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Expressions of social status: a statistical approach to the Late Predynastic/Early Dynastic cemeteries of Kafr Tarkhan

Introduction

This paper summarises some of the results obtained from preliminary analyses of mortuary data from the Late Predynastic/Early Dynastic cemeteries excavated by Petrie (1913; 1914) at Kafr Tarkhan. The analysis is a continuation of previous work on these cemeteries (Ellis 1992) and is part of a longer term research programme into the social and ideological changes that took place during this important period of increasing socio-economic and political complexity in Egypt.

This paper will not concentrate on those formal, stylistic, technical or material aspects of the artefactual assemblage, although of course they are important aspects of the material cultural evidence in assessing interregional and international networks of socio-economic and political interaction. This is evident in assessing the nature and degree of 'the control of crucial but restricted resources' by corporate groups, as noted by Saxe (1970: 119) and others.¹ Broad quantitative and qualitative patterns within the mortuary data which might have meaningful socio-economic, political or religious correlates in the society of Late Predynastic/Early Dynastic Kafr Tarkhan will be investigated.

Background

The site of Kafr Tarkhan (Fig. 1) lies approximately 37 miles south of Cairo on the west bank of the Nile and comprises burials dating from Late Predynastic to Roman times (Petrie 1914: 1). The Late Predynastic/Early Dynastic burials are dispersed over a wide area of the low desert, running north/south in a

¹ Here I understand 'crucial but restricted resources' also refer to prestige or exotic goods, which though not subsistence resources as referred to by Saxe (which has caused some confusion and debate [Morris 1991: 156]) are highly important aspects in processes involving increasing social inequalities and their legitimacy (Hastorf 1990: 154).

relatively narrow strip. The whole area can be divided into two distinct spatial units defined by the local topography, namely the 'valley' cemetery and the 'hill' cemeteries. These were the cemetery areas recognised by Petrie in his investigations.

The 'valley' cemetery comprised 1054 burials which Petrie mapped on his cemetery plan (Petrie 1914: pl. XLVI). Petrie dated these graves to S.D. 77-81. In Kaiser's system they date to Naqada IIIa2-IIIc3 (Kaiser 1990: 289). The 'valley' graves include seven small mastabas² dated to S.D. 77-78 (Naqada IIIa2-IIIc1) at the western end of the cemetery (Petrie 1914: 2-3, pl. XII-XIV). The 305 burials of the 'hill' cemeteries date to S.D. 77-82 (Petrie 1913: 3), or Naqada IIIa2-IIIc3 (Kaiser 1990: 289). Occurring in isolation at the southern end of the cemeteries were four large ("great") mastabas dated to S.D. 80-81 (Naqada IIIc2-IIIc3). These structures include features such as mudbrick 'palace' facade superstructures, multiple-roomed substructures, enclosure walls and a few subsidiary burials (Petrie 1913: 13-20, pl. XV-XX; 1914: 3-9, pl. XV-XIX). From previous plots of burials for each sequence date (Ellis 1992) it has been noted that the 'valley' cemetery virtually went out of use in S.D. 79 (Naqada IIIc2; see Fig. 2), just at the same time as the 'hill' cemeteries expanded, indicating a spatio-temporal shift in the use of the Kafr Tarkhan 'mortuary space'.

Of the 1054 'valley' burials, 672 (63.8%) were statistically analysed (Ellis 1992) as they were listed in the published grave registers (Petrie 1914: pl. XXXII-XLIII) and mapped. Of the 305 recorded 'hill' burials, 303 (99.3%) were utilised as they were in the published grave registers (Petrie 1913: pl. LX-LXVII). Unfortunately, due to rainstorms many of the on-site grave numbers were lost before all but a small proportion of the grave positions could be properly recorded (Petrie 1913: 29).

