

AN ANALYSIS OF THE SERIES X OR WODAN MONSTER SCEATTAS:
SOME IMPLICATIONS FOR TRADE AND EXCHANGE IN THE 8TH CENTURY AD.

BY

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APPENDIX 1

List of Provenanced Finds included in the Analysis. (Fig 9)

1. Ferwerd; 1 coin supposedly found in 1877, regarded as 'dubious' by Op den Velde et al (1984:141).

2. Hallum Hoard; hoard of at least 223 sceattas found in 1866. Included at least 173 of series X. Some 201 coins are now in the Fries Museum in Leeuwarden (L.F.M.), including 155 of series X, 21 of series S.D., 13 series E and 12 English and Merovingian types (Op den Velde et al 1984:141).

3. Bolsward; Supposedly acquired in Bolsward before 1836. Again regarded as 'dubious' (Op den Velde et al 1984:140).

4. Terwispel; hoard of 161 series X sceattas found on the bank of the River Boorn in 1863. No other varieties were present, some 141 are now in the Fries Museum. The coins were badly cleaned after their discovery resulting in the loss of much of the surface detail (Op den Velde et al 1984:142; Bendixen 1981:69). Some 146 coins from Terwispel are included in the analysis.

5. Xanten; single coin discovered in excavations in the Cathedral; probably originally deposited in a grave (Zedelius 1980).

6. Domburg; Almost 1000 sceattas have been found on the beach at Domburg, including 120 of series X (Op den Velde et al 1984:141). These coins are now divided between the collections in the Hague (HPK) and the Museum at Middleburg (MZG). Most are corroded and illegible.
7. Schouwen; one coin said to have been found in 1967. Regarded as 'dubious' by Op den Velde et al 1984:142).
8. Rotterdam; one coin said to have been found during dredging operations, again 'dubious' (Op den Velde et al 1984:142).
9. Dorestad; only 3 series X are reported to have been found at Dorestad (Op den Velde et al 1984:143).
10. Maurik; 2 series X were discovered along with other sceattas and Roman coins in sand and gravel dredged out of the Rhine (Op den Velde 1982).
11. Cimiez; two coins of series X from the Cimiez hoard were illustrated by Le Gentilhomme (1943). One of these has annulets instead of crosses and is therefore likely to belong to the group of 'insular imitations'. The other appears to be of regular style.
12. Ahus; three series X coins were discovered during

excavations at a site near Ahus in Scania. Two were die duplicates, although of almost pure copper, and in regular style as was the third coin (Callmer 1984; Bendixen 1984).

13 Krinkberg; one coin was found during excavation of a burial mound. It was found in proximity to a hoard of coins of Charlemagne. In 1984 two other series X were found at the same site (not included in the analysis).

14. Haithabu; 2 series X coins have been found, the first during excavations in the South Settlement and the second apparently on the surface inside the walled area (Hatz 1965; Bendixen 1984).

15. Danekirke; 13 Early Medieval coins, including 5 of series X were found during excavations at Danekirke (Bendixen 1981).

16. Ribe; excavations at the Early Medieval site of Ribe produced some 30 sceattas, including 25 series X (Bendixen 1981). More recent excavations have produced a further 30 coins of series X. Unfortunately these were not available for inclusion here.

17. Holmsland Klit; numerous coins of various periods have been found on the beach at this site on the west coast of Jutland. Included is one poorly preserved example of series X.

18. Dunbar; a single coin of series X was found during excavations at Dunbar in Scotland. This is a coin in regular style and is the most northerly find spot in Britain (P.E. Holdsworth pers. comm.).

19. Kent; coin in the British Museum said to have been found on the Isle of Thanet in 1756 (Rigold and Metcalf 1984:260)

20. Hamwic; This Early Medieval trading site has produced some 120 sceattas including 9 of series X. Of these 4 appear to be insular imitations with annulets instead of crosses on the obverse and of poor alloy (Metcalf 1988).

21. Hod Hill; 1 coin of series X has been found on the flanks of Hod Hill along with other sceattas. This is not in regular style and is probably an insular type (Keen 1979; Rigold and Metcalf 1984:252).

22. Wells; a coin with annulets on the obverse was discovered in a grave during excavations at the cathedral (Rodwell 1982).

23. Rotherhithe; a coin of series X was found on the Thames foreshore (Blackburn and Bonser 1987, no. 96).

24. Datchet; one coin found in a garden in Datchet (Metcalf 1976 , pl.I.4; Rigold and Metcalf 1984:250).

25. Tackley; coin now in the Ashmolean Museum (Metcalf 1976)
26. Baldock; 1 coin of regular style (Blackburn and Bonser 1985).
27. Nr Royston; a large number of coins found at this unlocated site including 49 sceattas. There were two coins in an 'English style' which may be early in date (Blackburn and Bonser 1986:76).
28. Nr Thetford; single coin in regular style (Blackburn and Bonser 1985, no. 94).
29. West Stow; coin found during excavations at Anglo Saxon village site. It is similar to, but cruder in style than, the coins from Royston (Rigold and Metcalf 1984:265; Blackburn and Bonser 1986).
30. Osbournby; single find in regular style but corroded (Rigold and Metcalf 1984:257; Blackburn and Bonser 1985,no.96).

APPENDIX 2

List of Collections and Abbreviations in Appendices.

The vast majority of the coins used in the analysis are from three major collection in Holland;

HPK; This is the Koninklijk Penningkabinet, which was formerly in the Hague but which has since been moved to Leiden. This contains many of the coins from the Marie de Man collection of coins from Domburg as well as early finds from Dorestad and part of the Franeker hoard (Op den Velde et al 1984:144).

LFM. This is the collection in the Fries Museum in Leeuwarden which contains the coins from Hallum Terwispel and the rest of the coins from Franeker.

