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Burial Analysis: A New Approach to an Old Problem

INTRODUCTION

The study of human burials has always been a major concern of archaeologists. It is indeed hard to think of any other subject which has a longer tradition as a focus of interest: the investigations of burial monuments by the antiquarians of past centuries and the first archaeologists of the present lay at the roots of contemporary archaeological science. The results of these investigations have contributed a great deal to, for instance, the typological and chronological framework of present-day archaeology and to a lot of methodology as well.

Especially after the refinement of excavation techniques in the first decades of this century, much information could be extracted from graves as is demonstrated by the outstanding descriptions of Bronze Age mortuary ritual published in the 1950's.¹ As far as possible, burial monuments were also used to obtain data on the environment in which the deceased lived, by analysing pollen samples from old surface levels underneath barrows.

In general, however, it seems that little progress was made towards a better understanding and interpretation of human burials, even though their *description* attained great heights. This was due to the prevailing scientific concerns of that time,² exemplified by Childe's³ famous definition 'a culture is an assemblage of artifacts that recur repeatedly associated together in dwellings of the same kind and with burials by the same rite.' A culture was thus considered a composite of several 'typical' but qualitatively different things such as graves, pots, flint

tools, houses, etc. Even the palynological data were used, apart from their function in relative chronology, to assign 'types' of economy (*landnam*) to cultures.

This 'culture model' has received increasing criticism in recent years, mainly because an archaeological culture cannot generally be equated with other groupings such as language, ethnic, racial, or political groups.⁴ This does not mean that the culture concept should be, or will be, rejected altogether. It remains a useful way to organize archaeological data. But it does mean that whenever the objective is to gain insight in, for instance, social and economic processes, more appropriate models are needed.

The analysis of burials is an example of this situation. In the 'culture model' certain types of burials are considered typical for a particular culture, which makes it necessary to interpret 'atypical' interments as intrusive, hybrid, etc. Exactly what sort of group that culture represents, and what the burials might reveal about the structure of that group, remains vague or unknown.

This does not imply that no attention was paid to other aspects of burials. This, however, usually took the form of speculations about the spiritual life of the people under study, the sporadic interpretation of certain observed phenomena by ethnographic analogy, and the occasional defining of a grave as that of a chieftain. It was only after the developments in the 1960's in the United States, which led to rather different epistemological viewpoints,⁵ that another approach to the study of human burials could be initiated. It is the purpose of this article to illustrate the theory and assumptions of this sort of work, its constraints and some of the

1 See Fox 1950, Glasbergen 1954.

2 The so-called normative paradigm, see Van der Leeuw 1974; Willey/Sabloff 1974 call this the classificatory-historical period.

3 Childe 1950a, 2.

4 See Clarke 1968, ch 6-9.

5 See Flannery 1973, Willey/Sabloff 1974, Waterbolk 1974, Klejn 1977, and Eggert 1978 for different opinions on this subject.

results, which are only very recently being included in the archaeological literature.

I conceive of burial analysis as it is discussed here as an analytical process in which the investigator uses the archaeologically traceable remains of human interments to gain information about the social organization of the society of which the deceased were members. Of course, there are other ways of doing the same thing, and ideally they should be used together in comprehensive (regional) projects. Examples of these lines of research are studies which try to relate the patterned variability in artifacts to the pattern of social regulations governing the interaction of their makers. Although they have been severely criticized, the studies of Longacre and Hill⁶ should be mentioned in this respect. They tried to establish a relation between ceramic variability and post-marital residence rules.

Another way which is now frequently used to gather information about the social and economic system of an extinct culture is the analysis of its settlement system. The degree to which the interaction between settlements is hierarchically or otherwise organised, the density of settlements per area-unit, the differentiation of sites into functionally different places etc., have all become subject of study.⁷

Both separately and combined, these different pathways all make possible a fuller understanding of the social and economic systems operating in extinct societies. Burial analysis, however, can be considered a potentially very effective tool. As Peebles⁸ observed: 'Burials, especially when they are accompanied by grave goods, are probably the richest source of prehistoric information per unit of labor produced by archaeologists. Hundreds of items of both biological and cultural data plus the thousands of structured relationships between these bits of data are packed within the space of a few cubic feet of earth.' Thanks to the development of adequate

computer programs,⁹ the analysis of all these interrelated data has become possible. Without these, attempts to explore all available data would be doomed by their sheer mass.

This is part of the reason why models of social systems, constructed by way of burial analysis, have been such a recent development. In my opinion, the other reasons are all related to the growing awareness of the importance of the social component in the total environment in which past societies functioned. As a consequence of this, the adoption of anthropological theories and conceptions in archaeology in order to handle this component, has greatly increased.¹⁰

Because a discussion of the theory and methodology of burial analysis cannot proceed without referring to some of the ideas about the evolution and diversity of social systems developed in anthropology, these will be dealt with first.

SOCIAL EVOLUTION

Almost all facets of social systems are directly related to the complexity of the societies they are part of, and it has long been realized that evolutionary processes have generated societies at different levels of social complexity. This led to the construction of rather naïve evolutionary schemes by the 19th-century anthropologists. An example is L.H. Morgan's¹¹ classification of three main stadia: savagery, barbarism, and civilization. Although this and other *a priori* constructions were being rejected by anthropologists early in this century, they have been very important for archaeologists for a long time after that. This was due to the fact that they were incorporated in the works of Marx and Engels¹² and subsequently adapted and used by Childe.¹³ Even today Marxist archaeologists are still

6 Longacre 1970, Hill 1970.

7 See Parsons 1972, Taylor 1975, Smith 1976, Hodder/Orton 1976, Flannery 1976, Green a.o. 1978 for overviews and applications.

