allocations having multiple developers and archaeological contractors. It should also be possible for these to use specific Local Plan policies to require synthesis, or alternatively to secure funding from S106 legal agreements between planning authorities and developers for synthesis. As above, the funding of such syntheses via the planning system would inevitably be restricted to the local 'district' scale i.e. the area directly affected, plus research to place the site in its context (*c*. 50-500km^2). Funding from other sources (research grants, *etc*.) will inevitably be required for syntheses at the sub-regional scale and above, although it is likely that the presence of good local syntheses will significantly reduce the scale of any additional resources required.

Examples of good syntheses produced though the planning and national infrastructure system are provided above (Section 2.3). Obtaining further case studies of good practice for the production of synthesis, using the arguments presented in Appendix 3 should be a priority. This is because, if one or more of the scenarios does prove viable, it could have a significant impact on the quantity and quality of future syntheses. A method to achieve this would be to target large developments with reasonably

supportive developers, local authority planning archaeologists and archaeological contractors in order to obtain proofs of the principle within a 'non-adversarial' environment.

Other possible contributions via the planning and national infrastructure systems

Within the current legislative and policy frameworks for planning and infrastructure, the opportunities for funding regional and national synthesis are likely to be dependent to a significant effect upon the size, number and location of major planning and infrastructure projects.

Looking to the future: there will be a rapid up-scaling of development for green energy and its associated infrastructure, including a new national grid during the next five to seven years. It is also likely that a programme of new town construction will commence within the same time-frame. Such development programmes would also include hundreds of miles of cabling and other linking infrastructure including public transport. These together, potentially offer opportunities for a national strategic approach to archaeology synthesis, whereby project-based funding for a number of large-scale planned developments could be pooled (or top-sliced) to provide sufficient resources for a regional or national level of synthesis. Making an outline case for funding, including political lobbying, would however ideally need to commence within the next 12 months and be sector-wide, including universities as a key player.

6.2 Other Sources and Means

A selection of immediate funding alternatives are here outlined.

Designated 'Special' Investigation Areas ('DSIAs')

Establish areas of 'special' archaeological interest (equivalent to SSSIs), such as cities/towns or suburbs (e.g. Fengate) that are subject to intense development. While previously these largely were the exclusive prerogative of local units, this is no longer the case. Knowing that these areas warrant synthetic presentation (perhaps on a five- to ten-year basis), either require that they see a higher standard of immediate journal-paper publication (e.g. robust radiocarbon dating, more intense excavation and/or environmental sampling, and include detailed distributional analyses) to facilitate future broader-format/scope publication, or else have a set-percentage surcharge on their budgets therein to enable the area's eventual synthetic study and/or collective publication (to be organized/held by either on county-basis or through Regional Research Networks).

Prioritising/Commissioning Grant Sources and Regional Pilots

Without regular central government grant-sources, aside from development-derived funding for local/regional syntheses, explore whether major academic grant bodies (e.g. British Academy, Leverhulme, AHRC, *etc*.) can be encouraged to direct funds towards *prioritised themes*. While not wishing to hinder 'blue sky' research (see above concerning academic excellence *vs*. 'worthiness'), in conjunction with UAUK a National Advisory Panel could draw up a list of major themes/topics that it is hoped could be 'privileged' in such grant applications.

The suggestion has been made (by M. Fulford) of whether a major grant body, such as the Leverhulme – advised on themes and priorities by the proposed National Advisory Panel – could be persuaded to set aside, say, a £million *per annum* for a five-year period to fund, on a competitive basis, synthetic studies.

Also, as a basis to initiate the Regional Research Networks, Historic England – perhaps in conjunction with regional 'partners' (e.g. local universities) – could commission a few selected regional syntheses (?North-West and Eastern England).