Consequently a 'full' inter-cemetery 'macro-scale' (Clarke 1979) spatial analysis of the cemeteries could not be undertaken. Only 32% of 'hill' burials have their contents and position recorded (Petrie 1913: pl. XLVII-LXIX). Of the utilised 'valley' cemetery burials, 555 (82.6%) had known or recorded classes of sex/age while only 93 (30.7%) of the utilised 'hill' burials had known or recorded sex/age. This places limitations on the ability to discern statistically significant mortuary spatio-temporal patterning related to sex/age classes within or between any of the 'hill' cemeteries.³

² It has been stated in previous work on the Kafr Tarkhan cemeteries that there were six small mastabas in the west of the 'valley' cemetery (Ellis 1992: 254). There were in fact seven recorded, as utilised in this study and also shown on the cemetery plan (Ellis 1992: 256, Fig. 12). The error arose in the identification of small mastaba T.1231, as this was not numbered on Petrie's original cemetery plan (Petrie 1914: pl. XLVI).

³ In a relatively recent study into the sex/age identification of 155 Predynastic/Dynastic skulls excavated by Guy Brunton at Qau, between 1924 and 1926, it was found that significant sex/age determinations by the original excavators were incorrect (Mann 1989). Of 108 utilised (because grave numbers indicated the original sex/age classification), 22 (20.3%) were incorrectly sexed and 5 (4.6%) were identified as child burials when they were in fact adult. If these percentage inconsistencies were present in the Kafr Tarkhan records it would greatly lessen, or even negate, the apparent artefactual and architectural

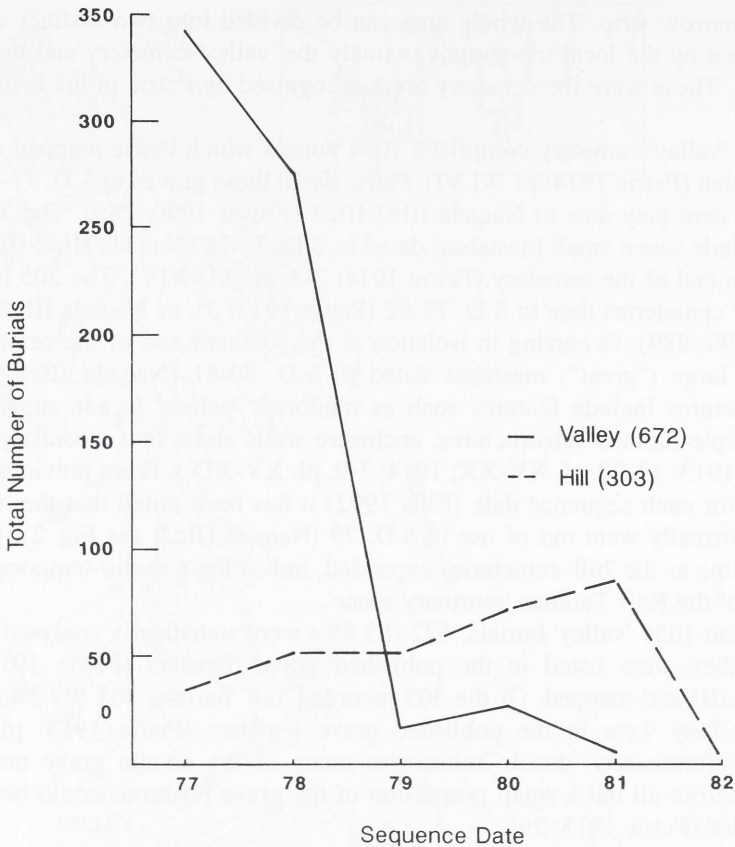


Fig. 2. Total burials for each sequence date.

I will now discuss the quantitative and qualitative artefactual information from the cemeteries, and then consider those aspects of the mortuary data not directly related to burial goods i.e. grave volume, tomb construction, etc.

These are treated separately in this paper, but they are not to be understood as independent aspects, but as some of the interdependent and multidimensional features of equal importance in analysing mortuary practices.

Quantitative attributes of assemblages

The 'hill' cemeteries contain not only the most artefacts but also have the highest mean number of artefacts for each respective sequence date (Fig. 3), as concluded by Petrie (1914: 22, 52). It can be seen that there are no long-term

differences in burial practices between males and females. Petrie does not discuss the criterion utilised by himself, or his colleagues, in the assessment of sex/age categories for each burial at Kafr Tarkhan.

