QASR EL-SAGA
MAGNETIC SURVEY, 1999[1)]

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Qasr el-Saga is located in the northern part of the Fayum depression. Earlier research, following its discovery by G. Schweinfurth in 1884, had brought to light a Twelfth-Dynasty temple, two Middle Kingdom settlements and a cemetery situated to the southwest of the western of the two settlements.[2)]

Geophysical research was carried out only in the so-called Western Settlement. Provisionally explored by D. Arnold,[3)] it was excavated in 1979-1985 by a team from the German Institute in Cairo and the Institute of Archaeology of Jagiellonian University in Cracow, directed by J. Śliwa.[4)] This research provided data for the reconstruction of the settlement plan.

The objective of the project was to see whether geophysical research could provide new information concerning settlement layout.

1) The survey was carried out as a joint project of the German Archaeological Institute in Cairo, represented by Prof. Guenter Dreyer, and the Polish Center of Archaeology, Warsaw University, represented by Mr. Tomasz Herbich and Mr. Mariusz Jucha. The fieldwork, supervised by T. Herbich, took place in October 9-14, 1999. The Supreme Council of Antiquities was represented by Mr. Mustafa Mahmud Mohammad.

2) See history of site research in: B. Ginter, W. Heflik, J.K. Kozłowski, J. Śliwa, "Excavations in the region of Qasr el-Saga", *MDAIK* 36 (1980), 105-107.

3) D. and Do. Arnold, "Der Tempel Qasr el-Sagha", *AV* 27 (Mainz 1979), 26-27.

4) For a report from the last campaign with references to earlier work, cf. J. Śliwa, "Die Siedlung des Mittleren Reiches bei Qasr el-Saga. Grabungsbericht 1987 und 1988", *MDAIK* 48 (1992), 177-191.

ARCHAEOLOGICAL BACKGROUND

The settlement was surrounded by a rectangular enclosure wall (113.9 by 80.3 m), following a strictly NS/EW alignment, with two gates located in the southern and northern walls (*Fig. 1*). The plan of the settlement, as suggested by the excavation results, was regular with houses gathered in four long units separated by paved streets. Houses were built of mudbrick, but several blocks of limestone were also found. The condition of the remains varies in different areas of the site. In the northeastern part the walls survived higher than in the central part. Generally, erosion is more substantial towards the lower and eastern parts of the slope.