Backlog

Currently in preparation, HE's pre-PP16 Backlog programme will offer opportunities for synthesis. Fieldwork in this category could be grouped together by a single period and/or type for analysis and

publication, enabled by various grants (e.g. HE, SAL, Headley Trust, *etc*.). In conjunction, could also be later development-led sites as yet unpublished by units, for which plans for their issuing have to be submitted to both LAs and CIFA. If accompanied by keyword/phrase summarises of their main findings, these could be compiled into both national and county backlog registers, thereby providing a basis for their thematic/locational syntheses. Earlier-era exemplars for such 'group-blocking' include that for Greater London (Hinton & Thomas 1997) and Lincoln (Vince *et al*. 2003), with the legacy of some areas' fieldwork historiography – involving previous practioners archival sources – a component of current excavation accounts (e.g. Bradley 2014; Evans *et al*. 2009).

A Legacy Contribution?

In the recent *Profiling the Profession* study (Aitchison *et al*. 2021), the figure is given that commercial archaeology generated a turnover of £218 million for the year 2020. If a 1% charge was applied to this – perhaps as part of general archiving – for projects over £50k in collective total, as a ballpark estimate this would then come to *c*. £2 million *per annum*. This then would clearly amount to a significant source of funding, and a basis by which to realise and unlock the full potential of development-led archaeology.

If implemented, what would be the most effective means of dispersing this funding? First, taking a Regional Networks basis, if say the 11 governmental regions with rationalised down to eight, if each employed two members of staff, then, with operational expenses (office hire, administration, equipment and conference/seminar expenses, *etc*.), this would cost between £200k and £250k *per annum*. Thereby, collectively coming to £1.6 to £2 million, this would not be a feasible operational model, especially as it would still have to involve overarching co-ordination to ensure set standards and explore the application of AI/machine-learning, *etc*.

What seems far more realistic would be to operate this on a national level, based perhaps at either the proposed National Archive Centre, ADS or a university. If employing four members of staff, with expenses, it is estimated that this could be achieved through £400–450k *per annum*. In addition, £25k would need to be allocated to each of the Regional Research Networks to cover the cost of a co-coordinator for two days per month, and the running of annual conference/seminars (plus their advisory group's expenses). This then would amount to an annual operational cost of £600–650, which would then leave £1.35–1.4 million for annual grant dispersion. Both on a basis of direct application and announced/commissioned synthetic themes – with a set allocation specifically for public benefit initiatives – the grants would determined by the centre's National Advisory Panel, involving sector, regional and university representatives. Clearly, such a national-based model would be the most effective means of operation.

It may well be that such an initiative is currently over-ambitious and faces intractable hurdles within the planning process; nevertheless, given the quantity of fieldwork now undertaken – and 'the problem' – somehow *regular* funding of this magnitude will be necessary.

4 Recommendations – *Ways Forward*

1. **Survey and review the recording practice of HERs to achieve great consistency.** This is best considered initially via a meeting with HE (including HIPs team), ALGAO, and 21CAP 4.2 team. Possibly in due course to be developed as a strand of HIAS?

2. **Establish means as to how synthetic project data-bases can be updated and maintained.**

3. **Ensure dissemination and open access to fieldwork- and synthetic-generated data-sets and publication outputs.**

4. **Explore means of providing period-based digital mapping.** Possibly reactivating Bournemouth's AIP maps, ideally for certain periods these should extend to indicating site/settlement types (e.g. farmstead, crossroads settlement) and, potentially, artefact types (e.g. Grooved Ware).

5. **Collation of sub-regional syntheses arising through major projects.** The publication of many major fieldwork projects invariably include a degree of (sub-regional) synthesis; to avoid duplication of effort, these should collected and presented on County HER and/or Regional Research Network web-sites.

6. **Explore the implementation of mechanisms to maximise the potential of synthesis via the planning and national infrastructure systems.**

7. **Explore alternative/complimentary grant-funding sources (e.g. backlog) and synthesis-support mechanism (Designated 'Special' Investigation Areas)**

8. **Establishment of a National Advisory Panel.** Involving the range of sector representatives and relevant academics (eventually including representatives of Regional Research Networks), its first task should be to determine what kind of syntheses are needed to facilitate decision-making and research prioritisation within the sector and to help co-ordinate regional – and other – research networks.

