



# What is this thing called the PAS? Metal-detecting entanglements in England and Wales

## *¿Qué es esa cosa llamada PAS? Entrelazamientos con la detección de metales en Inglaterra y Gales*

El Portable Antiquities Scheme (PAS) se estableció en 1997 para registrar objetos antiguos y otros hallazgos fortuitos, descubiertos con detectores de metales en Inglaterra y Gales, con el objetivo de hacerlos accesibles para el estudio académico. Aunque otras tecnologías y políticas han colaborado de forma sinérgica con el PAS para potenciar la investigación de estos objetos registrados, el PAS está siendo abiertamente criticado debido al recalcitrante problema de los hallazgos no declarados. Paralelo a la creación del PAS, el mercado de antigüedades en internet ha aumentado hasta convertirse en el principal medio para la comercialización de los hallazgos realizados con detectores de metales. La teoría del entrelazamiento de Ian Hodder aporta cierto sentido a estos recientes desarrollos y sus impactos sobre la investigación y las comunidades de detectores de metales.

**Palabras clave:** Inglaterra y Gales, antigüedades, detectores de metales, Portable Antiquities Scheme, eBay.

The Portable Antiquities Scheme (PAS) was established in 1997 to record metal-detecting and other chance finds of antiquities in England and Wales and to make them available for scholarly study. Other technologies and policies have worked synergistically with the PAS to realise the research potential of its recorded antiquities, but the PAS itself is still open to criticism because of the recalcitrant problem of unreported finds. Alongside the PAS, over the same time period, the Internet market in antiquities grew to become a major commercial outlet for metal-detecting finds. Ian Hodder's theory of entanglement allows some sense to be made of these recent developments and their impacts upon the research and metal-detecting communities.

**Keywords:** England and Wales, antiquities, metal-detecting, Portable Antiquities Scheme, eBay.

In March 2017, Samuel Hardy published a quantitative, netnographic analysis of metal-detecting in which he attempted to establish from the membership counts of Facebook metal-detecting groups the numbers of metal-detectorists active in several different countries. He wanted to determine from those statistics the relative effectiveness in the countries concerned of permissive compared to prohibitive or restrictive regulation aimed at controlling metal-detecting (Hardy 2017). He concluded that prohibitive or restrictive regulation was the most effective at diminishing the damaging effects of metal-detecting on archaeological heritage. Hardy's paper was an interesting though hardly controversial contribution to the literature concerning metal-detecting, and so it was surprising a few months later when a 'reply' paper appeared co-authored by six people from six different institutions in five or six different countries, each with a direct or indirect professional interest in the ongoing operation of the PAS or equivalent schemes in other countries.<sup>1</sup> Several objections of method and fact were made against Hardy, but the reply paper was surprising not so much for its content, but because of the disparaging tone in which it was written. While approving Hardy's innovative use of a quantitative methodology, the paper concluded that 'in its reliance on biased assumptions and simplistic dichotomies Hardy's paper reflects old perspectives on how to deal with metal detecting in Europe' (Deckers *et al.* 2018: 331).<sup>2</sup>

Hardy had structured his paper around a critique of the Treasure Act and associated Portable Antiquities Scheme (PAS), which offer protection to the archaeological heritage of England and Wales. A few years earlier, in 2010, David Gill had suffered in a similar way to Hardy when he had published a discussion forum piece on metal-detecting, in which he offered an assessment of the utility of the Treasure Act and the PAS (Gill 2010a). One of the respondents sought to dismiss Gill's perspective with accusations of 'elitism' and a 'socially conservative ideology' (Moshenska 2010). Gill felt forced to reply that:

It is perhaps unhelpful for him to suggest that there is 'elitism and class snobbery' in the debate, and ascribe 'grotesque' motives to a 'small faction of anti-metal-detector zealots' who question the effects of current policies on the finite archaeological record and the public perception of archaeology (Gill 2010b: 35).

Simplistic approaches, old perspectives, biased assumptions, elitism and class snobbery, and zealotry. This is not the normal language of peers engaging in

1. Five countries if England and Scotland are counted together as component parts of the United Kingdom, six countries if they are counted separately.

2. Hardy's (2017) paper was also challenged methodologically by Raimund Karl and answered by Hardy (Karl 2018; 2019; Hardy 2018), though methodology is not at issue in this present paper. Hardy (2017) and Deckers *et al.* (2018) were both critiqued by Banning (2019). An anonymous reviewer of this paper also asked it to be made clear that Deckers *et al.* (2018) were responding to a first version of Hardy's (2017) paper, not the second, corrected version that subsequently appeared and is referenced here. The original version is available at <<https://www.cogentia.com/article/10.1080/23311886.2017.1298397>>.

scholarly discussion or debate. It must be viewed instead as evidence of 'boundary-work' being undertaken by a professional group that feels its authority under challenge (Gieryn 1983; Coddington 2012: 379-380). Vested professional interests impel a group to protect a theoretical or practical project while at the same time deter reflexive group judgments or actions against the project (Barnes 1982: 101-114). Boundary-work 'excludes rivals from within by defining them as outsiders with labels such as "pseudo", "deviant", or "amateur"' (Gieryn 1983: 792). But if boundary-work of this sort is being undertaken, intentionally or not, seemingly aimed at protecting the perceived 'good' of the PAS in England and Wales, it invites questions about why the PAS is felt in need of protection, just what exactly it is that is being protected, and about the professional and social contexts of the PAS and metal-detecting more generally.

To help answer these questions, in this paper Ian Hodder's theory of entanglement is used to examine and elucidate how the PAS functions as one 'thing' in a broader tangle of people and things. Hodder defines entanglement as the 'dialectic of dependence and dependency between humans and things' (Hodder 2016: 5), with a 'thing' broadly defined as 'an entity that draws other entities together' (Hodder 2016: 4). Alongside material objects, this broad definition of thing includes cultural intangibles such as words and ideas and social and political constructs such as institutions and bureaucracies (Hodder 2016: 4). The 'dialectic of dependence and dependency' captures the sense that humans and things are co-dependent in that they rely upon each other for action but at the same time place constraints upon each other's action, a co-dependency that for humans leads to entrapment – it is easier to become dependent upon and entangled with things than it is to become disentangled (Hodder 2016: 14-18, 105-106). As this paper will show, the PAS does not stand alone, but instead exists in multiple relations with a broad range of technologies, institutions and other things that together constitute an inward-looking entanglement or 'ecology of practices' (Olsen *et al.* 2012: 56) that is being protected by the aforementioned boundary-work.