MZG. Zeeuws Museum, Middleburg. Most of the coins in the collection probably originated from Domburg but also probably includes coins from other sites in Zeeland. Coins came from various collectors including Van Rede and Bogaert (Op de Velde et al 1984:145).

For other coins in the analysis a collection is given when known, or if not, then some reference to a publication is given so that all the coins listed should be locatable either from this information or from the provenance. A number of collections and abbreviations are explained below.

There are coins of series X illustrated in a number a volumes of the Sylloge of Coins of the British Isles:

AMERICAN COLL; SCBI 30 Ancient British, Anglo-Saxon and Norman coins in American Collections (Brady 1982)

BERLIN; SCBI 36 Anglo-Saxon, Anglo-Norman and Hiberno-Norse coins in State Museum Berlin Coin Cabinet (Kluge 1987).

FITZWILLIAM; SCBI, Fitzwilliam Museum Cambridge, part1. Ancient British and Anglo Saxon Coins (Grierson 1958).

HUNTERIAN; SCBI, Hunterian and Coates Collections, University of Glasgow (Robertson 1961).

NORWEB; SCBI 16, Collection of Ancient British and English Coins formed by Mrs E.M. Norweb. (Blunt et al 1971).

Other abbreviations include:

BBR; Cabinet de Medailles Bibliotheque Royale de Belgique

LBM; British Museum

LIHA; Leiden Institute for the History of Art. A number of coins are in the collections including two from Terwispel. Information on these was obtained from Dr W. Op den Velde.

PBN; Paris Bibliotheque Nationale.

Otherwise the location of coins should be clear from

their provenance. Appendix 1 and fig 9 should also be consulted.

APPENDIX 3

HALLUM: SERIES X BY REVERSE GROUP

Reverse Die	Obverse Die	Collection Number	Weight
?	?	LFM141	1.08
?	Ca?	LFM236	0.89
?	?	LFM141	1.08
?	?	LFM142	1.14
?	?	LFM144	1.10
?	?	LFM146	1.34
?	?	LFM147	1.35
?	?	LFM207	1.11
?	?	LFM209	1.27
?	B?	LFM214	1.71
?	?	LFM225	1.15
?	?	LFM241	1.16
?	?	LFM302	1.17
a01	A01	LFM391	1.10
a02	A02	LFM300	1.09
b01	B01	LFM303	0.92
c01	Ca15	LFM248	1.12
c01	Ca15	LFM169	1.08
c02	Cc01	LFM233	0.96
c02	Cc02	LFM228	1.05
c02	Cc?	LFM150	1.04
c03	Cc11	LFM212	1.22
c04	Cc12	LFM406	0.98
c05	Cc05	LFM135	1.23
c06	Cc01	LFM299	1.17
c07	Cc03	LFM213	1.05
c08	Cc04	LFM195	1.09
c09	Cc08	LFM192	0.88
c10	Cc09	LFM156	0.99
c11	Cc10	LFM206	1.22
c12	Cc05	LFM250	1.11
c13	Cc07	LFM167	1.07
c14	Ca16	LFM221	0.99
c15	Ca28	LFM393	1.19
c16	Cc13	LFM178	1.02
c17	Ca18	LFM252	1.07
c18	Cc06	LFM180	1.01
c19	Ca17	LFM143	0.98
c?	Ca21	LFM134	1.09
d01	Cb01	LFM294	1.07
d02	Cb02	LFM217	1.11
d03	Cb03	LFM261	1.16
d04	Cb04	LFM191	1.11
d05	Cb01	LFM239	1.07
d06	Cb05	LFM201	1.03
d07	Cb06	LFM224	1.11
d08	Cb01	LFM185	1.06
d09	Cb07	LFM263	1.03

d10	Ca31	LFM260	1.04
d10	Ca32	LFM139	1.05
d11	Ca24	LFM215	1.12
d12	Ca24	LFM292	1.12
d13	Ca26	LFM189	1.05
d14	Ca24	LFM137	1.09
d15	Ca33	LFM197	0.84
d16	Ca34	LFM154	1.08
d17	Ca30	LFM251	0.74
e01	Ca36	LFM258	1.19
e01	Ca36	LFM402	1.14
e02	Ca36	LFM223	1.09
e02	Ca36	LFM220	1.17
e02	Ca36	LFM238	0.95
e02	Ca36	LFM175	1.13
e03	Ca45	LFM257	0.00
e04	Ca37	LFM184	0.98
e05	Ca38	LFM159	1.22
e05	Ca39	LFM157	1.07
e06	Ca47	LFM403	1.09
e07	Ca44	LFM172	0.00
e08	Ca41	LFM227	1.00
e09	Ca40	LFM187	1.13
e10	Ca43	LFM259	1.08
e11	Ca42	LFM256	1.04
e12	Ca37	LFM253	1.09
e13	Ca46	LFM136	1.14
f01	Ca74	LFM145	1.15
f02	Ca48	LFM186	0.98
f03	Ca27	LFM392	1.16
f04	Ca51	LFM219	1.16
f04	Ca52	LFM138	0.99
f05	Ca?	LFM158	0.97
f05	Ca53	LFM245	1.06
f06	Ca57	LFM173	1.05
f07	Ca55	LFM183	1.10
f07	Ca56	LFM155	1.06
f08	Ca54	LFM231	1.10
f09	Ca49	LFM293	1.19
f09	Ca50	LFM168	1.12
g01	Ca58	LFM226	1.11
g01	Ca59	LFM153	1.10
g01	Ca59	LFM182	1.10
g02	Ca60	LFM229	1.01
g03	Ca61	LFM190	1.05
g04	Ca62	LFM216	1.03
g05	Ca65	LFM234	1.03
g06	Ca66	LFM210	1.00
g07	Ca63	LFM222	1.19
g08	Ca67	LFM199	1.01
g09	Ca64	LFM249	0.78
g?	Ca?	LFM301	0.89
h01	Ca68	LFM297	1.05
h02	Ca69	LFM242	1.09
h03	Ca70	LFM401	1.21
h03	Ca70	LFM198	1.08
h04	Ca71	LFM188	1.22
h04	Ca71	LFM243	1.12