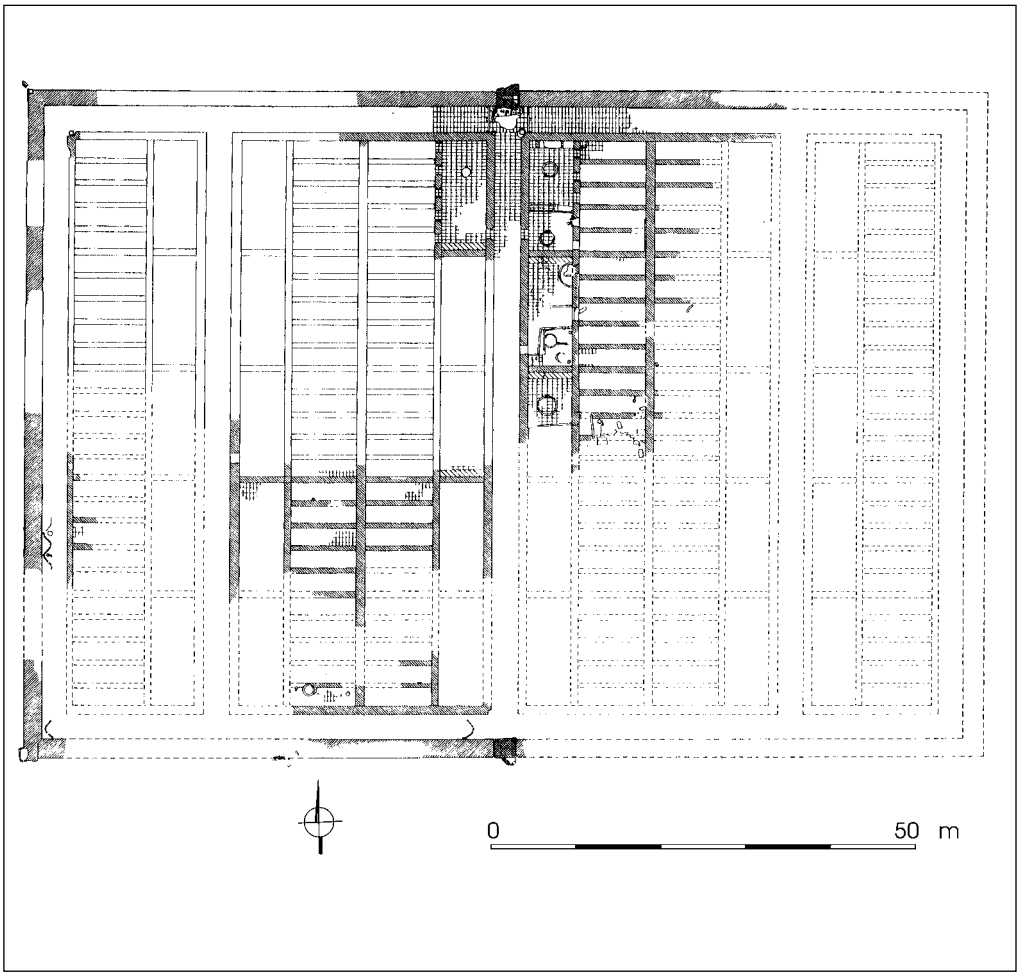

Fig. 1. Western Settlement at Qasr el-Saga. Plan based on excavations (Drawing after J. Śliwa, "Die Siedlung des Mittleren Reiches bei Qasr el-Saga. Grabungsbericht 1987 und 1988", MDAIK 48 (1992), 179, fig. 1)

MAGNETIC SURVEY

The magnetic method was selected as best suited to the project objectives. A gradiometer FM-36 (by Geoscan Research, England) was used. The measuring grid was 0.50 by 0.25 m, that is, measurements were taken every 0.25 m along lines traced 0.50 m apart, applying the parallel mode (instrument moving in one direction only, that is, toward the south). The measured units were 20 by 10 m big.

The results were presented as a magnetic map, i.e., map of changes of intensity of the Earth's magnetic field (*Fig. 2*). Most of the readings fall within the range of -3 and +3 nT.