8 Peebles 1974, 82.

9 See e.g. Peebles 1972, 1974. In addition it seems useful to cite the following definition, to which the present writer wholeheartedly subscribes: a computer = a machine which has made a great contribution to archeology precisely because it is an obedient beast of burden with no creativity or insight (K.V. Flannery, fall 1976).

10 I am aware that this is a rather one-sided simplification of the relation between anthropology and archaeology for the American situation. In Europe, however, archaeology and anthropology were until recently almost completely separated disciplines.

11 Morgan 1877.

12 Esp. Engels 1884, see De Leeuwe 1976.

13 Childe 1950b.

trying to cope with some of the consequences of this view.¹⁴ In modern western anthropology, however, evolutionary theories on social complexity proceed from other postulates. Very important in this respect is the analytical distinction between *general* and *specific* evolution introduced by Sahlins and Service,¹⁵ which made it no longer necessary to assume a more or less uniform and *a priori* sequence for all societies. Specific evolution describes the development of one society within its environmental setting. General evolution refers to the formulation of rather broad stages of development connected with certain empirically observed socio-cultural characteristics. Examples are Service's band-tribe-chieftdom-state sequence and Fried's notion of egalitarian, ranked and stratified societies.¹⁶ Although no society is any longer supposed to have gone through all these 'stages' and indeed a process of evolutionary 'leapfrogging' is quite common,¹⁷ they have become very popular in archaeology as a sort of ideal-types. This widespread use is especially due to the fact that they seem to have particular archaeological correlates which make them easy to handle in theoretical constructs. Consider, for example, the settlement system: Bands will generally have small camps or seasonal settlements.¹⁸ Tribes will usually have permanent settlements which are very much alike, while chieftdoms have at least a major centre.¹⁹ States are characterized by a fully developed hierarchy of settlements over a much wider area.²⁰ After having defined the society under study in this way as, for instance, a chieftdom, there is a whole list of features one can generally expect to occur *and purposely look for*. Renfrew²¹ has compiled a list of these

correlates, which includes phenomena such as a greater population density, the appearance of inherited ascribed statuses,²² and improvement in craft specialization. All of the items on Renfrew's list are usually in some way traceable in the archaeological record and together they form the building materials of, in this case, the 'chieftdom model of social organization'.

Over the last few years, however, this way of treating the broad levels of social organization has received increasing criticism.²³ It refers to the generality of the Service-Sahlins-Fried constructs, the fact that they have been developed from ethnographies of societies already under western influence, the possibility of important alternative forms no longer in existence, and their heavy emphasis on particular ethnographic examples. Also, some of the discriminating characteristics between levels, especially the crucial role of redistribution,²⁴ are hotly debated.²⁵ These criticisms have led to the construction of a new set of models by various authors, which are narrower in range and usually represent a 'graded series which probably, although not necessarily, has evolutionary implications'.²⁶ Whether this is a fruitful development remains to be shown, since all possible constructions remain intervals along a continuum.²⁷ Certainly fruitful, however, are developments which bring case studies of particular societies back into the setting in which they belong: that of specific evolution. An example of this is the opinion of Peebles & Kus²⁸ that 'the removal of redistribution as a constant correlate of chieftdoms forces both archaeologists and ethnologists to search deeper into the environmental relationships of such societies'. This does not imply that

14 See the discussions in Otto/Brachmann (eds.) 1975, which are all devoted to *marxistisch-leninistische Ur- und Frühgeschichtsforschung*. Compare also the comment of Klejn (1979) on Van de Velde 1979a.

15 Sahlins/Service 1960.

16 Service 1962, Fried 1967.

17 See Sahlins/Service 1960, ch. V. This process was termed *de wet van de remmende voorsprong* ('The law of the retarding lead') by the Dutch historian J. Romein (1937).

18 See e.g. Jochim 1976.

19 See e.g. Taylor 1975.

20 See e.g. Johnson 1972, 1973.

21 Renfrew 1973, 543.

22 Anthropologists, following Linton (1936), differentiate between ascribed and achieved statuses, depending on whether it is achieved through personal capacities like 'being the best

hunter of the band', or acquired automatically through uncontrollable factors like sex, age, and *descent*. This last sort of ascribed status is meant here.

23 Taylor 1975, Hatch 1976, Peebles/Kus 1977.

24 There are many forms of redistribution (see e.g. Earle 1977) but the argument is about redistribution as 'the practice to contribute goods to a chief who distributes them again, usually with political objectives' (definition by Kloos 1972, 209).

25 Compare Service 1975 to Peebles/Kus 1977.

26 Hatch 1976, 112.

27 Cf. Sahlins 1968, 20-21. The outcome of some forms of burial analysis (see e.g. Rothschild 1979) may also be taken to support this notion. See also Claessen 1980.

28 Op. cit. 444.

they, or the present writer, argue for abandoning general evolutionary schemes altogether. It seems, however, that the measures of social complexity still need a lot of refinement before more detailed models can be developed. It is one of these measures, the structure of mortuary practices, that will be examined in the next sections.

BURIAL ANALYSIS: THEORY AND CONCEPTUAL FRAMEWORK

At the outset, it should be made clear that the reasoning behind the analysis of burials as it is discussed here is of a basically deductive character. There are a number of theoretical generalizations, involving at least two major assumptions and several definitions derived from the social sciences, from which hypotheses have been deduced. These have been tested primarily with ethnographical data and subsequently applied to archaeological material. They are being used to explain the variability in mortuary practices in terms of the variability in the social organization of a society.

The theory, as it has developed over the past decade, has its roots in the 'new archaeology'. As in so much other work since the 1960's, the most basic assumption involved is the one expressed by Binford in his programmatic article 'Archaeology as Anthropology' which appeared in 1962: 'The formal²⁹ structure of artifact assemblages together with the between element contextual relationships should and do present a systematic and understandable picture of *the total extinct* cultural system'.³⁰

Binford's assertion that the explanatory potential of archaeological data is not limited by inherent factors has, of course, not remained unchallenged.³¹

It is important to note, however, that these critiques basically do not refute the assumption as such, but its operationalization for particular cases. For example, if one can prove that ceramic variability is not related to residence rules but to something else, one has falsified

a hypothesis (a statement about the relation between two or more variables), not the underlying assumption; especially not when similar hypotheses in other cases do seem to hold.