h05	Ca71	LFM230	1.11
h06	Ca72	LFM254	1.01
h07	Ca73	LFM174	1.24
h08	Ca22	LFM181	1.02
i01	Ca12	LFM240	1.04
i02	B14	LFM205	1.06
i02	B14	LFM170	0.92
i02	B14	LFM246	1.08
i02	B02	LFM298	1.05
i02	B03	LFM194	1.15
i02	B04	LFM405	1.17
i02	B05	LFM165	1.16
i03	B09	LFM200	1.12
i04	B11	LFM166	1.07
i05	B13	LFM218	1.02
i05	B13	LFM203	0.97
i06	B?	LFM176	1.02
i07	B09	LFM196	1.01
i08	B07	LFM151	1.10
i09	B12	LFM237	0.95
i10	B10	LFM177	1.11
i11	B08	LFM160	1.09
i12	B06	LFM163	1.40
j01	Ca11	LFM162	1.17
j02	Ca02	LFM291	1.14
j03	Ca20	LFM148	1.12
j04	Ca08	LFM235	1.21
j04	Ca09	LFM161	1.03
j05	Ca04	LFM171	1.09
j06	Ca05	LFM404	1.03
j07	Ca06	LFM247	1.07
j08	Ca07	LFM193	1.11
j09	Ca?	LFM179	1.16
j10	Ca13	LFM149	1.20
j11	Ca03	LFM204	1.13
j12	Ca10	LFM202	1.13
j13	Ca07	LFM211	1.02
j14	Ca14	LFM232	0.98
j15	Ca78	LFM295	1.04
j16	Ca75	LFM262	1.21
j17	Ca01	LFM152	1.16
j?	Ca11	LFM244	0.97
k01	Ca35	LFM255	0.94
l01	Ca23	LFM296	0.99
l02	Ca25	LFM164	1.11
m01	Ca76	LFM394	1.05
m02	Ca77	LFM208	1.43

APPENDIX 4

HALLUM: SERIES X BY OBERSE DIE

Obverse Die	Reverse Die	Collection Number	Weight
?	?	LFM141	1.08
?	?	LFM141	1.08
?	?	LFM142	1.14
?	?	LFM144	1.10
?	?	LFM146	1.34
?	?	LFM147	1.35
?	?	LFM207	1.11
?	?	LFM209	1.27
?	?	LFM225	1.15
?	?	LFM241	1.16
?	?	LFM302	1.17
A01	a01	LFM391	1.10
A02	a02	LFM300	1.09
B01	b01	LFM303	0.92
B02	i02	LFM298	1.05
B03	i02	LFM194	1.15
B04	i02	LFM405	1.17
B05	i02	LFM165	1.16
B06	i12	LFM163	1.40
B07	i08	LFM151	1.10
B08	i11	LFM160	1.09
B09	i07	LFM196	1.01
B09	i03	LFM200	1.12
B10	i10	LFM177	1.11
B11	i04	LFM166	1.07
B12	i09	LFM237	0.95
B13	i05	LFM218	1.02
B13	i05	LFM203	0.97
B14	i02	LFM205	1.06
B14	i02	LFM170	0.92
B14	i02	LFM246	1.08
B?	i06	LFM176	1.02
B?	?	LFM214	1.71
Ca01	j17	LFM152	1.16
Ca02	j02	LFM291	1.14
Ca03	j11	LFM204	1.13
Ca04	j05	LFM171	1.09
Ca05	j06	LFM404	1.03
Ca06	j07	LFM247	1.07
Ca07	j13	LFM211	1.02
Ca07	j08	LFM193	1.11
Ca08	j04	LFM235	1.21
Ca09	j04	LFM161	1.03
Ca10	j12	LFM202	1.13
Ca11	j01	LFM162	1.17
Ca11	j?	LFM244	0.97
Ca12	i01	LFM240	1.04
Ca13	j10	LFM149	1.20

Ca14	j14	LFM232	0.98
Ca15	c01	LFM248	1.12
Ca15	c01	LFM169	1.08
Ca16	c14	LFM221	0.99
Ca17	c19	LFM143	0.98
Ca18	c17	LFM252	1.07
Ca20	j03	LFM148	1.12
Ca21	c?	LFM134	1.09
Ca22	h08	LFM181	1.02
Ca23	l01	LFM296	0.99
Ca24	d11	LFM215	1.12
Ca24	d14	LFM137	1.09
Ca24	d12	LFM292	1.12
Ca25	l02	LFM164	1.11
Ca26	d13	LFM189	1.05
Ca27	f03	LFM392	1.16
Ca28	c15	LFM393	1.19
Ca30	d17	LFM251	0.74
Ca31	d10	LFM260	1.04
Ca32	d10	LFM139	1.05
Ca33	d15	LFM197	0.84
Ca34	d16	LFM154	1.08
Ca35	k01	LFM255	0.94
Ca36	e01	LFM258	1.19
Ca36	e01	LFM402	1.14
Ca36	e02	LFM223	1.09
Ca36	e02	LFM220	1.17
Ca36	e02	LFM238	0.95
Ca36	e02	LFM175	1.13
Ca37	e12	LFM253	1.09
Ca37	e04	LFM184	0.98
Ca38	e05	LFM159	1.22
Ca39	e05	LFM157	1.07
Ca40	e09	LFM187	1.13
Ca41	e08	LFM227	1.00
Ca42	e11	LFM256	1.04
Ca43	e10	LFM259	1.08
Ca44	e07	LFM172	0.00
Ca45	e03	LFM257	0.00
Ca46	e13	LFM136	1.14
Ca47	e06	LFM403	1.09
Ca48	f02	LFM186	0.98
Ca49	f09	LFM293	1.19
Ca50	f09	LFM168	1.12
Ca51	f04	LFM219	1.16
Ca52	f04	LFM138	0.99
Ca53	f05	LFM245	1.06
Ca54	f08	LFM231	1.10
Ca55	f07	LFM183	1.10
Ca56	f07	LFM155	1.06
Ca57	f06	LFM173	1.05
Ca58	g01	LFM226	1.11
Ca59	g01	LFM153	1.10
Ca59	g01	LFM182	1.10
Ca60	g02	LFM229	1.01
Ca61	g03	LFM190	1.05
Ca62	g04	LFM216	1.03
Ca63	g07	LFM222	1.19

