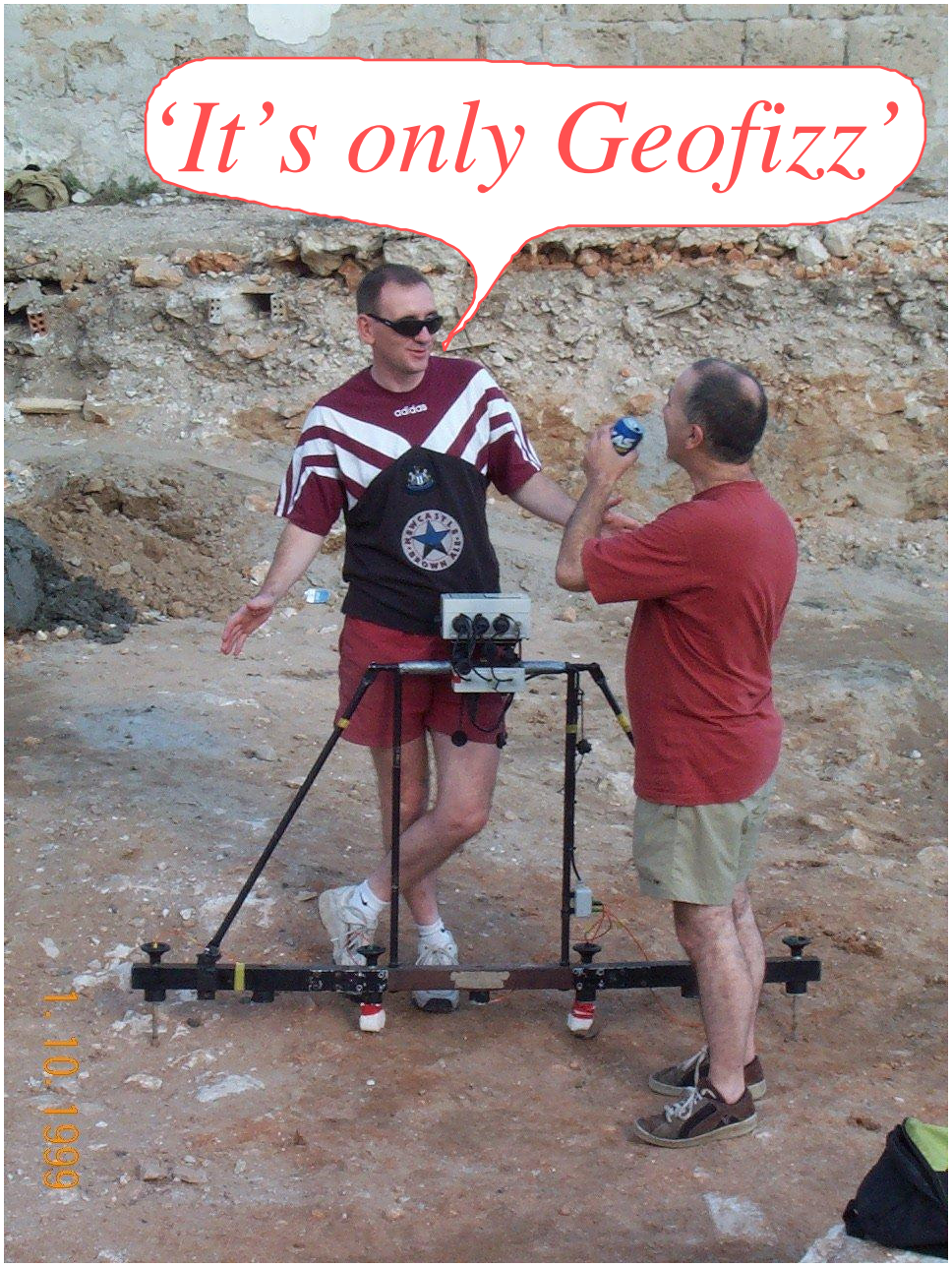
Popularising Archaeological Geophysics on Time Team

John Gater

GSB Prospection Ltd

With thanks to: Chris Gaffney

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involved in finding scarce archaeological resources and defining where they are."