The paper opens with a short description of the historical background to the PAS, followed by a personal account of what the author believes to be its strengths and weaknesses, judged against its own stated mission priorities of collecting, assembling and making readily available for research purposes an unprecedented amount of information about metal-detecting finds. Next a preliminary attempt is made to identify other things that constitute the PAS entanglement, looking particularly and surprisingly perhaps at the respective impacts of Planning Policy Guidance note 16: Archaeology and Planning (PPG16) and Geographical Information Systems (GIS). Then, following a discussion of the dark figure problem of unreported finds, two short market studies will provide some insights into the scope of the Internet trade in metal-detecting finds and the existence of a market-focused metal-detecting entanglement more or less loosely associated with the PAS one. Finally, the concluding discussion will consider the issue of

boundary-work in some more depth and point to the probable presence of other entanglements in which the PAS may function with more attenuated relations, finishing with a brief consideration of the suitability and potential of PAS-like institutions for engaging with metal-detecting in other countries. Throughout, short case studies will be presented referencing Western series iron age coins that are conventionally attributed to the Dobunni tribal group. These case studies are drawn from a larger, on-going project.

This paper should be viewed as an exercise in baseline research, starting to develop a deeper and more nuanced understanding of the contexts or entanglements of metal-detecting and the PAS in England and Wales. The paper is not intended as a contribution to the debate over the relative merits of permissive or prohibitive controls and so does not consider the situation in other countries. Indeed, the implication of the arguments developed in this paper is that unless the specific national entanglements of metal-detecting are fully described and properly understood, international comparisons might be otiose.

## Background

The PAS was established in 1997, primarily as a response to metal-detecting in England and Wales, where on private land, with certain reservations, antiquities are the property of the landowner and provided the landowner has granted permission it is legal for metal-detectorists to search for and recover material (Bland 2008; Bland *et al.* 2017; Lewis 2016). Metal-detecting first appeared in the United Kingdom (UK) as a hobby in the late 1960s and by the 1970s its damaging impact on archaeological sites had begun to attract the concern and opposition of archaeologists. In 1980, an alliance of archaeological organisations launched STOP: The Campaign against Treasure Hunting, though by 1983 STOP had failed in its purpose to discourage metal-detecting. For archaeologists, the situation worsened through the 1980s and early 1990s with the high-profile looting of several archaeological sites in England (Addyman 2008; Addyman and Brodie 2002; Thomas 2012a; 2012b). In 1995, a report into metal-detecting commissioned by English Heritage from the Council for British Archaeology (CBA) drew attention to some of the more egregious cases of damage, but also argued for the archaeological value of reported and recorded metal-detecting finds, emphasising that many if not most were being recovered from the plough-soil and not from intact sites (Dobinson and Denison 1995). It is well established that ploughing damages or destroys archaeological sites and that antiquities, metal antiquities in particular, rapidly degrade when left exposed in the plough-soil (Haldenby and Richards 2010; Oxford 2002: 7-8), but also that ploughed-up antiquities can retain lateral structure and provide information about the location, date and possible nature of underlying sites (Addyman 2008: 55). Thus recovering and recording metal objects from the plough-soil through metal-detecting can be viewed as a form of rescue archaeology (Bland *et al.* 2017: 114). The CBA report concluded that the main problem

with metal-detecting was that most finds were going unreported and hoped that a 'national reporting system may eventually be a possibility' (Dobinson and Denison 1995: 62).

In May 1995, the Standing Conference on Portable Antiquities (SCOPA) was established with representation from archaeological and museum organisations throughout the UK to agree policy on what had by then become known as portable antiquities. Several months later, in February 1996, the UK government's Department of National Heritage (now Department for Digital, Culture, Media and Sport) issued a discussion document entitled Portable Antiquities, acknowledging the commercial value of metal-detecting finds, but also emphasising their archaeological importance (DNH 1996). The government was concerned that there was no national system in place across England and Wales to record finds made by metal-detectorists acting legally, suggesting from a figure in the CBA report that up to 400,000 antiquities annually were being lost from view. The government was seeking advice on how best to improve the situation and set out two options: a voluntary code of practice for reporting finds, or legislation for the mandatory reporting of finds, in either case backed up by an appropriate recording agency. Not surprisingly, after considering the respective costs, the government stated it favoured a voluntary arrangement. SCOPA agreed with the government's opinion that a voluntary system would be preferable — it could be introduced more rapidly and if found to be 'less than satisfactory' could provide the basis for a legally-mandated system of compulsion to be introduced at a later date (CBA 1996). It is clear from these preliminary documents that the government's primary concern was to establish a system for recording legal finds that would otherwise be unavailable for study, it was not desirous of asserting public ownership: 'there is widespread agreement that the reporting of finds, so that they can be properly recorded, is of key importance — more important than public acquisition' (DNH 1996: 172).

In 1996, the UK government passed the Treasure Act, which came into force in September 1997. The Treasure Act applies to England, Wales and Northern Ireland and imposes a legal requirement on finders of antiquities or groups of antiquities defined under the Act as 'Treasure' to report their finds to an appropriate authority. Museums are offered a pre-emptive right to buy at a fair market price, otherwise the find is returned to the finder.<sup>3</sup> The government followed up the Treasure Act in 1997 by establishing a pilot scheme for the voluntary reporting of found antiquities, which was subsequently extended to cover all of England and Wales and termed the Portable Antiquities Scheme (Bland 2008; Bland *et al.* 2017; Lewis 2016). The central component of the PAS is a publicly-accessible and searchable database listing antiquities found by members of the public — primarily but not exclusively metal-detectorists — which went live in 2003. Finders can report antiquities to a

3. The definition of Treasure was up-dated in 2003 and can be found here: <<https://finds.org.uk/documents/advice.pdf>>.

locally-based Finds Liaison Officer (FLO) for identification and entry onto the database. The finder retains ownership of the object. Each database entry provides a description of the object, usually with a good quality image, together with its find coordinates. By August 2019 the PAS database listed 920,976 records containing information about 1,431,509 antiquities.<sup>4</sup> As regards accuracy of find-spot reporting, the location of 90 per cent of all finds is recorded to an area of 100 metre square with a six-figure National Grid Reference (NGR) coordinate reference, while 74 per cent are recorded to an area of 10 metre square with an eight-figure NGR coordinate reference (Bland *et al.* 2017: 114; PAS 2017: 36). Ninety per cent of all PAS finds are from arable land where archaeological contexts have already been damaged or destroyed by ploughing and are presumed to be derived from plough-soil (Bland 2008: 73; Bland *et al.* 2017: 114), though that presumption cannot usually be tested. The PAS database does not record a depth of find measurement and the 'plough-soil' itself is a variable concept (Oxford 2002; Robbins 2012: 93-96).

Since 2012, the PAS has been centrally organised and operated from the British Museum (PAS 2019). By 2019, there were 39 FLOs and a further six support staff based in county councils and museums around the country, together with four more support staff and a Head and Deputy Head based at the British Museum. The aims and activities of the PAS are listed on its website,<sup>5</sup> and may be summarised two-fold as (1) promoting the reporting and recording on the PAS database of metal-detecting and other finds of antiquities, and (2) making them available for the public benefit through scholarly research and other educational activities.

