Nationalmuseet
Rigsantikvarens Arkæologiske Sekretariat
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J.nr. A. 14/83 SN/gk
Dato 9. november1984

Göteborgs arkeologiska Museum
Norra Hamngatan 14
41114 - Göteborg
Sverige

BOHUSLÄN
KVILLE HD
KVILLE SN, 442 (RAÄ)
RÖRVIK
BOPC. FYND: STÅ

Att.: hr. antikvarie Jan Eric Sjöbjerg

Hermed sender jeg til orientering manuskript vedrørende neutronaktivering af neolitisk keramik. Jeg holdt foredrag om dette emne i Mariehamn i oktober. En endelig publikation kommer i tidsskriftet ISKOS, og jeg skal sende særtryk, når det foreligger.

Jeg vedlægger også dataudskrifterne med analyseresultaterne fra jeres prøver, hvis I selv ønsker at arbejde videre med materialet. Selv agter jeg ikke at fortsætte, idet det tager lang tid at få analyserne lavet, og den statistiske bearbejdning er meget omfattende.

- I jeres brev af 5. januar 1981 omtales 5 skärvor fra Rörvik, men på listerne er der 6. Det skyldes blot at en var gået i to stykker.
Til slut vil jeg gerne takke for jeres hjælp i denne sag, og jeg er til disposition, hvis I ønsker yderligere oplysninger.

Med venlig hilsen

Svend Nielsen

	Mean	St.dev.	Correlation														
			Sm	Ce	Lu	Yb	La	Ba	Rb	Na	Th	Hf	Cs	Sc	Fe	Eu	Cr	Co
Sm	.892	.223	1.0															
Ce	1.074	.273	.9	1.0														
Lu	.814	.144	.8	.6	1.0													
Yb	.832	.195	.6	.5	.8	1.0												
La	1.024	.271	.9	1.0	.7	.5	1.0											
Ba	1.109	.258	-.1	-.2	-.0	.2	-.1	1.0										
Rb	1.249	.297	.2	.2	-.0	.2	.2	.4	1.0									
Na	1.367	.262	.3	.1	.2	.2	.2	.4	.3	1.0								
Th	1.297	.423	.6	.9	.4	.4	.8	-.1	.6	.2	1.0							
Hf	.751	.252	.1	-.0	.5	.2	-.0	-.0	-.5	.3	-.1	1.0						
Cs	1.120	.278	-.1	-.1	-.2	-.2	-.0	-.2	.2	-.2	-.1	-.4	1.0					
Sc	.938	.212	-.2	-.2	.2	-.1	-.2	-.4	-.5	-.4	-.4	.1	.4	1.0				
Fe	1.079	.242	.1	.1	.2	-.2	.1	-.4	-.5	-.7	-.2	-.0	.2	.7	1.0			
Eu	.934	.165	.3	.3	.4	.1	.4	.0	-.4	-.1	.0	.3	.1	.3	.6	1.0		
Cr	.987	.343	-.3	-.3	.0	-.3	-.3	-.2	-.6	-.5	-.4	.3	.3	.8	.7	.6	1.0	
Co	.952	.351	-.3	-.3	-.0	-.2	-.4	-.3	-.5	-.5	-.5	-.1	.3	.9	.6	.1	.7	1.0

Table 1. Means, standard deviation, and correlations for the variables after the standardization performed at Risø.

Variable Name	No.	Unrotated factor loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Sm	1	0.731	0.610	-0.065	0.009	0.003
Ce	2	0.713	0.582	-0.248	-0.171	-0.122
Lu	3	0.488	0.738	0.263	0.158	0.311
Yb	4	0.612	0.346	0.193	0.265	0.488
La	5	0.750	0.579	-0.222	-0.064	-0.132
Ba	6	0.254	-0.409	0.326	0.648	-0.210
Rb	7	0.596	-0.417	-0.444	0.394	0.055
Na	8	0.550	-0.279	0.440	0.303	-0.073
Th	9	0.788	0.230	-0.314	-0.072	-0.043
Hf	10	0.017	0.293	0.866	-0.115	0.039
Cs	11	-0.283	0.107	-0.610	0.483	-0.059
Sc	12	-0.693	0.571	-0.073	0.224	0.275
Fe	13	-0.550	0.721	-0.189	-0.062	-0.143
Eu	14	-0.087	0.725	0.230	0.226	-0.566
Cr	15	-0.723	0.529	0.123	0.234	-0.199
Co	16	-0.766	0.367	-0.129	0.177	0.354
Var. explained		5.541	4.066	2.066	1.239	1.009
In %		34.6	25.4	12.9	7.7	6.3
Cumulative %		34.6	60.0	73.0	80.7	87.0
Variable Name	No.	Sorted rotated factor loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Sm	1	0.942	0.0	0.0	0.0	0.0
La	5	0.937	0.0	0.0	0.0	0.0
Ce	2	0.914	0.0	0.0	0.0	0.0
Lu	3	0.846	0.316	0.0	0.0	0.364
Th	9	0.764	-0.377	0.0	0.0	0.0
Yb	4	0.720	0.0	0.358	-0.324	0.0
Sc	12	0.0	0.903	0.0	0.0	0.0
Co	16	0.0	0.865	-0.275	0.0	0.0
Cr	15	0.0	0.656	0.0	0.640	0.0
Ba	6	0.0	0.0	0.864	0.0	0.0
Na	8	0.0	-0.353	0.682	0.0	0.0
Eu	14	0.304	0.0	0.0	0.893	0.0
Fe	13	0.0	0.558	-0.502	0.558	0.0
Hf	10	0.0	0.0	0.0	0.0	0.874
Cs	11	0.0	0.390	0.0	0.0	-0.722
Rb	7	0.253	-0.334	0.440	-0.388	-0.604
Var. explained		4.746	3.179	2.039	1.980	1.976
In %		29.7	20.0	12.7	12.4	12.4
Cumulative %		29.7	49.5	62.3	74.7	87.0

Table 2. Factor loadings in the unrotated (principal component) case and in the rotated (VARIMAX) case. Rotated loadings less than 0.25 have been replaced by 0.

Variable	F-value step 0	Step where entered	F-to-enter or in last step
Cr	15.99	1	15.99
Co	9.34	5	1.60
Sc	8.66		1.01
Yb	8.34	2	11.19
Cs	6.00	3	5.00
Sm	5.99		1.03
Th	5.61		0.11
La	5.08		0.57
Rb	4.58	4	3.85
Ce	3.99		0.45
Fe	3.55		1.39
Na	2.65		0.59
Hf	2.25		0.03
Ba	2.13		0.32
Lu	1.61		0.49
Eu	0.83		0.60

Table 3. F-values in step 0 for all variables, step where entered and F-to-enter for the 5 'best' discriminators and F-in-last-step for the remaining variables. Three populations: Selbjerg ceramics, Gothenburg ceramics and Gothenburg clay.

	Sel.Cer.	Got.Cer.	Got.Clay	Sel.Clay
Sel.Cer.	0			
Got.Cer.	16.23	0		
Got.Clay	4.73	6.61	0	
Sel.Clay	3.10	0.67	2.62	0

Table 4. Testvalues in F-tests for equality of group means. Degrees of freedom (5,21).

Observation no.		Selbjerg Cer.	Gothenburg Cer.	Gothenburg Clay
Selbjerg Ceramics				
SE 8	1	9.7	13.9	35.8
	2	4.3	11.7	20.9
	3	11.8	23.6	41.6
SE 116	4	7.3	23.5	8.0
	5	13.4	9.7	7.0
	6	5.8	14.7	8.9
SE 97	7	15.2	42.0	32.8
	8	4.1	15.3	7.5
	9	2.2	29.1	17.7
SE 2	10	3.7	20.8	13.1
	11	3.8	22.1	11.4
	12	1.6	14.0	5.0
SE 203	13	21.4	22.0	24.9
SE 231	14	14.6	48.4	27.0
	15	12.6	41.9	18.7
SE 10	16	18.2	55.7	39.3
Gothenburg Ceramics				
54687	17	16.0	8.8	9.4
	18	11.0	4.1	14.2
	19	14.1	1.2	13.8
55436	20	30.6	3.1	32.6
	21	15.0	1.1	13.6
	22	16.1	10.3	32.5
	23	32.7	4.7	26.4
55437	24	12.4	5.5	19.2
	25	43.0	9.2	34.6
Gothenburg Clay				
	26	13.1	14.2	1.4
	27	9.6	18.0	0.5
	28	10.5	19.3	0.4
Selbjerg Clay				
	29	19.6	4.5	20.8

Table 5. Jackknifed Mahalanobis distances from each observation to centroids of groups. Variables used are those given in table 3.