Amongst the most commonly used techniques are magnetometry and resistivity. In the former, the earth's magnetic field is measured, together with any effects that structures in the ground may have on it. Walls, pits and trenches can all affect the readings, and these can then be plotted out, producing a map of features not always visible on the ground.

With resistivity, the electrical resistance of the soil, and any buried features in it, is measured: where there are buried pits and ditches, there is little resistance, whereas walls and stone give high resistance readings.

Ground penetrating radar may eventually prove a useful technique. It can examine deposits several metres below the surface and could be useful in identifying features found in towns. Initial results from this technique have been encouraging.

What do they use?

• *Gradiometry*

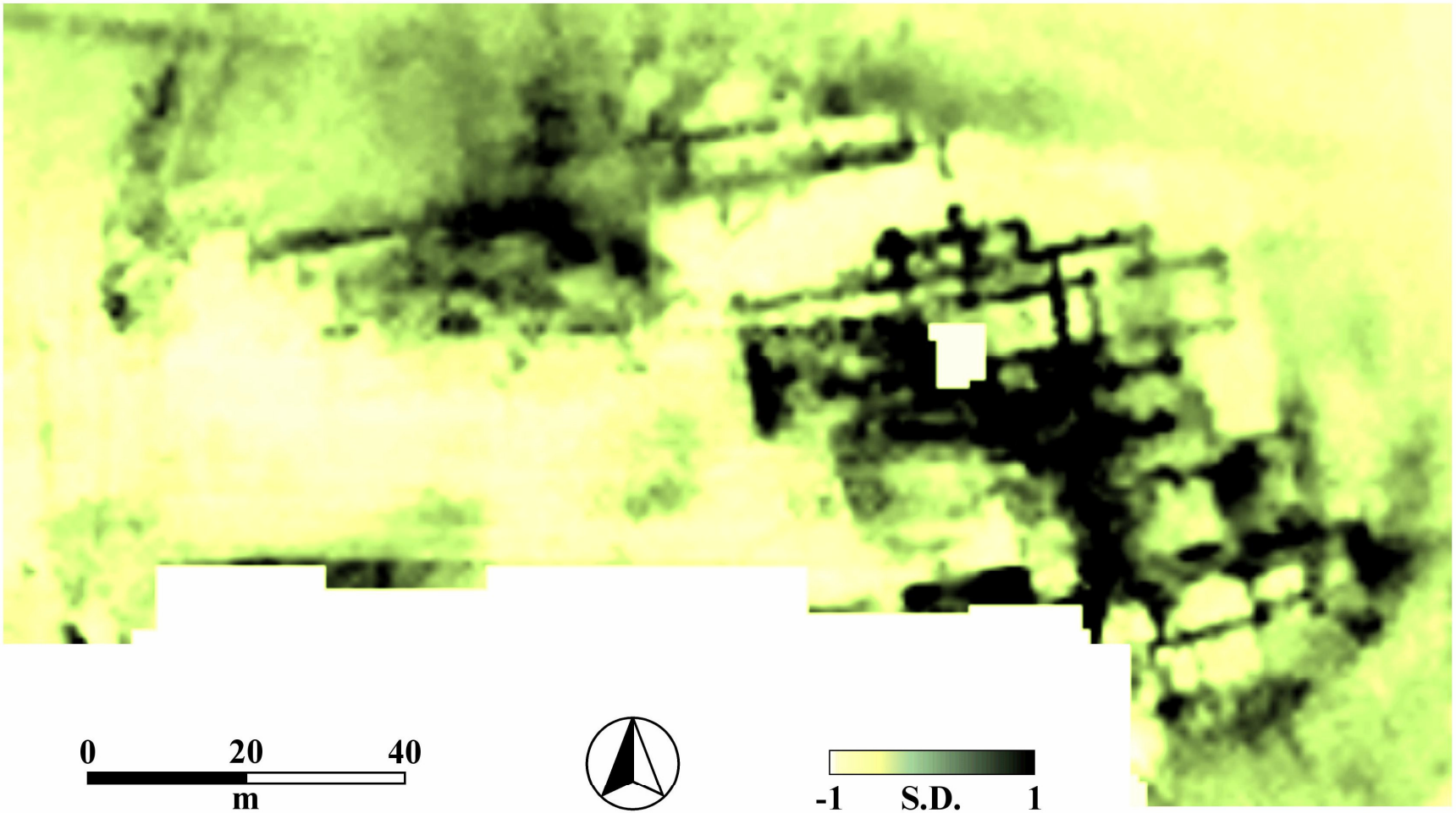
Many of GSB's surveys are conducted in response to the developer's need to comply with the PPG16 requirement. Gater said: "Initial queries usually relate to known archaeology, but they can be preemptive in nature. This will influence our choice of technique." He said that, in 90% of surveys, they will turn to gradiometry. "That will pick up most archaeology in the top metre of soil. It's also a quick technique which picks up the widest range of features."

