

**Report on the Geophysical Survey at Schedia, Governate of Beheira, Egypt, 10<sup>th</sup>  
October – 10<sup>th</sup> November 2005**

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## **1. Introduction**

Between the 10<sup>th</sup> October and 10<sup>th</sup> November 2005, a geophysical survey was conducted at the ancient site of Schedia, in the vicinity of the villages of Kom el Giza and Kom el Hamam, in the Beheira region of the Nile Delta. Work was carried out under the auspices of the Schedia Project, an archaeological survey and excavation directed by Prof. Marianne Bergmann and Dr Michael Heinzelmann from the University of Göttingen, Germany. The season was undertaken with the kind permission of the Egyptian Antiquities Service.

The geophysical survey is being conducted as part of the Schedia Project with the aim of mapping the buried remains of the ancient town of Schedia, and the associated port facilities, canals and the Canopic branch of the river Nile. The ancient settlement of Schedia is located some 28km to the south east of Alexandria, and was established originally around a river harbour, where customs were located for shipments moving up and down the Nile, from the Ptolemaic capital to the cities further south (Bergmann and Heinzelmann 2003, 2ff).

The first season of geophysics was conducted in October 2004, and located a number of features associated with the topography of the ancient city and landscape (Bergmann and Heinzelmann 2004, 4-6). In May 2005, the survey was extended, with the aim of locating more features related to the archaeology of the area, and testing the potential for resistivity survey at Schedia (Strutt 2005). The October season of work in 2005 was used to extend the survey area particularly around the two areas of Kom el Giza and Kom el Hamam, and to compare geophysics in these areas with the recent borehole survey conducted at the site (Gazala and El-Shahat 2005).

## **2. Survey Methodology**

For the geophysical survey magnetometry was applied. A number of other methods could have been used, but prior knowledge of the geology and sediments of the area, coupled with an assessment of the archaeological building materials used in the area, meant that magnetometry was chosen as the preferred method. This technique was chosen as the primary method for locating brick foundations, walls and pits or ditches (Clark 1996; Gaffney et al. 1991, 2; Scollar et al. 1990).

For the magnetometer survey, grids of 30m by 30m were set out using an Elta 3 total station. Due to the small nature of the fields, grids were generally aligned along the western edge of each survey area. The magnetometer survey was conducted using a Geoscan Research FM36 Fluxgate Gradiometer. Measurements were taken at 0.5m intervals on 1m traverses.

The survey data were processed using Geoplot 3.0 software. The processing of data was necessary to remove any effects produced by broad variations in geology, or small-scale localised changes in resistance of material close to the present ground surface. Data were despiked to remove any extreme magnetic values caused by metallic objects. A zero mean traverse function was then applied to remove any drift caused by changes in the magnetic field. A low pass filter was then applied to remove any high frequency readings, and results were then interpolated to 0.5m resolution across the traverses.

### 3. Survey Results

In total, some 20 hectares of magnetometer survey were conducted in the October season (Fig. 1). The survey produced some interesting results in a number of areas, and augmented the existing survey results from the survey seasons in October 2004 and May 2005.



*Fig. 1*

The area in the vicinity of Kom el Hamam, and to the west and south of the tell (Fig 2), provided evidence for a number of archaeological features. Apart from the numerous structures present in the results from the tell itself that have been identified previously, a series of features appear to continue on the ploughed farmland immediately to the south, and between 'Babytell' and Kom el Hamam. They comprise a number of structures on

the same alignment as the structures present in the excavations on the tell, potentially showing the location of a large building to the south. A negative linear feature running along the south side of the tell, then to the east, may indicate the line of a road. A series of structures are visible in the results from 'Babytell'. Further to the south alongside the modern cemetery are a number of maculae and linear features indicating archaeological remains.



*Fig. 2: Kom el Hamam, Area 1*

To the west of Kom el Hamam, the line of a substantial feature, some 30m wide, and marked by parallel linear anomalies, suggests the presence of a canal (Fig. 4). This feature enters the survey area from the west, and curves round to the north east, before heading on a line that takes it to a point some 120m to the north west of Kom el Hamam. The exact nature of this feature is uncertain, although the presence of a canal is suggested by marshy ground on the line of the feature. To the south and east of the modern cemetery a linear feature and other maculae suggest possible archaeological material.