It is, however, quite another thing to realize that, when one accepts the assumption that relationships between the patterned material remains of a society and its social organization exist, there are many intervening factors³² which may seriously blur the picture. These factors play a very important role in the analysis of mortuary behavior (p. 89–90).

The second important assumption to be mentioned is the one linking burials with social organization. It was formulated by Peebles³³ as follows: 'Individuals who are treated differentially in life will also be treated differentially in death. That is, the reciprocal rights and duties gathered by an individual during his lifetime will not abruptly terminate: they will carry on into his burial and, in most societies, beyond. Therefore, the patterned variations in mortuary ceremonials accorded individuals in a society ought to reflect their positions within the society during their lifetimes'. This needs no further discussion here, since the hypotheses derived from this assertion will be treated below.

The assumption played a central role in the discussion about the interpretation of human burials which developed in the 1960's, when traditional interpretations were no longer accepted. The first results of this discussion can be found in J.A. Brown (ed.), 'Approaches to the Social Dimensions of Mortuary Practices', a Memoir of the Society for American Archaeology which appeared in 1971 but contained the papers delivered at a symposium held in Pittsburgh in 1966.³⁴

The leading article in this Memoir is the one by L. Binford in which he evaluates 'traditional' explanatory schemes and puts forward another line of analysis.

For the moment we are only concerned with the latter. First, following Radcliffe-Brown, Binford makes a distinction between technical and ritual acts: 'Technically, burial customs provide for the potentially unpleasant

29 One should be aware that in Binford's somewhat awkward terminology *formal* does not mean 'in accordance with rules or convention' (Dutch: *formeel*) but 'of form'. The equally awkward Dutch translation would be: *vormeel*.

30 Op. cit., 220.

31 See e.g. Allen/Richardson 1971, Leach 1973, Eggert 1978.

32 Or 'transforms', see Schiffer 1976.

33 Peebles 1974, 38.

34 That this critical evaluation of traditional interpretations was not an exclusively American affair is demonstrated by articles of authors such as Steuer (1968) and Ucko (1969). These raised many of the same questions as did some of the Pittsburgh lectures but did not have the same follow-up.

body of the deceased. Ritually, mortuary rites consist of the execution of a number of symbolic acts that may vary in two ways: (1) in the form of the symbols employed and (2) in the number and kinds of referents given symbolic recognition.³⁵ He also proposes that in any society the variability of the referents (the number of social positions in a society) will tend to co-vary with the number of symbols designating these social positions. This variability is considered to be determined by two components.

The first of these is the *social persona* of the deceased. This conception, introduced by the anthropologist W. Goodenough,³⁶ needs some further explanation, since its application in burial analysis has become vitally important. Before we can define a social persona, two other terms must be discussed. These are the *social identity* and the *identity relationship*. A social identity is a person's status in relation to someone else (e.g. my professor, the mayor) and this relationship is termed an identity relationship. Identity relationships thus consist of the reciprocal rights and duties of two or more social identities. The nature of the relationship is determined by two things: (1) by the combination of social identities in interaction; for example a professor has different rights and duties when he is interacting with the dean of his faculty, with a colleague or with his students³⁷ and (2) by the situation in which the interaction takes place; for example, the professor and his students during a lecture and drinking beer together afterwards.

A social persona, then, can be defined as a congruent³⁸ composite of several social identities maintained in life.³⁹ The reciprocal obligations of an individual contained in his various identity relationships do not end at his death. On the contrary, at death all identity relationships the individual had, for instance as a father, a clan head, or a chief, call for a reciprocation from his *alter egos*, in these cases his family, clan, or subjects. Together

they determine the final social identities and thus the social persona of the deceased. This observation leads to another factor of interest, the fact that the *alter ego* in the identity relationship may be a person but, as is the case at death, it may also be a group.

Therefore, the second component determining the variability of social positions is the 'composition and size of the social unit recognizing status responsibilities to the deceased',⁴⁰ the size being determined by his most encompassing social identity.⁴¹ This last conclusion (actually a testable hypothesis) results from the fact that since at death several social identities are recognized, a choice has to be made if they cannot be arranged so as not to conflict: a chief will be buried *as a chief*, by (the representatives of) his subjects, not as a clan head nor as a father. Of course this does not preclude any possibility of some sort of symbolic recognition of these identities. That depends upon the degree to which they are considered conflicting. All this implies that the final social persona recognized in the mortuary ritual is related to the relative rank of the deceased and hence to the level of corporate participation in the burial ritual. After having discussed the theoretical principles thought to govern the disposal of the dead as developed by Binford and Saxe, we can identify the principal dimensions of the social persona recognized in mortuary ritual. In normal cases these will be age, sex, and relative rank. There are, however, also cases which are not normal. A deviant life or death (e.g. peculiar circumstances surrounding the death) change the identity relationships with *alter egos*. At death, instead of the treatment that would normally have been given, the deceased is treated according to rules generated by the social persona which is culturally congruent with the deviance in question. Two things should be realized here. First, deviance can be evaluated culturally both positively and negatively, such as the man killed in warfare being treated in accordance with the social persona of 'hero',

35 Binford 1971, 16.

36 Goodenough 1965.

37 It is important to recall at this point that, since a social identity is a person's status in relation to someone else, its nature can be ascribed as well as achieved (see note 22). This means that sometimes there is no choice: one can *become* a student, a professor, or a dean, but one *is born* a female, a negro etc. Age and sex are *always* important, while other factors like having blue blood or a black skin *can* be important in this respect.