9. **Approach major grant-bodies concerning whether they would recognise (and potentially fund) a prioritised register of synthetic topics/themes** (as established by National Advisory Panel and UAUK).

10. **Encourage further inter-fieldwork unit collaboration and greater communication between them and the academic sector.** Here, the CIFA-UAUK accreditation scheme for undergraduate dissertation should be noted, and which often highlight collaboration between units and university departments; there being scope for further such engagement.

11. **Issue integrated registers of pre-PPG16 Backlog sites and any subsequent unpublished (significant) unit excavations, to assess their potential national/regional synthetic-study 'groupings'.**

12. **Consider the feasibility of establishing pilot Regional Research Networks.** These could be developed over the next 24–36 months, with the aim of developing a culture within the commercial sector and local government supportive of synthesis. Where appropriate, they would also actively look to adding value to current development-led projects from the funding of legacy projects via minor research grants (£10k and less); an aim being to match any HE funding with committed research grants over the period.

A key directive would be to encourage and develop talent from within the region to help create and then support the future operation of a Regional Research Network:

- Develop the village synthesis concept, including legacy unpublished sites, plus active public engagement with local communities,
- Keep the RRFs alive and relevant by virtual regional networks to encourage the uploading of data on RFFs questions to OASIS and participation in the consequent periodic reviews of the frameworks (see above 5.2),
- Consider opportunities for funded, sub-regional synthesis, including innovation,
- Produce regional synthetic case studies via the current planning system (e.g. Fengate; see above, 2.5),
- Develop partnerships with other regions with the aim establishing secondary Regional Research Networks within five years,
- Develop regional/sub-regional mechanisms for contracting archaeologists to collaborate on research, including sharing of resources, and maximising funding and research-value opportunities from the inclusion of legacy projects.

Note however that Cambridge's McDonald Institute's recently instigated Fenland Archaeological Initiative effectively involves a quasi-Regional Research Network, with something akin also proposed for HS2's post-excavation programme (J. Carver pers comm.). While unlikely to involve all the components as outlined here, it may be worth reviewing the means (and successes/pitfalls) of their operation prior to actual commissioning such a network.

13. **Explore feasibility of Legacy Contribution Funding and undertake cost-study of National Synthesis Centre** (hosted by proposed National Archive Centre, ADS or a university).

14. **Promotion of synthesis to targeted audiences at conferences and seminars.** Workshops should also be held to promote synthetic writing skills and innovative modes of communication generally. Also in this regard, as a theme synthesis could provide a basis to foster further cross-pollination between the CIFA and TAG conferences.

15. **Promote good case studies of syntheses based upon current development-led archaeology to serve as models for future excavation reports.**

16. **CIFA and Historic England to provide appropriate references in Guidance and Advice documentation to the importance of synthesis in development-led archaeology.**

Appendix 1: Possible Pilot Cases for Regional Research Networks

The following are proposed as, in effect, case studies for how research networks might be established and operate. Again, the aim is not to be prescriptive, with variability of their organisation and scope envisaged. A major factor being, as seems logical, is whether a university acts as their 'host'.

The East of England Region

For the reasons outlined below, it is the East of England region that probably offers the best opportunity to create a research hub that could develop the concept of archaeological synthesis within development-led archaeology. Including moreover, in part, the region of the country having the closest contacts with Continental Europe, its results are of significant international value (i.e. what our overseas colleagues need and want),

Fieldwork and Publication
The region has the highest volume of development in the UK, the largest number of archaeologists and mongst the highest density of 'significant' archaeology – the latter matched only by parts of East Yorkshire and The Thames Valley. There are several medium/large commercial organisations based within the region (CAU & Albion) and a number of regional offices including for all the major organisations (MOLA, OAE, Cotswold, Wessex & ASE).

East Anglian Archaeology (EAA) as a Regional Publication Consortium
EAA is a consortium of publishers (the former county archaeology units) that publishes archaeology monographs. The editorial committee comprises local authority archaeologists and Historic England (IAMs & RSA). It is focused on regional and sub-regional research and has a unique and robust peer-review process. There are over 200 volumes in the series and there is open access as pdfs after two years.

