CHAPTER 4  THE GEOPHYSICAL SURVEY
by Joanna Davinton and Rob Poulton

In the summer of 1983 a resistivity survey was organised in the area of the Abbey. The fieldwork was directed by Joanne Davinton using equipment provided by the University of Bradford School of Archaeological Sciences. A considerable part of the available area (fig 50) was surveyed, with readings taken on a grid system at 1m intervals. The results were subsequently processed by computer to produce coloured contour plots upon which the following interpretations are based.

Fig 50  Areas of geophysical survey in 1983, with the grids (usually 20m square) numbered

AREA OF THE MONASTIC CHURCH AND CLOISTER
The work in this area confirmed the general alignment of the principal walls of the Abbey church, but adds nothing useful to the excavation evidence. Even less was learnt about the cloister area, due in part to the small discrete areas available for survey. It is possible that a north-south wall belonging to the western range of cloistral buildings was detected. A number of indications of wall foundations were also encountered in the area between the western range of the cloister and the present Colonel's Lane. The alignment of these is similar to that of the monastic buildings, though it is quite uncertain what structures might have stood here in the medieval period. It seems more probable that these walls are to be associated with the 18th century house (pl 1) which stood on the site.
AREA OF THE MAIN ENTRANCE (fig 47, grid squares 27-32)

This area formed the most useful one for geophysical survey, being relatively open land, and, appropriately, it produced the most rewarding results. The northern part of the area was not surveyed although it was equally open, as it seemed likely that the former Abbey House, gutted by fire in 1964, the site of which is still visible as an earth-covered platform, would prevent successful work.

The most striking feature of the plots is the linear high resistance feature which runs approximately east-west for some 40m continuously (except for one small break) through grids 31 and 32, and is 4m+ in width. This is clear confirmation that the two lines of trees seen on the 1735 estate map (fig 51 & pl 2) mark the line of a metalled carriageway which formed the principal entrance to the monastery. The line of high resistance apparently continues into grid 30, where however it seems to become wider and more diffuse to the east, and is joined by another band of high resistance going south, which seems in grid 29 to form one side of a roughly rectangular area of high resistance. A possible interpretation is that the high resistance anomaly represents part of a gatehouse on the south side of the carriageway: there is just room for its counterpart on the opposite side where survey was not carried out.

The interpretation of the high resistance effects seen on the south side of grids 27 and 28 is difficult. It is possible that some part of the response is due to the presence of the surviving moat to the south, but as this is neither deep nor sharply profiled at present it seems unlikely that it could still be affecting the response at up to 10m from its northern tip. It seems more likely that the effect is due to the original presence of a wall (and/or bank) on the north side of the moat. On the other hand, the alternating but predominantly low resistance response along the south side of grid 29 may well be due to variations in the composition of the infill of the moat which certainly passed through this area (pl 2).

The interpretation of the results in grid 33 is also difficult. The area of lower resistance on its north side has a position and alignment similar to that of the eastward continuation of the moat surrounding the fish ponds shown on early estate maps (eg pl 2). It seems possible that the strong, narrow, linear effect produced by rapidly alternating localised high and low resistance on the southern edge of the presumed moat is due to a robber trench for a wall south of the moat.

AREA OF THE FISH PONDS

Examination of estate maps (eg pl 2) suggested that more fish ponds than are presently visible (fig 1C) had existed formerly, and these were detected as areas of high resistance. Evidence for a wall, apparently earlier than the modern house at the north-west end of the fish pond enclosure, was also revealed. As its alignment was quite different to that of the fish ponds it may represent a post-monastic structure.