Ca64	g09	LFM249	0.78
Ca65	g05	LFM234	1.03
Ca66	g06	LFM210	1.00
Ca67	g08	LFM199	1.01
Ca68	h01	LFM297	1.05
Ca69	h02	LFM242	1.09
Ca70	h03	LFM401	1.21
Ca70	h03	LFM198	1.08
Ca71	h04	LFM188	1.22
Ca71	h04	LFM243	1.12
Ca71	h05	LFM230	1.11
Ca72	h06	LFM254	1.01
Ca73	h07	LFM174	1.24
Ca74	f01	LFM145	1.15
Ca75	j16	LFM262	1.21
Ca76	m01	LFM394	1.05
Ca77	m02	LFM208	1.43
Ca78	j15	LFM295	1.04
Ca?	f05	LFM158	0.97
Ca?	j09	LFM179	1.16
Ca?	?	LFM236	0.89
Ca?	g?	LFM301	0.89
Cb01	d01	LFM294	1.07
Cb01	d08	LFM185	1.06
Cb01	d05	LFM239	1.07
Cb02	d02	LFM217	1.11
Cb03	d03	LFM261	1.16
Cb04	d04	LFM191	1.11
Cb05	d06	LFM201	1.03
Cb06	d07	LFM224	1.11
Cb07	d09	LFM263	1.03
Cc01	c06	LFM299	1.17
Cc01	c02	LFM233	0.96
Cc02	c02	LFM228	1.05
Cc03	c07	LFM213	1.05
Cc04	c08	LFM195	1.09
Cc05	c05	LFM135	1.23
Cc05	c12	LFM250	1.11
Cc06	c18	LFM180	1.01
Cc07	c13	LFM167	1.07
Cc08	c09	LFM192	0.88
Cc09	c10	LFM156	0.99
Cc10	c11	LFM206	1.22
Cc11	c03	LFM212	1.22
Cc12	c04	LFM406	0.98
Cc13	c16	LFM178	1.02
Cc?	c02	LFM150	1.04
*** Total ***			164.18

APPENDIX 5

TERWISPEL: SERIES X BY REVERSE GROUP

Reverse Die	Obverse Die	Collection Number	Weight
?	Ca?	LFM2	1.12
?	?	LFM3	0.72
?	?	LFM6	0.94
?	?	LFM8	1.13
?	Ca?	LFM10	1.03
?	Ca?	LFM11	1.08
?	Ca?	LFM14	0.93
?	Ca?	LFM16	0.67
?	?	LFM17	0.87
?	Ca?	LFM18	0.85
?	Ca?	LFM19	1.17
?	Ca?	LFM20	1.11
?	Ca?	LFM21	1.00
?	C?	LFM24	0.78
?	Ca?	LFM26	1.01
?	C?	LFM27	1.07
?	C?	LFM28	0.99
?	C?	LFM29	1.06
?	C?	LFM31	0.78
?	C?	LFM32	1.06
?	Cb?	LFM33	1.11
?	Ca?	LFM35	0.87
?	Ca?	LFM36	1.20
?	Ca?	LFM38	1.02
?	Ca?	LFM40	1.06
?	Ca?	LFM41	0.75
?	Ca?	LFM42	0.74
?	Ca?	LFM47	0.80
?	C?	LFM53	1.01
?	C?	LFM58	0.93
?	C?	LFM60	1.13
?	Ca?	LFM61	1.17
?	Ca?	LFM66	1.16
?	C?	LFM67	0.92
?	Ca?	LFM75	0.93
?	C?	LFM79	1.07
?	Ca?	LFM82	1.12
?	Ca?	LFM83	1.00
?	Ca?	LFM92	1.18
?	C?	LFM93	1.19
?	?	LFM96	1.18
?	C?	LFM97	1.09
?	C?	LFM98	1.03
?	C?	LFM103	1.12
?	Ca?	LFM108	0.95
?	Ca?	LFM110	0.96
?	Ca?	LFM111	1.06
?	C?	LFM112	1.03