It is important to recognise that the system presently established in England and Wales for recording found antiquities is a hybrid of compulsory (Treasure Act) and voluntary (PAS) reporting. Statistics and case studies describing the archaeological value of found and reported antiquities routinely fail to distinguish clearly between these two arrangements, often giving the impression that the system is more 'permissive' (voluntary) than it actually is. Coin hoards in particular are subject to compulsory reporting and reward through pre-emptive purchase under the Treasure Act, and the research value of these and other hoards cannot be attributed to the voluntary reporting of the PAS. The exponential increase in the number of Roman hoards recorded since 2000 (Bland 2018: 9, figure 2.1), for example, is as much or more testament to the success of the compulsory reporting and reward of the Treasure Act as it is to the voluntary reporting of the PAS.

## The archaeological value of PAS and Treasure data

As noted, a primary aim of the PAS is to make metal-detecting and other finds available for scholarly

research and other educational activities. In August 2019, the PAS website listed 718 archaeological or historical research projects conducted using PAS and Treasure data, ranging from A-level (16- to 18-year-old secondary school) up to major post-doctoral collaborations.<sup>6</sup> The website also listed 45 possible projects for potential researchers. It is undeniable that PAS data can be and have been used productively for innovative research (Bland *et al.* 2017: 116-118). Having said that, the data are subject to several by now well-known deficiencies and limitations.

The practice of archaeology is multi-scalar. A fundamental methodological and interpretative scaling runs from the level of the object (artefact) through context (assemblage/site) to distribution (landscape/culture) (Clarke 1968). A successful archaeological synthesis integrates information from all three scales of investigation. PAS data are best suited for projects at either end of the scaling — for projects concerned to investigate objects themselves or their distributions. Most projects utilising PAS data have been distributional studies. PAS data are generally of limited utility for projects aimed at characterising individual archaeological sites or their environs. Almost by definition, aside from locational information, most finds recorded by the PAS are presumed to have been discovered in plough-soil and therefore decontextualized. Thus the identification through distributional study of PAS data of what Tom Brindle (2014: 118-123) carefully terms 'potential sites' and what for Adam Daubney (2016: 111) are 'plough-zone palimpsests' remains tentative, and while recognising that the composition of a PAS artefact assemblage might reflect something about the nature of an underlying site (Addyman 2008: 55; Brindle 2014: 122-123; Cooper and Green 2017), or sites (Daubney 2016), at that point more traditional archaeological fieldwork becomes desirable (Brindle 2014: 123-130; Cooper and Green 2017; Daubney 2016: 111-119; Leins 2012: 296). Unfortunately, since PPG16, most archaeological fieldwork is developer-funded and takes place in more urban areas, while metal-detecting is conducted largely on cultivated land and so potential sites proposed from PAS data are unlikely to be investigated further (Bland *et al.* 2017: 114; Brindle 2014: 117). It follows that distributional patterning is more likely to generate research questions than to provide research answers, with the questions posed hard to follow up. Two researchers, for example, working independently, have used PAS data to analyse the relative distributions of Western (Dobunni) gold and silver coins, finding that gold coins are more commonly found towards the western side of the overall distribution (Bevan 2012: 500-502; Leins 2012: 282-283). Explaining or understanding the reasons for this differential distribution cannot be achieved using PAS data alone, it needs further contextual study, which has not happened. Although there are certainly well-excavated and reported sites with important Western (Dobunni) coin finds (e.g. Clifford 1961; Hurst and Leins 2013), by and large good contextual data is not forthcoming. Probably few researchers would disagree that:

4. <<https://finds.org.uk/database>>.

5. <<https://finds.org.uk/about>>.

6. <<https://finds.org.uk/research/projects>>.

Enhancement of the PAS through the addition of contextual information regarding stratification, discovery circumstances and bibliography would be an ambitious and demanding project, but would decisively contribute to future research (Fanello 2016: 278).

This is a resource problem, however, and not one that is likely to be solved anytime soon.

Scaling down to the level of artefact, Western (Dobunni) coin imagery recorded on the PAS has also been used productively together with distributional analysis for the investigation of iron age cosmologies (Pudney 2019). The coin imagery presented on the PAS database is well-suited to this type of analysis, and also open for advanced die-study of the type conducted by John Talbot (2017) on East Anglian iron age coins of the Iceni. Having said that, it remains the case that images of coins are second best to the coins themselves. After recording on the PAS database, most coins are likely to disappear from view into private collections or onto the market at which point they are no longer available for material investigations such as compositional analysis or wear study.

### The reliability of PAS and Treasure find-spot information

A major archaeological objection to the use of PAS data for research is that find-spots are not verifiable. Archaeological methodologies are distinguished by their use of documentation to record find-spots and find-contexts in as much detail as possible to create secure evidence for further or future research. The reliability of the spatial coordinates recorded for metal-detecting (or other) finds on the PAS database is often dependent upon the honesty of the reporter, and there are innocent or more nefarious reasons why find-spots might be misreported. A detectorist may wish to give inaccurate information to prevent 'competitors' discovering the location of a 'productive' site, or even to launder objects found while detecting illegally (Robbins 2012: 109-110; Talbot 2017: 237). For many distributional analyses, however, the sheer number of objects included generates a sort of aggregate reliability, in that the distribution conforms to an understandable pattern and aberrant find-spots can be recognised as falling outside the pattern and discounted (Talbot 2017: 237). Unfortunately, the same methodological check of aggregate reliability cannot be applied to unusual objects, or to objects with a seemingly atypical find-spot, which is a serious shortcoming of PAS data if what might be honestly and accurately reported objects are excluded from consideration because of their rarity or eccentric location of their find-spot.

Some of the problems caused by the reporting process can be illustrated by reference to three assemblages containing Western (Dobunni) coins recently discovered beyond what would be conventionally understood to be the geographical limits of their normal distribution area.

— In January 2014, a hoard of seven iron age gold coins and 25 Roman silver coins was found by a metal-detectorist during a metal-detecting rally on pasture land near Malpas in the county of Chesh-

ire (Moorhead 2017). The iron age coins included three Western (Dobunni) gold staters, found 110 km to the north of their normal area of distribution in Gloucestershire and surrounding counties, together with four North Eastern (Corieltavi) gold staters, found 95 km to the west of their normal area of distribution in Lincolnshire, Leicestershire and surrounding counties. The coins were discovered as a scattered deposit in an area measuring 30 metres in diameter on a gently sloping field. They were declared Treasure as a cohesive group and acquired by National Museums Liverpool and Congleton Museum (PAS 2014). Presumably the rally organisers knew the field was likely to contain archaeological material, but after the rally the landowner refused permission for archaeological investigation and so the exact find circumstances remain unknown (Nevell 2015). No evidence of a pit or container was reported. Two further Roman coins were discovered by the same metal-detectorist at the same location in February 2014.

— In 2015, metal-detectorists discovered a group of seven iron age coins near Claverly in the county of Shropshire, comprising five Western (Dobunni) gold staters and two North Eastern (Corieltavi) gold staters, again about 32 km north and 75 km west of their previously known areas of distribution. The coins were declared Treasure as a cohesive group and subsequently acquired by the Shrewsbury Museum and Art Gallery (PAS 2015; SMAG n.d.).