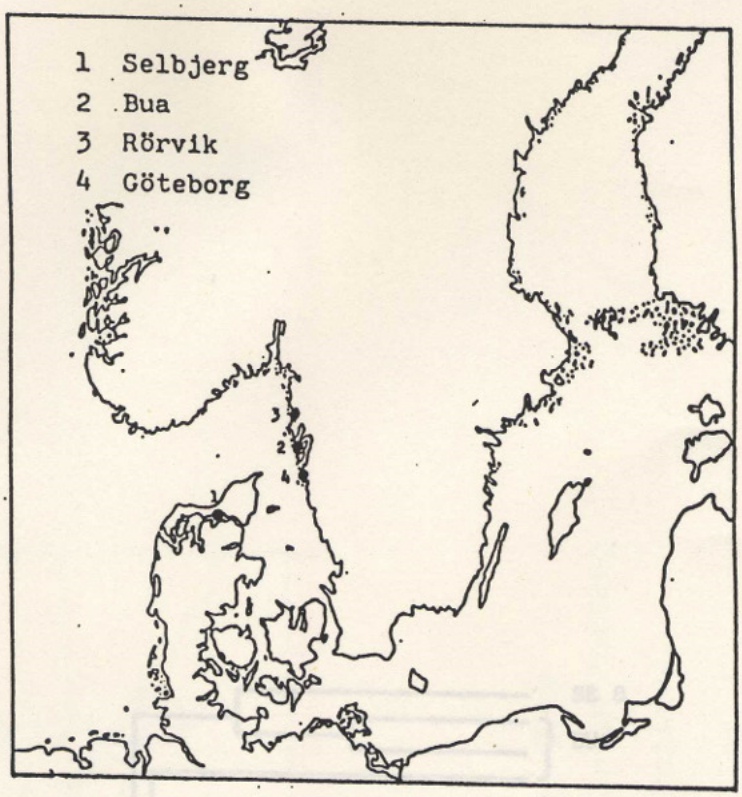

Fig. 1 The localities from where the pottery and clay samples were taken.

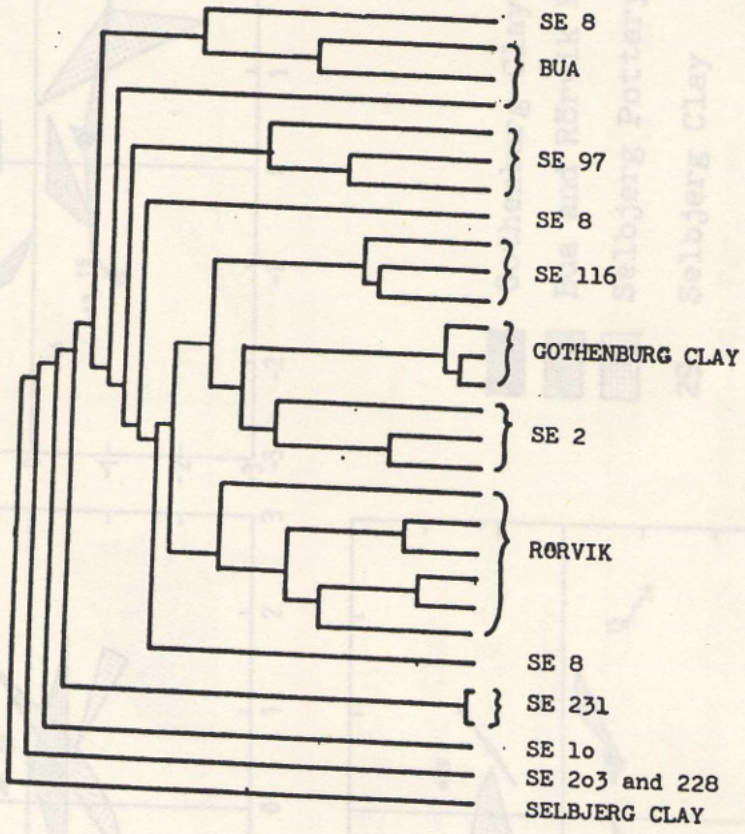

Fig. 2. Tree showing the hierarchical clustering of the samples.

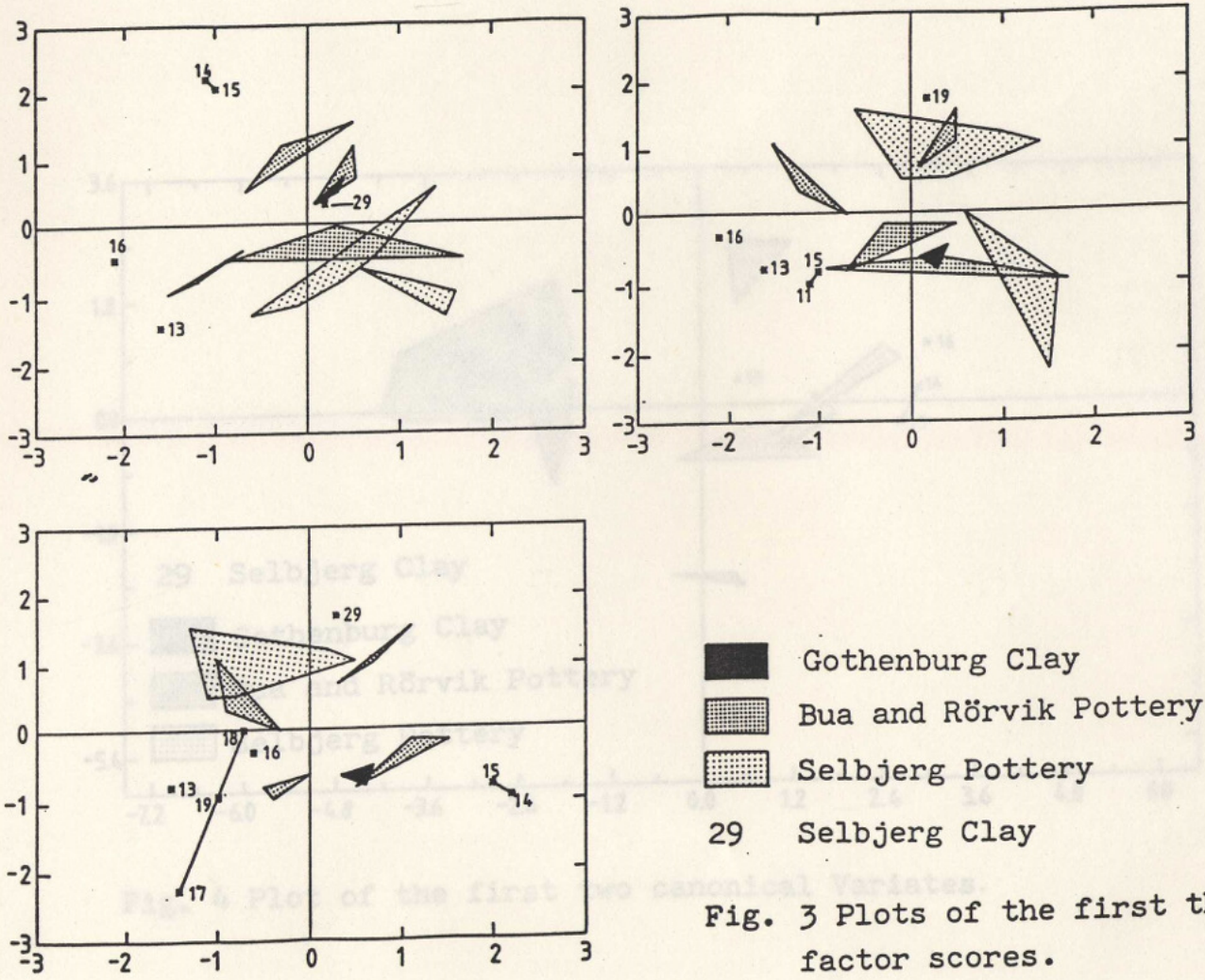

Fig. 3 Plots of the first three factor scores.