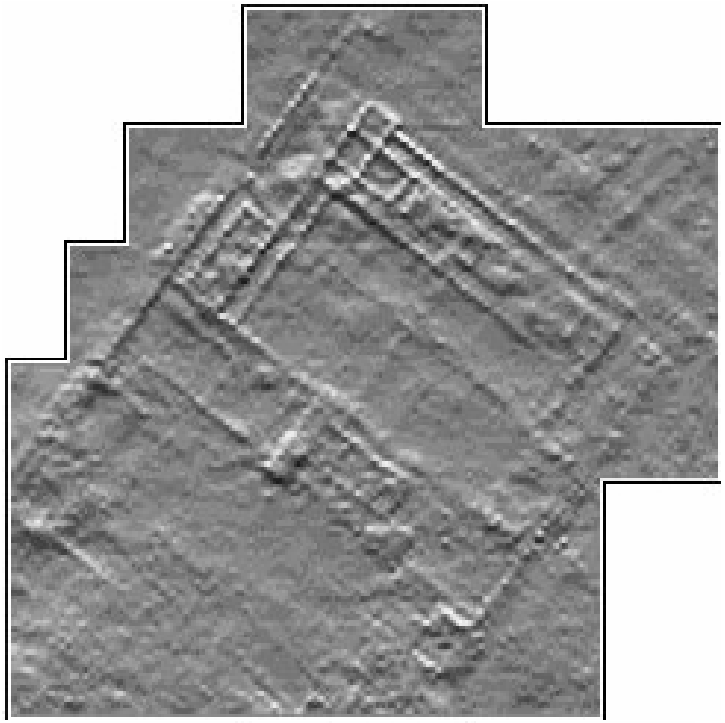
Gaffney added: "Sometimes, features are too small to be detected with a gradiometer, but often it's enough to say whether something is there or not."

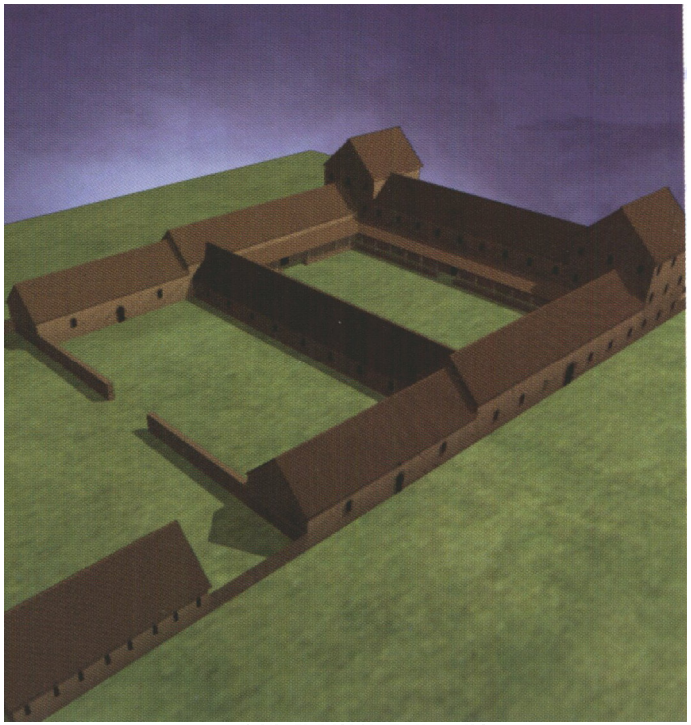
The fluxgate gradiometer was developed specifically for archaeological purposes and has been in general use since the mid 1970s. It measures the gradient of the local magnetic field through two fluxgate sensors located 0.5 or 1m apart. The device is sensitive – capable of detecting changes as small as 1nT – and easily used. According to GSB, one operator can cover an area of about 2 hectares, taking measurements every metre or so.