— In March 2018, the landowners of a Teme Valley farm in Shropshire reported 19 iron age coins to the PAS. They claimed to have been given the coins in late 2017 by a pair of metal-detectorists who had been searching with permission on their land. The find comprised 14 Western (Dobunni) gold and silver coins, one North Eastern (Corieltavi) silver coin, and four East Anglian (Iceni) gold and silver coins. The distribution of East Anglian (Iceni) coins centres upon the county of Norfolk in eastern England, 200 km to the east of the Teme Valley find-spot. The 15 Western (Dobunni) and North Eastern (Corieltavi) coins were declared Treasure as a cohesive find, while because of their more distant origin the four East Anglian (Iceni) coins were judged not to be a part of the original find and were not declared Treasure (PAS 2018; BBC 2019a). The disposition of the coins has not yet been published and it will be interesting to see whether the 19 coins are kept together as a group or if the four East Anglian coins are separated from the Treasure find. The PAS believes the detectorists may have split the find between themselves and the landowner, meaning more coins might have disappeared, thus lessening the archaeological value of the find even further.

The lack of archaeological investigation for any of these Treasure finds means their interpretation remains speculative. The case of the Malpas hoard is particularly regrettable. The degree of archaeological preservation under 'pasture' could not be determined and the possible presence of a ritual or other site

cannot be excluded.<sup>7</sup> There are several examples of scattered iron age coins being recovered from iron age and later Roman ritual sites (Curteis 2005; Haselgrove 2005), though the absence of any other finds reported at Malpas during the rally (assuming there weren't any) would argue against this interpretation.<sup>8</sup> But the scatters recovered from known, excavated sites demonstrate that without further investigation scattered coins acquired through detecting and declared Treasure should not automatically be assumed to be from a plough-dispersed hoard — there might be other circumstances of original deposition and subsequent post-depositional transformation. The final case of the Teme Valley coins also illustrates the fundamental limitation of the test of aggregate reliability. The archaeological approach would have been to treat all coins equally as having no verifiable find-spot. Applying the rule of aggregate reliability, however, the decision appears to have been taken that the Western and North Eastern coins were probably found together because it would not be unexpected in that area for them to be found together, as the Malpas and Claverly hoards had previously established, while the East Anglian coins were discounted as there is no prior evidence for such an archaeological association. The application of the test of aggregate reliability was in this case simply an example of confirmation bias. Going forward, it will be interesting to see how the Teme Valley find is treated in scholarly discussion — as a hoard containing Western, North Eastern and East Anglian coins, a hoard containing only Western and North Eastern coins, or a collection of disparate finds.

## The PAS entanglement

Turning now to discuss the proposed PAS entanglement, starting with the seemingly unrelated impacts on the PAS of Planning Policy Guidance note 16: Archaeology and Planning (PPG16) and Geographical Information Systems (GIS). PPG16 was introduced in England in November 1990 (Historic England 2015). It makes planning permission for building development contingent upon an assessment of any possible damage to archaeology threatened by the proposed development and provisions for damage mitigation through preservation or archaeological fieldwork where appropriate. In 2015, PPG16 was incorporated into the National Planning Policy Framework. PPG16 provided a massive impetus for what is now called developer-funded or development-led archaeology, conducted largely by specialist archaeological fieldwork contractors. Due to PPG16, since 1990 there has been a large increase in the number of archaeological excavations, sometimes of unprecedented size

and complexity (Bradley 2006; Darvill 2016; Thomas 2013). This increase in archaeological activity has affected the work of university-based archaeologists in at least two ways. First, during the period since 1990, while archaeological projects have been growing in size and complexity, within their own universities academics have been faced with increasing teaching and administrative work-loads, meaning that they have had correspondingly less time to spend in the field and have been forced to reduce levels of active involvement with fieldwork (Bradley 2006: 2; Cooper 2012: 323-324). Second, developer-funded archaeology has caused a massive proliferation of so-called grey literature – unpublished or delayed-publication reports of archaeological investigations. These reports are stored in a variety of formats in different repositories around the country and are time-consuming to access. Thus by 2019 most new archaeological information was being produced by specialist fieldworkers and it was difficult for an academic archaeologist to keep abreast of all recently-produced, research-relevant information (Bradley 2006: 7-8; Cooper 2012: 334). Academics were incentivised to produce their own primary data (Chapman and Wylie 2016: 75-77), or to utilise a more readily accessible information source. The PAS database provides one such source.

Alongside the rolling-out of developer-funded archaeology, the 1990s and 2000s also witnessed the coincidental emergence to maturity of a cluster of inter-related digital technologies. First and foremost was the increasing availability of user-friendly Geographical Information System (GIS) software (and associated microcomputer technology) for the display and analysis of digitised spatial data (Connolly and Lake 2012). The development of GIS software was paralleled by and possibly in synergy with the growing use of Global Positioning System (GPS) technologies to capture accurate and precise locational data. (In 2012, it was reported that 47 per cent of metal-detectorists surveyed used GPS to determine location (Robbins 2012: 109)). The increasing availability of good quality digital cameras should probably be mentioned here too. Finally, there was the new possibility of on-line, interactive databases. This cluster of maturing technologies, which for convenience have been grouped together here under the heading 'GIS', have been of immense importance for ensuring the success of the PAS.

Looking back at the discussion documents that prefigured the PAS, it is interesting to see there was no mention of PPG16 or emergent technologies, with the government wondering vaguely that perhaps museums would be the appropriate recording agencies and asking whether object descriptions should be standardised between agencies (DNH 1996: 75-76). SCOPA strongly recommended that Sites and Monuments Records (SMRs) (now Historic Environment Records (HERs)) should be the repository of choice, which would allow access to information for research purposes (CBA 1996: 182-184). There are over 85 HERs in England, maintained by local authorities, each containing comprehensive information about the local historic environment, including reports from

7. Although the published account of the rally refers to it taking place on pasture land, the PAS database (LVPL-DFD9E1) records the coins being found on cultivated land with minimal cultivation.

8. A copper alloy patera handle was also discovered at the Malpas site in 2014 and reported to the PAS (LVPL-39BCF5), though it is not said to have been discovered during the rally. It would not have been out of place on a ritual site (Stewart 2017).

developer-funded excavations (Moore and Evans 2013).<sup>9</sup> Some but not all HERs contain PAS information. It is this distributed system of information storage and availability that is proving difficult for university-based archaeologists and other researchers to access and exploit. In 2016, the UK government announced plans to rationalize and improve accessibility to HERs over the next ten years (DCMS 2016: 39),<sup>10</sup> but that is work for the future.