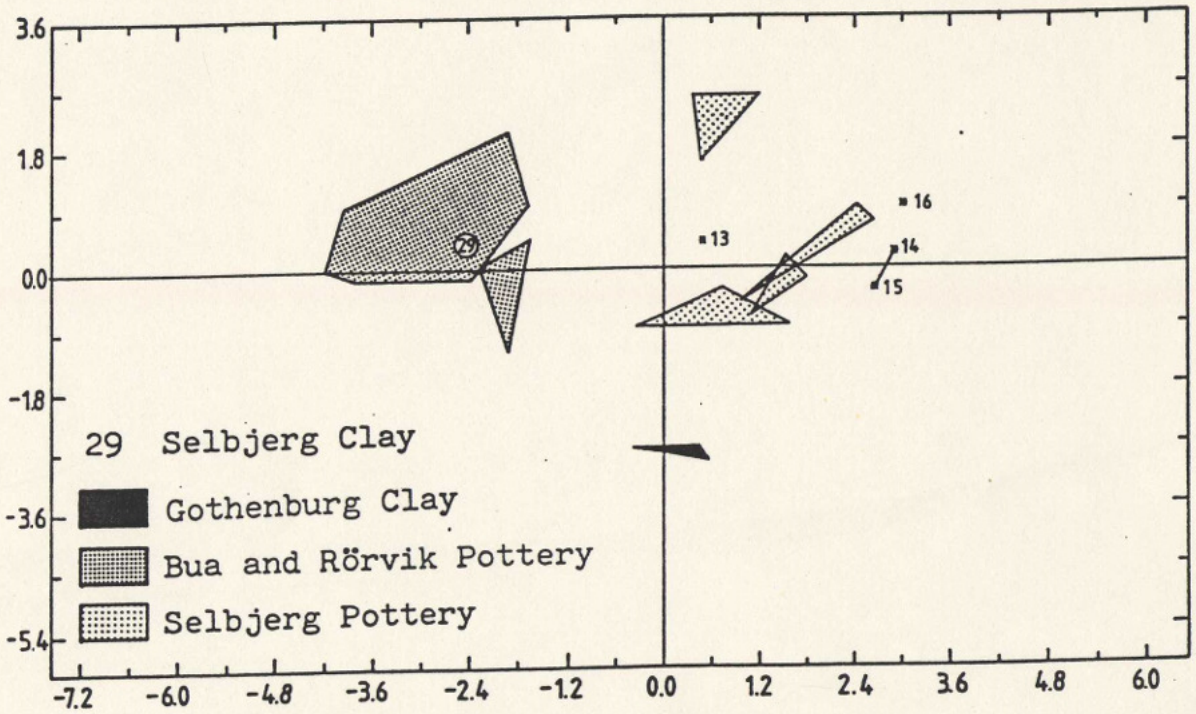

Fig. 4 Plot of the first two canonical Variates.

THE SELBJERG PROJECT: INVESTIGATION OF NEOLITHIC POTTERY BY MEANS OF NEUTRON ACTIVATION ANALYSIS

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1. Introduction

The aim of this project is to discuss certain aspects within the Neolithic cultures of Southern Scandinavia. This is certainly most often attempted mainly using archaeological methods but in the present case neutron activation analysis was supposed to be the more usable technique. Working for instance with pottery and clay samples from a certain Neolithic site neutron activation analysis might be able to tell, whether the pottery found was made locally at the site, or brought there from elsewhere. Now, if the pottery turned out not to have been made locally, this in connection with other information might indicate that the site was only visited part of the year when hunting and fishing took place. During other parts of the year the inhabitants would live at a more stationary site, where farming was practised - and the pottery made.

2.1. The Selbjerg site

A site where such an economic model could be tested is the Stone Age site at Selbjerg, Northern Jutland, excavated and published by Marseen (1953). During the Neolithic the site was situated on a small island 6-7 m above present day sea level, which in this area corresponds to the Litorina Maximum (Mertz 1924). Much could be said about the site itself;

it is a kitchen midden with interesting archaeological and faunal remains but a rather complicated stratification. To enter into details on such topics lies outside the scope of the present study, where we shall concentrate on the pottery. In fact, this pottery is the main reason why the Selbjerg site was chosen to be tested according to the model briefly outlined above. We here have pottery belonging to the Funnel Necked Beaker Culture, the Pitted Ware Culture and the Battle Axe Culture, that is, the three cultures constituting the Middle Neolithic of Southern Scandinavia. The pottery in question roughly belongs to the first half of the third Millennium B.C. according to calibrated ^{14}C - datings.

2.2. The West Swedish material

Thanks to the co-operation with Jan Eric Sjöberg from the Gothenburg Archaeological Museum it has also been possible to have material analysed from the Swedish West Coast. Thus there are pottery samples from the site at Bua, which belongs to the Pitted Ware Culture (Niklasson 1962). Other samples of pottery were put at our disposal from the well known Pitted Ware Culture site at Rörvik (Janson 1936) as well as a clay sample dug in the modern city of Gothenburg.

2.3. The neutron activation analysis

Already in 1977 the National Museum had accepted that samples were taken from the Selbjerg pottery to be analysed, but it was not until 1980 that this was actually done by Vagn Mejdahl. This year the Danish Research Council for the Humanities agreed to pay for the analysis, and at the same time the material was forwarded from the Gothenburg Archaeological Museum. The neutron activation analysis and the subsequent computer process were undertaken by Leif Højslet Christensen at the Risø National Laboratory. We shall not enter into details with regard to the methods employed, but information about the procedure can be found in Christensen et al. (1982) with further references.

2.4. Survey of the samples analysed

For the sake of good order a survey of the samples which have been analysed is given below. The indication "SE" followed by a figure refers to the special numbering of the finds from the Selbjerg site at the National Museum:

SELBJERG	3 samples from a large part of an ornamented vessel belonging to the Funnel Necked Beaker Culture (SE 97)
-	2 samples from a clay disc belonging most probably to the Funnel Necked Beaker Culture (SE 231)
-	3 samples from a large part of an ornamented vessel belonging to the Pitted Ware Culture (SE 116)
-	3 samples from a large vessel without ornaments belonging to the Battle Axe Culture (SE 8)
-	3 samples from a large part of an ornamented vessel, "short wave moulding", belonging to the Battle Axe Culture (SE 2)
-	1 sample from a rim sherd with ornaments belonging to the Battle Axe Culture (SE 2o3 and 228)
-	1 sample from a rim sherd decorated with nail impressions, belonging to the Battle Axe Culture (SE 1o)
-	1 sample of clay dug in the field behind the site
BUA	3 samples from potsherds belonging to the Pitted Ware Culture (GAM 54687, ruta 16)
RÖRVIK	6 samples from potsherds belonging to the Pitted Ware Culture (GAM 55436-37, ruta g 1o - h 1o)
GOTHENBURG	3 samples from clay dug in the city
RISØ	2 samples from clay - Risø standard clay, not used in the statistical analysis
TOTAL	31 samples

3. Data analysis

In this section is described a statistical analysis of the data. Due to the limited number of observations an exploratory data analytic approach has been chosen. The analysis comprises hierarchical cluster analyses, factor analysis and stepwise discriminant analyses. The computations were done by means of software from the statistical packages BMDP and SAS.

In all 29 samples were given, and - as mentioned earlier - the contents of 16 elements were determined. The concentrations were standardized at Risø National Laboratory. The means, standard deviations and correlations found from the 29 samples are given in table 1. It must be emphasized that the figures given in table 1 reflect as well the, say natural correlation between the elements, and the co-variation between samples from different sites. Many of the high correlations seem, however, to be due to chemical relatedness like e.g. in the lanthanide series and the elements from the first transition group ('iron' group). This matter is discussed further in subsection 3.2.