?	C?	FM115	1.05
?	C?	LFM116	1.06
?	C?	LFM117	1.00
?	?	LFM118	0.64
?	Ca?	LFM119	1.06
?	?	LFM120	0.77
?	Ca?	LFM121	1.20
?	Ca?	LFM125	1.06
?	Ca?	LFM127	1.15
?	Ca?	LFM440	1.16
?	Ca?	LFM442	0.96
?	Ca?	LFM445	1.18
?	AB?	LFM446	1.11
?	Ca?	LFM447	1.11
?	C?	LFM448	1.00
D01	F01	LIHA 16	1.04
c07	Cc03	LFM132	1.13
c?	?	LFM5	0.96
c?	Ca?	LFM25	1.05
c?	Ca?	LFM44	0.99
c?	C?	LFM50	0.93
c?	Ca?	LFM51	0.93
c?	Ca?	LFM56	0.93
c?	C?	LFM57	0.86
c?	C?	LFM68	1.19
c?	C?	LFM84	1.09
c?	C?	LFM86	0.55
c?	C?	LFM87	0.91
c?	C?	LFM88	0.68
c?	Ca?	LFM91	1.10
c?	Cc?	LFM100	1.12
c?	Ca?	LFM105	1.23
c?	C?	LFM109	1.01
c?	C?	LFM126	1.10
c?	C?	LFM15	0.88
d?	Ca?	LFM59	1.07
d?	Ca?	LFM62	0.76
d?	Cb?	LFM128	1.04
d?	Cb?	LFM131	1.08
d?	Cb?	LIHA17	0.98
e20	Ca135	LFM4	0.99
e?	Ca?	LFM22	1.11
e?	Ca?	LFM23	1.25
e?	C?	LFM30	0.97
e?	Ca?	LFM34	1.20
e?	Ca?	LFM46	1.05
e?	Ca?	LFM54	1.11
e?	Ca?	LFM63	1.14
e?	C?	LFM70	1.22
e?	Ca?	LFM72	1.20
e?	Ca?	LFM77	1.07
e?	Ca?	LFM94	1.10
e?	C?	LFM99	0.70
e?	Ca?	LFM113	0.82
e?	Ca?	LFM114	1.16
e?	Ca?	LFM123	0.88
e?	Ca?	LFM129	1.23
e?	Ca?	LFM441	1.14

f3?	Ca049?	LFM437	1.00
f?	Ca?	LFM45	0.95
f?	Ca?	LFM48	1.06
f?	Ca?	LFM74	1.11
f?	Ca?	LFM76	0.87
f?	Ca?	LFM80	0.93
f?	C?	LFM89	0.86
f?	Ca?	LFM130	1.06
f?	Ca?	LFM444	1.08
f?j?	Ca?	LFM55	1.04
g?	Ca?	LFM1	1.13
g?	Ca?	LFM9	1.14
g?	Ca?	LFM12	1.09
g?	Ca?	LFM37	1.02
g?	Ca?	LFM39	1.00
g?	Ca?	LFM43	1.23
g?	C?	LFM69	1.07
g?	Ca?	LFM71	1.00
g?	Ca?	LFM78	1.12
h?	Ca?	LFM85	1.04
h?	Ca?	LFM107	1.13
h?	Ca?	LFM124	0.97
i09	B12	LFM101	1.08
i09	B12	LFM109	0.00
i14	B17	LFM438	1.09
i?	B?	LFM7	0.94
i?	B?	LFM13	0.90
i?	B?	LFM52	1.17
i?	B?	LFM95	1.02
i?	?	LFM102	1.00
i?	B?	LFM122	1.02
j?	Ca?	LFM64	1.14
j?	Ca?	LFM73	0.89
j?	Ca?	LFM81	0.94
j?	Ca?	LFM90	1.12
j?	Ca?	LFM104	1.18
j?	Ca?	LFM106	1.13
j?	Ca?	LFM439	1.15
j?	Ca?	LFM443	1.18
k?	Ca?	LFM49	1.17
m03	Ca?	LFM65	1.02
n03	?		0.00
o01	F01	LIHA16	1.04

APPENDIX 6

NON-HOARD COINS OF SERIES X:
BY REVERSE DIE

Reverse Die	Obverse Die	Provenance	Collection	Collec No:	Weight
					0.00
?	C?	DOMBURG	M DE M	HPK417	0.85
?	Ca?	DOMBURG	KLUIT	LIHA11	0.67
?	Ca?	DOMBURG	KLUIT	LIHA12	0.57
?	Ca?	RIBE	RIBE	RB12	0.82
?	C?	RIBE	RIBE	RB14	0.57
?	A05	?	AMERICAN COLL	104	0.72
?	C?	HAMWIC	HAMWIC	117	0.48
?	Ca121	RIBE	RIBE	RB06	0.38
?	?	RIBE	RIBE	RB07	0.28
?	Ca?	DOMBURG	VAN REDE	HPK39	0.00
?	Ca?	DOMBURG	M DE M	HPK399	0.43
?	?	DOMBURG	VAN REDE	HPK401	1.03
?	Ca?	DOMBURG	M DE M	HPK405	0.84
?	Ca?	DOMBURG	M DE M	HPK409	0.53
?	?	DOMBURG	M DE M	HPK407	0.33
?	Ca?	DOMBURG	M DE M	HPK411	0.66
?	Ca?	DOMBURG	M DE M	HPK416	0.33
?	?	DOMBURG	M DE M	HPK413	0.60
?	?	DOMBURG	M DE M	HPK420	0.56
?	?	DOMBURG	M DE M	HPK419	1.04
?	?	DOMBURG	M DE M	HPK422	0.55
?	?	?		HPK17222	0.00
?	Ca?	DOMBURG	M DE M	HPK415	0.43
?	?	DOMBURG	M DE M	HPK400	0.86
?	Ca?	?	M DE M	M76	0.00
?	Ca?	?	M DE M	M76217	0.00
?	?	?	M DE M	M76213	0.00
?	Ca?	?	M DE M	M76212	0.00
?	?	?	M DE M	M76221	0.00
?	?	?		M76220	0.00
?	?	?	M DE M	M76218	0.00
?	?	?	M DE M	M76222	0.00
?	?	?	M DE M	M76228	0.00
?	?	?	M DE M	M76227	0.00
?	?	?	M DE M	M76226	0.00
?	?	?	M DE M	M76225	0.00
?	?	?	M DE M	M76230	0.00
?	?	?		M76329	0.00
?	?	?		M76332	0.00
?	?	?		M76335	0.00
?	Ca?	?	M DE M	M76216	0.00
?	B15	?	M DE M	M76214	0.00
?	?	?	M DE M	M76224	0.00
?	?	?	BOOGAERTS	M76573	0.00
?	?	?		M76642	0.00
?	?	?		M76645	0.00