A Recent and Active Regional Research Framework (RRF)
The East was the first region to have a RRF, and has just completed its second comprehensive review. There was extensive networking across the sector through a series of workshops organised by EAA.

Universities With Active Regional Research Programmes
The region contains two universities – Cambridge and UEA – that have active archaeological research programmes in the region; UCL also has community-based geophysics resource that has been successfully used in the region. Cambridge University's McDonald Institute, in collaboration with Cambridge Archaeological Unit and the Cambridge Centre for Landscape Regeneration, is currently investing substantial sums in a new programme of research and synthesis into the changing diachronic archaeology, natural environment and heritage of Fenland (*c.* 4000sqkm inclusive of Lincolnshire) from the postglacial to the present, with a strong commitment to using this emergent knowledge to engage a wider range of stakeholders and inform present and future social and environmental management.

Recent Examples of Good Practice for Synthesis at Regional, Sub-Regional and Local Scales
Rippon's recent publication *Kingdom, Civitas, and County* demonstrates that good regional synthesis is possible with limited resources. The region also has a long and distinguished history of sub-regional research and synthesis, notably EAA's Fenland Survey volumes and those of the coastal survey. The forthcoming synthesis for the A14 is also breaking new ground in terms of its scope and approach.

The Role of County Archaeology Societies
The region has active county societies that publish the six counties' archaeology and history journals, organises annual archaeology conferences and serve as umbrella organisations for most of the local archaeology in the region**.** The county societies therefore provide and important means of enhancing the public benefit of synthesis through dissemination and engagement beyond the professional sector.

The North-West Region

The region is a marked contrast with the East of England in terms of:

- its landscape and geology,
- the character of its archaeology: for example, later prehistory is still almost invisible, and its industrial period is of global significance,
- the history of development-led archaeology in the region post-1990: which has had a smaller impact than the East of England in terms of resources generated and improvements in understanding.

It also has:

- A recent and very useful Regional Research Framework (RRF).
- An important synthetic review of recent excavations of industrial housing in Manchester (Nevelle 2017).
- On-going synthetic studies resulting from the recent A585 excavations at Windy Harbour, The Fylde, Lancashire are of national significance for the Late Mesolithic/Early Neolithic transition.
- A long history of collaboration between universities, local government archaeology and commercial field archaeology. The Manchester, Lancashire and Merseyside SMRs and field archaeology services were placed within universities during the 1970s and the Greater Manchester service is now within the University of Salford and the Merseyside Service still has strong links with Liverpool University.

Although not development-led or developer-funded, the report of the investigations of the multi-period site at Mellor, Greater Manchester are worthy of note as an important synthesis of a unique site of regional significance (Nevell & Redhead 2005). It also highlights the regional distinctiveness of the North-West, which historically has had strong links between local government, universities and local community groups as well as a significant role for public sector and lottery funding of excavation and publication. Also, a recent, notable contribution to the Regional Research Framework of the North-West region is *The Industrial Period and the 20th Century* (Nevell 2021). Impressive in its scope, it highlights the extent and quality of recent surveys, investigation and research for this period in the North-West, that is collectively of international significance.

Appendix 2: National Approaches Outside UK – *Synthetic Practices and Exemplars*

France and Belgium

In France there is national (Programme de Recherches Concerté) funding, bringing together researchers from various backgrounds to collaborate on set regional-scale themes. In addition, there have also been national-level surveys for both the Bronze and Iron Ages, each generating integrated data-sets and synthetic volumes (Carozza *et al*. 2017; Malrain *et al*. 2013; see also Maitay *et al*. 2023). Although in practice the definition of what amounts to synthetic research (*vs*. site-specific) is apparently somewhat looser, in theory the Belgian system – at least in Flanders – seems broadly comparable. Based on an overarching synthetic research framework, the Flemish Heritage Office has an annual round of funding, with the aim of bringing together participants from units, academic and museums.

