The New Geophysics Equipment

Support for the BACAS Survey Team from the Heritage Lottery Fund

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The money from the Heritage Lottery Fund has not only provided us with an Educational Officer, it has also funded some new geophysics equipment, so we now have two magnetometers and two resistance meters. That may sound greedy…but I plead guilty. It does extend our abilities.

The first instrument we bought was a Geoscan Research RM15 resistance meter. This looks very similar to our existing TR resistance meter and is operated in a very similar manner. Indeed, if the TR were still made, we would have had a second of them. This eases the very high demand on the TR, which has had a hard life since 2003. It has been used on over 3000 grids, and has surveyed 250 acres or more. The new meter gives the old some respite, and means we do not have to stop when it has to be sent for repairs. It also means that we can operate two meters at once. This would normally mean working on two sites at once, and that has already happened. The new meter also has the advantage that it can also be set with the probes one metre apart, and this enables it to look deeper, and we have already taken advantage of that to try to get clearer images of deeply buried structures.

Figure 1
The new resistance meter is similar to the old one.

Our new magnetometer is a Bartington twin device, like the ones you see on Time Team, so we are up in the glamour stakes now! But that is no idle sentiment. When it comes to demonstrating geophysics to schoolchildren as part of our teaching activities, it is quite an advantage to be able to show the device which they recognise from television. I can also make it squeak at them as part of the fun, and to demonstrate its sensitivity to magnetic materials. As the Bartington uses one metre tubes, it can see down deeper than the existing FM device, down to about 2.5 metres. Because it has two tubes, it can survey two lines at once, so it is twice as fast. I can survey a grid in five minutes now (three minutes if I walk very fast) whereas it used to take ten minutes. That does not entirely replace the old FM magnetometer. Since we upgraded it two years ago, it has been a very reliable and effective instrument, and is easier to use on rough ground and in tight corners. The combination of the two magnetometers is a very powerful tool, and there will be sites where we use the Bartington over the main part of a field while using the FM around the edge.

Figure 2
The new Bartington magnetometer is twice as fast as our original meter and looks deeper into the ground.

It is not quite as simple as just getting new toys out of their boxes. There has been quite a lot of learning, particularly with the Bartington. There has also been the need to make sure the new equipment can speak to our processing software, and it has been a major task for Keith Turner to make sure our software is compatible with the output of the instrument. However, we have now succeeded in this, and so well that one professional group wants to acquire our software and another has sent us a magnetic susceptibility meter free in recognition of our abilities.