?	?	?		MZ6646	0.00
?	Ca?	?		MZ6632	0.00
?	?	?	BOOGAERTS	MZ6529	0.00
?	?	?	BOOGAERTS	MZ6518	0.00
?	?	?		MZ6432	0.00
?	?	?		MZ6431	0.00
?	?	?		MZ6438	0.00
?	?	?		MZ6437	0.00
?	?	?		MZ6436	0.00
?	?	?		MZ6440	0.00
?	?	?		MZ6446	0.00
?	?	?		MZ6351	0.00
?	?	?		MZ6424	0.00
?	?	?		MZ6526	0.00
?	Ca130	DORESTAD		LIHA 14	1.12
?	Ca?	DOMBURG		LIHA 12	0.57
?	Ca?	DOMBURG		LIHA 11	0.67
?	?	?	BOOGAERTS	MZ6524	0.00
?	?	NORTH GERMANY		LBM1937	4.70
?	Cd01		ASHMOLEAN	0122	0.00
?	B18	CIMIEZ	BNJ 24	73	0.00
?	Ca?	XANTEN	RLMB		1.13
?	C?	KRINKBERG			0.00
COPY	COPY	?		MZ6505	0.00
COPY	COPY	?	M DE M	MZ6417	0.85
Copy	Copy	DOMBURG	M DE M	HPK417	0.84
P?	A?	ROTHERHITHE	BNJ57	96	1.04
a03	A01	?	LBM	LBM147	0.00
a03	A01	DOMBURG		HPK426	0.54
a04	A03	DOMBURG		HPK424	0.84
a05	A04	?	BOOGAERTS	MZ6523	0.00
a?	Ca?	DOMBURG		MZ6524	0.00
c04	Cc14		BOOGAERTS	MZ6522	0.00
c04	Cc?		BOOGAERTS	MZ6520	0.00
c07	Cc03	DKIRKE	DKIRKE	DK48	0.81
c17	Ca018	DOMBURG	M DE M	HPK410	0.90
c20	Ca104	RIBE	RIBE	RB01	0.46
c21	Cc16			HPK17231	0.00
c22	Cc15			HPK17230	0.00
c23	Ca019	MAURIK	OP DEN VELDE 82	17	1.02
c24	Ca131	THETFORD			1.03
c25	Ca105	DKIRKE	DKIRKE	DK47	0.86
c?	Ca117	DOMBURG		MZ6521	0.00
c?	Ca103	RIBE	RIBE	RB30	0.25
c?	Ca?	RIBE	RIBE	RB09	0.30
c?	Ca?	RIBE	RIBE	RB11	0.71
c?	Ca118	RIBE	RIBE	RB15	0.65
d02	Cb02	?	HUNTERIAN	HC115	0.95
d16	Ca108	?	HUNTERIAN	HC113	1.04
d18	Cb08	HANWIC	HANWIC	116	0.82
d19	Ca086	DOMBURG	M DE M	HPK408	0.71
d20	Ca087	DOMBURG	M DE M	HPK414	0.71
d21	Ca088	DOMBURG	M DE M	HPK397	1.13
d22	Ca089			HPK17241	0.00
d23	Ca?			MZ6631	0.00
d24	Cb?			MZ6633	0.00
d25	Cb09			MZ6330	0.00
d25	Cb09		BOOGAERTS	MZ6527	0.00

d26	Ca?			MZG338	0.00
d27	Ca093	MAURIK		MAURIK16	0.83
d28	Ca098	AHUS		BAR 128	0.95
d28	Ca098	AHUS	AHUS	BAR 128	0.92
d29	Ca090	RIBE	RIBE	RB28	0.63
d30	Ca092		BRUSSELS	BBR30	0.99
d31	Ca133		LBM	LBM150	0.92
d?	Ca?			MZG334	0.00
d?	Ca?			MZG336	0.00
d?	Ca?		BOOGAERTS	MZG528	0.00
d?	Ca?			MZG331	0.00
d?	Ca?			MZG445	0.00
d?	Ca?			MZG435	0.00
d?	Ca?			MZG433	0.00
d?	Ca?			MZG333	0.00
d?	Ca?	DORESTAD			0.69
d?	C?	RIBE	RIBE	RB20	0.34
d?	Ca?	RIBE	RIBE	RB25	0.25
d?	C?	RIBE	RIBE	RB26	0.17
d?	C?	HAMWIC	HAMWIC	119	0.31
d?	Ca?			MZG328	0.00
d?	Ca127	DORESTAD		OPV	0.63
d?	Ca129	DORESTAD	?	OPV1	0.69
d?	Ca?	HEDEBY			0.00
d?	B?		d'AMERCOURT	BEL5776	0.00
e06	Ca119	BALDOCK	BNJ 55	5	1.03
e11	Ca042		BERLIN	31	0.91
e15	Ca083	DOMBURG	M DE M	HPK406	0.90
e15	Ca083		VAN REDE	HPK40	0.00
e16	Ca084	DOMBURG	M DE M	HPK412	0.65
e17	Ca085			HPK17238	0.00
e18	Ca101	RIBE	RIBE	RB04	0.81
e19	DO1	RIBE	RIBE	RB05	0.98
e19	DO1	?	AMERICAN COLL	103	0.92
e20	Ca106	DKIRKE	DKIRKE	DK50	0.65
e20	Ca126	TERWISPEL	DIRKS 1863	LIHA17	0.98
e21	Ca109	?	FITZWILLIAM	FITZ261	1.01
e22	Ca?	DOMBURG	KLUIT	LIHA10	0.72
e23	Ca?		BERLIN	32	0.54
e24	Ca124		LBM	BAR261	1.07
e?	Ca?	RIBE	RIBE	RB29	0.54
f01	Ca097	DOMBURG		HPK404	1.29
f10	Ca79	DOMBURG		MZG341	0.00
f11	Ca116	HAMWIC	HAMWIC	118	0.73
f12	Ca096	DOMBURG		HPK418	1.00
f13	Ca128		BERLIN	30	1.25
f14	Ca134		ASHMOLEAN	0123	1.32
f?	Ca?	RIBE	RIBE	RB19	0.48
g10	Ca081	DOMBURG		HPK421	0.52
g11	Ca080			HPK43	0.00
g12	Ca095			HPK42	1.09
g13	Ca091	DOMBURG	KLUIT	LIHA2	1.13
g13	Ca107	DKIRKE	DKIRKE	DK51	0.61
g14	Ca125		BRUSSELS	BBR29	1.08
g15	Ca100	RIBE	RIBE	RB02	0.86
g16	Ca102	RIBE	RIBE	RB17	0.39
g17	Ca120	HAMWIC	HAMWIC	115	0.92
g18	Ca099	TACKLEY		BNJ 1976	0.83