	SD 77	SD 78	SD 79	SD 80	SD 81	SD 82
hill	8.63	10.88	8.38	8.47*	13.58	7.20
valley	4.66	5.24	3.94	5.32	4.14	N/A

* SD 80 without T 1060 (122 artefacts). SD 80 with T 1060 mean = 10.29

Fig. 3. Mean numbers of artefacts in burials.

temporal trends in the degree of investment in artefactual terms for either the 'hill' or the 'valley' cemeteries. Although no 'general' temporal trends are seen in mean number of artefacts, a simple statistical method using 'Lorenz' curves, utilised in previous mortuary analyses (Morris 1987; Seidlmayer 1988, 1990; Ellis 1992) can be employed to measure the degree of inequality (uneven distribution of artefacts) within a defined population (Cowell 1977: 29).

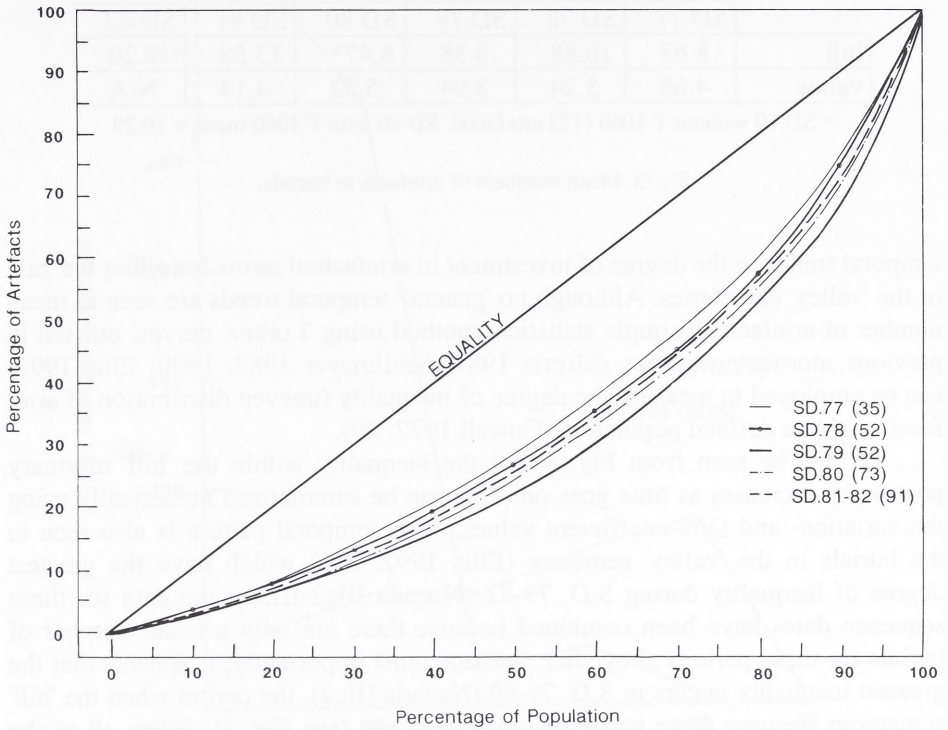
It can be seen from Fig. 4 that the inequality within the 'hill' mortuary population increases as time goes on. This can be summarised numerically using the variation- and Gini-coefficient values.⁴ This temporal pattern is also seen in the burials in the 'valley' cemetery (Ellis 1992: 246) which have the greatest degree of inequality during S.D. 79-81 (Naqada IIIc2-IIIc3); the data for these sequence dates have been combined because there are only a small number of burials for these periods altogether. Perhaps most importantly, it appears that the greatest inequality occurs in S.D. 79-80 (Naqada IIIc2), the period when the 'hill' cemeteries become those most prominently in use (see Fig. 2). When all of the 'hill' artefact data are compared with the 'valley' data (Fig. 5) it can be clearly seen that there is a marked difference in the degree of inequality in the burials between these two topographical areas. This is borne out by the calculated variation and Gini coefficient values for these curves.

There is a general pattern for inequality in burials (with respect to artefacts) in both 'hill' and 'valley' to become more marked the closer one gets to S.D. 79, the time of Aha-Menes (Petrie 1913: 3). The greatest inequality in the 'valley' cemetery occurs in the western part of the cemetery where the seven small mastabas were located (Ellis 1992). The greatest degree of inequality occurs in the 'hill' cemeteries, both as a whole and when compared to the 'valley' cemetery for each respective sequence date.