Norway and Denmark

In Denmark funding of development-led archaeology is limited to the excavation itself, a restricted number of scientific samples and the field report. Full publication as such is not funded, and synthetic studies are largely only possible through central academic grants or those from private foundations. That said, though not extending to fieldwork syntheses proper, the Ministry of Culture can provide grants concerning broad research themes, bringing together academics and fieldworkers. The Norwegian system seems broadly comparable. While funding for fieldwork syntheses and any arising research can, on occasion, be provided by the Norwegian Research Council, otherwise any such studies have to be forthcoming from the host institutions responsible for

conducting the fieldwork (e.g. University or Maritime Museums, and the Norwegian Institute for Heritage Research).

Sweden
While central grants are available for thematic study purposes, in Sweden the system is more reliant upon development-led and -funded procedures. Almost all major projects since 1995 have involved some syntheses as part of the fieldwork's publication. In conjunction with the contractor and their project planning group, the synthetic themes are agreed beforehand with the county authorities. These, of course, are subject to change based on the final results, but – by way of providing context – there is scope for synthetic study of site/monument and/or finds types on a regional, and even national, basis.

Netherlands
The Netherlands arguably operates the most systematic and coherent basis of synthetic study in Europe. As outlined in Lauwerier *et al*.'s *Knowledge for Informed Choices: Tools for more effective and efficient selection of valuable archaeology in the Netherlands* (2017), it focuses on gaps in geographical coverage and knowledge opportunities, the topics being chosen from interviews with archaeologists and reviewing excavation reports (on the national report data-base and archaeological information system). Funding is provided by the Dutch Ministry of Education, Culture and Science (*c.* 250,000 euros *per annum* for two syntheses), with the selected topics tendered for by fieldwork companies/consortium and the successful bid decided upon by the Cultural Heritage Agency of the Netherlands. Including, for example, Fokkens *et al*.'s *Farmers, Fishers, Fowlers, Hunters* ... appraisal of Late Neolithic and Early Bronze Age (2016), thus far 17 such studies have been published, most recently Habermehl's *Gewoon Bijzonder* … (2022), concerned with house-related deposition from the Neolithic to Modern times.

North America
Further afield, there is the University of Boulder Colorado, Institute of Behaviour Science's Coalition for Archaeological Synthesis, whose declared mission is 'fostering synthesis in archaeology to expand knowledge and benefit society' (see e.g. Altschul *et al*. 2017). Apart from providing a platform for a number of international data-sets – ranging from their ArchaeoEcology initiative and the Creation and Division of Wealth and the Long-term Consequences of Inequality programme – their many on-going and past projects are summarised on their web-site (https://www.archsynth.org/about/).

Appendix 3: Maximising the Potential of the Current Planning System to Improve Synthesis in Development-led Archaeology

Using Current National Planning Policy and National Planning Practice Guidance

There are no specific references to synthesis in current national planning policy and guidance or the Historic England Good Practice Advice Note 2: 'Managing Significance in Decision-taking in the Historic Environment' (GPA 2). There are however arguably sufficient existing 'hooks' within the National Planning Policy Framework (NPPF) and the National Planning Practice Guidance (NPPG) to justify making specific provision for synthesis through clauses within WSIs (NPPF 2022; NPPG). The relevant text of these together with a rationale are provided below:

National Planning Policy Framework 2021 (NPPF 2022: paragraph 194)

> *' Local planning authorities* ***should require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact,*** *and to make this evidence (and any archive generated) publicly accessible. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.'*

Note that in NPPF 194 developers are required to advance understanding 'of any' (i.e. 'all') heritage assets.

National Planning Practice Guidance (NPPG 2019)

Overview, Historic Environment

What is meant by conservation and enhancement of the historic environment
Part of the public value of heritage assets is the contribution that they can make to understanding and interpreting our past. So where the complete or partial loss of a heritage asset is justified (noting that the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted), the aim then is to:

Capture and record the evidence of the asset's significance which is to be lost;

The NPPF 194 clause is expanded upon in the second point of the NPPG overview to the historic environment chapter, by the insertion of the phrase '*Interpret its contribution to the understanding of our pas'*. This clause was included as a replacement of the specific PPS5 Government/DCMS policy objective that planning should: '*contribute to our knowledge and understanding of our past by ensuring that opportunities are taken to capture evidence from the historic environment and to make this publicly available, particularly where a heritage asset is to be lost'* (see Southport Report 2011 p.3). This policy was deleted during the bonfire of planning policies that preceded the publication of the NPPF in 2012.

