

The correlation between the shape of grave monuments and sex in the Iron Age, based on material from Østfold and Vestfold

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A typological analysis of burial customs based on the idea that there is a difference in the layout of the graves according to analysis of the grave goods; fundamental in the analysis is that men's graves can be distinguished from the women's graves on the basis of the presence of weapons as opposed to many buckles, spindlewhorls or pearls, and further associated artifacts.

This article examines some of the subjects discussed in a previous paper (Løken 1974), in which I not only attempted to classify the shape of visible grave monuments by chronology and appearance but also tried to

find the factors which had influenced the design of the different types of grave monuments.

Many archaeologists who have tried to use Norwegian grave material to reach an understanding of

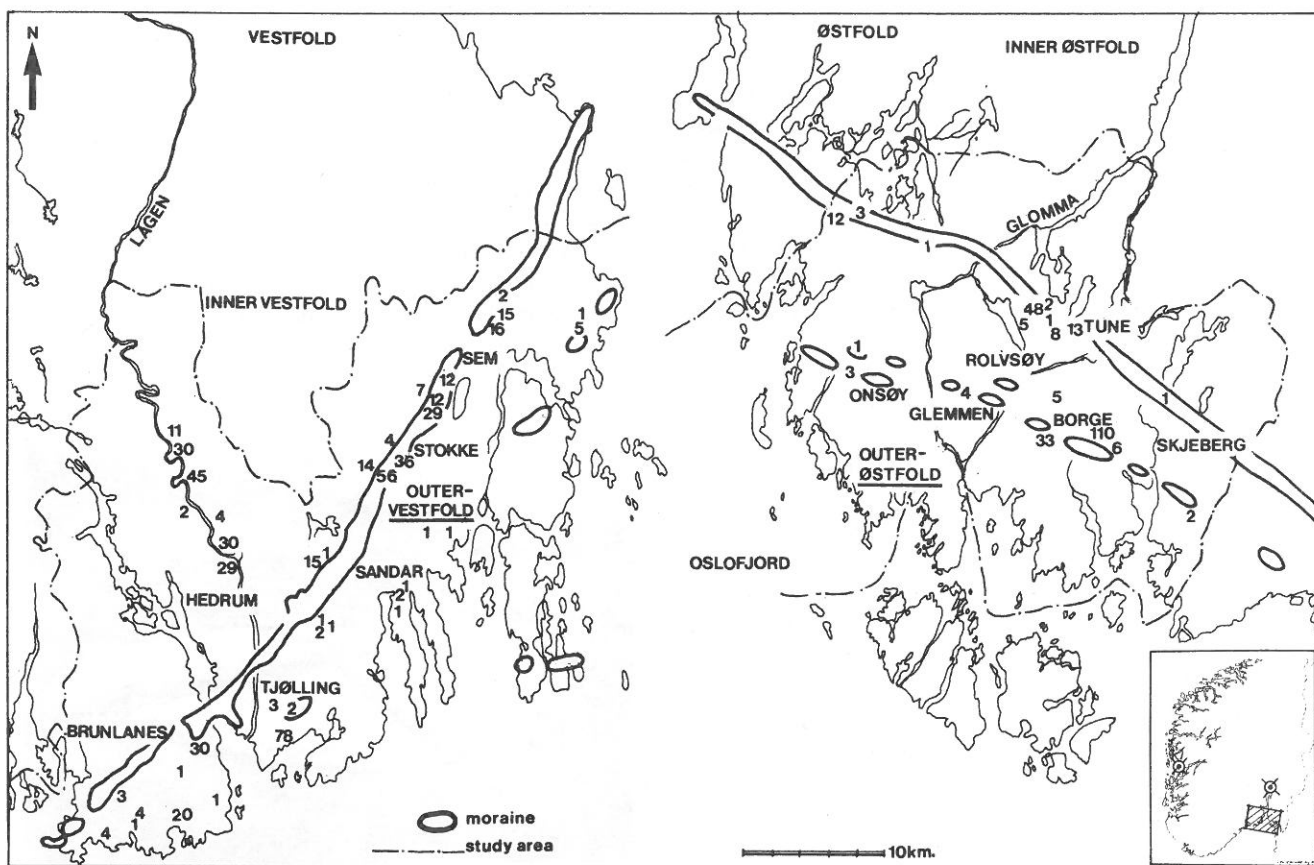


Fig. 1: The area surrounding the outer part of Oslofjorden showing location of the three study areas, the Ra-moraine, the Lågen valley. Outer Vestfold: Brunlanes, Tjølling, Sandar, Stokke, Sem. Outer Østfold: Onsøy, Glemmen, Borge, Skjeberg, Rolvsøy, Tune. The figures states the number of grave monuments used in the study. (Map by A.H. Berg, Archaeological museum in Stavanger.)

social structure, status and relation between man and woman in the Iron Age, have based their work on the inventory of grave material. To a certain extent the treatment of the body has also been discussed.

The potentially very large amount of information on the shape, size, construction, etc. of the grave monuments, gathered in the last century or more, has only been discussed to a limited extent. Those who collected the data considered that it was important to the formulation of theories about Iron Age society. The lack of use of the material is probably the result of a very varied level of documentation over time, and the opinion that Norwegian grave monuments mainly consist of a few ill-defined main forms which moreover have few typological elements.

My previous work was largely an attempt at a typological and chronological analysis of excavated graves from the Iron Age in small areas of Østfold and Vestfold. I investigated the factors which were likely to influence the design of the graves, such as dating, geographical location, materials used, and the sex and treatment of the body. Other factors which should be examined, such as the social status of the dead person, could not be used because of problems in comparing the information about this revealed in the different combinations of finds.

