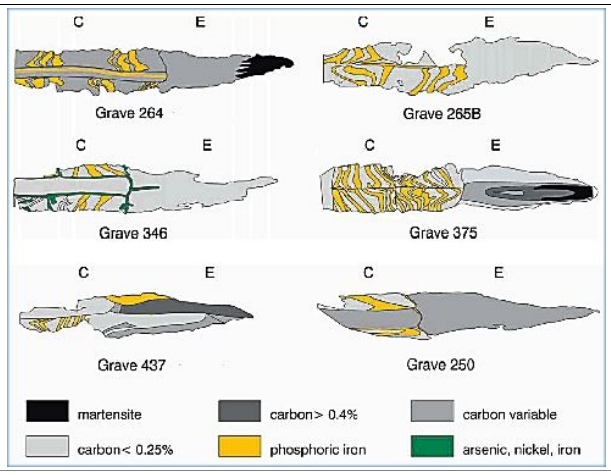
Janet Lang [1)]

The Anglo-Saxon cemetery at Dover Buckland, Kent, UK and the technology of some of the iron artefacts.

Science

We have encountered **Janet Lang** before. She is a retired British Museum staff member and has written several articles of interest concerning swords. The article with the title as given above can be accessed directly here. Janet investigated 5 pattern-welded swords and a weaving batten metallurgically; the results fit in with what we have seen before but merit a short discussion here.

- The objects date to the late 5th century to 600 AD. The cross-sections below attest to complex pattern welding techniques, always with phosphorous steel and mild steel as the basic constituents plus regular steel for the edges. In two cases the edges were hardened by quenching and martensite formation.



Half-blade cross-sections of the 5 swords and the weaving batten
See the paper for details

The especially remarkable sword comes from grave 346. It is of the "veneer" type with two sets of twisted striped rods welded to both sides of a central core (like the sword from grave 264). What makes it special is the finding that the welds seams contain high concentrations of Nickel (Ni) and arsenic (As).

- In other words, this is another manifestation of what is sometimes called the "**white weld line**" phenomena; we have encountered it here, fore example. Janet Lang, who I consider to be an expert in this field, tends to assign this phenomena to the us of iron / steel made from ores that contain these metals. I humbly beg to disagree. I consider it far more likely that the smith used a special flux or the hammer welding, as discussed here and here.

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1) Janet Lang: The Anglo-Saxon cemetery at Dover Buckland, Kent, UK and the technology of some of the iron artefacts, in: Der Anchnitt, Beiheft 26, Bochum 2016, pp. 185 - 192