Requiring Synthesis for Development-led Archaeology

The NPPG text has less weight in legal/policy terms than the NPPF (implying a 'should' rather than a 'must' imperative); it is Government Guidance, and the clause provides important additional detail and 'context' to NPPF 194. Based upon the NPPF and NPPG texts – and the following rationale – it would thus be 'reasonable' and 'proportionate' in planning terms for the LPA to specify within WSIs that synthesis will be required:

1. any interpretation of the significance of heritage assets affected by a development to the understanding of the past should include an appreciation of their context – whether be local, regional or national – as appropriate,

2. such appreciation of 'context' should include consideration of all relevant available primary and secondary archaeological sources, in addition to HER data,

3. the scope of relevant data for any research and synthesis of evidence beyond the development area would, however, need to be clearly justified by reference to the evidence of significance in the post-excavation assessment (PXA) and the updated projects design (UPD); specifications for which can be made in the Written Scheme of Investigation (WSI).

Although the above argument could, no doubt be subject to challenge, the general principle that an LPA is able to require an element of local research and synthesis – using the NPPF and NPPG as justification – is almost certainly defensible, if the evidence justifies it.

It should also be noted that, if within a climate of reduced funding for archaeological synthesis from the academic funding bodies, the broader aim of requiring synthesis through the planning system would be to encourage local research, collaboration and the accessibility of information. This would enable process that could, in time, also incrementally reduce the resources required for synthesis both through the planning system and via academic funding.

Requiring Archaeological Synthesis on Large Residential and Industrial/Commercial Development by Means of Specific Planning Condition Clauses

Planning Conditions and Obligations

Conditions on planning permissions are the principle means by which archaeological requirements for investigation, post excavation, publication and other public benefits are secured. The requirements of planning conditions are regulated and monitored by the local authority thorough Written Schemes of Investigation (WSI), Post-Excavation Assessments (PXA) and Updated Project Designs (UPD). Legally secured planning obligations can also be used to provide provision for heritage assets in large developments. However, Government guidance is that they should only be used where conditions are not appropriate. A summary of the archaeology and planning terminology and process, including an example archaeology condition can be found in GPA 2, 10-11.

It is suggested that it would be reasonable and proportionate -for the reasons given below - to require consistency of methodologies and a single synthesis to be produced for large developments (over c. 5ha) that have multiple developers and archaeological contractors.

The Justification for an Overarching Condition Including the Production of Synthesis and Consistent Archaeological Methodologies

The use of single, overarching planning conditions to ensure a consistent approach across large urban regeneration projects has been successful in Greater Manchester. The condition is included on the planning approval for the whole regeneration development:

	Salford Central Redevelopment - Overarching Archaeology Planning Condition (precis): *'36. Prior to any demolition, site clearance or demolition commencing on any phase or plot within the site other than . . . . an Archaeological Management Strategy for that phase or plot shall be submitted to and approved in writing by the Local Planning Authority.* *The Strategy shall include the following matters:* *a) a written scheme of investigation;* ***c) agreed recording standards and reporting;** and* *d) a programme of archaeological work.*

1. The concept could be extended to include a single synthesis for the development through the suggested additional wording to clause c above: '***including the integration of the investigation results within a single synthesis for the development'.***

2. National Planning Policy (the NPPF para. 56) states – in summary - that all planning conditions must be: *enforceable, precise and reasonable.* The latter includes the requirements and obligations made of the developer such as funding and timescales.

3. The above clause is *enforceable* through the WSI and UPD; is *precise,* because the processes and the end-product can be defined; and is *reasonable*; because it will result in better public value through more efficient use of resources and improved understanding of the significance of the historic environment affected by the development phase or plot.