The geographical limits were determined by the possibility of obtaining sufficient material within the areas, and in order to test the importance of geographical proximity and any differences in natural conditions. The study area then became 2 limited parts of outer Østfold and outer Vestfold, called the Ra-parishes (fig. 1). These are small in extent (approx. 50–60 km x 20 km). They are largely covered with glacial deposits and according to Norwegian standard are highly productive agricultural areas. Almost 30% of the area is cultivated. The cultivated areas are partly situated on the Ra-moraine, partly on lower-lying sedimentary deposits of sand and clay plains outside the moraine, and are divided by hills covered with coniferous or deciduous forest (fig. 2).

A third study area was the lower part of Lågendalen (Hedrum), a lower-lying valley parish with different geological conditions. The narrow cultivable area on sedimentary deposited sand moors at the bottom of the valley has less agricultural potential than the two others.

Outer Østfold and outer Vestfold are geographically divided by Oslofjorden, whilst Hedrum in the south adjoins outer Vestfold. Outer Østfold and outer Vestfold have a comprehensive and to a certain extent rich corpus of grave material from the Early Iron Age, while Hedrum at that time is poorly represented. In the Late Iron Age outer Østfold takes Hedrum's place with relatively few and mostly poorly



Fig. 2: Typical landscape in the study area. In the lower part of the picture is the Ra-moraine at Barkåker, Sem. (Photo by Fjellanger Widerøe A/S.)

equipped graves. The material is mainly from cemeteries which, according to the evidence, were in use through a large part of the Iron Age. The reason for changes in the shape, construction, marking and content of burial monuments must lie in changes in the outlook and practice of the population, as immigration in the period is not considered likely.

There are three main types of burial monument in the area: a) mounds of two types: barrows and cairns (fig. 3), b) areas of stone paving (fig. 5), c) stone settings. All appear in the following forms: round (85%), oblong (2%), boat-shaped (0,5%) (fig. 4), rectangular (12%) and triangular (0,5%) (fig. 5). The barrows are made only from soil and the cairns are either made only from stones or a combination of soil and stones. Some barrows may have had core cairns.

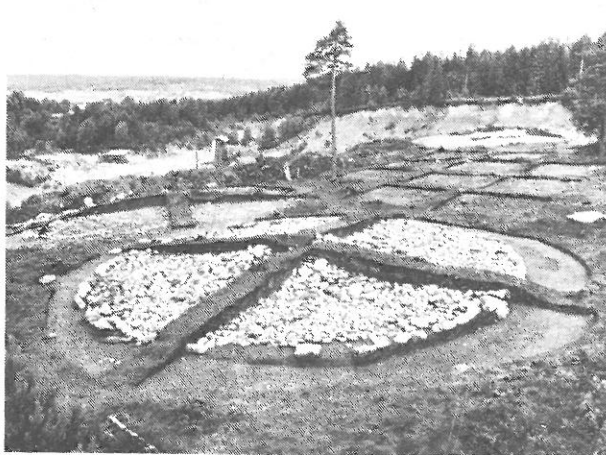


Fig. 3: Round mounds built as barrows or cairns covered with soil. Note the kerb round the nearest mound. From Opstad, Tune. (Photo by F. Gaustad.)

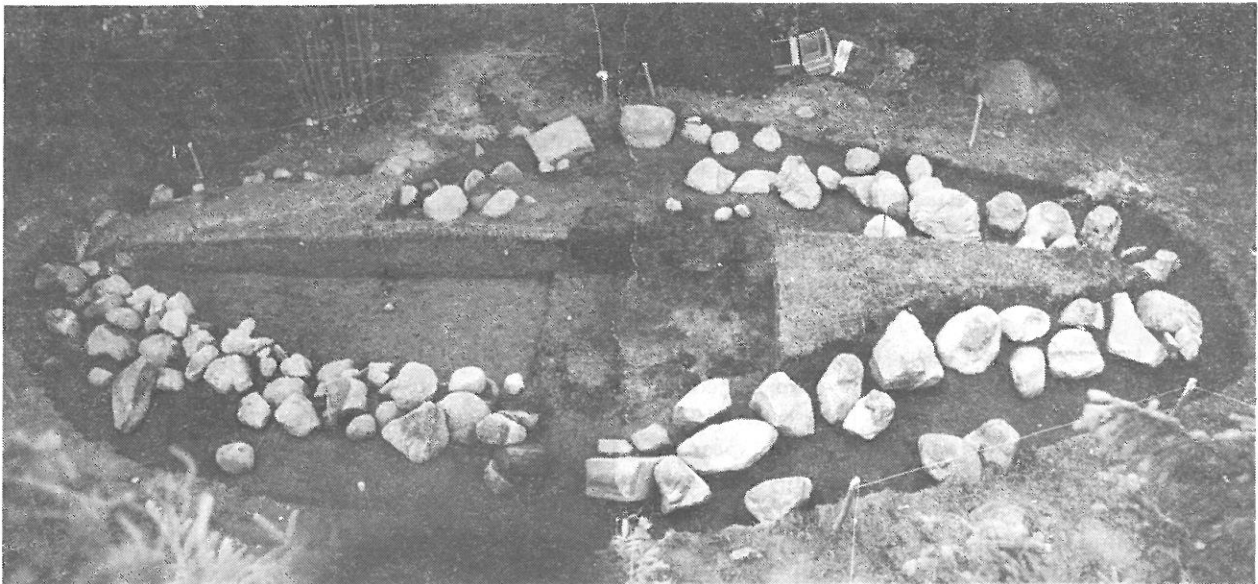


Fig. 4: Boat-shaped mound surrounded by damaged kerb. From Hunn, Borge. (Photo by A. Hagen.)

All may have been bounded by stone kerbs or a ditch (fig. 3). Stones may also have stood at the outer edge and at the corners. Rounded boulders or standing stones may also have been erected at the top or central point of the monuments.