⁴ The Gini coefficient quantifies the degree of inequality illustrated by a Lorenz curve. If the area under the 'equality' line is given a value of 1, then the area between the 'equality' line and each respective Lorenz curve is given as a proportion of the total area under the 'equality' line, e.g. a Gini coefficient value of 0.3568 means 35.68% of the total area below the 'equality' line occurs above that specific Lorenz curve.

The variation coefficient is a method of numerically describing the degree of dispersion around a mean value, whilst negating the effects of larger means which tend to produce larger standard deviations. Dividing the mean by the standard deviation it is possible to obtain a standardised numerically derived measure of dispersion (Shennan 1988: 43-44).

Lorenz Curves for all Sequence Dates
for Hill Cemeteries (SD.81-82 combined)

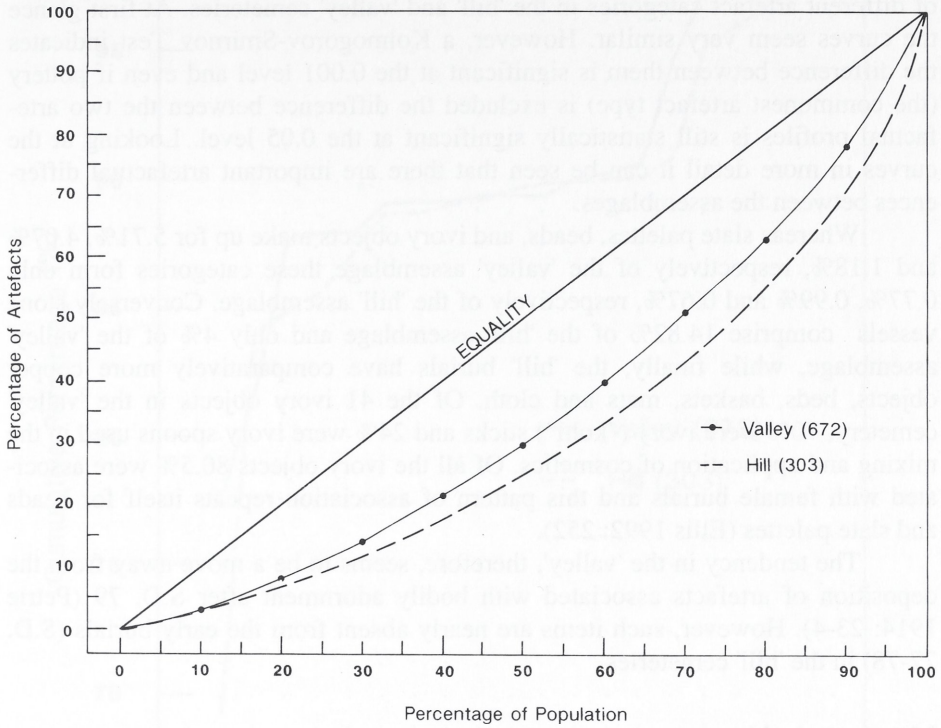


Variation and Gini Coefficients

	SD77	SD78	SD79	SD80	SD81-82
Variation Coeff.	0.6694	0.7270	0.9177	1.3936	0.7800
Gini Coeff	0.3303	0.3420	0.4099	0.3825	0.3608

Fig. 4. Lorenz curves for all sequence dates for hill cemeteries.

Lorenz Curves for Hill and Valley Cemeteries



Variation and Gini Coefficients for Hill and Valley Cemeteries

	Hill	Valley
Variation Coeff	0.9675	0.5796
Gini Coeff	0.3738	0.2888

Fig. 5. Lorenz curves for hill and valley cemeteries.

Qualitative attributes of assemblages

The cumulative frequency plot (Fig. 6) shows the cumulative frequencies of different artefact categories in the 'hill' and 'valley' cemeteries. At first glance the curves seem very similar. However, a Kolmogorov-Smirnov Test indicates the difference between them is significant at the 0.001 level and even if pottery (the commonest artefact type) is excluded the difference between the two artefactual profiles is still statistically significant at the 0.05 level. Looking at the curves in more detail it can be seen that there are important artefactual differences between the assemblages.