4. The successful use of such a planning condition could serve introduce the concept of synthesis into the archaeology and planning process and help promote its value more generally to the archaeology sector.

The Use of Local Plans, Section 106 (S106) Agreements and the Community Infrastructure Levy (CIL) to Fund Synthesis

The provisions of Section 106 of the 1990 Planning Act could be used to fund synthesis, especially if a planning condition was not deemed to be appropriate. Before PPS 5 was published in 2010 and included publication as a planning requirement, S106 funding was routinely used to fund publication and it could be used in the same way for synthesis; the NPPF states that S106 funding should only be used if planning conditions are not appropriate. However, S106 agreements are often complex and expensive to produce and are therefore require a measure of support from the LPA and developer and only apply to larger developments. Likewise, the Community Infrastructure Levy (CIL) might also be used to the same effect. CIL was recently the subject of a government consultation and the CIFA response included a request to use CIL to fund synthesis. This is unlikely to be accepted by Government, but the response provides a marker for future advocacy.

Policies within Local Plans are another potential route to secure synthesis and consistency in fieldwork standards. They could be used for large land allocations for development where it could be predicted that multiple developers and contractors will make securing these archaeological provisions difficult by condition. The latest government rules are that Local Plan polices must not duplicate national policies, but as mentioned in Appendix 3 above, synthesis isn't specifically mentioned in the NPPF. Such policies would have to be promoted and drawn up by the local government archaeologist, and HE could have a supporting role though their regional planners and inspectors.

Appendix 4: Consultation

Drafts of this document was sent for comment to representative bodies within the archaeology sector concerned with development-led archaeology, and a selection of university and commercially-based archaeologists with experience of producing synthesis from the outputs of development-led archaeology. Many of those listed below provided detailed comments that have informed this document's revisions. (Any response is awaited from YAT and MOLA.) In compiling this document, we are grateful for information provided by Magnus Artursson, Harry Fokkens, Christopher Gerrard, Håkon Glørstadt, Colin Haselgrove, Kristian Kristiansen, Marianne Lindegaard, Marc Vander Linden, Carsten Paludan-Müller, Louise Raynor, Liesbeth Theunissen, Sadie Watson and Rob Wiseman.

Note: the date of the response and report version sent to consultees (V1 or V2) is included to below.

Respondents	Affiliation	Date	Summary
Prof Steve Rippon	University of Exeter	12.4.23 V1	Positive response. Comments that good synthetic studies can help improve planning advice
Prof Martin Carver	Prof Emeritus, University of York	17.4.23 - V1	Positive response commenting that synthesis should be a creative exercise that encourages free-thinking, plus stresses the importance of synthesis being part of every significant development-led investigation.
Sadie Watson	MOLA	18.4.23 - V1	A positive response. Notes that the support of consultants will be key factor in making progress.
Prof Chris Scull	UCL	19.4.23 - V1	Constructive comments on the need to separate preparatory work on data consistency and quality – including HERs - from the synthesis itself. Also, to promote inter-disciplinary synthesis.
Prof Richard Bradley	Prof Emeritus, University of Reading	25.4.23 - V1	Positive response. Comments on the issue of data quality, especially for HERs; that Historic England is a key organisation; that the synthesis of development-led archaeology is not currently a priority for academic funding.
Neil Holbrook	CEO Cotswold Archaeology	27.4.23 - V1	Generally supportive but with constructively critical comments on the consistency of data, peer review and the difficulty of achieving consistency on large development sites with multiple contractors.