g19	Ca094	AHUS		BAR 128	1.11
g?	Ca082	DOMBURG		HPK398	0.58
h03	Ca070	DOMBURG		LFM402	0.60
h09	Ca123		LBM	LBM149	1.03
h?	Ca111	?	NORWEB	68	0.51
i13	Ca?	DOMBURG		MZG525	0.00
i15	B16	?	HUNTERIAN	HC114	1.21
i16	B17		LBM	LBM pr1	1.07
i?	C?	RIBE	RIBE	RB27	0.21
i?	B?	DORESTAD	DIRKS		0.00
i?	Ca?	HOLMSLAND KLIT		BAR 128	0.44
i?	B?	DORESTAD	DIRKS 1870	PLE.d	0.00
j02	Ca002	DATCHET		BNJ 1976	1.08
j18	Ca122	DOMBURG	M DE M	HPK403A	0.98
j19	Ca?	RIBE	RIBE	RB16	0.38
j20	Ca132		PBN		0.00
k02	C?	RIBE	RIBE	RB10	0.00
l01	Ca110	?	NORWEB	69	1.23
l01	Ca025	?	VAN REDE	HPK53	0.00
l03	Ca112	?		DE ROEVE	1.10
l04	Ca115	?	AMERICAN COLL	102	1.04
l05	Ca114	?		MZG647	0.00
l?	Ca113	BOLSWARD	V.D.CHJIS		1.10
m03	Ca?	TERWISPEL		LFM65	0.00
n01	E01	DOMBURG	M DE M	HPK427	0.72
n02	Ca?	Dunbar			0.00
n03	Ca?	TERWISPEL	DIRKS 1863		0.00
o01	F02	DKIRKE	DKIRKE	DK49	1.05
o01	F01	TERWIPSEL	LIHA	LIHA16	1.04
o02	F03	DOMBURG	M DE M	HPK423	0.76
o03	E/F01	RIBE	RIBE	RB03	1.01
p02	A02	DOMBURG		HPK403	0.92
p1	A02	?		MZG641	0.00
q01	G01	NR ROYSTON	BNJ 56	42	1.05
q2	G2	ROYSTON	BNJ56	43	0.94
r01	B15	RIBE	RIBE	RB08	0.71
r01	B15	THANET 1796	LBM	LBM148	1.13

APPENDIX 7

NON-HOARD COINS OF SERIES X:
BY PROVENANCE

Reverse Die	Obverse Die	Provenance	Collection	Collec No:	Weight
g11	Ca080			HPK43	0.00
g12	Ca095			HPK42	1.09
d22	Ca089			HPK17241	0.00
d?	Ca?			MZG334	0.00
d?	Ca?			MZG336	0.00
d?	Ca?		BOOGAERTS	MZG528	0.00
d?	Ca?			MZG331	0.00
d?	Ca?			MZG445	0.00
d?	Ca?			MZG435	0.00
d?	Ca?			MZG433	0.00
d23	Ca?			MZG631	0.00
d24	Cb?			MZG633	0.00
d25	Cb09			MZG330	0.00
d25	Cb09		BOOGAERTS	MZG527	0.00
d26	Ca?			MZG338	0.00
d?	Cb09			MZG333	0.00
c04	Cc14		BOOGAERTS	MZG522	0.00
c04	Cc?		BOOGAERTS	MZG520	0.00
c21	Cc16			HPK17231	0.00
c22	Cc15			HPK17230	0.00
e15	Ca083		VAN REDE	HPK40	0.00
e17	Ca085			HPK17238	0.00
d?	Ca?			MZG328	0.00
g14	Ca125		BRUSSELS	BBR29	1.08
d30	Ca092		BRUSSELS	BBR30	0.99
?	?			MZG440	0.00
e11	Ca042		BERLIN	31	0.91
f13	Ca128		BERLIN	30	1.25
e23	Ca?		BERLIN	32	0.54
j20	Ca132		PBN		0.00
d31	Ca133		LBM	LBM150	0.92
e24	Ca124		LBM	BAR261	1.07
h09	Ca123		LBM	LBM149	1.03
i16	B17		LBM	LBM pr1	1.09
d?	B?		d'AMERCOURT	BEL5776	0.00
f14	Ca134		ASHMOLEAN	0123	1.32
?	Cd01		ASHMOLEAN	0122	0.00
d16	Ca108	?	HUNTERIAN	HC113	1.04
d02	Cb02	?	HUNTERIAN	HC115	0.95
i15	B16	?	HUNTERIAN	HC114	1.21
e21	Ca109	?	FITZWILLIAM	FITZ261	1.01
a03	A01	?	LBM	LBM147	0.00
101	Ca110	?	NORWEB	69	1.23
h?	Ca111	?	NORWEB	68	0.51
103	Ca112	?		DE RDEVE	1.10
105	Ca114	?		MZG647	0.00