38 'Congruent' because some social identities may not be compatible in a given situation, like 'child' and 'important person' in an egalitarian community, or 'female' and 'head of state' in some societies.

39 Saxe 1970, 7.

40 Binford 1971, 17.

41 Saxe 1970, 6.

TABLE I

Values								
Location	Location Re-ground	Specific Location	Skeletal articulation	Defleshed bones	Direction facing	Gold dust	Contributions at funeral	
							Non-voluntary	Voluntary
DISPOSAL TYPES	Royal disposal area	above	mausoleum	re-articulated	yes	no data	no data	no data
		above	mausoleum	articulated	no	no data	no data	no data
		below	royal cemetery	articulated	no	no data	no data	no data
	Non-royal disposal area	below	village center	articulated	no	no data	+	+
							-	-
		below					+	+
							-	-
		below					+	+
							-	-
		non central location	articulated	no	east	+	no data	no data
					west	-	no data	no data
					away from village	+	no data	no data
	upon	kitchen midden	articulated	no	irrelevant	-	-	no data
		in forest	no head	no	irrelevant	-	-	no data
		in hollow	disarticulated	no	irrelevant	-	-	no data

or when he was executed for fleeing from the battlefield receiving a treatment reserved for a 'criminal'.

Second, the definition of deviance may vary with social complexity. Saxe tried to show this by pointing out that it can be volitional as well as non-volitional, the latter sometimes not being considered deviant at all. In a fairly complex society crime would be considered an instance of the first, illness of the second kind. As Saxe observed, in simpler societies juridical and medical agencies are less, or not at all, diversified and specialized and therefore one would expect all forms of deviance to be treated similarly.⁴²

HYPOTHESES

After having discussed the theoretical assumptions about the social dimensions of mortuary practices, we can now look at a number of hypotheses which have

been generated to test them. The first two are general hypotheses, formulated by Binford⁴³ to test the presumed relations between social organization and mortuary ritual. Binford considered that, because the variability of burial ritual in a society is determined by the social persona of the deceased and the composition and size of the social unit involved, one could expect a relationship between the complexity of social organization and the variability of mortuary ritual: an increase of the first implies that the number of social personae in a society increases, which will be differentially treated in mortuary ritual.

The second hypothesis proposed that among societies of minimal complexity the dimensions which serve for status differentiation are based on age, sex, and personal

42 A hypothesis in this direction could not be tested for lack of data (op. cit., 196, 233).

43 Binford 1971.

Social personae

King
 King's wives
 Royal clan member

Rich male of chiefly clan with many children and many wives
 Rich male of chiefly clan with many children and one wife
 Rich male of chiefly clan with few children and many wives
 Rich male of chiefly clan with few children and one wife
 Poor male of chiefly clan with many children and many wives
 Poor male of chiefly clan with many children and one wife
 Poor male of chiefly clan with few children and many wives
 Poor male of chiefly clan with few children and one wife
 Rich hunter
 Poor hunter
 Hunter's wife
 Rich non-hunter
 Poor non-hunter
 Non-hunter's wife
 Preadolescents of all non-royal clans

Sacrificed war captives and criminals
 Executed criminals

Partial representation of Ashanti burial practices as analysed by Saxe. It shows how social personae were related to certain disposal types, which in their turn are determined by the values of the dimensions which were relevant in Ashanti society: Clan-membership, wealth, age, sex, deviance, etc. (adapted from Saxe 1970, fig. 21)

achievement. In more complex societies 'status positions will be defined by more abstract characteristics related to the culturally designated and symbolized means employed for partitioning the socially organized human aggregate'.⁴⁴ In other words: inherited ascribed statuses will become visible and recognizable in the differential treatment of the dead. These two propositions were tested against data from forty societies described by ethnographers. The type of economic strategy practised: hunter-gatherers, shifting and settled agriculturalists and pastoralists, was taken as a crude measure of social complexity. Although the data were limited, Binford was able to conclude that the proposed relations did hold for the sample studied.

The second important contribution in the study of the

social correlates of mortuary behavior came from Saxe.⁴⁵ His work differed from Binford's in two ways. Instead of testing general hypotheses, he concentrated on defining the role of the individual in the pattern of relationships symbolized at death. This was done by using the methods of componential analysis, which is defined⁴⁶ as an analytic process in which one tries for each society to find the dimensions along which the conceptual space of possible disposal of the dead practices is partitioned and to define the values these dimensions can take. In other words, what Saxe tried to do by an in depth analysis of three ethnographically well-known societies was to find out for each of them:

1 which dimensions were relevant (e.g. age, sex, clan-membership, being killed in war, etc.).

2 which values these dimensions could take (e.g. age being reflected in the number and kinds of grave goods, proximity to the village centre of the burial etc.), and

3 which set of disposal types was generated by the

44 Op. cit., 18.

45 Saxe 1970.

46 Op. cit., 38.

choices made and for which social personae they were used.

The data obtained in this analysis (see table 1) were used to test a series of specific hypotheses relating the social persona to dimensions of social and mortuary variability. Most of these hypotheses, which will not be treated in detail here, were confirmed to the degree that a strong relationship was established and thus supported Binford's findings. In detail, however, not all were equally successful because of insufficient data or of the measurements employed. For instance, starting from the assumptions – tested in preceding hypotheses – that the social persona chosen at death is congruent with the highest relative rank of the deceased and that more significant social personae imply larger groups of *alter egos*, Saxe proposed that burials of higher rank would contain more positive components (e.g. more grave goods) than would burials of personae of lesser social significance. This hypothesis was not confirmed for the Ashanti, the ranked society in his sample: non-royalty of greater social significance evidenced more components than did royals.⁴⁷ Within these strata, however, the hypothesis did hold.