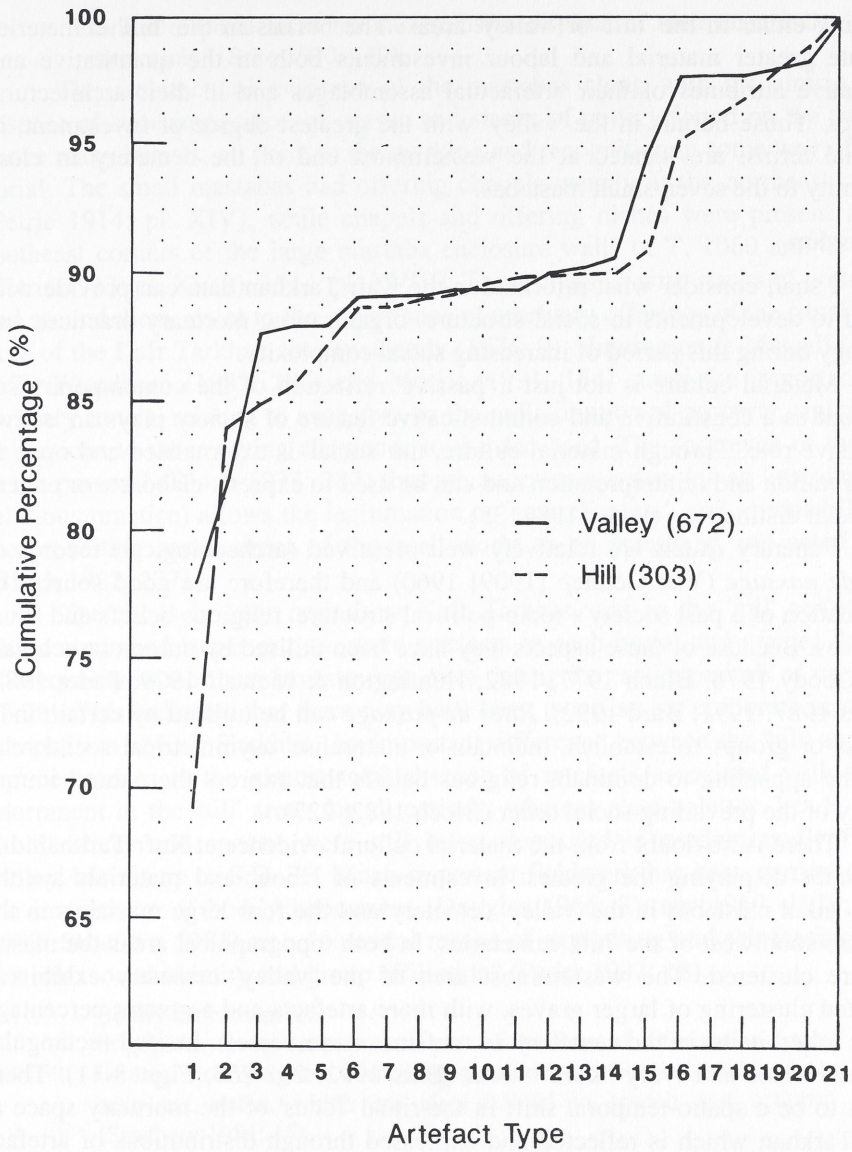
Whereas slate palettes, beads, and ivory objects make up for 5.71%, 4.07% and 1.18%, respectively of the 'valley' assemblage these categories form only 0.77%, 0.99% and 0.67%, respectively of the 'hill' assemblage. Conversely stone vessels comprise 14.82% of the 'hill' assemblage and only 4% of the 'valley' assemblage, while finally, the 'hill' burials have comparatively more copper objects, beds, baskets, mats and cloth. Of the 41 ivory objects in the 'valley' cemetery, 70% were ivory ("kohl") sticks and 24% were ivory spoons used in the mixing and application of cosmetics. Of all the ivory objects 80.5% were associated with female burials and this pattern of association repeats itself for beads and slate palettes (Ellis 1992: 252).