The magnetic map – giving a grid of anomalous readings – reflects the regularity

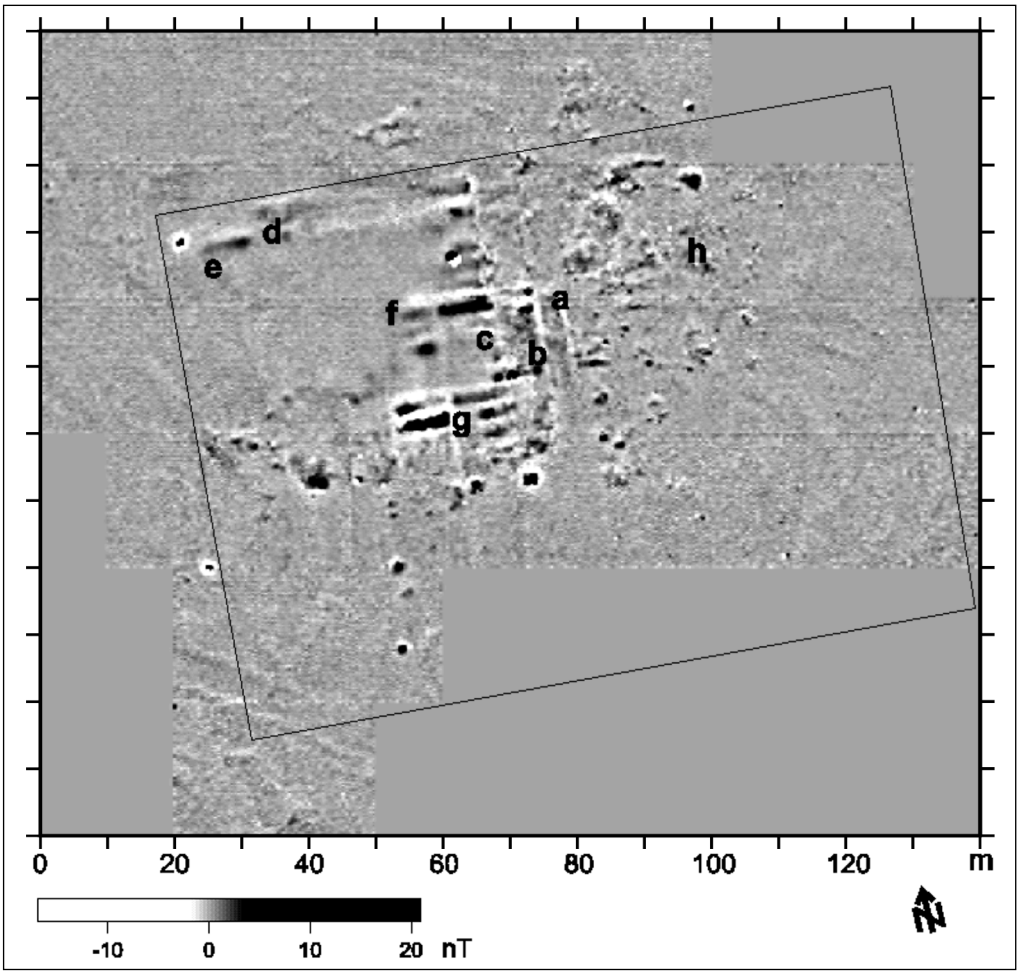

Fig. 2. Magnetic map. Measurement using gradiometer FM-36. Raster 0,5 x 0,25m. The frame in the picture corresponds to the borders of the settlement according to J. Śliwa's reconstruction (cf. Fig. 1) (Processed image T. Herbich)

of the settlement plan. However, only the northern/central part of the settlement has been recorded, both the NS and the EW walls. The anomalies reflect streets, courtyards and walls of the housing units. The space between walls *a* and *b* corresponds to the street; the space between *b* and c to the courtyards. Walls *f* and *g* correspond to the perimeter walls of the housing units. Anomaly *e* is the outer (northern) wall of the housing unit; *d* seems to correspond to the archaeological trench (which is still visible). The anomalies correspond to the structures that were not excavated; their interpretation became possible thanks to the results of Śliwa's excavations. Irregular anomalies (like *h*) could correspond to a concentration of pottery (visible on the surface).

Anomalies were recorded only in the unexcavated area. Their absence in the eastern part raises no doubts, since everything there has been eroded away. The enclosure wall on the west is not visible and neither are the traces of architecture inside the wall, even though, judging by the excavation results, this part of the site should be well preserved. Therefore, it is to be concluded that the mudbrick at Qasr el-Sagha is non-magnetic and that everything that has been recorded on the magnetic map is due to the presence of strongly magnetic material (presumably ashes), deposited alongside the walls of the courts and inside the rooms. The presence of ashes in houses in the central part of the site, when considered in the light of their absence in the western section, may also be of importance in putting forward hypotheses about the function of these homesteads (or their destruction possibly by fire).

CONCLUSION

The magnetic survey failed to register the borders of the settlement; therefore it neither supported nor disproved the extent of the site as reconstructed by Śliwa. The results confirm, however, the symmetry and regularity of the settlement plan as proposed by the excavators. Consequently, had the geophysical prospection preceded excavations, the survey results would have been very useful both in planning the excavation and in reconstructing the settlement plan.