3.1. Hierarchical cluster analysis

Hierarchical cluster analyses (see e.g. Sokal & Sneath (1963)) are done in order to investigate whether a multivariate dataset reveals hierarchical structure. The samples themselves follow a hierarchy in an obvious way as for instance

Location → artifact → samples.

If there is a connection between the element concentrations and the origin of the samples it should be possible to find a structure as the one given above in the data. In a hierarchical cluster analysis samples are amalgamated one at a time to already existing clusters according to a distance measure. This will possibly result in a dendrogram or tree revealing the relevant structure in the data. In the present study several measures of distance were used, but only results from applying the euclician distance

$$d_e(\underline{x},y) = \sqrt{\sum_i (x_i - y_i)^2}$$

will be reported. The linking of the clusters were done with a single link algorithm. The resulting tree is given in figure 2.

It is seen that the samples form a tree that is consistent with most of the known structure. The samples from Kville are amalgamated in a single cluster, likewise with the Gothenburg clay and all the multisample artifacts from Selbjerg except for SE 8 (samples 1, 2 and 3) which are not connected with the tree until late in the clustering procedure. One should emphasize that the Gothenburg clay at first is combined with Selbjerg ceramics and then later with the West Swedish ceramics. The Selbjerg clay is the last sample that enters the tree. Therefore there seem to be very little similarity between the clay samples and the ceramics found at the respective sites.

3.2. Factor analysis

In order to transform the multivariate, correlated data into a set of independent variates one can use different types of factor analysis, see e.g. Harman (1967). These are basicly eigen analyses of the correlation or the covariance matrix of the observations. Since the variates analysed here do not have a canonical range of variation the natural types of analysis are based on the correlations. In table 2 we show the results of an unrotated and of a VARIMAX rotated analysis. With 5 factors retained we explain 87.0% of the total variation in the data. The factor loadings in the table can be interpreted as correlations and the factors. This can be utilized in the interpretation of the factors. We shall briefly do so for the first three factors. The first is obviously characterized by having big correlations with the lanthanides. The second has big correlations with the first transition group - the iron metals - and the third has positive correlation with some alkali metals and barium and negative with Fe, Co (and Sc, Cr; this does not follow from the table, where correlations smal-

ler (in absolute value) than .25 have been truncated to 0). In short the factors show high values for

Factor 1: high values of lanthanides
Factor 2: high values of iron metals
Factor 3: high values of alkali metals combined with low values of iron metals

In figure 3 we have shown plots of the values of the 1st and 2nd, the 1st and 3rd, and the 2nd and 3rd factor scores for the 29 samples. The best separation between the artifacts are obtained in the plot of the 2nd and 3rd factors. The lanthanides do not separate very well between the samples. From the plot it again follows that the multisample artifacts and the clay samples group very nicely, but there is no immediate connection between the clay samples and ceramic samples. If one should conclude then the Gothenburg clay is more similar to some of the SE ceramics than it is to the West Swedis ceramics.

3.3. Discriminant analyses

In the previous analyses no structure between the samples were used. In the discriminant analysis (see e.g. Anderson (1958)) we consider the 4 populations

1: Selbjerg Ceramics (samples 1-16)
2: West Swedish Ceramics (samples 17-25)
3: Gothenburg Clay (samples 26-28)
4: Selbjerg Clay (sample 29) ,

and we want to see whether the 16 variables discriminate between those. If so, we furthermore want to establish which variables are the best discriminators.

Since there is only one sample in population 4 (Selbjerg clay) it is not used in the determination of the discriminant functions. The stepwise discriminant analysis program BMDP7M from the BMDP-package was used. The total number of variables allowed to enter was put as low as 5 in order to avoid overfil-

ting. The F-values in step 0 is given in table 3 for all variables. The variables are ordered according to this value. This gives an ordering of the elements with respect to discriminative power. We see that the elements from the 1st transition group (iron metals) are by far the best individual discriminators. They are, however, strongly correlated wherefore not all of them are chosen in the stepwise procedure. The other variables entered are alkali metals (Cs, Rb) and Yb (a lanthanide). We see that the three first factors from section 3.2 are represented. In table 4 we have the F-matrix for tests for equality of group means. We find the greatest dissimilarity between Selbjerg ceramics and West Swedish ceramics. Furthermore Gothenburg clay seems to be a little bit more related to the Selbjerg ceramics than to the West Swedish ceramics. In table 5 we have given the jackknifed Mahalanobis distances from each case to the centroids of each group. The term jackknifed means that the particular sample for which the distance is determined is not used in the estimation of the relevant parameters. Again we see an almost perfect consistency. The only sample that is not closest to its 'own' group centroid is sample no. 5 from SE 116. It has smaller distance to as well Gothenburg clay as ceramics. In figure 4 is shown the projection of the samples on the plane determined by the first two canonical variates, i.e. the plane that separates the groups most. Again we see that the individual artifacts cluster relatively well, and again there is no obvious connection between the clay samples and either of the ceramic groups.

4. Conclusion

The statistical analysis has made it possible to put forward some archaeological conclusions. First of all the different statistical methods employed have resulted in a clustering of the samples, which is in accordance with the archaeological grouping. Furthermore, the analysis cannot support the idea that the Pitted Ware vessel from Selbjerg was imported from Western Sweden.

The most interesting result is, however, that none of the Selbjerg pottery seems to have been made of local clay, since this differs much from the clay used to make the Selbjerg pottery. This observation would be in accordance with the model about seasonal sites put forward in the introduction. Thus the Selbjerg site was only visited during short periods of the year when collecting shellfish, seal hunting and hunting birds of passage took place, as it is also reflected in the faunal remains. Bones from such domesticated species as cow and pig are also found, however. Maybe they were brought live to the island in the summer when collecting shellfish took place. Due to the find circumstances it is unfortunately not possible to associate any of the three cultures in question with a certain activity, or parts of the faunal remains within the site. There is, however, reason to believe that the economy within the Funnel Necked Beaker Culture and the Battle Axe Culture would have been almost the same. Thus agriculture within these two cultures must have taken place elsewhere at a more stationary site - where also the pottery was made. At least the size of the island where the Selbjerg site was situated was only 5 km^2, and it could hardly be inhabited for a longer period by a Neolithic population.

More could be said about such economic models though it should be noted that the Pitted Ware Culture is rather tricky in this respect, since the economy within this culture differs from region to region (Nielsen 1979). Yet, attention should be drawn to Kaelas (1973) who has discussed the

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SVEND NIELSEN

SNI17 SNI1

IRR. RG216

GAM 54687
Gropkeramik från Bua

		CONC.		ST.DEV		UP.LIMIT	
NA	11	1.320	%	4.23	%		
K	19					.000	
CA	20					.000	
SC	21	11.100	PPM	2.64	%		
CR	24	53.000	PPM	5.43	%		
MN	25					.000	
FE	26	5.010	%	3.07	%		
CO	27	8.840	PPM	6.99	%		
ZN	30	210.000	PPM	11.80	%		
GA	31					.000	
AS	33	4.510	PPM	45.45	%		
SE	34					3.160	PPM
BR	35					3.350	PPM
RB	37	172.000	PPM	9.64	%		
SR	38					208.000	PPM
ZR	40					245.000	PPM
MO	42					.000	
AG	47					3.900	PPM
CD	48					.000	
SN	50					400.000	PPM
SB	51	.158	PPM	93.70	%		
CS	55	5.500	PPM	7.87	%		
BA	56	316.000	PPM	17.70	%		
LA	57	89.600	PPM	2.96	%		
CE	58	183.000	PPM	2.90	%		
PR	59					540.000	PPM
ND	60	68.100	PPM	18.28	%		
SM	62	11.700	PPM	4.55	%		
EU	63	1.620	PPM	11.72	%		
TB	65	1.420	PPM	32.61	%		
DY	66					68.100	PPM
HO	67					.000	
YB	70	3.660	PPM	6.13	%		
LU	71	.518	PPM	6.87	%		
HF	72	5.510	PPM	4.90	%		
TA	73	1.340	PPM	34.77	%		
W	74					11.200	PPM
AU	79	4.970	PPB	99.00	%		
HG	80	1.840	PPM	54.08	%		
TH	90	27.300	PPM	3.05	%		
U	92	17.400	PPM	31.23	%		