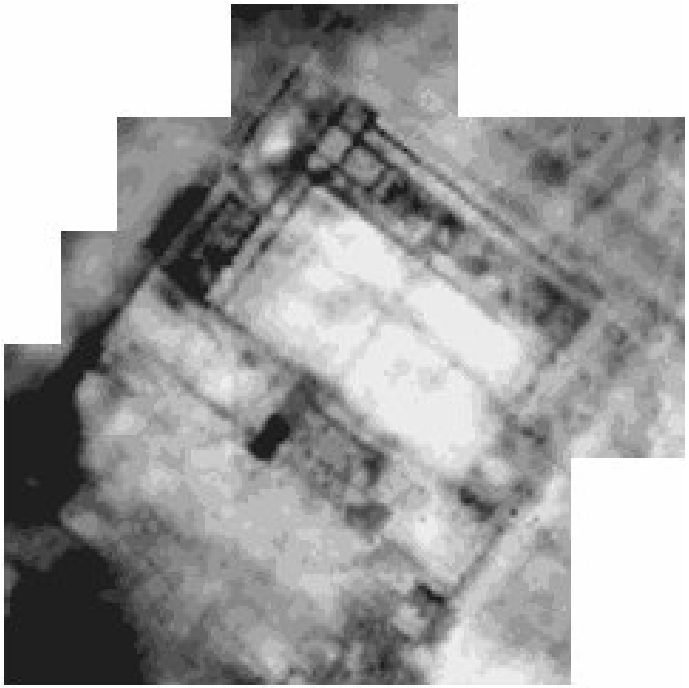
Fluxgate gradiometers will detect buried ferrous pipes and cables, along with other ferrous material, clay drains and mineshafts. In an archaeological context, the gradiometer can find ditches, pits and areas of occupation. In Time Team, the fluxgate gradiometer is used to determine the 'best place to dig'. When used in a PPG16 survey,