Prof Tim Darvill	Bournemouth University	01.6.23 - V1	Constructive suggestions on the need for training on producing synthesis. Comments that a more radical approach is needed for synthesis.
Matt Davies	McDonald Institute, University of Cambridge	06.6.23 - V1	Supportive, but comments that funding for a regional network will be problematic. Suggests a bottom-up approach with examples of good practice and an inter-disciplinary approach to synthesis.
Kenny Aitchison	CEO, FAME	31.7.23 - V2	An unsupportive and largely negative response. Does include a constructive comment on the lack of audience definition and a request for examples of good practice.
Prof John Blair	Prof Emeritus University of Oxford	25.7.23 - V2	Positive response. Comments that the Archaeological Investigations Project (AIP) was useful for national synthesis and the current A14 project in Cambs. provides a good local model for synthesis for the E. Medieval period.
Will Bedford	Director Landgage Heritage	27.7.23 - V2	Supportive and keen to help achieve the objectives of the report.
Peter Hinton	CEO Chartered Institute for Archaeologists	17.8.23 - V2	Positive and supportive with constructive suggestions for improvement including a restructured, shorter document.
Scott Ortman	CEO. Coalition for Archaeological Synthesis	20.9.23 - V2	A very positive response that supports the approach of the report and praises the progress generally on archaeological synthesis in GB/UK compared with the USA particularly the value of data from the Roman Rural Settlement Project.
Quinton Carroll	ALGAO (England)	V2 28-11-23	Positive response with useful, probing questions
Neil Redfern	CBA	V2b 29-11-23	Supportive, raising salient points of concerning relating to delivery and public benefit
Paul Chadwick	Consultant, Research Associate, University of Oxford	V2b 30-11-23	A largely unsupportive response. Does include constructive comment on the potential use of the planning system where scale of development suggests integration of large-scale synthesis could be achievable. Examples of good practice a necessary next step.
Prof Cyprian Broodbank	McDonald Institute for Arch. Research. U. of Cambridge	V2b 31-11-23	Supportive; notes that the McD Institute is in exploratory conversation with HE as to whether its Fenland Initiative would be practically and logistically compatible and complementary with the aims of an experimental regional hub as here proposed.
Prof Clive Waddington	Archaeological Research Services	V2b 3-12-23	Very supportive
Matt Brudenell	Cambridge Arch.Unit	V2b 4-12-23	Supportive
Gary Brown & Vicki Ridgeway	Pre-Construct Archaeology	V2b 4-12-23	Very supportive of the concept in principle, but are unclear how effectively this may be implemented.
Tony Hanna	Ecus Consultancy	V2b 4-12-23	Very supportive
Prof Graeme Barker	University of Cambridge	V2b 5-12-23	Supportive
Jay Carver	Consultant, Crossrail & HS2	V2b 6-12-23	Very supportive
Jim Hunter	National Highways	V2b 6-12-23	Supportive
Leo Webley	Oxford Archaeology	V2b 6-12-23	Supportive, raising concerns of the involvement of consultants
Anwen Cooper	Oxford Archaeology	V2b 6-12-23	Supportive, raising a number of salient points, particularly concerning HER data quality and access, and need for training
Prof Martin Millett	Prof Emeritus University of Cambridge & Soc. Ants London	V2 12-12-23	Believes that the document's content and recommendations are in keeping with the Society's principal objectives – namely, to foster public understanding of heritage, to support research and communicate the results and to engage in the formulation of public policy – and Is content to offer The Society's provisional support. Also, argues that should be conditional that all commissioned geophysical survey data is curated by ADS.
ADS	ADS	V2 10-12-23	Supportive in principle but cannot endorse in current form as have specific reservations, especially concerning the

			updating of synthetic project data-bases and that the document needs greater stressing for role of OASIS and RRFs in synthetic production
Alex Smith	Headland Archaeology	V2 12-12-23	Very supportive, with salient points
Andrea Burgess	Wessex Archaeology	V2 14-12-23	Feel that case for synthesis is uncontentious but cannot endorse document's proposals at this time
Louie Raynor	ASA	V2 15-12-23	Very supportive, Unit has many on-going synthetic projects
Prof Mike Fulford	University of Reading	V2 10-12-23	Very supportive, but sceptical whether Regional Research Networks would work given current pressures on academics; raised highly relevant point concerning a grant-funding alternative (incorporated)
Prof Colin Haselgrove	University of Leicester	V2 9-01-24	Very supportive; suggests should be a review of RRFs to identify common themes

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