The PAS is usually extolled by its supporters for its role in domesticating metal-detecting and producing archaeologically-useful data, but perhaps its real and enduring success is that in the early years of its existence its founders had the vision and competence to move beyond the pre-existing HER legacy system of distributed, physical, archival storage and instead developed in-house and instituted a centralised, digital and generally accessible database of archaeological-relevant information, which has been recognised as internationally innovative (Bland *et al.* 2017: 120-121). For university-based archaeologists, numismatists, historians and other researchers, increasingly distanced from the results of developer-funded archaeology, the PAS database provides a welcome source of new information. The spatial data stored in the database is also ideally-suited for use by projects foregrounding the application of GIS, or for undergraduate or postgraduate training projects utilising GIS. Most if not all research publications drawing upon PAS data have made use of GIS to a greater or lesser extent, for analysis or simply for visualisation. The enthusiastic and perhaps even uncritical acceptance of PAS data by the academic community is signalled by the fact that the data had already been used by some large-scale projects before the first systematic assessment of its inherent recovery biases was published (Robbins 2012: 1). Thus along with metal-detecting, the PAS is importantly entangled with university-based researchers, PPG16 and GIS, and its success in supporting historical research cannot be understood in isolation from that entanglement. It is diverting to speculate if, as originally envisaged, PAS data had been stored scattered around the country in various HERs whether it would have proved as conducive to academic research and attracted the positive academic attention that it has. At the end of the day, however, it is clear that distributional datasets must be drawn from both the PAS and HERs (Brindle 2014: 115-117; Cooper and Green 2017; Robbins 2012: 225-239). The application of user-friendly GIS technology to archaeological datasets compiled from the PAS, HERs and other sources will enable the conduct of spatially and temporally larger-scale projects with more nuanced or complex interpretational frameworks than has previously been possible and also encourage new ways of thinking about longer-term research questions (Gosden 2013), a central benefit of 'archaeology's 21st-century digital "revolution"' (Cooper and Green 2017).

9. <<https://historicengland.org.uk/advice/technical-advice/information-management/hers/>>.

10. <<https://historicengland.org.uk/research/support-and-collaboration/heritage-information-access-strategy/>>.

## Unreported (dark) finds

The mission of the PAS has been summarised as promoting the reporting and recording of metal-detecting and other finds and making them available for the public benefit through scholarly research and other educational activities. For the latter part of that mission statement, promoting scholarly research for the public benefit, the PAS has undoubtedly been a qualified success. Unfortunately, its success in promoting the reporting and recording of finds is harder to judge, both because the number of metal-detectorists thought to be actively searching for antiquities is largely conjectural and the number of finds not reported to the PAS is little more than a wild guess.

Most numerical estimates of active metal-detectorists range from a low figure of about 6000 to a high of about 50,000 (Robbins 2012: 84-85), with a broad consensus that the actual number is in the region of 10-15,000 (Gill 2010a: 1; Robbins 2012: 85; Hardy 2018: 3; Thomas 2012c: 58-59).<sup>11</sup> In 2017, 4378 individuals reported finds to the PAS, not all but presumably mainly metal-detectorists (PAS 2017: 4), which suggests that in 2017 just under half of all metal-detectorists were reporting to the PAS. In 2017, the PAS recorded 79,353 finds (PAS 2017: 4). If the estimated figure reported in 1995 by the UK government of 400,000 finds being made annually is to be believed (Dobinson and Denison 1995: 8; DNH 1996), or the lower Heritage Action Artefact Erosion Counter annual average of approximately 300,000,<sup>12</sup> then only about 20-26 per cent of all finds were reported in 2017, a figure not much lower than Robbins' estimate that something like 26-41 per cent of all finds are recorded on the PAS database (Robbins 2012: 106) — in either case, less than 50 per cent. There are many reasons for metal-detectorists not reporting finds (Robbins 2012: 106-111). Some cannot find the time, some are concerned that reporting too many finds from a site might result in losing permission to detect, some have no confidence in the expertise of an FLO, some are simply not interested. Many metal-detecting finds might not be of enough archaeological interest to warrant recording on the PAS database or be thought by metal-detectorists not to be of enough interest (Campbell 2019: 82-84; Lewis 2016: 132-133). Some metal-detectorists might not want to reveal the location of their detecting site to potential rivals or to advertise criminal activity (Talbot 2017: 237). But still, the statistics imply that the majority of metal detectorists are not reporting their finds to the PAS and that the majority of finds go unreported, though again it must be emphasised that the numbers underpinning this claim are largely speculative — it is a good example of a dark-figure problem.

11. From its own survey statistics, in 2018 the DCMS reported that over the period 2016-2017, 1.5 per cent of adults (over 16 years of age) in England had been metal-detecting at least once in the year before the survey was conducted (DCMS 2018: 4). The same survey assessed the adult population of England as 55,268,067 (Ipsos Mori 2017). Thus the UK government's estimate is that in 2016-2017 there were something like 829,021 metal-detectorists active in England. This figure seems incredible and is not widely believed.

12. <<https://www.heritageaction.org.uk/erosioncounter/>>.

When considering the dark-figure problem of unreported finds, it is important not to confuse the issues of illegally-detected finds and legally-detected though unreported finds, nor to develop an analytical polarisation between legal and illegal detecting, which problematizes illegal detecting while accepting legal detecting and implicitly the non-reporting of legal finds. The PAS is actively involved with Historic England in identifying and helping to prosecute incidents of illegal metal-detecting and has tried to quantify the problem (Bland 2009; Daubney 2017; Daubney and Nicholas 2019; Grove *et al.* 2018), though relevant published research has largely been conducted by a single FLO. The primary purpose of the PAS, however, as described, is not to combat illegal detecting but to secure the recording of legally-detected and other chance finds so that the information can be used for research in the public interest (Bland 2008: 78; Bland *et al.* 2017: 115). The finds recorded on the PAS database are clearly only a sample of the total, but the PAS has not paid a lot of attention to the problem of unreported legal finds, what might be called 'dark finds' or what Daubney terms 'floating culture' (Daubney 2017). Yet in archaeological terms the non-reporting of legal finds is as damaging as illegal detecting (Daubney 2017: 1, 6). The argument that non-reporting 'hoarding' detectorists might record information about their finds which they might be willing to share with researchers and that such finds should not be considered lost is disingenuous (Deckers *et al.* 2018: 324). Such practice compromises the PAS database and undermines the rationale for its existence. It introduces unaccountable regional biases into the PAS data that will negatively impact upon research quality and imposes onerous data-search burdens on researchers that together constitute exactly the type of problem that the PAS was intended to confront and has to an undetermined extent overcome. The PAS was developed to encourage the reporting of legally-found objects, thereby diminishing archaeological damage, and its success in part must be judged by its success in achieving that aim. Thus the dark figure of unreported finds remains an important though presently inexact statistic, which was one of Hardy's motivating contentions (Hardy 2017: 42).