The burial monuments are relatively small, averaging approximately 12 m in diameter in the Roman period, decreasing to 8 m in the Viking Age. Usually only one burial lies in each monument. 20% of the burials are not cremated; they were laid out on the original surface or cut into the subsoil. The rest are cremation burials in the form of cremation patch (norw.: *brannflak*) at the bottom of the barrow or the surviving funeral pyres left in a pit. The burnt bones



Fig. 5: Triangular stone paving. From Gunnarstorp, Skjeberg. (Photo by J. Storm Munch.)

may have been collected, either sorted or with charcoal, and put into a container made from birch bark, clay, bronze or iron. The greatest variation in the combination of elements and size of the monuments is found in the Roman period, the least variation in the Viking Age.

Sex determination of burials

A basic proposition is that the sex of the dead was of importance to the shape of the visible monument. Binford (1977:19ff) has stated that the sex is regularly indicated in the burials of communities practising sedentary agriculture; we believe that this is the setting for the grave material under discussion. The marking out would partly be directed towards the 'invisible society' (the world of the dead), partly towards the surviving relatives.

In only a very few cases in the material under discussion was the sex determined directly from bone analysis. Consequently the sex had to be determined by drawing conclusions based on objects found in the graves. Binford (1971:22) found that the most important way of displaying sex to the 'invisible society' was by the objects in the grave: clothes, jewellery, other personal equipment and tools characteristic of the sex. From Binford's results the material in the single burials in the Iron Age graves should give an unambiguous sex determination. In order to examine whether the outer shape, size and equipment of the graves indicated the sex of the buried, it was necessary to determine the sex of as many graves as possible.

Based on the assumption that weapons indicate male graves and that many buckles, spindle whorls or pearls are the signs of a female grave, a number of authors, e.g. Capelle (1965), Gebuhr (1970) and Resi (1973), have carried out analyses in order to find which other objects from the Early Iron Age were normally associated with male/female graves. The results correspond to a reasonable extent, and based on this research work I have determined the sex attribution of the material from the Early Iron Age graves.

For the Late Iron Age I could not find any similar attempts to investigate how many grave objects could be regarded as characterizing sex. J. Petersen (1951) suggested that sets of weapons or a sword, spear or shield were the only objects which certainly indicated male graves; graves with one or more tortoise brooches, round or equal-armed brooches, celtic jewellery or pearls indicated female graves.

Many graves do not contain these find types, but often one or more other objects, such as tools. These are also present in graves with the objects listed above and often do not belong only to one sex. I therefore wanted to examine to what extent the individual objects, other than those mentioned above, were associated with sex and on that basis investigate whether many types of these objects together indicated the sex of the dead.

The grave material in question was not extensive enough for such an investigation; I had therefore to rely on J. Petersen's information (1951) on the numbers of most kinds of tool discovered in male- or female-determined graves (note, however, his assumptions on sex determination). Of a total of 6232 graves found by 1942 he classified 3816 as male and 1169 as female. The remaining 1247 were unclassifiable.

Table 1 summarizes the number of each tool type discovered, arranged according to Petersen's classification: 1) the number of objects found in sex-determined graves; 2) the distribution of these in male and female graves; 3), 4) the number of male and female graves with the individual tool type as a percentage of the total number of male and female graves; 5), 6), 7) the ratio between male and female graves with a single tool type, calculated on the basis of the percentage in male and female graves respectively.

Because about three times as many male graves as female graves had been sex-determined, the proportional figure, as an indicator of sex-determination, could not be calculated based on the absolute figures, as this would imply that objects discovered in male graves would be ascribed three times the importance of such finds in female graves. In order to give the objects the same importance, the percentage represen-

Table 1: The relationship between tools in graves and the sex of the dead body. 1. Number of tools. 2. Number of tools in graves where the sex is determined. 3. Number in male graves. 4. Number in female graves. 5-6. Male and female graves containing the individual tool type in percentage of total number of male and female graves. 7. Ratio between male and female graves calculated on the basis of no 5-6.

	1	2	3	4	5	6	7
Agricultural axe/adze	490	285	254	31	6,70	2,60	2,6/1
Sickle blade	900	670	501	169	13,10	14,50	1/1,1
Scythe blade	255	200	200	0	5,20	0	- - -
Leaf knife	26	17	14	3	0,40	0,25	1,6/1
Mouthpiece	1072	715	596	119	15,50	10,00	1,6/1
Sledge hook	174	132	105	27	2,70	2,30	1,2/1
Rattle	249	150	138	12	3,60	1,00	3,6/1
Spurs	118	54	42	12	1,10	1,00	1,1/1
Blacksmith's tool	374	374	371	3	9,70	0,25	39,0/1
Knife	1192	896	684	212	17,70	18,40	1/1
Plane iron	50	50	50	0	1,30	0	- - -
Joiner's axe/adze	61	61	60	1	1,60	0,09	18/1
Scooping iron	47	47	46	1	1,20	0,09	13/1
Adze	47	40	40	0	1,00	0	- - -
Moulding scraper	10	10	9	1	0,20	0,09	2,6/1
Bore	140	109	107	2	2,80	0,17	16/1
Awl	37	31	21	10	0,50	0,90	1/1,8
Balance wheel	20	19	15	4	0,40	0,35	1/1,1
Chisel	10	7	6	1	0,76	0,09	1,8/1
Sawblade	21	21	20	1	0,52	0,09	6/1
Weavers sword	283	187	24	163	0,60	14,50	1/2,3
Loomweight, clay	24	13	5	8	0,13	0,70	1/5,4
Loomweight, stone	82	75	7	68	0,18	6,10	1/34
"Yevrell"	34	24	4	20	0,10	1,80	1/18
Spindle whorl	450	328	16	312	0,40	25,70	1/64
Scissors	439	330	194	136	5,10	11,70	1/2,3
Linen comb	136	116	14	102	0,37	9,00	1/25
Whetstone	1052	816	712	104	18,70	8,90	2,1/1
Hanging whetstone	114	71	57	14	1,50	1,20	1,2/1
Needlecase	19	17	1	16	0,03	1,40	1/55
Sewing seamsmoother	28	21	0	21	0	1,80	- - -
Whalebone plate	34	24	3	21	0,08	1,80	1/23
Steatite vessel	505	213	144	69	3,80	5,90	1/1,6
Iron kettle	156	70,7	29,3	29,3	0,29	1,70	1/6
Ladle	39	33	11	22	0,03	0,70	1/26
Ladle R431	11	9	1	8	0,05	0,60	1/12
Saucepan	10	9	2	7	0,05	0,60	1/12
Bronze vessel	68	57	21	36	0,55	3,10	1/5,6
Drinking horn	26	15	7	8	0,18	0,69	1/3,8
Glass vessel	11	7	1	6	0,03	0,51	1/20
Whiler	90	68	57	11	1,50	0,94	1,6/1
Frying pan	132	100	47	53	1,23	4,50	1/2,7
Spit	19	15	12	3	0,31	0,26	1,2/1
Fork shaped tool R225	13	10	9	1	0,24	0,09	2,7/1
Spit R226	9	7	2	5	0,05	0,43	1/8,5
Spit R227-8	20	14	1	13	0,03	1,10	1/44
Lamp	10	6	1	5	0,03	0,43	1/17
Fire Steel	207	6	81,5	18,5	0,18	0,35	1/1,9
Grindstone	12	11	7	4	3,80	15,70	1/4,1
Casket/chest/key	328	145	183	183	1,05	3,50	1/3,3
Bone comb	122	81	40	41	0,37	0	- - -
Iron clasp	15	14	14	0	0,37	0	- - -
Tweezers	10	6	0	6	0	0,50	- - -