A solution for this problem was found by other investigators taking a more economic point of view. Tainter, Peebles, and Randsborg⁴⁸ offered and tested the hypothesis that the relative cost of a burial is closely related to the social persona of the deceased. There are both qualitative and quantitative aspects involved here.

Tainter suggested that because burials of higher ranking individuals triggered more corporate involvement and more disruption of normal activity, the amount of energy expenditure would be higher and result in a larger and/or more elaborate interment facility. In his study of a Hawaiian cemetery, he therefore used as a measure of relative rank the dimensions of the burial platforms constructed.

As Peebles and Randsborg showed, the concept of energy expenditure can also be extended to the grave goods. In his study of Early Bronze Age Denmark, Randsborg used the weight of the golden and bronze

objects – made of imported and costly raw materials – to determine mortuary wealth which was then used to measure social stratification. Peebles added to this the quality of the objects: artifacts made with little expenditure of energy can be contrasted with those which consume much energy in their manufacture. Essentially the same was done by Frankenstein & Rowlands in their analysis of the *Fürstengräber* of southwestern Germany.⁴⁹

METHODOLOGY AND CONSTRAINTS

With these last examples we have already touched upon some applications of burial analysis on archaeological data. However, theory, terminology, and hypotheses as discussed above were primarily developed from anthropological theory and tested with ethnographical data. Therefore two things remain to be discussed: (1) the methodology which has been used to analyse burials in an archaeological context and (2) the conditions which have to be fulfilled in order to do so.

The methodology is basically simple, although sometimes highly complex and sophisticated tools have to be employed. What needs to be done first is a complete inventarisation of the total burial program of a particular society as it is preserved in the archaeological record. This means that all possibly significant variables, such as the age, sex, treatment, position and orientation of the grave etc., etc., should be recorded. Also the values possessed by these variables have to be determined. Table 2 is an example of such a burial program, composed by Brandt & Willems as a preliminary inventory for the analysis of Early-Middle Bronze Age ('Hilversum culture') burials.⁵⁰

The excavated burials can subsequently be scored on this inventory. After tabulation and cross-tabulation a wealth of statistical techniques is available for further analysis.⁵¹ Since the necessary computations cannot be made by hand, the computer is an indispensable tool

47 This is not illustrated by table 1; see Saxe, op. cit., 190–194.

48 Tainter 1973, Peebles 1974, and Randsborg 1974.

49 Frankenstein/Rowlands 1978.

50 Brandt/Willems 1977. The analysis is still under way, due to severe problems with the primary data, which turned out to be very limited. For example all of the available age and

sex determinations of the cremations done in the 1950's are no longer considered reliable (oral comm. Dr G.N. van Vark), data on other than barrow-burials are virtually nil (but see Brandt/IJzereef 1979) and many excavations are inadequately – if at all – published.

51 These are discussed a.o. by Peebles 1972 and 1974, 82ff, Hatch 1976, 128ff, and Hodson 1977.

TABLE 2

Abbreviated version of a preliminary inventory of the Early-Middle Bronze Age (HVS-DKS) burial program. It was composed in such a way that the scores of individual burials could be punched directly on computer cards.

COLUMN	VARIABLE LABEL	VALUE LABEL
1-4	number of burial	
5-8	number of burial	
9	burial facility	barrow, flat grave, other
10	chronological context of cemetery	several possibilities, according to presence of earlier or later graves
11-12	diameter of barrow	
13-14	peripheral constructions	post-circle Glasbergen 1954 type 1-9, disk-, bowl- and ring-ditch barrow, stone circle, none, other, unknown
15	horizontal location of grave	central or not, primary or secondarily used barrow
16	vertical location of grave	under or on old surface, higher in barrow, in a post-hole, other
17	type of cremation	cremation on the spot, in coffin, in urn, etc.
18	type of inhumation	flexed, outstretched in coffin, articulated or not, incomplete skeleton, etc.
19	number of interments in grave	
20	grave goods	pottery, animal remains, bronze or bone objects, etc.
21	other structures	mortuary house, 'ritual pit', annex, loose posts, stake circle, other
22	entrance of peripheral construction	none, open, blocked, unknown
23	area	Kempen, Veluwe, etc.
24	secondary burials	several possibilities according to location and stratigraphical position
25-26	number of secondary burials	
27	sex	male, female, unknown
28	age	infant, juvenile, adult, etc.
29-40	reserved for age and sex of possible other interments in the same grave	

in this sort of analysis.⁵² In this way, significant correlations between variables can be determined and they make visible the dimensions which were relevant to the society under study, because these are in some way reflected in the burial program. With these data then, conclusions about the social structure of the society can be drawn and confronted with similar conclusions derived in another way.

Although this methodology is indeed basically simple, a number of constraints may hamper or even prevent its adaptation to actual archaeological data. It is necessary to consider these in some detail.

52 Some of the problems involved are discussed by Doran 1971 and Peebles 1974, 96ff.

The first, as is the case in all archaeological research, is related to the completeness of the archaeological record. Since burial analysis is carried out by comparison of all relevant variables, it is necessary to work with a large enough sample of burials in which all disposal types are proportionally represented. This condition may sometimes be hard to satisfy, especially if some sort of selective force has played a part so that segments of the burial population are missing.⁵³

The most disastrous of these is of course the selective *destruction* of certain burials, due to 'natural' as well as 'human' influence. Natural influences comprise more

53 If one can reasonably assume that only random factors have influenced the archaeological record there is less reason to worry as long as the sample is large enough.

than the disappearance of organic materials through chemical processes, rodent activity, and the like. One should also think of factors like burial location: some social personae may for instance be buried exclusively near rivers which can subsequently alter their course and destroy all evidence for a whole group. Human influence may work in the same way, as in the case where barrows are preserved but flat graves are plowed over and obliterated.

