

# Archaeo-magnetic investigation of the former monastic site at Kilskyre, Co. Meath

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## Abstract

A number of magnetic anomalies have been discovered in the fields surrounding the old cemetery at Kilskyre which is believed to be the site of an early Christian monastic settlement. To the north there are two prominent parallel curvilinear features 20m apart, the longest one of which is over 60m in length. A 50m wide zone of parallel plough lines extends for about 60m in Field 2, east of the cemetery. Also located in this field is a small east-west aligned building, 10m long and 6 m wide. The region south and west of the cemetery is dominated by ridge and furrow patterns with various trends. There is also evidence for a rectangular enclosure at least 40m long and 30m wide. The northern boundary of a possible larger enclosure is present 100m south of the cemetery. A large concentration of magnetic anomalies, located close to the graveyard, suggests enhanced anthropogenic activity and there is some evidence for an outer fragmentary boundary.

## Introduction

Kilskyre is a small village 8 kilometres southwest of Kells dominated by the Catholic Church in the centre. Across the road from the church is an old cemetery which is believed to have been the site of a monastery founded by St. Sciria. Records of the names of the abbots exist from the 8th century onwards as well as the dates of Viking raids.

<sup>1</sup> The remains of an ivy-clad tower (part of a Tower House) along with an old church believed to be medieval, remain in the graveyard. The most elaborate tomb is that of the Plunkett-O'Reilly family (dated 1686) enclosed by a wall and metal railings which bears the coats of arms of both families. A number of large enclosures are located in the surrounding fields. <sup>2</sup>

The primary aim of this research was to magnetically investigate the area around the old graveyard at Kilskyre in order to determine if any archaeological features could be detected. The work was

undertaken mainly in the period January-April 2006 under permit number 06R022. Data were collected by Paul Gibson, Dot George and Lorraine O'Reilly from the Environmental Geophysics Unit of the Department of Geography, National University of Ireland, Maynooth. The shapes of the fields made it difficult to acquire data but approximately 133,000 magnetic points were collected within three different fields to the north (Field 1), east (Field 2) and south and west (Field 3) of the cemetery, Figure 1.

### Data collection methodology

A magnetometer is a device used to measure the intensity of the Earth's magnetic field at a specific location. There are various types of magnetometer which operate using different physical principles and the one employed in this study was a fluxgate magnetometer. The fluxgate magnetometer consists of two short ferromagnetic bars around which identical primary coils are wound though in opposite directions. A secondary coil surrounds this array. An alternating

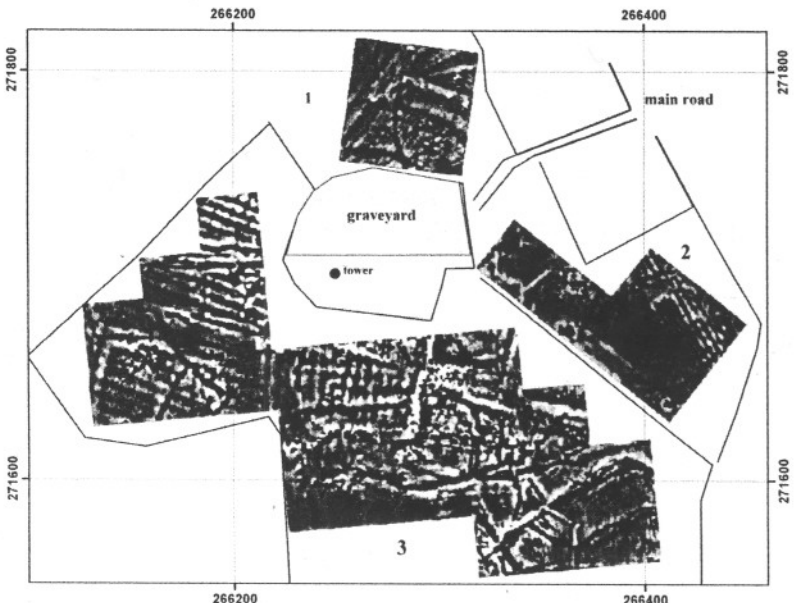


Figure 1. Geographical location of study area at Kilsyre. (Irish grid co-ordinates).

current is applied to the primary coils, which, in the absence of an external magnetic field, produces zero output in the secondary coil because the primary coils are oppositely wound. However, when positioned such that the cores are aligned with the component of the Earth's magnetic field which is of interest, a voltage is induced in the secondary coil because the Earth's field is increased by one core and decreased by the one whose windings are in the opposite direction. This induced voltage is proportional to the strength of the component of the Earth's magnetic field to which the cores are parallel.<sup>3</sup>

When a magnetic reading is obtained using a magnetometer, this represents the resultant of the addition of the Earth's magnetic field vector and the anomaly due to all the subsurface sources. However, it is shallow sources that are of most importance in archaeological investigations but the relative contribution of shallow and deep sources cannot be determined from a single magnetic reading. However, this problem can be overcome by using the magnetometer in gradiometer mode and acquiring two simultaneous readings from two sensors located at different heights. This is accomplished by placing sensors a fixed vertical distance apart. In this study, a Bartington Grad-601 gradiometer was employed with a vertical separation of 1 m between the two sensors, Figure 2. This instrument has been used by the author at different ecclesiastical sites in Ireland and yielded good results.<sup>4</sup>

The magnetic data were collected in 30x30m grids in a zig-zag pattern with a walking speed of 1m/s along 1m spaced lines with a station spacing of 25 cm. The data grids were assembled into a mosaic digitally using ArchaeoSurveyor software, despiked and a zero mean grid algorithm applied to standardise the data.