tation in male and female graves forms the basis for the ratio figure.

In fig. 6 the 53 types of tools are arranged with the highest male ratio at the top and the highest female ratio at the bottom. Six types have been found only in male (four types) or female graves (two types) respectively; the ratio therefore cannot be calculated, and has been indicated with the ratio 100:1, a figure not reached by any other types. Knives are represented equally and have therefore no column marking.

In order to demonstrate visually the significance of each tool, the columns have three sizes: a:1-20, b:21-99, c:100. The wider the columns, the more graves with the tools in question, and the greater probability that the ratio indicates fairly correctly the tool's connection with the sex of the dead.

Approximately the same number of tools are male (24) as female determining (28), but generally the ratio is higher for the female objects (18 object types with a ratio greater than 5:1) than the male objects (9 types over 5:1). Compared to Gebuhr's results the ratio fig-

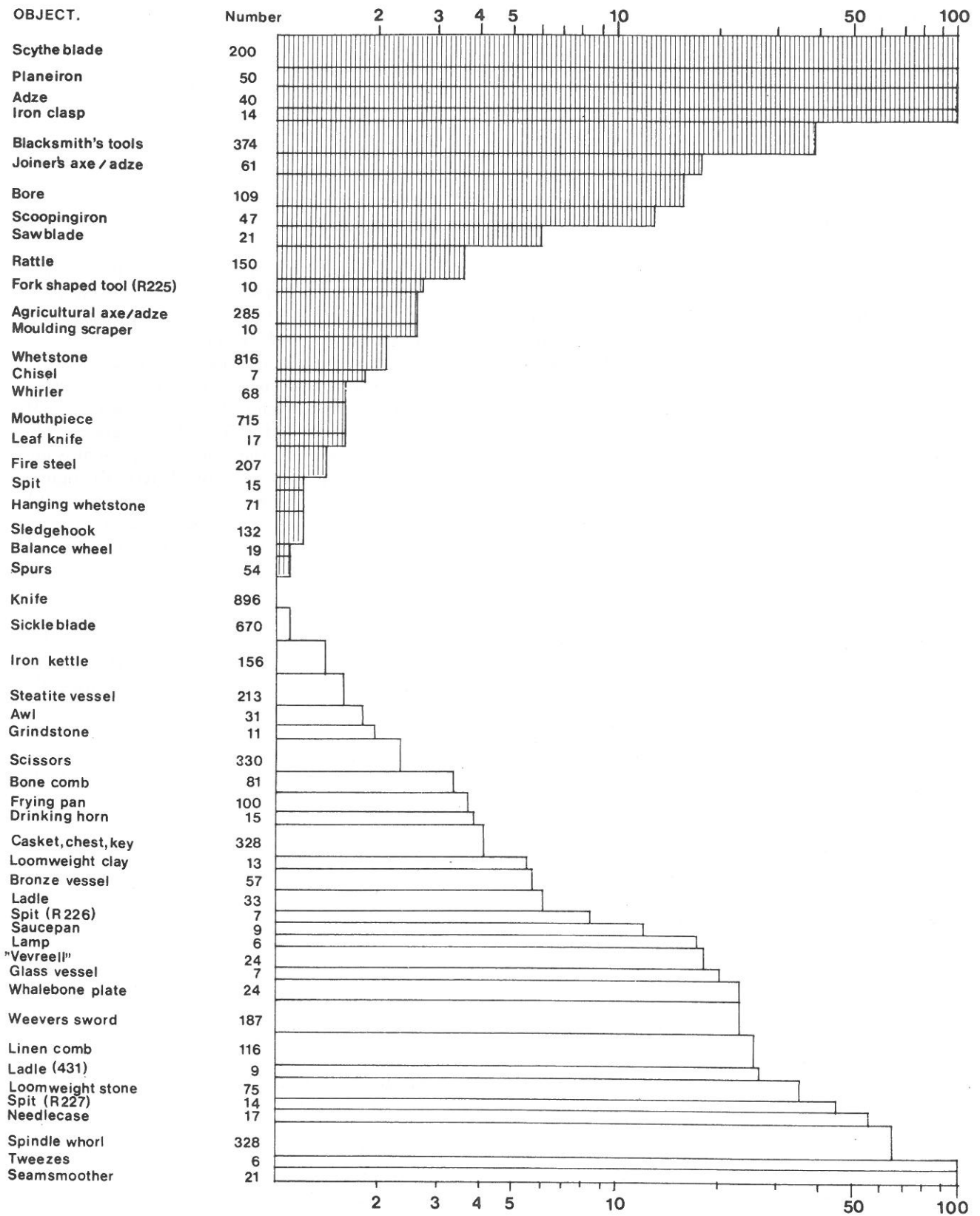


Fig. 6: Histogram for 53 tools showing the ratio of the percentage quantity of tools in male and female graves. The shaded 24 columns occur most frequent in male graves, the remaining 28 in female graves, while knives are equally frequent in both.