SVEND NIELSEN

SNI18 SNI1

IRR. RG216

GAM 54687
Gropkeramik från Bua

		CONC.		ST.DEV		UP.LIMIT	
NA	11	1.450	%	4.18	%		
K	19					.000	
CA	20					.000	
SC	21	11.500	PPM	2.65	%		
CR	24	62.800	PPM	5.17	%		
MN	25					.000	
FE	26	6.210	%	3.00	%		
CO	27	9.940	PPM	6.86	%		
ZN	30	134.000	PPM	9.29	%		
GA	31					.000	
AS	33	5.410	PPM	39.42	%		
SE	34					3.400	PPM
BR	35					3.470	PPM
RB	37	175.000	PPM	10.21	%		
SR	38					225.000	PPM
ZR	40					265.000	PPM
MO	42					.000	
AG	47					4.220	PPM
CD	48					.000	
SN	50					475.000	PPM
SB	51					.372	PPM
CS	55	4.470	PPM	9.66	%		
BA	56	728.000	PPM	11.38	%		
LA	57	72.400	PPM	3.08	%		
CE	58	147.000	PPM	3.05	%		
PR	59					570.000	PPM
ND	60	52.400	PPM	27.14	%		
SM	62	11.200	PPM	4.17	%		
EU	63	1.950	PPM	10.97	%		
TB	65	1.270	PPM	39.27	%		
DY	66					71.900	PPM
HO	67					.000	
YB	70	3.770	PPM	6.25	%		
LU	71	.550	PPM	6.70	%		
HF	72	6.660	PPM	4.65	%		
TA	73	.427	PPM	99.00	%		
W	74					11.600	PPM
AU	79					.013	PPM
HG	80	.739	PPM	99.00	%		
TH	90	13.200	PPM	3.74	%		
U	92	12.500	PPM	46.68	%		

SVEND NIELSEN

SNI19 SNI1

IRR. RG216

GAM 54687
Gropkeramik från Bua

		CONC.		ST.DEV		UP.LIMIT	
NA	11	1.600	%	4.02	%		
K	19					.000	
CA	20					.000	
SC	21	11.600	PPM	2.64	%		
CR	24	50.600	PPM	5.69	%		
MN	25					.000	
FE	26	5.270	%	3.06	%		
CO	27	8.190	PPM	7.50	%		
ZN	30	149.000	PPM	15.79	%		
GA	31					.000	
AS	33	4.120	PPM	50.89	%		
SE	34					3.330	PPM
BR	35					3.430	PPM
RB	37	214.000	PPM	8.47	%		
SR	38					215.000	PPM
ZR	40					253.000	PPM
MO	42					.000	
AG	47					4.030	PPM
CD	48					.000	
SN	50					416.000	PPM
SB	51					.371	PPM
CS	55	5.160	PPM	8.41	%		
BA	56	434.000	PPM	12.95	%		
LA	57	79.000	PPM	3.03	%		
CE	58	162.000	PPM	2.98	%		
PR	59					565.000	PPM
ND	60	66.400	PPM	19.27	%		
SM	62	12.100	PPM	4.55	%		
EU	63	1.740	PPM	11.37	%		
TB	65	1.390	PPM	34.09	%		
DY	66					70.600	PPM
HO	67					.000	
YB	70	3.790	PPM	6.01	%		
LU	71	.591	PPM	6.47	%		
HF	72	6.950	PPM	4.47	%		
TA	73	1.240	PPM	38.62	%		
W	74					11.500	PPM
AU	79					.013	PPM
HG	80	2.160	PPM	47.12	%		
TH	90	29.600	PPM	3.03	%		
U	92	16.400	PPM	34.14	%		

SVEND NIELSEN

SNI20 SNI2

IRR. RG216

Gropkeramik från Rörvik

		CONC.		ST.DEV		UP.LIMIT	
NA	11	1.770	%	3.64	%		
K	19					.000	
CA	20					.000	
SC	21	9.870	PPM	2.64	%		
CR	24	39.900	PPM	5.78	%		
MN	25					.000	
FE	26	2.920	%	3.32	%		
CO	27	8.940	PPM	6.25	%		
ZN	30	131.000	PPM	7.86	%		
GA	31					.000	
AS	33					3.790	PPM
SE	34					2.640	PPM
BR	35					2.800	PPM
RB	37	259.000	PPM	6.54	%		
SR	38	64.700	PPM	99.00	%		
ZR	40					209.000	PPM
MO	42					.000	
AG	47	7.260	PPM	46.25	%		
CD	48					.000	
SN	50					339.000	PPM
SB	51					.299	PPM
CS	55	4.350	PPM	8.29	%		
BA	56	757.000	PPM	9.22	%		
LA	57	62.900	PPM	3.04	%		
CE	58	121.000	PPM	3.00	%		
PR	59					459.000	PPM
ND	60	45.600	PPM	22.59	%		
SM	62	9.340	PPM	4.52	%		
EU	63	1.370	PPM	11.59	%		
TB	65	1.230	PPM	31.68	%		
DY	66					57.300	PPM
HO	67					.000	
YB	70	4.640	PPM	4.90	%		
LU	71	.581	PPM	5.60	%		
HF	72	5.820	PPM	4.43	%		
TA	73	2.120	PPM	19.72	%		
W	74					9.440	PPM
AU	79					.010	PPM
HG	80					.867	PPM
TH	90	24.200	PPM	3.02	%		
U	92	11.200	PPM	39.76	%		

SVEND NIELSEN

SNI21 SNI2

IRR. RG217

		CONC.		ST.DEV		UP.LIMIT	
NA	11	1.750	%	3.73	%		
K	19					.000	
CA	20					.000	
SC	21	10.700	PPM	2.67	%		
CR	24	46.500	PPM	6.02	%		
MN	25					.000	
FE	26	3.180	%	3.43	%		
CO	27	10.100	PPM	6.14	%		
ZN	30	132.000	PPM	8.41	%		
GA	31					.000	
AS	33					3.960	PPM
SE	34					2.880	PPM
BR	35					2.920	PPM
RB	37	264.000	PPM	7.87	%		
SR	38					203.000	PPM
ZR	40					243.000	PPM
MO	42					.000	
AG	47					3.690	PPM
CD	48					.000	
SN	50					378.000	PPM
SB	51	.187	PPM	69.90	%		
CS	55	6.030	PPM	6.44	%		
BA	56	624.000	PPM	12.13	%		
LA	57	63.600	PPM	3.06	%		
CE	58	130.000	PPM	3.10	%		
PR	59					481.000	PPM
ND	60	41.600	PPM	27.94	%		
SM	62	9.010	PPM	4.73	%		
EU	63	1.400	PPM	12.17	%		
TB	65	1.100	PPM	40.21	%		
DY	66					60.100	PPM
HO	67					.000	
YB	70	3.940	PPM	9.81	%		
LU	71	.474	PPM	6.32	%		
HF	72	5.580	PPM	4.93	%		
TA	73	1.510	PPM	29.77	%		
W	74					9.900	PPM
AU	79					.011	PPM
HG	80	1.260	PPM	63.53	%		
TH	90	24.300	PPM	3.18	%		
U	92	4.040	PPM	99.00	%		

Gropkeramik från Rörvik

SVEND NIELSEN

SNI22 SNI2

IRR. RG217

		CONC.		ST.DEV		UP.LIMIT	
NA	11	1.660	%	3.76	%	.000	
K	19					.000	
CA	20						
SC	21	9.390	PPM	2.69	%		
CR	24	44.500	PPM	6.07	%	.000	
MN	25						
FE	26	2.920	%	3.47	%		
CO	27	8.510	PPM	6.61	%		
ZN	30	110.000	PPM	9.22	%		
GA	31					.000	
AS	33					3.840	PPM
SE	34					2.850	PPM
BR	35					2.810	PPM
RB	37	293.000	PPM	7.11	%		
SR	38	92.000	PPM	92.47	%		
ZR	40	206.000	PPM	89.61	%		
MO	42					.000	
AG	47	4.150	PPM	38.53	%		
CD	48					.000	
SN	50					364.000	PPM
SB	51	.204	PPM	62.06	%		
CS	55	4.650	PPM	7.11	%		
BA	56	964.000	PPM	8.49	%		
LA	57	54.900	PPM	3.12	%		
CE	58	105.000	PPM	3.25	%		
PR	59					464.000	PPM
ND	60	38.300	PPM	28.92	%		
SM	62	7.340	PPM	5.23	%		
EU	63	1.290	PPM	12.41	%		
TB	65	.958	PPM	43.55	%		
DY	66					57.700	PPM
HO	67					.000	
YB	70	3.300	PPM	11.40	%		
LU	71	.397	PPM	7.15	%		
HF	72	5.020	PPM	5.07	%		
TA	73	1.150	PPM	36.42	%		
W	74					9.550	PPM
AU	79					.010	PPM
HG	80					.984	PPM
TH	90	19.800	PPM	3.31	%		
U	92	3.110	PPM	99.00	%		