The tendency in the 'valley', therefore, seems to be a move away from the deposition of artefacts associated with bodily adornment after S.D. 79 (Petrie 1914: 23-4). However, such items are nearly absent from the early burials (S.D. 77-78) in the 'hill' cemeteries.

Mortuary architecture

Grave size has been used by a number of scholars as an indicator of social status (Binford 1972; Tainter 1973, 1978; Adams 1987; Bard 1988, 1989; Seidlmayer 1988, 1990) since it represents the degree of material and labour resources invested within each burial, recoverable in the archaeological record. The mean grave volumes for both the 'hill' and 'valley' cemeteries were plotted. Although there is quite a large difference between the 'hill' and the 'valley' burials for each respective sequence date, no discernible temporal trends are seen. On average, the 'hill' burials have a mean grave volume 1.5 - 2.5 times larger than the 'valley' graves for any given sequence date.

Moving onto the construction of the graves the 'valley' cemetery had only 12 'roofed' and 3 'lined' graves whereas the 'hill' cemeteries contained 20 'roofed' and 24 'lined' burials (four of which are lined with wood). Significantly, of the three burials in the 'valley' cemetery that were lined (with mudbrick), two were small mastabas (T. 740, T. 852) and the last T. 1113 (which was the only tomb in the 'valley' to be mudbrick 'roofed' and 'lined') was less than seven metres from the east side of the small mastaba T. 1231, both dated to S.D. 77 (Naqada IIIa2). There was no discernible temporal trend in tomb construction regarding roofing



1. pottery	5. flint objects	9. ivory armllets	13. copper armllets	17. beds
2. stone vessels	6. ivory objects	10. flint armllets	14. shell armllets	18. baskets
3. slate palettes	7. horn objects	11. slate armllets	15. beads	19. mats
4. copper objects	8. wooden objects	12. horn armllets	16. coffins	20. cloth
				21. other

Fig. 6. Cumulative frequency plot of artefact types in hill and valley cemeteries.

or lining either in the 'hill' or 'valley' areas. The burials in the 'hill' cemeteries indicate greater material and labour investments both in the quantitative and qualitative attributes of their artefactual assemblages and in their architectural features. Those burials in the 'valley' with the greatest degree of investment, in material terms, are located at the westernmost end of the cemetery in close proximity to the seven small mastabas.

Discussion

I shall consider what information the Kafr Tarkhan data can provide with regard to developments in social structure, organisation, mortuary practices and ideology during this period of increasing social complexity.

Material culture is not just a 'passive' reflection of the contemporary society but as a constitutive and communicative feature of society plays an 'active' discursive role. Through material culture, the 'social' is externalised and open to interpretation and reinterpretation and can be used to express, elaborate or engender social distinctions (Pader 1982: 35).

Funerary rituals are relatively well preserved (archaeological) records of *rites de passage* (Van Gennep [1909] 1960) and therefore are good sources of information of a past society's socio-political structure, religious beliefs and ritual practices. Because of these aspects they have been utilised by numerous scholars (e.g. Goody 1976; Bloch 1977, 1982; Huntington & Metcalf 1979; Pader 1982; Morris 1987, 1991; Bard 1992). *Rites de passage* can be utilised by certain individuals or groups to establish, maintain or 'naturalise' asymmetrical social relations by appealing to dominant religious beliefs that express the natural immutability of the prevailing social order (Bloch 1982: 227).

There is no doubt from the material cultural evidence at Kafr Tarkhan that the tombs displaying the greatest investments of labour and materials are the seven small mastabas in the 'valley' cemetery and the four large mastabas in the extreme southwest of the 'hill' cemeteries. In both topographical areas the mastabas are clustered. The westernmost area of the 'valley' cemetery exhibits a repeated clustering of larger graves, with more artefacts and a greater percentage of the 'rarer' items in the cemetery i.e. coffins, stone vessels, incised rectangular palettes, beads and ivory "kohl" sticks (Ellis 1992: 251-253, Figs. 8-11). There seems to be a spatio-temporal shift in the ritual 'focus' of the mortuary space at Kafr Tarkhan which is reflected and expressed through distributions of artefactual and architectural characteristics. These would have been cogent symbols to the Kafr Tarkhan society of the unequal level of resources available to sectional interests within the population (Ucko 1969; Chapman & Randsborg 1981; Goldstein 1981; Pader 1982). This aspect of mortuary patterning is best described by Saxe's Hypothesis No. 8, in his seminal work on mortuary practices.