ures are low, only 27 of 53 (half) have a ratio greater than 5:1 whereas in Gebuhr's the figure is 75%. Thus the objects are not so firmly associated with male or female graves as in the German investigation covering the Early Roman period, therefore the results must be treated with caution. Most of the tool types cannot alone determine the sex, but if 2 or more items together present point in the same direction, the possibility of making a relatively good sex determination increases, although the ratio figures are not as clear as could be desired.

Fig. 6 demonstrates the connection between tool type and sex if the division of tasks in the Late Iron Age was the same as in the Middle Ages. Farming, blacksmith's and joiner's tools and horse equipment mainly belong to male graves. The sickle, however, appears more often in female than in male graves. The predominance of horse equipment in male graves is not particularly great. Except for the rattle no type of object in this group has a higher ratio than 1.6:1, so that horse equipment alone cannot be regarded as forming a basis for sex determination.

Textile tools and kitchen equipment particularly determine the sex of the burial as female, as do imported goods such as bronze vessels and glass cups. It is surprising also that drinking horns have a ratio in male and female graves of 1:3.8, as drinking horns according to Gebuhr were strongly associated with male graves (8.3:1), a pattern also found in Eastern Norway in the Early Roman period (Resi 1973).

As opposed to Gebuhr's findings, scissors are usually represented in female graves (more than 2:1). If it was possible to examine the associations of the different types of scissors, it might be possible, if Petersen's view is correct, to divide them between sheep shears (male determining) and textile scissors (female determining). Resi assumes that combs belonged to female graves in the Early Roman period; it should be noted that this is also the case in the Late Iron Age.

Because groups of objects such as bronze vessels, glassware and especially drinking horns show a somewhat unexpected association with female graves, it is necessary to take a closer look at the basic material used in the analysis.

As previously mentioned, there are three times as many male graves as female graves. This may be the result of one or more groups of female graves being poorly represented compared to the same groups of male graves. For example less richly equipped female graves (with small objects such as a few pearls, spindle whorl, casket mountings, etc.) are easier to overlook than less richly equipped male graves in which the most common objects such as weapons or farming tools are generally larger. (Note that Petersen's statistics include a very large number of accidentally re-

ported discoveries, e.g. half of the Viking Age discoveries in Vestfold.) (Sjøvold 1944:80.)

A number of items may indicate that this theory is correct. Drinking horns are present in seven male and eight female graves, bronze vessels in 21 male and 36 female graves and glass cups in one male and six female graves. If it is presupposed that richly equipped male and female graves in which such objects are present are more equally represented than the total number of male and female graves, drinking horns and bronze vessels will not be strongly associated with one sex, but rather be a proof that, at a specific level of society both men and women were well equipped at burial. The number of glass cups is so low that the distribution should not be emphasized.

Further, it seems that in general female graves contain more objects than male graves. Fig. 6 comprises in total 6914 sex-determined tools, of which 4838 were found in male and 2076 in female graves. The number of graves which these objects represent is impossible to ascertain based on Petersen's figures (1951), but if they are considered in connection with all male and female graves, it appears that the average number of tools is 1.8 tools for female graves and 1.3 for male graves.

These are two indications that the richer female graves are more common among female graves than the similar male graves are among male graves. It has been impossible to investigate this in further detail, and I am aware of the problems in comparing the scale of wealth for both sexes.

Thus, this indicates that the method I have used in order to find the object's association with sex gives a somewhat inaccurate result for some groups of objects. But realizing this fact and using fig. 6 with caution, it could be useful for sex determination of graves which do not contain weapons or the usual female jewellery.

The results presented here formed the basis for the sex determination I have carried out with my own material. The sex of 239 burials could be determined; 130 were female graves. This result may not appear satisfactory, but it must be emphasized that the 837 graves include approximately 300 graves which are either without grave goods or with such modest finds (e.g. sherds of clay vessels, iron nails, etc.) that they can only be dated to the Early or Late Iron Age. If these are not included, the sex of about half of the graves has been determined.

From the total of 94 sex-determined graves in the Early Iron Age, female graves represented 80%, but there is a clear difference between outer Østfold and outer Vestfold, in which respectively 97% and 70% were female graves. At Hedrum the sex of only 4 burials from the Early Iron Age has been determined.

The most important male-determining objects, such as weapons, have a great value. Thus they may not have been common equipment for men at the time, or not given as grave gifts. We understand little of sex-determined differences in the use of jewellery in the Early Iron Age, therefore assignments of sex made on this basis may be uncertain. Tools which are supposed to be used in men's work, such as farming tools or blacksmithing equipment are scarce in graves from the Early Iron Age. Perhaps these were too valuable or rare to be used as grave-gifts, or it may be that people thought that this equipment did not have any function in the grave. Some tools (such as knives and scissors) are found with both sexes.

As opposed to this, a tool characteristic of females is often present; the spindle whorl. Compared to the male-indicating iron tools which are not found, the spindle whorl is of little value. It is perhaps also a tool closer to a woman's daily work than the male tools mentioned above to a man's. Consequently it may often be present in women's graves. In addition the female graves may be identified on the basis of jewellery or combinations of jewellery and other tools. We must therefore assume that the observed distribution of male and female graves in the Early Iron Age does not represent the actual distribution of men and women who were buried in visible grave monuments. The sex may have been indicated, but the signs are not visible because of bad conservation conditions, or lack of observation or understanding.