Athelney - Resistance Survey









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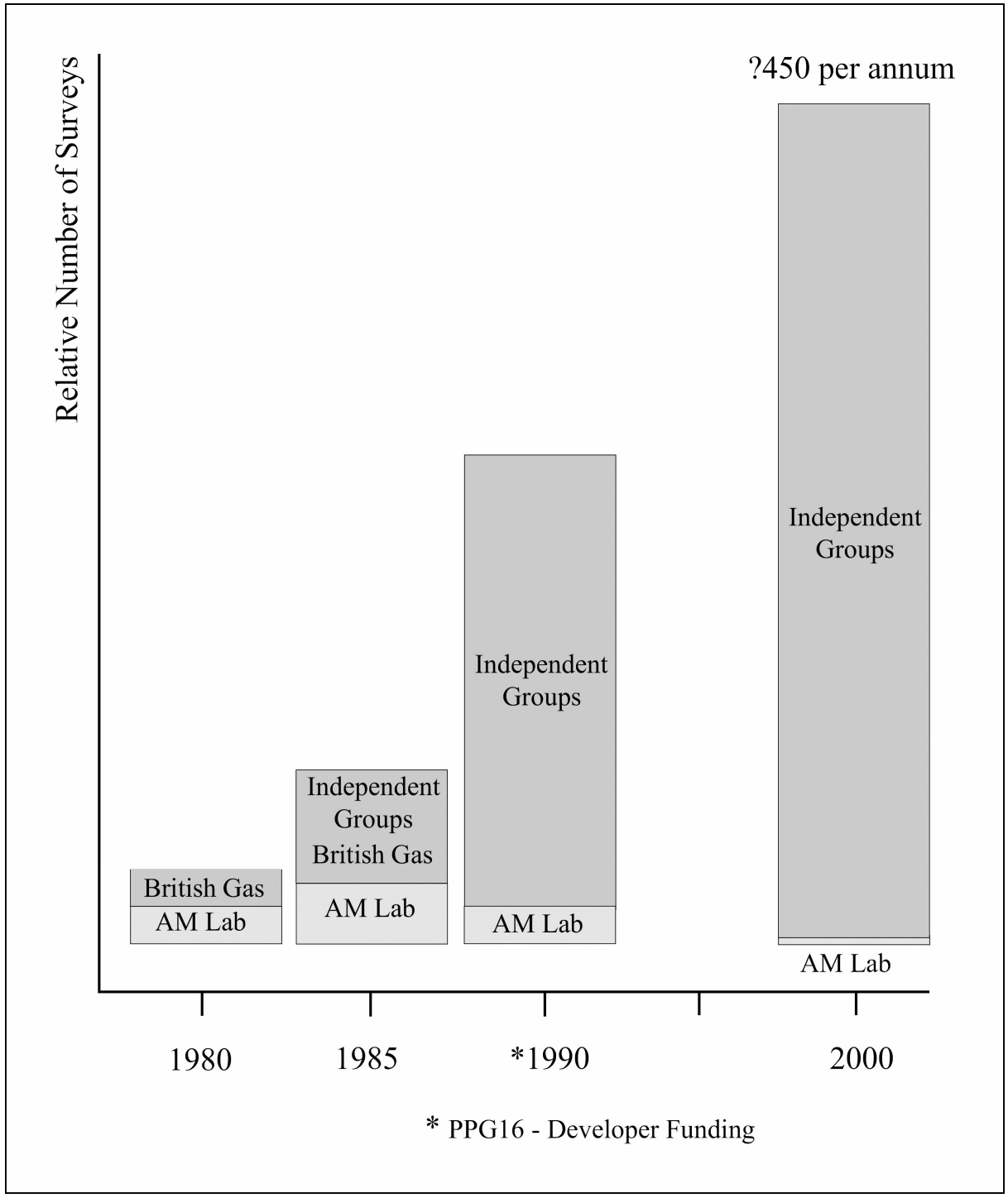
Relative Number of Surveys
?450 per annum
Independent Groups
AM Lab
Independent Groups
AM Lab
Independent Groups
British Gas
AM Lab
British Gas
AM Lab
1980
1985
*1990
2000
* PPG16 - Developer Funding


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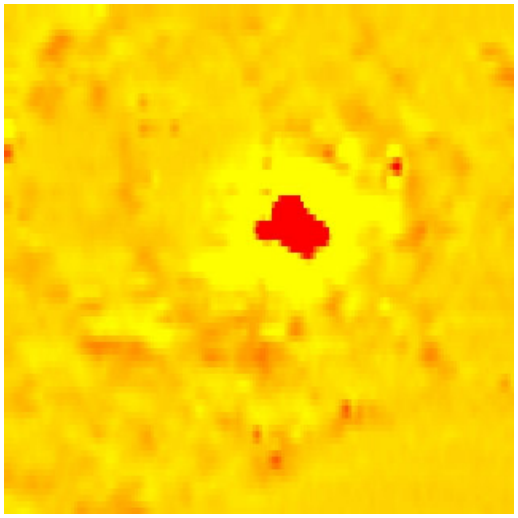
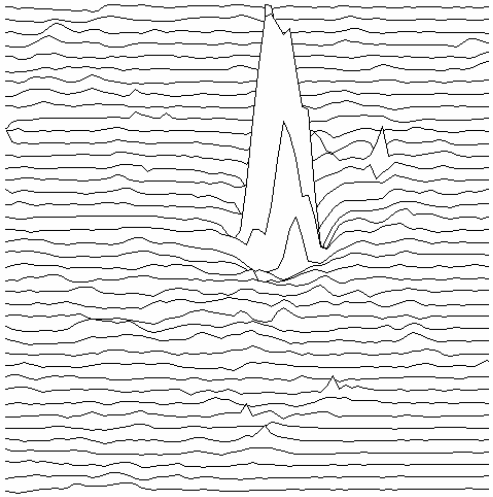
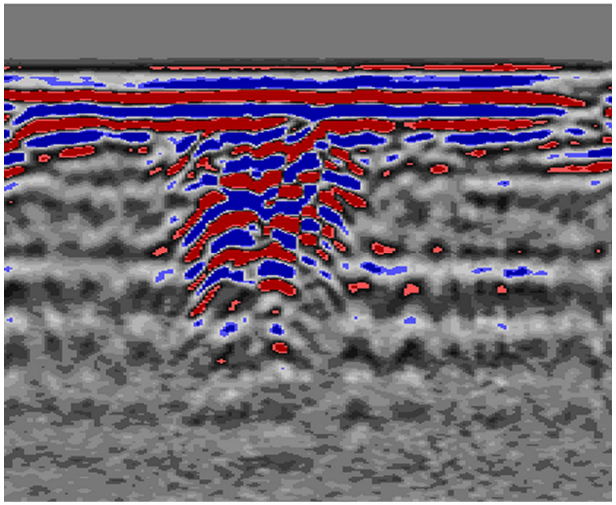
archaeologists
10. 5. 200