Less disastrous, but equally important, are non-random factors influencing the *discovery* of burials. They are less disastrous because they can be overcome by a careful research strategy but, as is the case in burial analysis, one frequently has to rely on the activities of past investigators which may be uneven both spatially and in exactness.⁵⁴ Randsborg was able to conclude that Early Bronze Age mound-burials represented only part of the society because of an abnormal age and sex distribution. His inventory, however, contained virtually no other burial types, so he proposed that the absence of part of the population 'may reflect both an insufficiency in archaeological method and a total absence of burials as depositories for the bodies of part of the population'.⁵⁵

This last proposal brings us to the second constraint which may be of importance: the nature of the relevant variables in the burial program. Two different situations can be identified here.

1 The variables are immaterial. This does however not seem to be of great importance, since there often are sufficient other – material – variables available. For example, in Christian burials, which have a great number of immaterial variables (number of priests involved, presence of a choir, etc. etc.) and lack grave goods, variables like the location of the grave (inside a church, in a separate grave-cellar, at certain spots at – or just outside – the cemetery, etc.), presence or absence and relative splendor of a tombstone and other factors may carry the desired information.⁵⁶

2 The variables are difficult to trace archaeologically. It may be recalled at this point that the first analytical differentiation of mortuary rites was their division in ritual vs. technical acts. Since technical acts provide for

the disposal of a 'potentially unpleasant' corpse, they may well take a form that is very hard to trace by archaeological means. A possible instance for this can be found in the Dutch Westfrisian area during the Bronze Age. In the debris of settlements of this period, in which conservation conditions are usually very good, fairly large numbers of human skeletal remains have been found, suggesting a disposal practice that would normally have escaped attention.⁵⁷ Although no interpretations as to the social personae receiving a burial resulting in this kind of picture have been offered as yet, it is a valuable addition when a reconstruction of the total burial program is attempted.

Naturally, also ritual acts may be hard to recover, but this is a matter which co-varies both with the completeness of the archaeological record and with technical sophistication. In this respect the results of British and Dutch barrow-excavations deserve to be mentioned again as eloquent examples.

A third constraint which is extremely important is that the burials which are analysed must all belong to the same society. This may not be a great problem when analysing one cemetery, but when one has to collect one's data from a larger area it becomes a pressing question. The reason for this is that the relevant variables for distinguishing social personae may be qualitatively different between societies. Any item or act or other variable used in one society may either be a matter of indifference or signify something different in another. This was already observed by Kroeber: 'River burial is sometimes reserved for chiefs, sometimes for the drowned, sometimes is the normal practice of a group. Tree and platform burial is in certain populations restricted respectively to musicians, magicians, and the bewitched, the lightning struck, criminals and Kings. Cremation is generally reserved for criminals, but also occurs as the usual practice. Exposure is variously in usage, according to tribe, for the corpses of criminals, slaves, children, the common people, or the entire population'.⁵⁸

For this reason, diffusionist explanations of disposal of the dead practices⁵⁹ or their 'explanation' as *atypical* should be considered unfruitful: a great deal of potential

54 Cf. Bakker 1973, ch. 7.2.

55 Op. cit., 47.

56 See Van Es 1968 for a discussion of this problem for early Christian graves.

57 IJzereef in prep. and Brandt/IJzereef 1979.

58 Kroeber 1927, 313, cited by Binford 1971, 16.

59 Consider for example the still prevalent opinions about the relations between Dutch and English (Wessex) Bronze Age barrow-burials. See also Ucko 1969, 275.

information about the dimensions of mortuary behavior of a society may be obscured this way.

Most of the problems discussed here are related to the concept of 'culture' as it is generally used in archaeology (see p. 81). This is certainly not equivalent to the concept of 'society' used here. A discussion of the differences would carry us too far into the realm of epistemology, but fortunately there is, in my opinion, a pragmatic measure to tackle the problems involved, and that is area-size. Evidently, an equalization of e.g. Dutch and Eastern German 'Beaker-culture' graves would be unrealistic; even within a much smaller area uncertainties remain, but the smaller the region chosen, the less chance there is that one is dealing with two or more groups which may not share the same opinions about the mortuary ritual as related to social personae.⁶⁰ More detailed measures to define the boundaries of a society, e.g. those indicated by a hierarchically organized settlement system, are of course desirable, but often hard to come by.

A final condition when attempting the analysis of a burial program is the availability of age and sex determinations. Since burial analysis basically operates by determining to what extent age and sex distinctions are cross-cut by other dimensions, these determinations are of vital importance. This is a constraint to the degree that sometimes, especially in the case of cremations, physical anthropologists have great difficulties with this task.⁶¹ Usually, however, age and especially sex determinations can be obtained by physical anthropological as well as archaeological methods.⁶² But the importance of physical anthropology in burial analysis far exceeds that of being instrumental in these determinations, which makes a separate discussion useful.

THE ROLE OF PHYSICAL ANTHROPOLOGY

The results of physical anthropological investigations are of great value in a number of fields. For instance, paleodemographic studies⁶³ can be used in burial analysis to see whether or not part of the population is missing, but that is only one – rather limited – application. They have recently also been used to reach conclusions about the settlement system, for periods where almost only cemeteries are available.⁶⁴ However, we are concerned here only with those aspects that are in some way directly related to the analysis of human mortuary

behavior. Since in recent years several new analytic techniques have been developed, these will be included as much as possible.

Apart from age and sex distributions, the study of diseases with the aid of skeletal remains (paleopathology) has been a focus of interest for physical anthropologists.⁶⁵ The results of these studies may help to define deviant social personae, or there may be a correlation between disease patterns and different social strata. The same goes for the study of other damage done to skeletons through weapons, trepanning practices, etc.

A subject closely connected to paleopathology and having similar implications for the study of social organization is paleonutrition. For the study of human diet in the past, several techniques have been developed. The X-raying of bone can indicate the presence of Harris lines, which point to episodic, acute stress.