## The market in metal-detecting finds

The dark-figure problem draws attention to another entanglement that connects only tenuously if at all to that of the PAS — the market in metal-detecting finds. Alongside things such as GIS and related digital technologies, the use of the Internet and later of social media for trading antiquities was another technical development not foreseen by the discussion documents that prefigured the PAS. Yet for the antiquities trade generally the Internet has been transformative, allowing high-volume, long-reach trading of low-value objects (metal-detecting finds, for example) that previously would not have been commercially viable. In other words, it has increased market demand for metal-detecting finds in a way that was not and could not have been imagined in 1996. It was not until the early 2000s that the use of eBay and other

market websites for trading antiquities started to attract the attention of archaeologists (Addyman and Brodie 2002: 182; Barker 2000; Chippindale and Gill 2001; Lidington 2002), and since then the volume of Internet trade has grown enormously (Brodie 2014; Daubney 2017: 5-6). None of this was apparent or predictable back in the 1990s. Considering trade, for example, the CBA reported only that 'We believe that some archaeological sites are being targeted in order to supply the market', recommending that it should be a police matter, but had nothing to say about the sale of legally recovered metal-detecting finds (Dobinson and Denison 1995: 62). This early archaeological interest in the link between illegal metal-detecting and the antiquities market has persisted. In its early years of operation, for example, the PAS monitored eBay sales (Bland 2009: 88-96; Oxford 2009: 82-87), with most attention focusing on potentially unreported (and therefore illegally offered) Treasure finds, which are comparatively easy to identify and check against records of reported objects (Bland 2009: 89). By 2013, the PAS had identified several hundred potential Treasure objects on eBay, and although at the time there had not been a single criminal prosecution, there had been cases where the seller agreed to report the object as Treasure (Bland 2013). More recently, the PAS has conducted no systematic monitoring of eBay (Daubney 2017: 6). Yet one route to investigating the dark-figure problem of unreported finds is to scrutinise the market. It seems likely that the overwhelming majority of finds being offered for sale have been found legally, though the unanswered question remains as to what extent they have been previously reported to the PAS.

In 2006, the PAS estimated there were approximately 600 British antiquities being offered for sale on eBay each day. By 2007, this number had dropped to something in the region of 500 (Bland 2009: 89). On 19 September 2019, the British Hammered Coins (Pre-c. 1662) page of eBay UK listed 4832 lots for sale. On the same day, the British Antiquities page listed 5228 lots. These numbers were no doubt inflated by the inclusion of books, fakes, replicas, misdescribed objects and other bric-à-brac. The British Antiquities page provided a 'Metal Detector Finds' selection filter, which when checked on 19 September 2019 revealed 810 lots for sale, comprising material of all periods, many of which were single object lots, but also a substantial number of large, mixed assemblages of objects. By these very basic measures, even accepting the likely presence of many erroneous listings, the size of the eBay market has grown since 2007, perhaps because of an increasing volume of re-circulating objects, perhaps instead because of an increasing number of fresh finds being brought to market, or perhaps simply because eBay itself has become a more popular and thus larger sales platform.

Not all lots offered on eBay are sold, and to obtain a more accurate statistical summary of trade, on four separate days actual sales on eBay UK of what looked to be British pre-1066 antiquities were tabulated. The aims of this exercise were to establish how many antiquities of likely British origin were being sold on eBay on a daily basis, but primarily



to ascertain the number of people actively selling on eBay and their relative contributions to sales totals. Only UK-based sellers were counted, though there were also sellers from other countries. It was not always possible with any degree of certainty to distinguish between antiquities found in the UK and those found in other countries. It was obvious that some at least of the material being sold was fake, though again it was not always possible from the images provided to distinguish fake from genuine. Most of the antiquities sold by one seller did look fake, and another seller (UK48, see below) has been accused on Internet discussion forums of selling fake objects. Nevertheless, no attempt was made to exclude any objects thought to be fake from sales totals. Thus the numbers of lots reported sold in Table 1 must be considered approximate figures — perhaps very approximate ones.

Table 1. eBay UK sales by UK-based sellers of pre-1066 British antiquities on four separate days

Date	Number of lots sold	Number of sellers
8 April 2018 (Sunday)	125	39
12 May 2019 (Sunday)	159	26
13 August 2019 (Tuesday)	36	15
25 August 2019 (Sunday)	142	19

The figures presented in Table 1 suggest — tentatively but not unreasonably — that sellers are more active over the weekend than during the week. Some sellers were active on more than one day of the four days monitored. Altogether, over the four days, 79 different sellers sold between them 462 lots, with a low price of 1 GBP, a high price of 577 GBP, and a median price of 16 GBP. Most lots comprised a single object, and 410 lots (89 per cent) comprised only metal objects.

Table 2. eBay UK-based sellers of pre-1066 British antiquities

Number of days active	Number of sellers	Mean number of lots sold by each seller (over all days active)
1	63	2
2	11	8
3	4	28
4	1	103

Table 2 shows that sellers active on more than one day also tended to be selling more objects while they were active. In fact, over the four days monitored, just four sellers between them sold 50 per cent of the 462 lots. Their IDs are listed in Table 3, together with the total revenue from all their tabulated sales.<sup>13</sup> (It should be emphasised once again that

13. The IDs are from a larger piece of research presently underway.

these statistics describe sold lots, not offered lots. The numbers of lots offered but not sold would be much higher). The sellers do not restrict themselves to pre-1066 antiquities of British origin. Many of the sellers were also offering later British antiquities and coins, and some at least were offering antiquities and coins from countries outside the UK. Seller UK48, for example, has in the recent past sold fake or genuine antiquities from Syria in contravention (if genuine) of the February 2015 United Nations Security Council Resolution 2199 (Brodie 2016). On 13 August 2019 he was offering for sale in total 478 lots of antiquities from countries around the world, and on 25 August 2019 he was offering 825 lots. If the total sales revenue statistics reported in Table 3 are considered hypothetically as monthly figures, it is clear that some sellers will be making appreciable sums of money over the course of a year. Seller UK48, for example, will receive something like 58,000 GBP from the sale of pre-1066 British antiquities alone, with more and perhaps much more derived from the sale of other antiquities. It can be a profitable endeavour. These sellers must be considered as full-time dealers, with income derived from sales making a substantial or sole contribution to the seller's livelihood. Some of the less active and thus perhaps not full-time sellers seemed to specialize in metal-detecting finds, and others from their eBay IDs self-identified as metal detectorists, capturing Suzie Thomas's argument that some detectorists might be multiple-role actors (Thomas 2015).

Table 3. Top four eBay UK-based sellers of pre-1066 British antiquities

Seller ID	Number of days active	Number of lots sold	Total sales revenue (GBP)
UK48	4	103	4856
UK63	3	77	627
UK89	2	30	1009
UK51	1	20	693

It is not immediately apparent how eBay sellers obtain their stock. eBay is generally considered to comprise the bottom end of the antiquities market, so there is no lower-value Internet market for eBay sellers to exploit. This invisible 'ground-to-eBay' (or faker-to-eBay) trade is something that the PAS network of FLOs and their responsible detectorists is optimally placed to know about. Daubney, for example, has reported that metal-detectors in Lincolnshire talk about a buyer travelling around the east of England and that buyers are usually present at metal-detecting rallies (Daubney 2017: 12). Thomas too has observed buyers at rallies (Thomas 2015: 121), where she was also told that finds could be sold privately to friends or fellow club members or on eBay, but that the most popular route for disposing of finds was through a dealer (Thomas 2012c: 55-56). Social media and messaging apps are now likely to be utilised too. Thus it seems probable that eBay sellers such as UK48 are buying from metal-detectors, directly or indirectly, perhaps sometimes at rallies or club meetings.

