

Case study 19: Early Christian burial site at Plas Gogerddan, Ceredigion, Wales – use of phosphate in the investigation of possible graves

Dr. John Crowther, Director of Archaeological Services at the University of Wales,
Lampeter

Copyright: Author

The site (Fig. 1), located close to Bow Street, 5 km north of Aberystwyth, revealed a series shallow, elongated pits (Fig. 2). Because the substrate comprises free-draining, slightly acid, fluvio-glacial deposits, virtually no traces of bone remained.



Figure 1: Plas Gogerddan site.

During excavations undertaken by Cambria Archaeology (Excavation director: Ken Murphy) along the line of a new pipeline, various pits, ring ditches and other features were discovered. Certain pits could be clearly identified as graves from the presence of coffin stains. However, in other cases there was no visible evidence, and a programme of phosphate analysis was undertaken in the hope of gaining additional insight into these.



Figure 2: Elongated pits.

Unfortunately, the fluvio-glacial sands and gravels (Fig. 3) not only have a limited phosphate-retention capacity (phosphate tends to be fixed in the finer clay fraction of soils/sediments, and be readily leached through coarser matrices), but also exhibit very marked local variability in texture (with adjacent samples having widely differing proportions of finer sediments).

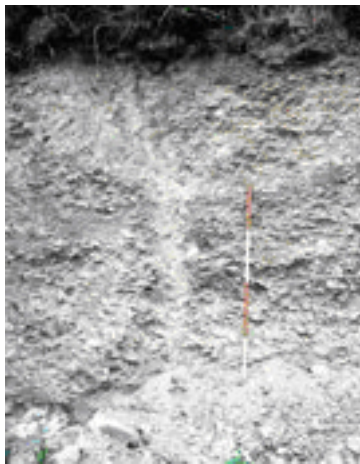


Figure 3: Fluvio-glacial sands and gravels.

In these seemingly unpromising circumstances, some initial exploratory work was undertaken, which established that better results were obtained by analysing the clay+silt (<63 μ m) fraction of samples, rather than the conventional fine earth (<2 mm) fraction; and that clear signs of phosphate enrichment was evident in a ‘control’ pit (Grave 136, Fig. 4) that was known to have contained a burial.

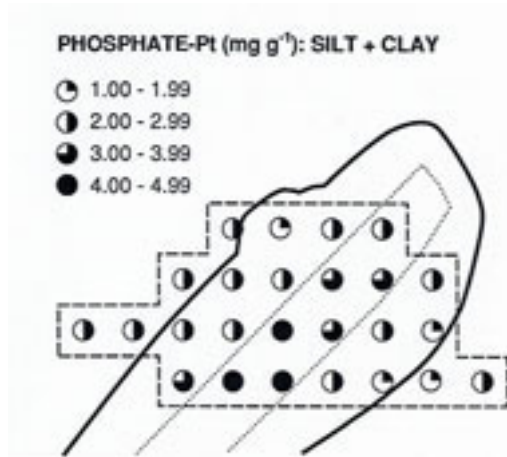


Figure 4: Phosphate enrichment in a pit known to have contained a burial.

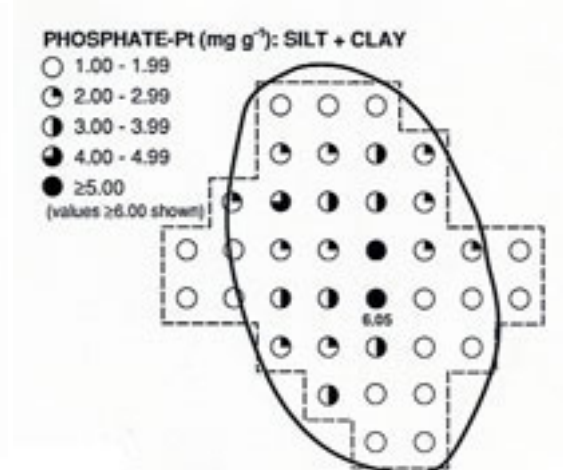


Figure 5: Phosphate enrichment in a more enigmatic pit

Having demonstrated that phosphate analysis could be used to identify burials at Goredgan, it was then applied to other, more enigmatic, pits. In several cases (e.g. Pit 248, Fig. 5), strong signs of phosphate enrichment (equivalent to those in the 'control' pit) were recorded in the central part of the feature – clearly suggesting that these were also graves.

Further details

Murphy, K. (1992) Plas Gogerddan, Dyfed *Archaeological Journal* 149: 1-38