The same can be accomplished by dental studies, since teeth do not grow once erupted and thus preserve a record of irregularities during growth.⁶⁶

Chronic stress can also be investigated, notably by applications of trace-element research.⁶⁷ Many trace elements are differentially accumulated in bone, but, partly because of insufficient basic research in regard to bone metabolism and absorption, only four have become important so far: zinc, copper, magnesium, and strontium. While the first three seem to be more relevant in relation to diseases,⁶⁸ especially the strontium content of bone has been used to infer conclusions about social organization. It was established that bone strontium levels decrease when the proportion of animal matter

60 Of course this does not preclude a fruitful investigation of large areas for different subjects. An example of this situation is provided by Young's (1975) study of Merovingian funeral rites, as far as their relation to Christianization is concerned.

61 Müller 1964, Gejvall 1969, Van Vark 1970, 1974, Volk/Detel-Wildenhayn 1976.

62 For some of the problems involved in the latter strategy see Hodson 1977 about the analysis of the Hallstatt cemetery and Van de Velde 1979a (including comments) about a Band-ceramic graveyard.

63 See Acsádi/Nemeskéri 1970, Slicher van Bath 1970, Nemeskéri 1972, Birdsell 1975.

64 Donat/Ullrich 1971.

65 Brothwell/Sandison 1967, Goldstein 1969, Janssens 1970.

66 In the form of hypoplastic defects in the enamel and dentine; see Cook/Buikstra 1973, Perzigian 1977.

67 Gilbert 1977.

68 Gilbert op. cit., Weinberg 1972.

in the diet increases. Brown⁶⁹ found that 'the development of social classes can be traced by the increase in bone strontium variation within the population and the disparities between the upper, middle, and lower classes'.

Apart from environmentally or culturally induced variability in human skeletal material, a traditional subject of physical anthropology is the study of genetic variability. The usefulness of these studies for the analysis of mortuary behavior has been shown in a number of recent publications. For example the relation between the height (or stature) of individuals and their status has been investigated.⁷⁰ Of course there is a large amount of non-genetic variability here, a correlation between status and stature may be due to, for example, a superior diet of certain social strata, but genetic variation may also cause stature differences. This could be the case with immigrations of new groups or differences between lineages, clans, or other fractions, e.g. those caused by endogamy (inbreeding).

The study of genetically determined non-metric traits can also yield valuable information: are groups of relatives buried together, are there any differences between populations buried at different sites, is it possible that groups of foreigners were buried at the site, etc.⁷¹ Even direct inferences about the residence pattern have been made in this way.⁷²

Finally, the study of blood groups is an increasingly important tool. Blood-group activity can persist in human bone for very long time periods and since reliable methods of analysis have been developed⁷³ paleoserological data can be of great value. From the determinations of gene frequencies conclusions can be drawn about the completeness of the archaeological data (to see if a whole population or only part of it is buried at the cemetery), about the presence of genetically different populations at the same site, etc.

The above overview, restricted and incomplete as it may be, clearly shows what an enormous gain the close cooperation of physical anthropologists and archaeologists would be. This holds good for almost all archaeological

investigations, but it is especially important when burials are concerned.

It is regrettable therefore, that this cooperation – expressed in the formulation of common research goals – is still a rare occurrence. The usual practice seems to be that archaeologists who – accidentally or on purpose – excavate human burials, pack them and send them to a physical anthropologist to get some age and sex determinations. Even when carefully excavated these tend to arrive at their destination in a rather sorry state.⁷⁴ On the other hand, the presence of physical anthropologists at an excavation, or conducting one themselves, is a rare sight indeed.

Furthermore, since there is usually no common research goal, the results of the work of the one are added as an appendix to the work of the other and vice versa without much interplay. The possibilities of burial analysis as outlined above, combined with the range of analytical techniques available to physical anthropologists who have overcome some of their pessimistic attitudes⁷⁵ and the continent-wide chase for things like 'plannocipitale Steilköpfe', should open some new roads into understanding human behavior in the past. Several recent publications⁷⁶ have shown the way in this respect.

CONCLUSION

From the preceding sections it should be clear that burial analysis is far from being a ready-made tool to gain some insight into the organization of extinct societies. Its basic assumptions still need further testing and the – rather deterministic – theory may not be able to cope with all the problems posed by actual research, so that other measures of social complexity have to be employed.

It is not surprising, therefore, that successful attempts in this direction have been primarily undertaken with the cemeteries of societies that are least hampered by the constraints mentioned, notably those of the south-

69 Brown 1973, 3. See also the careful evaluation of the appropriate techniques by Schoeninger 1979.

70 Hatch 1976, 165–179, Hatch/Willey 1974, Buikstra 1976, 37–39.

71 See Smith 1973, Buikstra 1976, ch. 5 and Perizonius 1978, 301, respectively.

72 Lane/Sublett 1972.

73 Lengyel 1975a, 1975b. Unfortunately this sort of analysis cannot be done on cremated bone: Lengyel 1975a, 199.

74 As Perizonius 1978 correctly laments.

75 Compare for example Huizinga 1952 to Gejvall 1969 or Van Vark 1974.

76 A.o. Asch 1976, Buikstra 1976, Blakely (ed.) 1977.

eastern United States. These societies also tend to be fairly stratified, which makes them even more suitable as test-cases. In Europe this is happening too, and the attention is, of course, focused on those spots that potentially offer the most spectacular results, such as Hallstatt,⁷⁷ the Danish Bronze Age,⁷⁸ the so-called *Fürstengräber*,⁷⁹ Bronze Age Wessex,⁸⁰ and Anglo-Saxon England.⁸¹

This does not mean, however, that attempts to analyse burials of societies with little, or incipient, social stratification are absent, neither in Europe nor in the United States. European examples include the Nitra cemeteries in Czechoslovakia,⁸² Early Neolithic Denmark,⁸³ the Bandkeramic graves of Elsloo,⁸⁴ the Copper Age tombs of Los Millares,⁸⁵ Central European Bell Beaker burials,⁸⁶ and the Early Bronze Age in Southern Hungary.⁸⁷ A special case are the studies of eastern European archaeologists which, apparently independent⁸⁸ of the developments in the United States, arrived at a line of investigation closely resembling the one discussed above, but suffering from the disadvantage of the classic Marxist theory of social evolution. This theory, however, seems to be rejected in recent works and replaced by more useful materialist conceptions.⁸⁹ The emphasis is certainly on the more egalitarian societies.