The situation in the Late Iron Age, when the graves were abundantly equipped with weapons, jewellery and tools reflecting the work of both sexes, allows us to assume that the distribution observed reflects the actual conditions. Of the 145 sex-determined burials, 37% are female. But great variations exist – from outer Østfold with 58% female graves through Hedrum with 42% to outer Vestfold with 26%. It is interesting to note that the proportion of female burials is considerably higher in graves excavated by professionals (which these figures are based on) than in Petersen's figures (1951:200) which represent both professionally investigated finds and occasional reported discoveries. This supports the assumption that less well equipped female burials from the Viking Age are under-represented in Petersen's material.

The importance of sex in the shaping of the graves

Sex and building material

To what extent was the sex of the dead marked in the visible monuments, both for those arranging the bu-

rial and their descendants? Binford (1971:21) considers such an indication a possibility, but did not prove it. The information set out below seems to indicate that the sex of the dead was shown by using certain symbols, or that the size of the monuments depended on the sex of the dead.

The examination of the occurrence of building materials by area and over time showed that there were differences in the various regions and significant changes over time. There was a clear change from cairns to barrows from the Early to the Late Iron Age in outer Østfold and the opposite tendency in outer Vestfold. This also occurred within the larger cemeteries, and was not therefore the result of changing location of cemeteries and consequent altered access to building material.

When looking for explanations for such changes I looked first at the treatment of the body. In outer Vestfold it appeared that barrows with cremated burials had a very high correlation coefficient (Q , varies from 0 to 1) for change from barrows in the Early Iron Age to cairns in the Later Iron Age ($Q = 0.75$), while the inhumation graves indicated the opposite tendency – cairns in Early Iron Age – barrows in Late Iron Age ($Q = 0.74$). Also in outer Østfold a similarly marked change for the inhumation graves exists, the association changing from cairns to barrows ($Q = 0.75$) and the same, although weaker tendency for the cremated burials ($Q = 0.40$). The most obvious change regarding the inhumation graves, e.g. in outer Vestfold, is mainly due to the conditions in the Late Iron Age, as the correlation coefficient between inhumations in barrows and cremations in cairns was 0.92, while the correlation between inhumation burial in cairns and burned burial in barrows was small ($Q = 0.27$) in the Early Iron Age.

The most interesting change is that inhumations are found almost only in barrows in the Late Iron Age whereas in the Early Iron Age there is little correlation between building material and inhumation burials.

If we then look at the relationship between the sex of the burial and this change, it appears that in the Early Iron Age women were buried unburned about as often in cairns as in barrows in both areas, while the unburned men were most often buried in cairns. However, in the Late Iron Age the women were hardly ever buried unburned, while the majority of unburned men were buried in barrows. Hedrum is excluded for two reasons: unburned burials in the Early Iron Age are rarely found, and some women were buried unburned in barrows in the Late Iron Age. Hedrum may be regarded as a valley community where other factors may have dominated.

The correlation coefficient between unburned male

burials in cairns in the Early Iron Age and barrows in the Late Iron Age is as high as 0.90.

Thus it is the correlation between unburned male graves and mounds and the fact that unburned female graves hardly exist in Late Iron Age, which were the reasons for the change of the strong connection between corpse treatment method and the building material of the barrows. However, this is not because different corpse treatment methods were used for women and men, as a somewhat higher number of female graves (36.5%) exists in burned graves from the Late Iron Age, e.g. in outer Vestfold compared to all sex-determined graves (26%), and among the burned graves no correlation exists ($Q = 0.01$) between sex and building material.

What then is the reason for the dominance of unburned male burials in barrows in the Late Iron Age? In investigating the number of burned and unburned burials in the survey area, I have demonstrated a marked increase in the number of unburned graves in the Late Iron Age (mainly Viking Age). I have argued that this phenomenon in the parts of Norway under study might possibly be the result of Christian influence.

As far as Østfold and Vestfold are concerned, there cannot have been any direct missionary activity during the Viking Age, with the exception of the possibly significant contact between Kaupang at Tjølling and Hedeby at Jylland. Many people travelling on peaceful or military commissions may have been exposed to Christian influence. The majority of travelling people, except in efforts at colonization were most probably men. Men who returned, having been influenced by or converted to Christianity, might have wished to be buried unburned, especially as unburned burials were not unknown. The traditional system of grave monuments and grave gifts was not immediately altered. No alternative to the pagan cemetery existed until the Church was established in the 11th century. The placing of grave gifts with the dead in a society where Christianity was about to or had penetrated into the religious life is widely paralleled in Mid-Europe and therefore does not necessarily conflict with the prevalence of Christian ideas.

One reason why these unburned male graves may be associated with Christian influences is that they are located in barrows while the burned graves, which have not been influenced by Christianity, have a strong, although not absolute link with the cairns.

Without discussing it in more detail here, I would like to mention that stone as a building material in mounds was regarded as a more powerful material than soil (Gisle Surssons saga, see Almgren 1904:337) and the burning of corpses was amongst other things a precaution against supernatural apparitions. In the

Early Iron Age the unburned graves were protected with the 'strongest' material when they were built, while it was not considered necessary for unburned males in the Viking Age. Another view of these men's situation after death (the Christian faith in resurrection) may have been the principle that the dead should not be impeded unnecessarily.

Sex and size of the grave monuments

The circular barrows and cairns represent barely 80% of the total number of grave monuments in the investigated areas. To what extent did the sex of the dead influence the size and relative height (Rh: defined as the total height as a percentage of the diameter)?

A total of 159 round mounds contained graves where the sex could be determined. Ten of these could only be dated to the Early Iron Age or the Iron Age in general, and have not been included in table 2.

Table 2: Mean diameter of the circular mounds where the sex is determined. Roman Iron Age: II, Migration period: III, Late Iron Age: IV.