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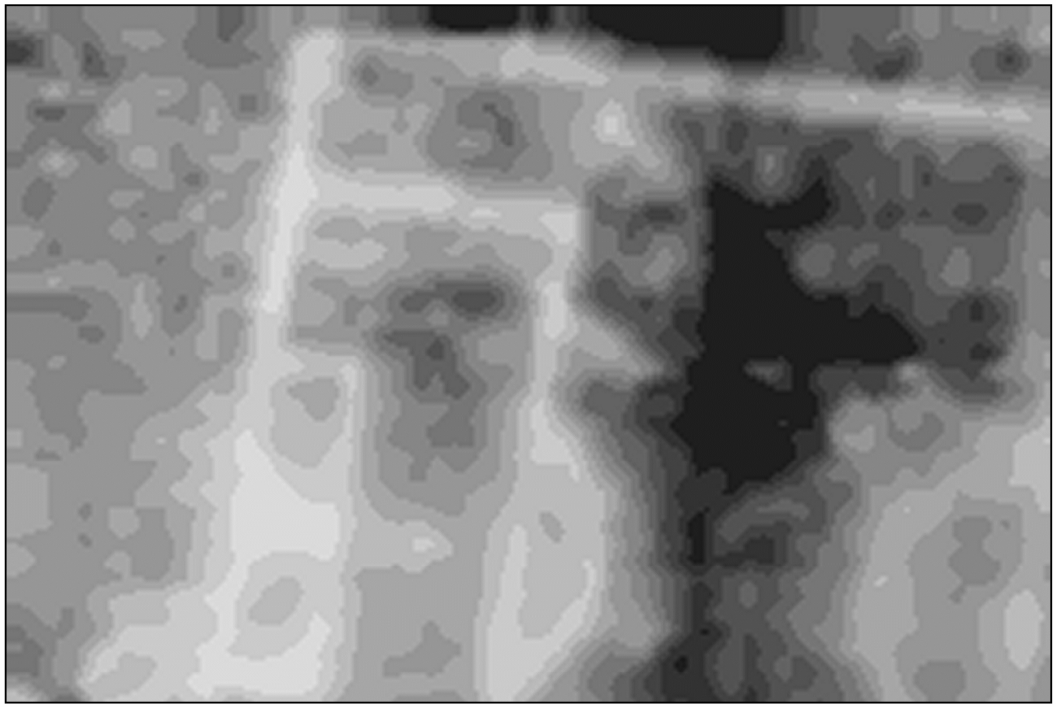

Roman football pitch?

Roman ditches?

Moving on quickly……


TIME TEAM

30. 8. 2001


29. 5. 2001


GROUP HEADQUARTERS
black
sheep
brewery

Andy Boucher


0 20 40 60
m
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‘Thank God it’s only *Time Team*’