

## Obituary for Arnold Aspinall

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*For the second Newsletter running I have to preface an obituary for one of our Honorary Members. Arnold Aspinall was a friend and inspirational figure to many and whose death was a sadness for all who had met him. I was interviewed by Arnold in 1979 for a place on his undergraduate Archaeological Science course. When I arrived in his office I found a clean and tidy chap in a suit and tie - a million miles away from the field archaeologists that I had met on summer excavations. Strangely it was those 'diggers' who pointed me towards Bradford; on first sight it was not clear why. Quickly it became apparent that beneath that formal façade was a kind man who cared about his (potential) students. Like many others I came away from the 'interview' feeling that he had persuaded me to come to Bradford and not that I had to convince him to take me. The decision to come to Bradford was not one that many were to regret. If you read the tributes to Arnold on the ISAP webpage you will find that he treated everyone with courtesy; the description of '...old world charm, dry wit and strong intellect...' is one comment. The words below from Armin Schmidt perfectly capture a man who was at ease with himself and easy with other people.*



*Arnold Aspinall: educator, inspirer and friend.*

Dr Chris Gaffney, Chairman ISAP

Prof. Arnold Aspinall, who has died aged 86, will be missed for many things. But having inspired a generation of archaeologists to take up archaeological geophysics and other archaeological sciences will be his most lasting legacy. All students of archaeology in the UK are nowadays exposed to a good measure of archaeological sciences and probably even some hands-on geophysical field practice. That these topics have become part of the archaeological 'mainstream' in the UK is in large parts due to Arnold's foresight. Being a scientist himself with a deep interest (and understanding) of archaeology he knew that the gap between archaeology and the sciences has to be bridged and so he introduced the intriguingly named 'Master of Arts in Scientific Methods of Archaeology' at the University of Bradford in 1973. His students developed the most widely used archaeological geophysical instruments (Roger Walker with Geoscan Research) and set up the first archaeological geophysical survey company (John Gater and Chris Gaffney with GSB

Prospection) that led to TV stardom in the form of Time Team.

Arnold studied physics at University College, London and undertook his postgraduate research at Manchester University's Jodrell Bank Radio Telescope with Professor Sir Bernard Lovell. He then became Lecturer in Applied Physics at Bradford Technical College (later to become the University of Bradford) where Prof. Gordon Brown's nuclear physics group started applying neutron activation analysis (NAA) to archaeological samples. Arnold and Gordon Brown established an archaeometry research group in 1962 and were joined by Stanley Warren, characterising and provenancing archaeological samples. Arnold soon realised that the entrenched divide between 'white-coat scientists' and 'woolly-jumper archaeologists' was a considerable hindrance to achieving outcomes and therefore established the MA in Scientific Methods of Archaeology to teach archaeologists about the potential and limitations of scientific techniques. This was followed in

1974 by the first BSc in Archaeological Sciences, leading to the transformation of the physics department into the Department of Archaeological Sciences, with Arnold as its first Head. Since then many other universities have followed suite and now include some scientific investigations as part of their archaeology degrees.

Arnold's own research interests gradually shifted away from neutron activation analysis towards archaeological geophysics. By influencing the design of the early fluxgate gradiometers built by Plessy, Littlemoor and Philpot, the ground that he could cover with magnetometer surveys increased. This led to challenges with the display of resulting data and the superintendent technician, Jim Pocock, commented that he was actually meant to do other things than spending hours creating dot density plots by hand. Nevertheless, he produced beautiful plots, including one of the hillfort at Thwing (a collaboration project with Terry Manby), which adorned the first few volumes of the journal *Archaeological Prospection* and the original of which I passed on to current research students, reminding them of how much easier data presentation now is. Arnold experimented with displaying single grids on oscilloscopes (he was a physicist, after all) from which he took Polaroid shots that could then be assembled to represent the whole survey area on a wall. But the breakthrough came with the Epson HX-20 portable computer that allowed data logging in the field, computerised processing of single grids and printing the results on dot-matrix printers (Kelly *et al.* 1984). Arnold's foresight of having

added computer sciences to the Department proved again extremely advantageous for this research (in 1983 John Haigh organised the CAA conference in Bradford).

In 1970 Arnold published a paper with John Lynam, one of his research students, which introduced the 'twin-probe' earth resistance array to the archaeological geophysics community (Aspinall & Lynam 1970). Lynam's theoretical analysis showed the suitability of this configuration for shallow archaeological investigations, and its lightweight operation (having to move only two electrodes) made it very popular for fieldwork. The instrument was initially designed for Induced Polarisation measurements with non-polarising electrodes made of Tufnol and conducting gel. Although very clear IP results were collected with this system, the hollow electrodes broke too often to be suitable for larger surveys and were therefore replaced with steel electrodes for earth resistance measurements. For the rapid recording of these readings the Bradphys resistance meter was developed in the University's electronics workshop in 1970 and delivered to archaeologists as far afield as Mexico and Canada. Even in 1999 I received an enquiry from a company in Vancouver that wanted to interface their old Bradphys to a digital data logger. Arnold restarted research on IP measurements with his research students Susan Ovenden and Colin Heathcote, while Chris Gaffney evaluated the use of other electrode configurations for archaeological prospection.