Some insight into the ground-to-eBay trade was provided by a court case in November 2019 when the dealers Simon Wicks and Paul Wells were convicted of concealing and in Wicks' case selling stolen property, comprising an undeclared Treasure find of a Viking-period hoard of coins and jewellery valued at £3 million (BBC 2019b). Two detectorists searching in Herefordshire had discovered the hoard in June 2015 and taken it to Wells at his stall in the Pumping Centre antiques centre in Cardiff, whereupon Wells then seems to have involved Wicks, who later sold several coins to a friend in a service station for £28,000 in cash (BBC 2019c). Wicks was most probably a full-time dealer. In 2011, the BBC had reported on his shop called *Britanicus* in Eastbourne, Sussex, where he claimed to be selling legally-detected finds.<sup>14</sup> The activities of Wicks had also been monitored since 2017 on the Ancient Artifacts Internet discussion forum.<sup>15</sup> Before his conviction, he had been selling on eBay since August 2012 with a false name and successive user IDs m\*\*\*\*\*2, *britanicus2014*, *ace-antiques* and *ancient-antiques*. Forum members claimed many of the objects he was selling were fake and alleged that his son was also an active eBay seller of antiquities (and fakes). In January 2020, the eBay feedback page for *ancient-antiques* reported 2334 (overwhelmingly positive) feedback ratings for the previous twelve months,<sup>16</sup> implying that through 2019 Wicks had sold at least 2334 objects — a good number considering he was at the time undergoing police investigation and trial. This case exposes the action of the gray market mixing together fakes with legal and illegal finds for sale without provenance on the open market (Mackenzie and Yates 2016). It also highlights the importance of personal networks for moving illegally-detected and by extension legally-detected material, as suggested by Thomas (2015: 121). The fact that a small number of sellers dominates the eBay market suggests the trade is pyramidal or dendritic in organisation, with finds from a large number of detectorists channelled up to a smaller number of dealers for sale on eBay or other Internet platforms.

### Internet sales of Western (Dobunni) iron age coins

eBay is now only one of many Internet platforms selling antiquities. There is a profusion of direct sales and auction websites, many of which sell what could well be British metal-detecting finds. Broadening and narrowing focus, better quality information about the market can be obtained through surveying a range of platforms for sales of a single, recognizably British artefact-type. Western (Dobunni) iron age coins have been mentioned several times during the course of this paper, and from 20 May until 16 September 2019 (17 weeks), 37 such coins were offered for sale on the Internet by 21 different sellers. Some of the

sellers were established numismatic companies, selling directly or by auction, usually through the Sixbid or VCoins aggregator sites, while others looked to be more generalist eBay sellers. Most sellers or companies were UK-based (17), with two in Germany, one in Switzerland and one in the United States. Extrapolating from the 17-week period, it would suggest that approximately 113 coins are being offered for sale annually. Four of the coins had a previous sale listed as provenance, while a further five (all silver units) were described as metal-detecting finds. Not one single coin was accompanied by a PAS or Treasure reference. Again, as with the eBay study, it is not immediately obvious whether the coins offered for sale in 2019 had long been in circulation or were instead recent finds.

By September 2019, 216 Western (Dobunni) coins had been entered on the PAS database since 2004 — something in the region of 14 coins each year. Thus the extrapolated total of 113 coins being offered on the market annually represents eight years' worth of PAS-recorded coins. The coins offered on the market were all gold staters, quarter staters or silver units, though these types accounted for only 201 of the PAS coins. With the exception of three silver staters, the remaining PAS coins comprised various copper alloy or uncertain types. Furthermore, concerning only gold staters, quarter staters and silver units, Table 4 shows that the proportion of gold coins offered for sale (30 per cent) is larger than the proportion recorded on the PAS database (17 per cent). The reasons for this difference are not immediately obvious. Perhaps it is because gold coins typically sell for something up to ten times the price of silver ones, and so are more likely to be offered for sale. Perhaps it is simply a statistical aberration due to small sample size. Iron age coins are collectively well-described, with several different typologies, and are individually distinctive. Since 1961, they have been recorded on the Celtic Coin Index, which was in 2005 incorporated into the PAS database (Leins 2012: 30). Thus future research should be able to match coins being offered for sale with coins registered on the PAS database, thereby identifying dark finds and offering a quantitative assessment of the dark-figure problem of non-reporting.

Table 4. Western (Dobunni) iron age coins offered for sale on the Internet

Coin type	Offered for sale (17 weeks in 2019)		Recorded on PAS database (2004-2019)	
	Number	Percentage	Number	Percentage
Gold stater	11	30	34	17
Gold quarter stater	6	16	17	8
Silver unit	20	54	150	75

14. <<http://paul-barford.blogspot.com/2019/11/friday-retrospect-simon-wicks-opens-shop.html>>.

15. <<https://ancientartifacts.net/smf/index.php/topic,1194.0.html>>.

16. <[https://www.ebay.co.uk/fdbk/feedback\\_profile/ancient-antiques?filter=feedback\\_page:All](https://www.ebay.co.uk/fdbk/feedback_profile/ancient-antiques?filter=feedback_page:All)>.

In 1996, the UK government considered that a compulsory reporting system might make it easier to control the trade in illegally-acquired objects, but was also concerned that it might encourage a 'black

market' in antiquities (DNH 1996: 176). In 2019, the idea of a black market is hopelessly anachronistic, and the voluntary reporting system ultimately adopted as the PAS has done nothing to check the spreading inferno of the open but gray Internet market. Whether this market has increased the number of active metal-detectorists or encouraged the non-reporting of finds is unknown. At least the relatively scarce provision of PAS or Treasure numbers as provenance suggests that the PAS database is not being used to launder finds in some way (Daubney 2017: 7). More productive research could be conducted into eBay and other Internet sales by people with the appropriate expertise, able to recognize and draw meaningful inferences from objects appearing for sale (e.g. Daubney 2019), though generally that seems not to be happening. While the PAS has been eager to enter into collaborative projects aimed at utilising PAS data for standard archaeological or historical research, it seems not to have sought out partners for granted projects aimed at investigating the market. Of the 718 research projects listed on the PAS website, only two concern the antiquities trade — both Masters dissertations investigating the sale of material on eBay conducted by students at University College London. There has been nothing to parallel Katherine Robbins' systematic research into recovery biases which is of fundamental benefit to archaeological and historical projects — there has been no research aimed at investigating how the market has affected metal-detecting since 2000 and how in turn that has affected reporting and recording on the PAS database (perhaps because such information would be of less obvious benefit to orthodox archaeological or historical research). It has been argued that the resources are not available for the PAS to monitor eBay on a daily basis, and more are needed (Bland 2013; Bland *et al.* 2017: 116), but that mischaracterises the problem. The aim should not be to identify stolen or undeclared Treasure finds being offered for sale, which is not the job of the PAS, but to investigate the market more holistically with a view to understanding its organisation and operation as a metal-detecting entanglement. It is not daily monitoring that is required, but a sustained, good-quality piece (or pieces) of research. Alongside insights that can be gained from market studies such as the ones presented here in preliminary fashion, more information is available on market websites and from metal-detecting publications, Hardy (2017; 2018) is exploring the possibilities of social media and Internet forums, and there are untapped information lodes on critical blogs such as *The Heritage Journal*<sup>17</sup> and *Portable Antiquity Collecting and Heritage Issues*.<sup>18</sup> In a world of limited resources, the PAS is choosing not to deploy any of what resources are available towards investigating the organisation and operation of the market, and by extension the size and shape of the dark-figure problem and the nature of broader metal-detecting entanglements.