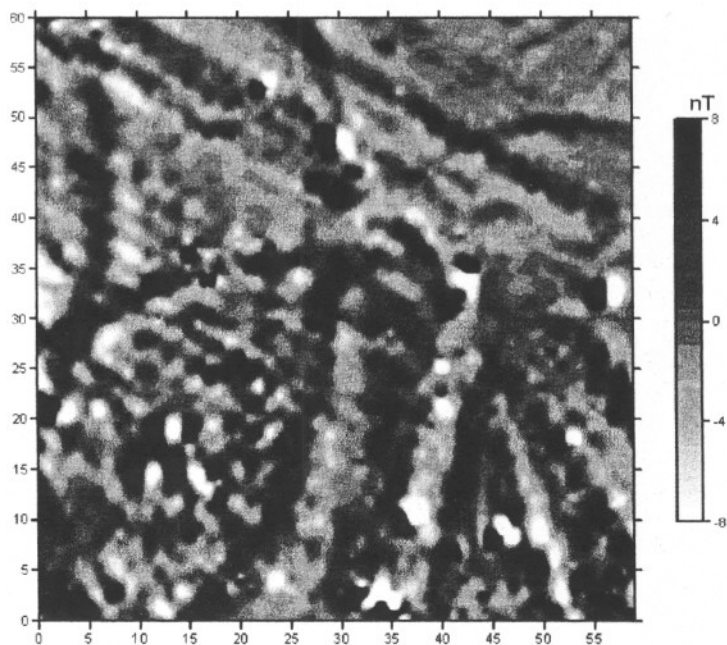
### **Results of magnetic investigation.**

In Field 1, two of the most prominent features are the parallel curvilinear features, the longest one of which is over 60m in length, Figure 3. They are about 20m apart. When examined in their geographical context in relation to the cemetery they appear to form arcs which suggest that they once enclosed the graveyard and may represent former enclosure boundaries. There is a distinct band of linear features trending NE-SW which, if extrapolated will just pass the cemetery. A very broad zone of parallel lineaments is observable. These represent ridge and furrows which display the old ploughing pattern in this region which may extend back to medieval times, Figure 3.



Figure 2. (left) Collection of magnetic data using a Bartington 601 magnetic gradiometer.

Figure 3. (below) Magnetic data for Field 1.



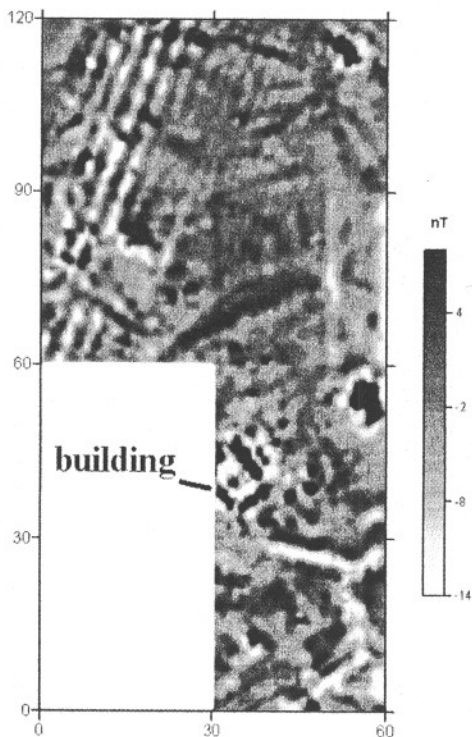


Figure 4. Magnetic data for Field 2.

A number of features are detectable on the magnetic data for Field 2. There is a broad zone of parallel plough lines which extend for about 60m and are in a zone that is about 50m wide, Figure 4. A rectangular feature is clearly displayed on the magnetic data and appears to be a small building. It is about 10m long and 6m wide. The building is aligned E-W and may represent a small chapel associated with this ecclesiastical site.

Field 3 was the largest one surveyed magnetically. Ridge and furrows, so obvious in Field 2, are also present in Field 3; however, there are differences in the trend of these features. West of the

cemetery, they tend to trend WNW-ESE whereas to the south of the cemetery they are nearly N-S, Figure 5. There are also a number of larger features in this field. Near the cemetery, there is clear evidence of the southern part of some type of enclosure. When this area is viewed along with Field 2, a very distinctive rectangular feature is observable (see Figure 1). This is at least 40m long and 30m wide. Just to the east of it and possibly sharing a boundary is another possible enclosure.

The northern boundary of a possibly larger enclosure is present in the southeastern part of Field 3; a long linear feature over 90m in length can be seen to curve around. Apart from these large features, the magnetic data for Field 3 presents a rather confusing pattern. There does appear to be a concentration of magnetic anomalies just to the south of the rectangular enclosure which suggests enhanced



Figure 5. Magnetic data for Field 3.

anthropogenic activity. Monastic settlements were often surrounded by an earthen bank (for example Rahan or Killeigh in Co. Offaly) and there appears to be evidence for a large fragmentary arcuate boundary characterised by high magnetic values which may be the site of such an enclosure at Kilskyre.

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