"To the degree that corporate group rights to use and/or control crucial but restricted resources are attained and/or legitimised by means of lineal descent from the dead, such groups will maintain

formal disposal areas for the exclusive disposal of their dead and conversely" (Saxe 1970: 119).

The architectural evidence of the mastabas along with the almost total absence of superimposition of graves and stacks of pottery found on the surface above many burials, all point to the marking and recognition in some way of each burial. The small mastabas had offering chapels usually at the northeast corner (Petrie 1914: pl. XIV), while chapels and offering niches were present at the southeast corners of the large mastaba enclosure walls of T. 1060 and T. 2038 (Petrie 1913: pl. XV(2); 1914: pl. XVIII). These chapels, with stacks of pottery in and around them, point to the importance of mortuary offerings in the ritual practices of the Kafr Tarkhan society. Goody (1976: 9), Huntington & Metcalf (1979: 117), Woodburn (1982: 206) and Morris (1991: 154) stress the importance of funerary rituals, relating to ancestors, in the redistribution of property, rights, and obligations to those owing allegiance to the deceased. The "presence of the past in the present" (Bloch 1977: 287) through ancestor worship (as an 'instrumental' religious practice) allows the legitimation or 'naturalisation', and immutability of the prevailing social order of the 'real' world to be expressed and acted upon (Bloch 1982: 227).

The focus in later periods at Kafr Tarkhan was in the 'hill' cemeteries. These contained larger graves, more artefacts in each burial and greater degrees of inequality in mortuary investments, even during the earlier periods of use (S.D. 77-78). This indicates that there may have been two discrete corporate groups in competition at Kafr Tarkhan. An important difference between the 'hill' and 'valley' cemeteries is the almost total absence of artefacts associated with bodily adornment in the 'hill' areas for all periods, whereas slate palettes, beads, ivory "kohl" sticks and spoons were still being deposited in predominantly female 'valley' burials up to S.D. 79. Much important fieldwork has been carried out on the importance of bodily adornment (Douglas 1966; Turner 1969, 1979; Faris 1972; Strathern 1981) as a "potential means of expressing and reinforcing one's sex role, social identity and group affiliation" (Pader 1982: 18).

Bodily adornment

in general, forms an important part of the flow of information-establishing, modifying and commenting on social categories, such as age, sex, and status, which are also defined in speech and actions" (Strathern 1981: 15).

Unfortunately the loss of information in the 'hill' area does not allow conclusive sex/age results, but obviously some important aspect of society related to women, through bodily adornment, is being expressed. Bloch has outlined a very basic social pattern from the study of ethnographic material, whereby the quantity of ritual related to communication between individuals varies according to the degree of instituted hierarchy within a particular society. This communication through ritual is specifically to do with male relationships with, and male control of, women (Bloch 1977: 289).

Conclusions

What seems apparent in the spatio-temporal patterning in the Kafr Tarkhan mortuary data is a shift in the ritual focus of discrete areas of the 'mortuary space' as a medium of social expressions and aspirations, possibly between two corporate groups within the society. A spatial shift in the focus of rituals and worship relating to the past and continuing social order may represent a shift in sectional interests. The strength of the patterning within the material and in space would seem to negate the possibility of coincidental distributions between the 'hill' and 'valley' areas. Through ritual practices related to mortuary investments, burial location and offerings to the ancestors, increasing social distinctions were made manifest and open to social discourse. Through material culture, ritual practices involved in burial could be seen as cogent symbols of the 'natural' immutability of the prevailing asymmetrical social order. The increase in the degree of mortuary ritual investments reflecting the greater degree of institutionalised hierarchy within the society coming, significantly, at the supposed period of the Unification of Egypt in the reign of Aha-Menes. Perhaps as Hassan (1988) has outlined, women had an important role within Predynastic Egyptian society and what is seen at Kafr Tarkhan may be an indication of the increasingly important way both women and ancestors were used in ritual concepts of rebirth and fertility to legitimise the secular authority of specific groups.

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