17. <<https://heritageaction.wordpress.com/>>.

18. <<http://paul-barford.blogspot.com/>>.

## Discussion

Returning now to the introductory proposition that there is boundary-work in play around the PAS, and the questions posed about why the PAS is felt in need of protection and just what exactly it is that is being protected. The preceding discussion has tried to establish that the thing called the PAS is part of a larger entanglement in England and Wales that has acted productively to promote and support research into the past cultures of those countries. Hodder's theory of entanglement is symptomatic of a theoretical turn in recent years towards annihilating or superseding human-centred subject:object or culture:nature dualisms and recognising instead a more equal distribution of agency across human and non-human entities (Harman 2018; Latour 2005, Bennett 2010; Hodder 2016). The idea that non-human entities or things might possess intrinsic agency has been applied here to technologies such as GIS, policies such as PPG16, and of course to the institution of the PAS. It should be clear by now that things such as PPG16, GIS and the PAS have all in their own carrot-and-stick ways offered impediments, affordances, dissuasions, opportunities, encouragements and incentives for archaeological and more broadly historical scholarship. Other things might be added: metal detectors, the Treasure Act, the widespread distribution of arable land perhaps, and certainly the longstanding common law rights and prerogatives of private property ownership. Michael Lewis is surely correct when he states that:

Whatever the ethical issues, or the public and political opinions thereof, it is apparent that the laws of England and Wales did not favour the protection of archaeology (and the perceived threat to it from metal-detecting) above individual property rights and the associated liberties of ownership' (Lewis 2016: 128; see also Campbell 2019).

There is a lot more work to be done regarding the PAS entanglement, including and of interest here the professional entrapments and their impact upon scholarly debate.

Researchers benefitting professionally and intellectually from being caught up in the PAS entanglement are likely to feel undermined by any direct criticism of the PAS and its work, which indirectly translates as a criticism of their research and by extension their professional competence. Indeed, overworked PAS employees might feel their livelihoods threatened as government funding continues to splutter along uncertainly through a series of short-term renewals. Unfavourable criticism might scare off this funding and there is an incentive to advertise the positive achievements of the PAS while discounting and even closing down discussion of its shortcomings. David Clarke wrote about this sort of thing a long time ago now, noting the tendency for the professional to become personal, and looking forward to the emergence of a 'critical self-consciousness', which would attempt to 'control the direction and the destiny of the system by a closer understanding of its internal structure and the potential of the external environment' (Clarke 1973: 7). Understanding the entanglement might be the first step towards transcending it. Boundary-work

is unhelpful in this regard, typical of what Clarke considered to be the earlier-stage (uncritical) 'self-consciousness' of a fractured discipline when the:

politics and sociology of the disciplinary environment increasingly develop this 'authoritarian' state in which each expert has a specialist territory such that criticisms of territorial observations are treated as attacks upon personalities (Clarke 1973: 6).

Critical self-consciousness among specialists would be achieved through more general theoretical conformity (Clarke 1973: 7).

Of course, Clarke's paper was a foundational statement of the new or what would become known as processual archaeology and it was not long before his advocacy of generalizing theory came under post-processual attack. Michael Shanks and Christopher Tilley, for example, offered their own view of critical self-consciousness, arguing that it would be a pluralist and value-committed socio-politics (Shanks and Tilley 1987: 186-208). What here has been characterised as boundary-work would instead be welcomed as challenging 'polemic and rhetoric' aimed at encouraging debate — ultimately a politics of archaeology is also a poetics (Shanks and Tilley 1987: 207-208). With its pessimistic view on the possibilities of disentanglement, Hodder's theory of entanglement could be construed as some kind of neo-functionalism and has been criticised as apolitical (Hodder 2016: 139-140) and for downplaying the importance of human relationships and human subjectivity and agency (Hodder 2016: 137-139). Boundary-work, however it is interpreted, is a welcome sign that human agency is alive and well within the entanglement, and perhaps even crucial for its ongoing persistence.

The PAS entanglement outlined in this paper is not the only one in which the PAS acts. Clearly, critics of the PAS must be situated within an entanglement of their own, though not yet described, which channels their actions and opinions. Certainly, the perspective of a researcher sitting at a desk watching unprovenanced finds fly by on eBay is likely to be very different to that of an FLO diligently recording honestly reported finds. The present author's own research interest is in the market for metal-detecting finds and the nature of his entanglements as a university employee remain to be explored<sup>19</sup>. Metal-detectorists themselves are part of a different entanglement again, one that includes the PAS, but also other things such as clubs, rallies, Facebook groups, eBay, and buyers travelling around the east of England. Since the early 2000s the Internet market has grown to become a massive thing in the metal-detecting entanglement with what might be an irresistible gravitational pull. Perhaps seller UK48 is part of this entanglement, or perhaps of an even more dimly perceived one involving buyers and sellers with no relation to the PAS whatsoever.

Institutions similar to the PAS have been established in other countries and there are proposals in train for more (Thomas 2019: 156-157), but how

similar institutions function within their own native entanglements remains to be described. Perhaps in countries with a similar culture and environment the prospects for PAS-like institutions would be good, but they are hardly likely to constitute a universally-productive engagement with metal-detecting. It has been suggested to the author twice in recent years that a Syrian version of the PAS might act to discourage looting in Syria<sup>20</sup>. Perhaps, but the suggestion raises serious questions about whether the broader PAS entanglement could be replicated in Syria, which seems unlikely, wishful thinking even. Without it, a PAS-like institution might be ineffective and even risk making an already calamitous situation worse.

The future trajectory of the PAS and its entanglement is presently unwritten. Hodder argues that entanglements are more likely to transform than disentangle, or to reconfigure around novel things (Hodder 2016: 24, 148). Going forward, it cannot be predicted what potentially transformative technologies lie just over the horizon, though the increasing accessibility of HERs will surely make an impact. Other entanglements too might transform through time. Daubney has made the intriguing suggestion that a conceptual and terminological shift away from describing found objects as 'metal-detecting finds' towards describing them as 'grave goods' would allow the trade in such objects to be viewed as an example of what Deborah Satz (2010) terms a noxious market, with the possibility of this new terminological thing influencing public attitudes and opinions about the morality and ultimately the desirability of metal-detecting. If such a new thing does come to transform the metal-detecting entanglement, the current PAS entanglement will no doubt reconfigure alongside it.

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19. The Research Excellence Framework (REF) no doubt looms large in a way that it doesn't for university employees in other countries.

20. Once by a British academic and once by a Syrian official of the Directorate-General of Antiquities and Museums.

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