Gropkeramik
från Rörvik

SVEND NIELSEN
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SNI23 SNI2
****

IRR. RG217
****

Grop keramik från Rörvik

		CONC.		ST.DEV		UP.LIMIT	
NA	11	1.490	%	4.10	%		
K	19					.000	
CA	20					.000	
SC	21	12.400	PPM	2.66	%		
CR	24	52.200	PPM	5.89	%		
MN	25					.000	
FE	26	3.730	%	3.34	%		
CO	27	11.200	PPM	5.99	%		
ZN	30	139.000	PPM	8.46	%		
GA	31					.000	
AS	33					4.460	PPM
SE	34					3.190	PPM
BR	35					3.240	PPM
RB	37	230.000	PPM	9.04	%		
SR	38	85.800	PPM	99.00	%		
ZR	40					257.000	PPM
MO	42					.000	
AG	47	6.390	PPM	58.41	%		
CD	48					.000	
SN	50					407.000	PPM
SB	51	.384	PPM	39.07	%		
CS	55	5.160	PPM	7.12	%		
BA	56	851.000	PPM	10.28	%		
LA	57	67.600	PPM	3.07	%		
CE	58	139.000	PPM	3.14	%		
PR	59					540.000	PPM
ND	60	49.300	PPM	26.12	%		
SM	62	9.620	PPM	4.91	%		
EU	63	1.570	PPM	11.66	%		
TB	65	1.450	PPM	32.83	%		
DY	66					66.900	PPM
HO	67					.000	
YB	70	5.200	PPM	8.91	%		
LU	71	.578	PPM	6.24	%		
HF	72	6.470	PPM	4.73	%		
TA	73	1.860	PPM	25.99	%		
W	74					11.100	PPM
AU	79					.012	PPM
HG	80	1.250	PPM	72.62	%		
TH	90	24.900	PPM	3.22	%		
U	92	3.950	PPM	99.00	%		

SVEND NIELSEN

SNI24 SNI2

IRR. RG217

		CONC.		ST.DEV		UP.LIMIT	
NA	11	1.770	%	3.67	%		
K	19					.000	
CA	20					.000	
SC	21	10.600	PPM	2.67	%		
CR	24	44.700	PPM	6.02	%		
MN	25					.000	
FE	26	3.210	%	3.39	%		
CO	27	10.200	PPM	5.98	%		
ZN	30	143.000	PPM	7.77	%		
GA	31					.000	
AS	33					3.670	PPM
SE	34					2.760	PPM
BR	35					2.680	PPM
RB	37	286.000	PPM	7.31	%		
SR	38	62.300	PPM	99.00	%		
ZR	40					234.000	PPM
MO	42					.000	
AG	47					3.550	PPM
CD	48					.000	
SN	50					364.000	PPM
SB	51					.279	PPM
CS	55	5.440	PPM	7.42	%		
BA	56	647.000	PPM	10.81	%		
LA	57	55.400	PPM	3.09	%		
CE	58	129.000	PPM	3.08	%		
PR	59					455.000	PPM
ND	60	44.300	PPM	23.89	%		
SM	62	7.760	PPM	4.59	%		
EU	63	1.370	PPM	12.07	%		
TB	65	1.160	PPM	37.06	%		
DY	66					56.000	PPM
HO	67					.000	
YB	70	3.370	PPM	9.35	%		
LU	71	.431	PPM	6.27	%		
HF	72	5.930	PPM	4.70	%		
TA	73	1.500	PPM	28.93	%		
W	74					9.210	PPM
AU	79	.012	PPM	37.64	%		
HG	80					.955	PPM
TH	90	23.900	PPM	3.17	%		
U	92	3.960	PPM	99.00	%		

Grop keramik
från Rörrik

SNI25 SNI2

SVEND NIELSEN

IRR. RG217

Gropkeramik från Rörvik

		CONC.		ST.DEV		UP.LIMIT	
NA	11	1.630	%	4.01	%		
K	19					.000	
CA	20					.000	
SC	21	12.500	PPM	2.60	%		
CR	24	53.400	PPM	4.86	%		
MN	25					.000	
FE	26	3.850	%	3.09	%		
CO	27	12.000	PPM	4.85	%		
ZN	30					14.000	PPM
GA	31					.000	
AS	33					4.420	PPM
SE	34					2.250	PPM
BR	35					3.220	PPM
RB	37	252.000	PPM	6.86	%		
SR	38	123.000	PPM	56.99	%		
ZR	40					188.000	PPM
MO	42					.000	
AG	47					2.850	PPM
CD	48					.000	
SN	50					293.000	PPM
SB	51	.075	PPM	99.00	%		
CS	55	5.510	PPM	6.38	%		
BA	56	683.000	PPM	10.12	%		
LA	57	64.800	PPM	3.09	%		
CE	58	138.000	PPM	2.93	%		
PR	59						
ND	60	44.800	PPM	27.49	%	546.000	PPM
SM	62	9.780	PPM	4.77	%		
EU	63	1.570	PPM	2.17	%		
TB	65	1.620	PPM	22.27	%		
DY	66						
HO	67					67.100	PPM
YB	70	5.570	PPM	6.56	%	.000	
LU	71	.618	PPM	5.72	%		
HF	72	6.550	PPM	4.09	%		
TA	73	2.240	PPM	16.72	%		
W	74						
AU	79					11.100	PPM
HG	80					.012	PPM
TH	90	26.600	PPM	2.97	%	.779	PPM
U	92	3.850	PPM	99.00	%		

SVEND NIELSEN
****

SNI26 SNI2
****

IRR. RG218
****

		CONC.		ST.DEV		UP.LIMIT	
NA	11	1.320	%	4.67	%		
K	19					.000	
CA	20					.000	
SC	21	15.300	PPM	2.61	%		
CR	24	69.000	PPM	4.67	%		
MN	25					.000	
FE	26	4.660	%	3.15	%		
CO	27	16.900	PPM	4.74	%		
ZN	30	267.000	PPM	5.52	%		
GA	31					.000	
AS	33	12.900	PPM	19.23	%		
SE	34	.489	PPM	99.00	%		
BR	35					3.710	PPM
RB	37	185.000	PPM	10.36	%		
SR	38	167.000	PPM	99.00	%		
ZR	40					242.000	PPM
MO	42					.000	
AG	47	15.800	PPM	28.19	%		
CD	48					.000	
SN	50					409.000	PPM
SB	51	.286	PPM	54.97	%		
CS	55	7.750	PPM	6.08	%		
BA	56	484.000	PPM	17.33	%		
LA	57	62.100	PPM	3.19	%		
CE	58	119.000	PPM	3.13	%		
PR	59					627.000	PPM
ND	60	39.800	PPM	34.33	%		
SM	62	9.460	PPM	5.05	%		
EU	63	1.570	PPM	13.42	%		
TB	65	1.080	PPM	41.85	%		
DY	66					78.500	PPM
HO	67					.000	
YB	70	3.740	PPM	9.67	%		
LU	71	.492	PPM	6.66	%		
HF	72	4.760	PPM	5.30	%		
TA	73	1.010	PPM	44.30	%		
W	74					12.800	PPM
AU	79	7.860	PPB	71.51	%		
HG	80	1.870	PPM	50.01	%		
TH	90	16.000	PPM	3.53	%		
U	92	6.130	PPM	96.98	%		

