Metal detecting as an evaluation technique: Detailed and Partial Artefact Survey (DAPAS)

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Metal detecting, and fieldwalking, have been under-utilised as archaeological evaluation techniques. In this case study, Keith Westcott describes how these two non-intrusive approaches can be combined in a cost-effective way. Detailed and partial artefact survey enables the identification of both metallic and non-metallic finds, supporting greater understanding of the significance of archaeological remains and the potential impact of construction work on that significance.
To maximise the benefits that archaeology creates for business and society, it must be carried out with professionalism. The Institute of Detectorists CIC and The Detectorists Foundation promote the importance of professional standards for metal detecting, enabling detectorists to work alongside archaeologists within a shared ethical framework.

Gathering material evidence of our past enables archaeologists to build a robust assessment of our heritage, where often there is no written evidence. Important evidence discovered in situ during excavation provides valuable contextual dating evidence but also, as fieldwalking demonstrates, spatially recording surface finds can contextualise a landscape, providing a tangible insight into our cultural history.

Metal detecting has traditionally been limited to scanning spoil heaps ©Charlie Newlands

Technological advances have brought positive changes to the assessment and evaluation of archaeological significance in the 21st century. Photogrammetry, remote sensing with LiDAR and geological surveys producing images and mapping all contribute to a non-intrusive approach to archaeological evaluation. To confidently define a site and reduce uncertainty, determining archaeological evidence through key indicators requires a process of initial desk-based assessment, remote sensing surveys and, before forming a mitigation strategy, possibly surveying for tangible dating evidence.

Fieldwalking, though labour intensive, is a tried and tested evaluation technique to help determine human activity in an area and is an important tool in the archaeologist's assortment of available field survey options. So too is the metal detecting survey.

Although both fieldwalking and metal detecting surveys utilise 'collection units' (a gridded and transect approach) and look to achieve the same outcome of assessing the archaeological potential of an area, the two disciplines are rarely carried out by the same organisation or individuals. However, despite the obvious benefits in collecting and spatially recording all material artefacts from the archaeological record, fieldwalking and metal detecting surveys are not the norm in today's commercially sensitive archaeological world. Conversely, and leading to the ultimate

Reducing the volume to surface area ratio of spoil makes it more suitable for scanning ©Keith Westcott

destruction of the archaeological record, it is not unusual in commercial archaeological investigation to 'strip off' topsoil.

COMBINING FIELDWALKING AND METAL DETECTING UTILISING TRAINED DETECTORIST PRACTITIONERS

Although the metal detector has been under-utilised as an archaeological tool in the past, where surface conditions are suitable for fieldwalking, the technology can be successfully used to pinpoint portable metal antiquities buried in the topsoil. A community interest company, the Institute of Detectorists CIC, has now been established to promote the embedding of metal detecting into professional practice. The Institute has developed a standard for ensuring a consistent approach to the use of metal detectors on archaeological sites called the 'detailed and partial artefact survey' (DPAS), which can be tailored to suit varying site conditions. In addition, the institute is building a national resource of 'practitioner detectorists' who have been educated to understand and adopt archaeological methods.

Importantly, one of the key benefits of this approach is that detecting no longer needs to be limited to spoil heaps and topsoil; the use of skilled detectorist practitioners and DPAS methodology enables metal detection to progress to the investigation of trenches and for searching subsoil layers down to the natural, undisturbed strata. This enables us to locate and protect our portable heritage from the effects of mechanical excavation and to identify positions for archaeologists where metal finds from antiquity lie in undisturbed stratigraphy.

Stating the obvious, time and money are two governing factors here, not only in the human resources required to complete two independent surveys, but also to process,

Using a metal detector to pinpoint targets for investigation on an archaeological site ©Keith Westcott

post-excavation, the resultant archive of portable heritage. However, is there a wider value beyond the information gained from artefacts? Could adopting DAPAS bring a commercially viable and consistent approach to learning from and saving our portable heritage?

DPAS BASIC PRINCIPLES – COMBINING FIELDWALKING WITH METAL DETECTING WHEN REQUIRED

- **Detailed:** offers a consistent approach to retrieving dating evidence, set to a site-determined discard policy, offering an accurate and detailed sweep of 200m^2 grids through two-metre transects, located over important archaeological remains identified by a geophysics team or through desk-based assessment. With an initial GPS location point, the search area location grid can be efficiently moved or expanded, utilising set rope lengths to give a measured distance.
- **Partial:** covers larger search areas following a predetermined density of transects. The partial approach considers the required coverage of hectares to numbers of detectorist practitioners, against sweep rates. For example, a partial approach was recently utilised on an HS2 section where metal detecting, geochemistry and magnetic susceptibility were combined, based on 20m transects, while other sites may require a greater density of, say, five-metre transects.
- **Detailed and partial surveys:** look to maximise the effectiveness of searching for what can often be very small finds (a medieval coin can weigh as little as one gram). By setting out to a predetermined plan, achieving a consistent coverage of the search area, findspots will then be GPS-located and spatially plotted as dating evidence to be presented in the final report. Where possible, fieldwalking will be carried out at the same time as metal detecting.
- **Trenching and excavation:** utilising the metal detector to locate topsoil and subsoil in-situ metal artefacts, marked-out trenches are swept before digging and before each drawback of a mechanical excavator. Targets spots can be flagged for excavation.
- **Spoil:** volume to surface area makes locating finds in spoil heaps particularly inefficient. A maximise the potential for finding artefacts of all materials by restricting the depth of spoil and laying it out in lines away from the trench, relevant to layers excavated.
- **Finds retrieval:** detectorist practitioners are best placed to perform artefact extraction from topsoil when an object is located, rather than flagging it for extraction by others, as pinpointing the target is integral to the accurate retrieval of the artefact. Deeper signals will be flagged and reported to be

Using a metal detector to pinpoint targets for investigation on an archaeological site ©Keith Westcott

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Detectorist practitioners carrying out a detailed survey to DPAS standards ©Nathan Portlock-Allan

excavated by an archaeologist.

- **Recording:** collecting small finds and the GPS logging of finds are often performed separately. Our three-stage approach includes bagging the find, writing details such as the context number and find depth on the bag and also on a separate tag attached to a plastic stake, allowing the small finds to be retrieved before spatial coordinates are logged.
- **A no-metal zone:** it may sound obvious but utilising metal stakes to set out a 'detailed' surface detecting area, or laying spoil on metal-eyed tarpaulins, is not conducive to an efficient survey. Detectorist practitioners will comply with health and safety requirements by wearing non-metallic composite safety boots and hard hats secured and suited to the practice of removing artefacts from the ground.

Further information on DPAS and detectorist practitioners will be publicised through a forthcoming website operated by the institute and its charitable counterpart, the Detectorist Foundation, under the joint banner of the Detectorists Institute and Foundation, thedif.org.uk.