Whatever their differences, what all these studies have in common is that they purposely try to transcend the level of mere description. They replace the rather haphazard or naïve interpretations sometimes accompanying these descriptions by a set of analytical techniques as part of a methodology grounded into a body of theory. This sets them apart from most of the western European tradition of burial analysis, which never developed such a methodology. Instigations for it are not lacking, as is testified by Steuer's⁹⁰ remarkable treatise on Merovingian social structure in which he discusses most of

the same problems as do Binford and Saxe. But, as was already mentioned, this work has remained an exception and has, although it is much cited, never been followed up.

Typically, western European burial analysis has tried to fit its data into preconceived and usually debatable historical reconstructions of social classes. That this procedure may lead to valuable insights is demonstrated by, for example, Ament's careful evaluation of the significance of the Frankish *Adelsgräber* of Flonheim or Gebühr's exposure of the flaws in older interpretations of the *Fürstengräber* of the Roman Iron Age.⁹¹ But in general it has hampered European archaeologists in developing a theory and methodology to handle the social dimensions of mortuary practices.

Apart from distinguishing these different approaches to the study of human burials, some final points remain to be made about the differences between burial analysis as described here and traditional explanations.

By the 'naïve interpretations' mentioned above, I refer to the innumerable 'explanations' of burial customs by authors trying to practise palaeopsychology.⁹² Fortunately, the worst examples of this kind of work are dying out fast, but the 'magical' post-circles, 'foetal' positions, etc. will probably remain with us for awhile.

By haphazard interpretations are meant the isolated references to ethnographic examples which are in some way similar to the observed phenomenon. As was discussed above, this procedure cannot be accepted since objects or practices which look alike may signify something quite different in separate societies. For the same reason, diffusionist explanations should not be offered for every change in burial customs observed.⁹³ Also the labelling of certain interments without the context of the society under consideration is a common but misleading practice. What are the implicit assumptions at-

77 Hodson 1977.

78 Randsborg 1974, 1975b.

79 Frankenstein/Rowlands 1978.

80 Renfrew 1973. Although Renfrew's work on the Wessex burials cannot be considered an analysis in the sense as discussed here because he does no more than pick out examples to illustrate his arguments, many of the ideas he uses are the same.

81 Shepard 1979.

82 Shennan, S. E. 1975 and 1978.

83 Randsborg 1975a.

84 Van de Velde 1979a. See also Van de Velde 1979b.

85 Chapman 1977.

86 Shennan, S. J. 1977.

87 O'Shea 1978.

88 Mutual citations seem to be virtually absent. But this may be misleading, because at least some Soviet archaeologists are very well-informed about these developments. See Klejn 1977.

89 See Häusler 1975, Klejn 1977 (esp. 12-16) and 1979.

90 Steuer 1968.

91 Ament 1970, 130-186, Gebühr 1974.

92 Instances of this are cited by Huizinga 1952, 35-36 and Binford 1971, 12-13.

93 See for example De Laet's encyclopaedic work on the prehistory of the southern Low Countries, in which diffusion or 'inheritance' of burial customs seem to be virtually the only processes described (De Laet 1974).

ched to the label 'princess' used to characterize the Bronze Age female burial of Drouwen,⁹⁴ and did she hold the same position in society as the early mediaeval 'princess' of Zweelo?⁹⁵ Do the so-called *familiëgrafheuvels* (family or lineage barrows), *Sippenfriedhöfe* (lineage or clan cemeteries), etc. actually indicate what their label stands for?

Quite another case are some of the chronological and typological interpretations which seem to be unquestionable. It may well be that a number of these can be approached in a completely different way. A nice example of this is given by Burgess: 'Beakers and food vessels have sometimes been found in the same grave, and innumerable times under the same mound with the beaker in a primary position. But such stratigraphical differences may often indicate not a secondary but a satellite food vessel burial, the gap being a social, not a chronological one'.⁹⁶

Some of the typological descriptions may also serve to obscure facts that could otherwise be fruitfully investi-

gated. Defining 'burials of the Lübsow type'⁹⁷ and plotting them on maps seems rather pointless as regards the societies involved and as soon as atypical cases appear the trouble gets only worse. Another example is a discussion of certain 'Hilversum culture' graves.⁹⁸ Burials which have only one thing in common, namely a 'disc-barrow', are lumped together for that typological fact alone, disregarding the really gigantic differences in size between the barrows. What this means in terms of labour-input, and the possible implications of that, is not even considered.

Of course, these examples of where traditional explanations are, or could be, wrong are neither complete nor altogether fair. No program of burial analysis could be carried out without detailed descriptions and a chronological framework implicating a lot of typology. But they may serve as indicators of the fact that the potential information contained in human burials is far greater than is usually extracted from them.⁹⁹

94 Butler 1969, 120-123.

95 Van Es/Ypey 1977.

96 Burgess 1974, 176.

97 See Eggers 1949/50, but compare Gebühr 1974.

98 Van Impe 1976.

99 The first material for this article was gathered in 1976-1977 when I studied at the University of Michigan, Ann Arbor, on a grant from the Dutch *Ministerie van Onderwijs & Wetenschappen*. I am indebted to the late Professor W. Glasbergen in obtaining this grant.

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