Lerprov från Göteborg

SVEND NIELSEN
****

SNI27 SNI2
****

IRR. RG218
****

		CONC.		ST.DEV		UP.LIMIT	
NA	11	1.300	%	4.69	%		
K	19					.000	
CA	20					.000	
SC	21	15.300	PPM	2.62	%		
CR	24	67.400	PPM	4.76	%		
MN	25					.000	
FE	26	4.680	%	3.16	%		
CO	27	16.800	PPM	4.78	%		
ZN	30	135.000	PPM	8.54	%		
GA	31					.000	
AS	33	11.000	PPM	21.63	%		
SE	34					2.850	PPM
BR	35					3.630	PPM
RB	37	188.000	PPM	10.34	%		
SR	38					205.000	PPM
ZR	40					247.000	PPM
MO	42					.000	
AG	47					3.900	PPM
CD	48					.000	
SN	50					415.000	PPM
SB	51	.210	PPM	71.40	%		
CS	55	7.730	PPM	6.15	%		
BA	56	502.000	PPM	16.34	%		
LA	57	59.300	PPM	3.21	%		
CE	58	122.000	PPM	3.12	%		
PR	59					618.000	PPM
ND	60	40.400	PPM	32.87	%		
SM	62	9.070	PPM	5.10	%		
EU	63	1.490	PPM	14.16	%		
TB	65	1.190	PPM	38.71	%		
DY	66					77.000	PPM
HO	67					.000	
YB	70	3.040	PPM	10.79	%		
LU	71	.473	PPM	6.72	%		
HF	72	4.700	PPM	5.38	%		
TA	73	.972	PPM	46.67	%		
W	74					12.600	PPM
AU	79					.012	PPM
HG	80	1.570	PPM	57.35	%		
TH	90	15.800	PPM	3.56	%		
U	92	5.480	PPM	99.00	%		

Lerprov från Göteborg

SVEND NIELSEN

SNI28 SNI2

IRR. RG218

		CONC.		ST.DEV		UP.LIMIT	
NA	11	1.290	%	4.79	%		
K	19					.000	
CA	20					.000	
SC	21	15.800	PPM	2.62	%		
CR	24	71.100	PPM	4.76	%		
MN	25					.000	
FE	26	4.840	%	3.17	%		
CO	27	17.700	PPM	4.79	%		
ZN	30	175.000	PPM	7.42	%		
GA	31					.000	
AS	33	8.930	PPM	26.85	%		
SE	34					3.020	PPM
BR	35					3.720	PPM
RB	37	193.000	PPM	10.57	%		
SR	38	829.000	PPM	25.77	%		
ZR	40					260.000	PPM
MO	42					.000	
AG	47					4.120	PPM
CD	48					.000	
SN	50					438.000	PPM
SB	51	.368	PPM	43.80	%		
CS	55	8.130	PPM	6.16	%		
BA	56	420.000	PPM	19.34	%		
LA	57	60.200	PPM	3.22	%		
CE	58	128.000	PPM	3.13	%		
PR	59					638.000	PPM
ND	60	49.600	PPM	27.71	%		
SM	62	9.140	PPM	5.14	%		
EU	63	1.560	PPM	14.22	%		
TB	65	1.200	PPM	40.42	%		
DY	66					79.100	PPM
HO	67					.000	
YB	70	3.200	PPM	10.13	%		
LU	71	.490	PPM	6.65	%		
HF	72	5.170	PPM	5.27	%		
TA	73	.904	PPM	52.65	%		
W	74					13.000	PPM
AU	79					.012	PPM
HG	80	1.690	PPM	54.32	%		
TH	90	16.800	PPM	3.56	%		
U	92	4.100	PPM	99.00	%		

Lerprov från Göteborg

Göteborg 1980-12-29

Dnr 215/80

Antikvar Svend Nielsen
Miljøministeriet
Fredningsstyrelsen
Amaliegade 13

1256 KÖPENHAMN K
Danmark

Betr överlåtelse av krukskärvor från Bua, Morlanda sn, och Rörvik, Kville sn, Bohuslän

Översänder härmed enligt överenskommelse 3 gropkeramiska skärvor, inv.nr GAM 54687, från stenåldersboplatsen Bua, Morlanda sn (nr 76), Orusts västra härad, Bohuslän (från ruta 16) samt 5 skärvor från boplatsen Rörvik, Kville härad, Kville sn (nr 406), Bohuslän (från ruta g 10 - H 10).

Skärvorna är avsedda för den neutronaktiveringsanalys Ni ämnar företaga.

Dessa två boplatser innehåller ett stort "klassiskt" gropkeramiskt flintmaterial men förhållandevis lite keramik, som dock ser ut att vara ganska enhetlig. Keramikrikare boplatser av gropkeramisk karaktär förefaller här oftast ha stora TRB-inslag, vilket är anledning till att jag valt de ovanstående.

Det bifogade lerprovet är taget i Göteborgs centrum och är alltså inte från de trakter som de bifogade skärvorna härrör från.

Jag kan ej avgöra om leran är sen- eller postglacial, då den hämtats från ett schakt i innerstaden. Jag hoppas dock att det är användbart för Ert ändamål.

Vi är naturligtvis mycket intresserade av att få ta del av de resultat analysen ger och ser fram emot vidare besked.

Med vänlig hälsning

Jan Eric Sjöberg
antikvarie

Separat försändelse: skärvor och lera

Miljøministeriet
Fredningsstyrelsen
Amaliegade 13 · 1256 København K
Telefon (01) 11 95 65

215/80

Dato: den 2. december 1980.

J.nr. F 599-41
(Bedes anført i svarskrivelsen)

Antikvarie Jan Eric Sjöberg
Göteborgs arkeologiska Museum
Norra Hamngatan 14
S-411 14 Göteborg

Jeg har med tak modtaget Göteborgs arkeologiska Museums brev af 28. november d.å. Det ville passe fint, om jeg kunne få tilsendt nogle små skår fra Rörvik og Bua.

Med hensyn til lerprøven kunne den tages fra glacialt ler ved Göteborg, hvis dette er muligt, meget gerne med angivelse på en kortkopi, hvor prøven er taget; på forhånd tak.

Med venlig hilsen,

p.d.v.

Svend Nielsen.

Antikvar Sven Nielsen
Miljöministeriet
Fredningsstyrelsen
Amaliegade 13
København K

80.11.28

Dnr 215/80

Betr. överlåtelse av skärvor av gropkeramik för neutronaktiverings-analys.

Arkeologiska muséet ställer gärna några skärvor till förfogande för den analys Ni avser att utföra, men beträffande det lerprov Ni önskar måste jag be om ett förtydligande.

Skall lerprovet tagas i nära anslutning till fyndplatsen för skärvorna? Detta kan i så fall vålla vissa problem då flera av de större gropkeramiska boplatserna, som vi har keramik ifrån, är funna på ganska stora avstånd från Göteborg.

De boplatser i västsverige med gropkeramiska skärvor som är mest typiska torde vara Rörvik i Kville sn, Bohuslän (publicerad av Sverker Jansson i Göteborgs och Bohusläns Fornminnesförenings tidskrift 1936, sid. 57 ff) samt Bua i Morlanda sn, Bohuslän (publicerad av Nils Niklasson i Studier i Nordisk arkeologi nr 3, Göteborg 1962.)

Jag avvaktar alltså Ert besked beträffande lerprovet innan jag sänder skärvorna.

Med vänlig hälsning

Jan Eric Sjöberg
antikvarie

Miljøministeriet
Fredningsstyrelsen
Amaliegade 13 · 1256 København K
Telefon (01) 11 95 65

Dato: Den 11. november 1980.

J.nr. F 599-41
(Bedes anført i svarskrivelsen)

Arkeologiska Museet
N. Hamngatan 12
Göteborg C

S v e r i g e

215/80

Jeg har i en årrække arbejdet med problemer omkring den grubekeramiske kultur i Norden. Et af de centrale problemer - som ikke er blevet klarlagt - er at få fastslået, hvad der i Danmarks skal forstås ved "grubekeramik". Formodentlig findes der hos os enkelte eksempler på denne keramik; det bedste eksempel er en større skårflage fra Selbjerg, som er afbildet i Beckers artikel i Acta Archaeologica XXV, 1954, fig. 17.