SEX	DATE	OUTER ØSTFOLD		OUTER VESTFOLD		HEDRUM	
		No.	Diam	No.	Diam	No.	Diam
Man	II	4	17,5	6	14,7	-	-
Woman	II	9	11,7	8	13,2	-	-
Man	III	-	-	3	14,3	-	-
Woman	III	1	9,5	8	12,3	2	16,0
Man	IV	9	6,6	38	9,6	27	8,5
Woman	IV	8	8,2	8	8,4	18	6,1

Table 2 shows the average diameter for the mounds over male and female graves in the three investigated areas in the three groups of periods where this is possible. It appears that in five of six possible correlations between male and female graves, the average diameter is larger for mounds over male graves than those over female graves. The difference is evident both in cases where the number of graves is small, as group II in Østfold and outer Vestfold, and where the number is relatively large as in group IV in outer Vestfold and Hedrum. Only in group IV in outer Østfold does the diameter of female graves exceed the corresponding figure for the male graves.

However, it is a fact that round mounds with smaller diameters have an average Rh which is higher than for larger mounds. Consequently the volume of larger

Table 3: Mean relative height (Rh) of the circular mounds where male and female graves are determined. (U = The grave cut into the subsoil, B = The grave laid out on the surface under the mound.)

SEX	DATE	OUTER ØSTFOLD		OUTER VESTFOLD		HEDRUM	
		No.	Rh	No.	Rh	No.	Rh
Man	U II-III	4	5,1	5	8,0	-	-
Woman	U II-III	5	6,2	6	10,1	2	14,4
Man	B II-III	-	-	4	8,0	-	-
Woman	B II-III	5	12,3	5	11,0	-	-
Man	U IV	5	11,6	14	10,1	13	16,4
Woman	U IV	-	-	1	15,8	6	17,4
Man	B IV	3	19,1	22	10,1	12	17,0
Woman	B IV	8	10,4	7	13,9	10	13,3

and smaller barrows may not necessarily be different. Additionally the smaller diameter of the women's mounds should not imply less work during construction. Table 3 shows the average Rh for male and female mounds (with graves dug into the subsoil or built in the lower part of the mound) in the three areas and in the Early and Late Iron Age. In the eight cases in which male and female mounds may be compared, it appears that in six the female graves have higher Rh than the male graves. This is always the case in outer Vestfold, where the tendency to a smaller diameter for the female mounds was present in all three ages. In Østfold there is a slight tendency towards higher Rh for female mounds in the Early Iron Age and considerably lower Rh in the Late Iron Age for cremated burials at the bottom of the mound. Compared to the trend in Østfold (smaller diameter for female mounds in the Early Iron Age and larger in Late Iron Age), one would imagine that the volume would be about the same for male as for female graves. In Hedrum it

is only possible to examine the conditions in the Late Iron Age, here the male graves dug into the subsoil have a somewhat lower Rh than the corresponding female graves, as in outer Vestfold, while mounds with male graves built in the bottom of the mound have higher Rh, as in Østfold.

Accordingly the picture is very heterogeneous. But by studying the figures in tables 2 and 3, it is evident that the variations in diameter are much greater than the variations in Rh. Thus the volume must be less in the female mounds, except for Østfold in the Late Iron Age.

If we assume that the round mounds really are round and their curvature is a segment of a circle, we can easily calculate the volume of a possible mound. Calculations of volume based on such an ideal average barrow cannot be accurate, but it may indicate whether different efforts have been made in construction of grave monuments for men and women.

The average male mound in Østfold in the Early Iron Age contained approximately 85 m³ while the average female mound only contained about 64 m³; the volume of the male mound 32,8% larger. In outer Vestfold the male mound was 98 m³ and the female was 83 m³; the average male mound is 18% larger. In the Late Iron Age in Østfold the volume of the female mound (22.73) was 28% larger than the volume of the male mound (17.7 m³) whilst in outer Vestfold where the relative heights of the female mounds were considerably greater, the volume of the male mounds (38.2 m³) was still 15,8% greater than the female mounds' (33.9 m³). In Hedrum, where both diameter and Rh for all mounds in the Late Iron Age in total were larger for the male graves, the volume of these was 43.4 m³ and the volume of the female mounds only 12.3 m³, i.e. two and a half times the volume for the male mounds.

It may be interesting to demonstrate what these differences actually imply as far as effort in construction is concerned. Using Cole's calculations (1975) of the quantity of turf, soil and stones moved from relatively nearby to a construction site during the Iron

Table 4: Estimated man-day work of building mounds.

	OUTER ØSTFOLD				OUTER VESTFOLD				HEDRUM	
	Early Iron Age		Late Iron Age		Early Iron Age		Late Iron Age		Late Iron Age	
	M - d *	Days	M - d	Days	M - d	Days	M - d	Days	M - d	Days
Man	71	18	15	4	82	21	32	8	36	9
Woman	53	13	19	5	69	17	28	7	10	3

* man - day

Age, the volume may be converted to the following amount of work (expressed in 8 hour working days excluding necessary rest periods). At the worst the transfer of material amounted to 0.1 m³ per hour, at the best it was doubled (0.2 m³). I have based my calculation on a figure between these extremes. In addition I have estimated the number of days four men would need for the work (table 4).

It is clear that in the Early Iron Age there was a considerable difference in work input. The construction of man's mound would have taken four men 4 to 5 days longer than a woman's mound.

However, in the Late Iron Age when the total work input is very much less (below half), the difference between the work input on male and female mounds is reduced to 1 day with 4 men. Hedrum is very different. In no other place is the work input on women's burials so small, and so large on men's.