*Fig. 3: Area 3*

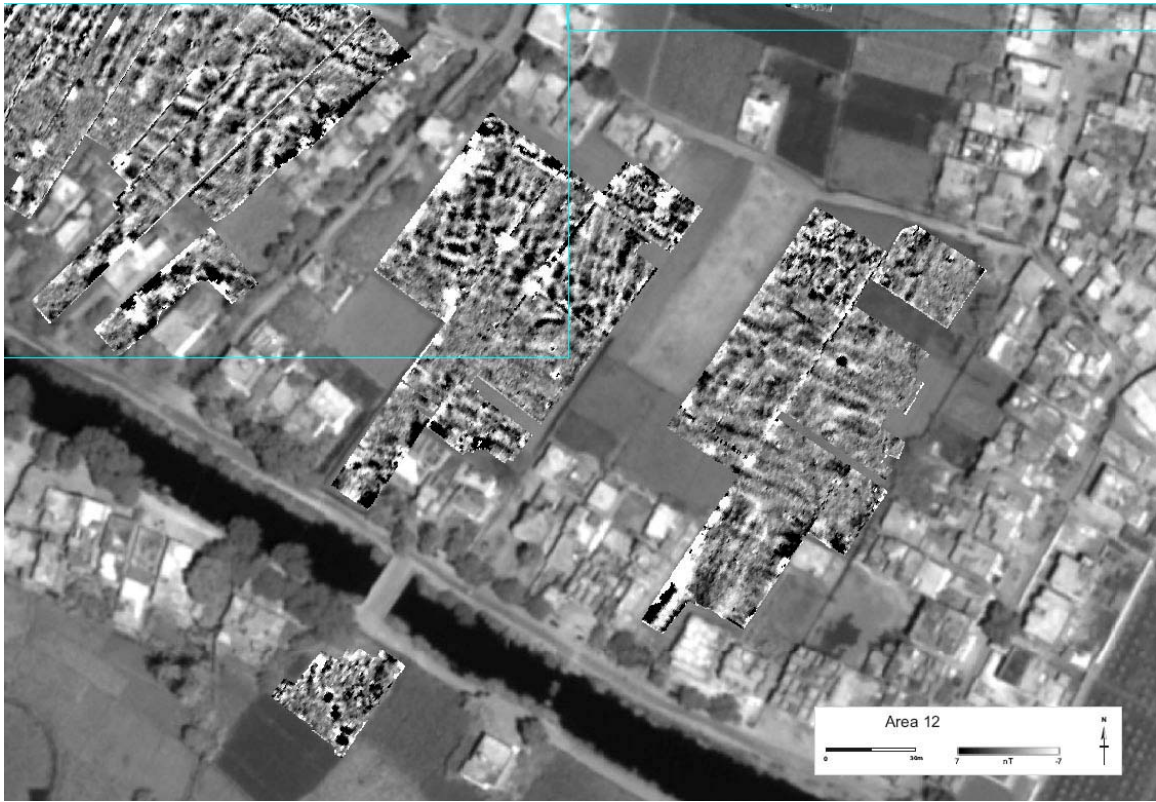
The area to the north, south and east of Kom el Giza show a varied response in the survey. The centre of Kom el Giza and the tell itself have not as yet been sufficiently covered to show a coherent picture of the archaeology, although preliminary work shows evidence of structures. To the east the results are muted further north (the area noted by Gazala 2005 as a possible floodplain), with rich archaeological seposites demonstrated in the results in the main portion of the area, including rectilinear structures, possible kilns and buildings, and a potential road. To the south (Fig. 4) the results show a quiet area, marked by evidence of modern agriculture. This may be part of the ancient Nile branch. To the south of this near El Karyun more archaeological structures are visible, including a large builing and possible walls or revetment. Results to the north of Kom el Giza are quiet.



*Fig. 4: Area 7*

To the west and north west of Kom el Giza (13, 14, 15) a significant number of archaeological features are visible, including a series of large dipolar anomalies to the west marking possible kilns and structures.

Results from Kom el Sherif and Kom el Nashwa were not expanded in this season.



*Fig. 5: Area 12*



*Fig. 6: Area 13*

#### **4. Conclusions**

In conclusion, the results of the October 2005 geophysical survey season at Schedia were successful both in extending the results from the earlier seasons, and in locating a number of new and interesting features. These include the continuation of the possible canal, and a series of buildings and related features showing that the structures of the Kom el Hamam area continue to the south, east and west. The continuation of the features around Kom el Giza is also demonstrated. It is now possible to discern the extent of archaeological features around the tells, and the potential for the line of the Nile to have run between them, marked by the zone with few magnetic features to the north of El Karyun.

#### ***Acknowledgements***

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