In addition to magnetic and electrical methods, Arnold also investigated the potential of electromagnetic methods for archaeology. His research students Roger Walker and David Skinner were tasked with building field-ready instruments for frequency-domain and time-domain investigations, respectively. When Arnold, after his retirement, discovered a commercial metal detector that resembled the same 'banjo design' that these earlier instruments had used he restarted his research and evaluation, applying it to the Towton Battlefield with Tim Sutherland. Arnold also influenced the early developments of GPR in archaeology, especially through his links with York. Peter Addyman recalls how disappointed he was when Arnold dampened his initial excitement about the potential of GPR in urban



*Investigating a new ERI system at Fountains Abbey*

archaeology (Stove & Addyman 1989). Needless to say that Arnold was right and that far more development work was needed to achieve the GPR results that we are now used to.

Despite all these technical improvements in archaeological geophysics Arnold always maintained that these techniques had to be *useful* for archaeological research, demonstrating that he had become a real 'archaeological scientist'. He had a keen interest in history from the start, but was a Lancastrian. And that was (is...) a problem in Yorkshire. So he attended archaeology evening classes in Leeds and built excellent links with local history groups, the York Archaeological Trust and the Yorkshire Archaeological Society. While his geophysical contributions to international archaeological projects were essential for popularising the benefits of geophysical methods, it was the fruitful collaboration with local groups that allowed him to 'embed' these techniques into everyday archaeological practice. Not only were new instruments tested and adapted, but he also found ways of communicating geophysical results to archaeologists. His departmental archaeological colleagues Rick Jones and John Hunter, amongst others, were a great help in overcoming the still existing 'language barriers'. For field-testing Arnold also made his garden at Manor Vale available, and the cesspit under his main lawn has been surveyed with virtually every geophysical technique; not to mention the various pigs that were buried in his back garden to provide forensic examples.

Arnold knew about the importance of engaging with archaeologists, partly from serving on the funding board of the Science-based Archaeology Committee but also out of his own firm belief in the benefits of interdisciplinary work. In the early 1990s he launched four important initiatives. He developed, together with Cathy Batt, a specialised MSc in Archaeological Prospection (first intake of students in 1994); a new journal, *Archaeological Prospection*, with Arnold and Mark Pollard as editors (the first issue in 1994); a new dedicated research and lecturing post in archaeological geophysics at the Department of Archaeological Sciences (my appointment in 1994); and a series of International Conferences on Archaeological Prospection (first conference in 1995 in Bradford). It was an amazing time to join the Department.

When Arnold retired from the University his work was continued by students and friends, guided by his principles of interdisciplinary inquiry, respect for other people's views and advancement of archaeological geophysics. Whether this was for Geoscan Research to develop new instruments specifically tailored to archaeological geophysics; for GSB Prospection to undertake high-quality geophysical surveys and popularise archaeological geophysics by developing a particular Time Team approach to TV presentation; or for the Department of Archaeological Sciences to undertake research and teaching in archaeological geophysics. Not to mention the many students who became 'better archaeologists' having been encouraged and inspired throughout their studies in Bradford by Arnold. For his many contributions to archaeological sciences he was awarded an Honorary DSc by the University of Sheffield in 1994 and an Honorary Professorship by the University of Bradford in 2006. He became one of the first five Honorary Members of ISAP in 2004. After his retirement, Arnold maintained close links with the University of Bradford and continued his research, for example with earth resistance experiments in the laboratory's deep water tank (Aspinall & Crummett 1997; Aspinall & Saunders 2005). His insistence on the correct usage of important terminology also informed his last book, on magnetometer techniques (Aspinall *et al.* 2008), for example through the clear distinction between dipolar and bipolar magnetic anomalies, a useful concept that continues to make data interpretation easier to understand.

Over the years, working with local groups and community archaeologists, Arnold had become increasingly interested in dowsing. Does it work and if so why and for what? As a physicist he applied trial and error methods himself and always had some dowsing rods in his car using them occasionally whilst students undertook the magnetometer surveys. We had interesting discussions about experiments that compared the flipped periodicity of dowsing amplitudes between England and New Zealand and Arnold was even asked to continue that research in his own garden, but declined. He solicited Martijn Van Leusen's paper on dowsing in archaeology for *Archaeological Prospection* (1998) and showed a keen interest in the editorial process. It certainly was a topic that kept him bemused and he used it, to great effect, in his lecture on 1<sup>st</sup> of

April 2000 during the Bradford reunion conference.

As much as Arnold's scientific approach to archaeology was admired it was his quiet authority, depth of knowledge, genuine kindness and wry humour that made him such a special person. Many people were touched by his friendship and insightful personal comments; he was a true gentleman. Never one to interfere in other people's business, it was clear that on those rare occasions when he offered advice one better take notice. Several former students reported how they found their ways after 'a quiet word' from Arnold.



*In his garden at Manor Vale*

And his wonderful garden. Arnold was passionate about gardening and had an amazing insight into plants and how to get the best out of them. He could visit garden centres for hours and spending time in (and with) his garden was a wonderful balance that he had found to the otherwise sometimes dry scientific enquiries. He enjoyed talking about gardening, for example with my wife; but when I once started a conversation about his amazing Rhododendron plants he just gave me that wry Arnold look, patted me on the back and said "it's no good talking to *you* about gardening".

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A page on the ISAP website has been set up to the memory of Arnold Aspinall, with contributions from colleagues, friends and family.

The page can be accessed here:  
<http://www.archprospection.org/arnold-aspinall>