How should these differences be interpreted? Do variations in volume and work input tell us anything about the social, economic, political and religious situation of the sexes? Do we recognize Foote and Wilson's description (1970:180ff) of women's place in relation to men's in the Viking Age where they concluded that women had no political and very few legal rights, that they normally had no rights of inheritance (except the marriage portion), the formally unmarried women had a guardian who disposed of any property, and that married women were subject to men's authority and had limited personal property rights. Or was the position of woman equal to man's as suggested by other authors (e.g. Næss 1974:139), but yet such that the man's requirements had priority in many of the situations mentioned?

With the considerable work carried out on the mounds of the Early Iron Age, it is reasonable to assume that the variations reflect an actual difference of importance on one or more levels of the society.

On the other hand one should be careful in arguing that small differences in outer Østfold and outer Vestfold in the Late Iron Age indicate equal rights in society. Much less work was put in. Perhaps so little that the importance of the individual did not matter when a mound was built. The value of grave gifts may have been more significant than the work contributed.

Although it may be ascertained that the female graves are not less well equipped than those of males graves in the Viking Age (Næss 1974:132), it is still true that most graves have been determined to be male. To what extent this implies that fewer women have been buried in mounds or that the share of female graves without sex-determining objects is larger than the male graves, is of less importance in this context, as in both cases this would mean that fewer resources have

been committed to the women's graves. Even simple objects like spindle whorls, which assist in classifying graves as female in the Early Iron Age, have been left in the grave so rarely that the proportion of identifiable female graves is low.

On the whole the size of mounds in the Late Iron Age hardly forms the basis of a claim that woman's position in the society was equal to man's and had improved compared to the Early Iron Age.

Sex and the shape of the grave monument

There were only just enough circular and long mounds to allow the evaluation of the correlation between the shape of the monuments and sex. The ratio between man and woman buried in circular mounds both in the Early and Late Iron Age mounds was as for all sex-determined graves.

The long mounds revealed a different picture. 26 of 84 long mounds could be sex-determined, 13 from both the Early and Late Iron Age. 24 of these covered female burials, only two covered male burials. In relation to the total number of male and female graves in the Early Iron Age, it would be reasonable to expect a predominance of female graves in the long mounds of the Early Iron Age. But the total lack of male graves is striking, considering that the majority of female graves in the Late Iron Age is also great, when the male graves represent 66% of all sex-determined graves. Although the material is limited, the distribution is so pronounced that it must be assumed that it is not accidental. Without discussing this in further detail, it is suggested below that the long mounds symbolized a house where the dead had to stay for a shorter or longer period:

- a. The identification of the grave barrow as the house of the dead occurs in several examples in Old Norwegian/Icelandic literature (Birkeli 1939:94ff).
- b. Real death houses are known from the Norwegian/Nordic Iron Age (e.g. the graves in the Oseberg and Gokstad ships, which are very similar in shape and structure to the pit houses of the Viking Age). Smaller coffins have also been house-shaped with a sloping roof (e.g. grave II in the large barrow at Myklebostad, Nordfjord) (Schetelig 1912:165ff).
- c. The size and proportions of the long barrows are very similar to some houses.
- d. The long mounds have a far more distinct relative height (50% higher Rh) than that for the round mounds with the same width. In the long mounds, this can be seen as an attempt to approximate the proportions of a long house.

- e. The location of the long mounds on farms suggests such a symbolic function. In many cases their orientation is the same as the houses or they may run downslope, as the houses most often do.
- f. Graves in long mounds are located less centrally than graves in round mounds. This must be seen in relation to the fact that the long-house in the Iron Age was normally divided into a byre and a human habitation. During investigations of farms in south-western Norway it has been shown in a variety of cases that the burial took place in the lower half; the lower part of the building was normally the dwelling, while burials in the upper part of the long mounds have not been discovered.

If such an interpretation of long mounds as house-symbols is accepted, the distribution of the sexes in them is interesting. Were many women's burial places designed as houses because the shape served as a symbol for woman's domain in farming society and also indicated the sex of the buried person?

Sex and the decorative elements of the grave monuments

Some of the decorative elements of the grave monuments were common enough to make it worth investigating whether they had any correlation with the sex of the dead. More than 20% of the barrows with core cairns could be sex-determined. This is the same percentage as for round barrows. No deviation from the overall distribution between the sexes existed. This also applied to the sex distribution for mounds with stonekerbs, ditch and upright stones in the middle or at the edge or at the corners. However, 40% of the kerbed mounds could be sex-determined. Hence these are assumed to be better equipped than the average graves.

If we investigate the male and female burials in mounds with kerbs in Østfold and Vestfold, independent of chronology taking the diameter into consideration, it appears that in both areas the female barrows are somewhat larger – 14.2 m against 13.0 m in

Vestfold, – 13.6 m against 13.0 m in Østfold. This difference is not large enough to allow us to assume that women who were buried in mounds with stonekerbs were of such high status that they were covered by a larger mound than men. But the general rule that the female mounds were smaller than the male mounds has at least been adjusted. Thus it might be suggested that men and women occupying equally high positions in the society, received equal investments of labour in monument construction. This differs from the less well equipped graves.

Here is perhaps an indication that when evaluating the status of the sexes in the Iron Age society, we should not look at the society as a whole, but should rather study the individual levels of the society.

One decorative element seems to be associated with female burials. 10 of 16 mounds with a round stone at the top have been identified as female graves, one as a possible female grave and none as male graves. The number of sex-determined graves is high and the female dominance is striking, even though 12 of the graves are from the Roman or Migration periods. At Namdalen, Trøndelag (Petersen, 1903-07) there is also a series of mounds with a round stone at the top, from the same period, none cover male graves. On the contrary, several cover confirmed female graves. It is therefore possible that the round stones show the sex of the buried person.

Conclusion

The observations presented here seem to indicate that the sex of the dead was of importance to the shape and size of the grave monuments and to the materials used in their construction. Moreover, some elements, such as round stones at the top of mounds are also clearly related to the sex of the dead. Our understanding of these features is still at an early stage. Some speculations have been presented here as a possible basis for discussion. Hopefully they may form the foundation for more concentrated research in a difficult field.

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