Spørgsmålet er imidlertid, om det ikke her kan dreje sig om et vestsvensk importstykke. For at undersøge dette har jeg fået bevilliget midler til neutronaktiveringsanalyser fra Statens humanistiske Forskningsråd.

Her ville jeg spørge, om det var muligt at få tilsendt ca. 50 gr ler og 3-4 grubekeramiske lerkarskår fra vestsvensk område, materiale, der skulle bruges til sammenligning med det danske.

Jeg håber, at museet i Göteborg kan hjælpe i denne sag. - Jeg vedlægger nogle særtryk af en artikel om grubekeramisk kultur.

Med venlig hilsen,

p.d.v.

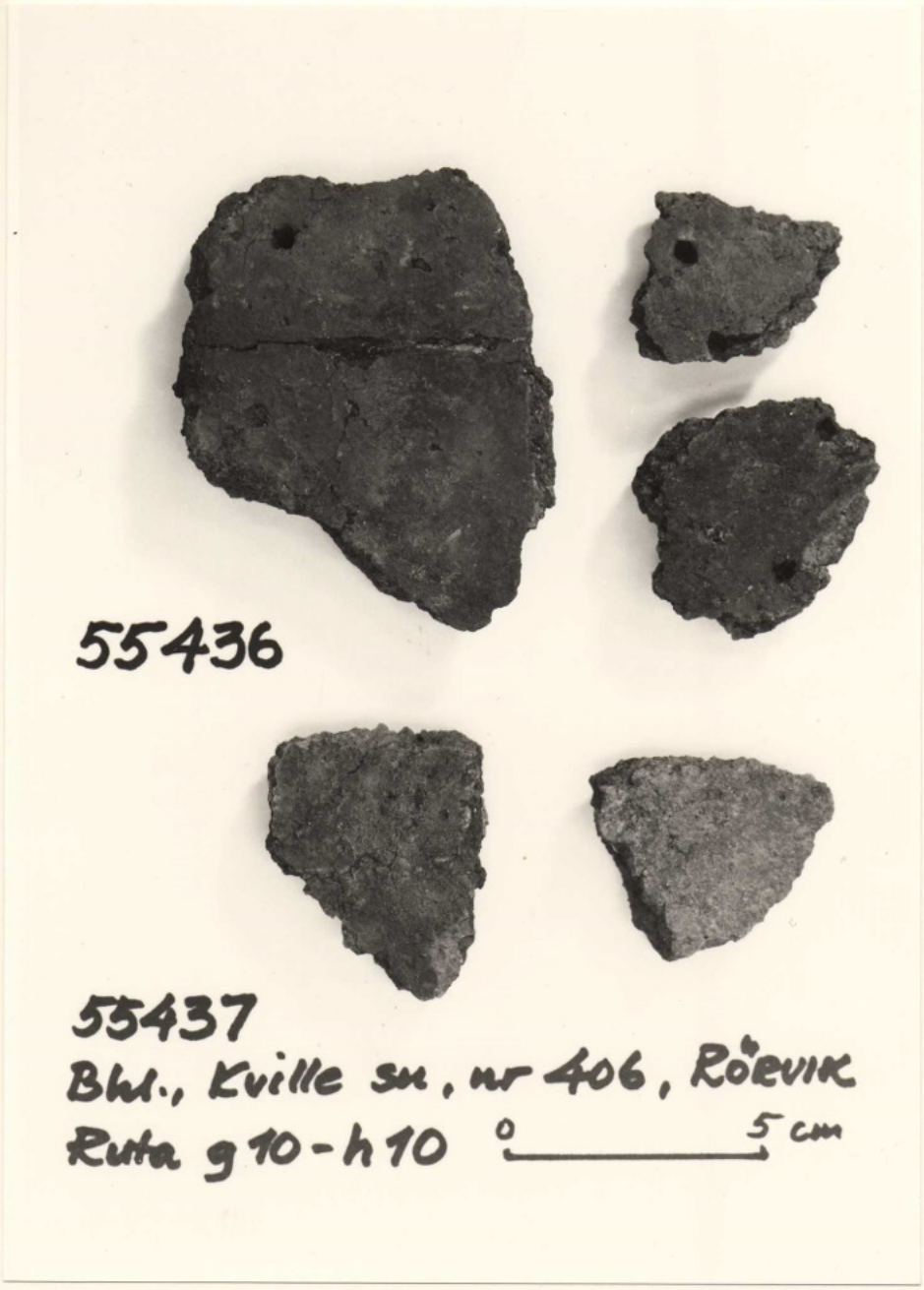
Svend Nielsen.

antikvar

Bilag.

ohuslän
Kville hd
Kville sn, nr 406
Rörvik

Boplf., stå



B 9441

Skärvor överlåtna 80-12-29 till Svend Nielsen, Miljöministeriet, Köpenhamn, för neutronaktiveringsanalys.

Foto L Noord -80.

En blyertsteckning av klubban (inv.nr 51045), som ej kan copy, sänd. 28.8.53. Å.F.

ARKEOLOGISKA MUSEET
GÖTEBORG

Göteborg den 28.8.1953.

Antikvarien Sverker Janson
Riksantikvarieämbetet
Stockholm.

Broder!

Bifogat har du en enkel blyertsritning av den av prof. Indreko efterfrågade "klubban".x/ Den ej avbildade bredsidan är helt lik den som avritats. Tillslagningen mitt på bägge kanterna är alltså icke runtomgående och kan därför ej heller kallas för "skaftränna". Annan formgivning utöver den nämnda finns inte. Ändarna visa ingen tillslagning, så vitt jag kan se inte ens spår av användning. Snarare än som klubba vill jag därför uppfatta redskapet som sänke.

Hälsningar
Å.F.

x/ GAM 51045. GOFFT 1936, Svärdet/ansvn, ~~fig~~. sid 69, fig. 5.

69/53

RIKSANTIKVARIEÄMBETET

Korpla... Ank. 28.8.53.
Rörvik

Fil. lic Åke Fredsjö

Broder!

Vill Du göra mig en tjänst. Indreko undrar om klubban från Rörvik, s. 69 och fig. 5 i min uppsats kan ha haft egg. Jag tror inte detta, men minns ej längre säkert. Vill Du svara mig och göra en enkel profilteckning, så man ser hur det är. Sthlm 27 aug. 1953.

Hälsningar

Sverker Janson

en mitt på bagge kanterna är alltså icke runtomgående och kan därför ej heller kallas för "skafthränna". Annan formgivning utöver den nämnda finns inte. Ändarna visa ingen tillslagning, så vitt jag kan se inte ens spår av användning. Snarare än som klubba vill jag därför uppfatta redskapet som sänke.

Hälsningar

Å. F.

x/ GAM 51045. GDFFT 1936, Sverker Janson, ~~fig.~~ sid 69, fig. 5.

513/60

Till Kulturhistoriska nämnden.

Härmed får arkeologiska museet vördsamt anmäla, att museet under förutsättning av nämndens godkännande fredagen den 21 oktober 1960 utlånar följande föremål under några timmar till Sveriges Radio-Television för användning i program om forntida fiske:

Från stenåldersboplats vid Rottjärnslid i Dragsmarks socken, Bohuslän: 1 fiskkrok av ben, inv.nr 51439 samt ett skal av ostron;

från stenåldersboplats vid Rörvik i Kville socken, Bohuslän: fiskkrokar av ben, färdiga och förarbeten, inv.nr 51127, 51128, 55215, 55397, 55795, samt pilspets av flinta, inv.nr 55264, spånkniv nr 50623 och spånskrapa nr 50491.

Göteborg den 20 oktober 1960.

Carl-Axel Moberg

ark. 11

BOHUSLÄN

Kville hd
Kville sn, 442 (RAÄ)
Rörvik

bopl.fynd, stå

THE SELBJERG PROJEKT: INVESTIGATION OF NEOLITHIC POTTERY BY MEANS OF NEUTRON ACTIVATION ANALYSIS

Svend Nielsen

Analysen omfattar även prov på keramik från
RÖRVIK