e19	D01	?	AMERICAN COLL	103	0.92
?	A05	?	AMERICAN COLL	104	0.72
p1	A02	?		MZG641	0.00
a05	A04	?	BOOGAERTS	MZG523	0.00
COPY	COPY	?		MZG505	0.00
?	?	?		HPK17222	0.00
?	Ca?	?	M DE M	MZG	0.00
?	Ca?	?	M DE M	MZG217	0.00
?	?	?	M DE M	MZG213	0.00
?	Ca?	?	M DE M	MZG212	0.00
?	?	?	M DE M	MZG221	0.00
?	?	?		MZG220	0.00
?	?	?	M DE M	MZG218	0.00
?	?	?	M DE M	MZG222	0.00
?	?	?	M DE M	MZG228	0.00
?	?	?	M DE M	MZG227	0.00
?	?	?	M DE M	MZG226	0.00
?	?	?	M DE M	MZG225	0.00
?	?	?	M DE M	MZG230	0.00
?	?	?		MZG329	0.00
?	?	?		MZG332	0.00
?	?	?		MZG335	0.00
?	Ca?	?	M DE M	MZG216	0.00
?	B15	?	M DE M	MZG214	0.00
?	?	?	M DE M	MZG224	0.00
?	?	?	BOOGAERTS	MZG573	0.00
?	?	?		MZG642	0.00
?	?	?		MZG645	0.00
?	?	?		MZG646	0.00
?	Ca?	?		MZG632	0.00
?	?	?	BOOGAERTS	MZG529	0.00
?	?	?	BOOGAERTS	MZG518	0.00
?	?	?		MZG432	0.00
?	?	?		MZG431	0.00
?	?	?		MZG438	0.00
?	?	?		MZG437	0.00
?	?	?		MZG436	0.00
?	?	?		MZG446	0.00
?	?	?		MZG351	0.00
?	?	?		MZG424	0.00
?	?	?		MZG526	0.00
?	?	?	BOOGAERTS	MZG524	0.00
COPY	COPY	?	M DE M	MZG417	0.85
101	Ca025	?	VAN REDE	HPK53	0.00
104	Ca115	?	AMERICAN COLL	102	1.04
g19	Ca094	AHUS		BAR 128	1.11
d28	Ca098	AHUS		BAR 128	0.95
d28	Ca098	AHUS	AHUS	BAR 128	0.92
e06	Ca119	BALDOCK	BNJ 55	5	1.03
1?	Ca113	BOLSWARD	V.D.CHJIS		1.10
?	B18	CIMIEZ	BNJ 24	73	0.00
j02	Ca002	DATCHET		BNJ 1976	1.08
c25	Ca105	DKIRKE	DKIRKE	DK47	0.86
c07	Cc03	DKIRKE	DKIRKE	DK48	0.81
o01	F02	DKIRKE	DKIRKE	DK49	1.05
e20	Ca106	DKIRKE	DKIRKE	DK50	0.65
g13	Ca107	DKIRKE	DKIRKE	DK51	0.61
h03	Ca07D	DOMBURG		LFM402	0.60

g10	Ca081	DOMBURG		HPK421	0.52
g?	Ca082	DOMBURG		HPK398	0.58
f12	Ca096	DOMBURG		HPK418	1.00
f01	Ca097	DOMBURG		HPK404	1.29
f10	Ca79	DOMBURG		MZG341	0.00
c?	Ca117	DOMBURG		MZG521	0.00
i13	Ca?	DOMBURG		MZG525	0.00
a?	Ca?	DOMBURG		MZG524	0.00
?	C?	DOMBURG	M DE M	HPK417	0.85
d19	Ca086	DOMBURG	M DE M	HPK408	0.71
d20	Ca087	DOMBURG	M DE M	HPK414	0.71
d21	Ca088	DOMBURG	M DE M	HPK397	1.13
c17	Ca018	DOMBURG	M DE M	HPK410	0.90
j18	Ca122	DOMBURG	M DE M	HPK403A	0.98
e15	Ca083	DOMBURG	M DE M	HPK406	0.90
e16	Ca084	DOMBURG	M DE M	HPK412	0.65
g13	Ca091	DOMBURG	KLUIT	LIHA2	1.13
e22	Ca?	DOMBURG	KLUIT	LIHA10	0.72
?	Ca?	DOMBURG	KLUIT	LIHA11	0.67
?	Ca?	DOMBURG	KLUIT	LIHA12	0.57
Copy	Copy	DOMBURG	M DE M	HPK417	0.84
a03	A01	DOMBURG		HPK426	0.54
p02	A02	DOMBURG		HPK403	0.92
a04	A03	DOMBURG		HPK424	0.84
o02	F03	DOMBURG	M DE M	HPK423	0.76
?	Ca?	DOMBURG	VAN REDE	HPK39	0.00
?	Ca?	DOMBURG	M DE M	HPK399	0.43
?	?	DOMBURG	VAN REDE	HPK401	1.03
?	Ca?	DOMBURG	M DE M	HPK405	0.84
?	Ca?	DOMBURG	M DE M	HPK409	0.53
?	?	DOMBURG	M DE M	HPK407	0.33
?	Ca?	DOMBURG	M DE M	HPK411	0.66
?	Ca?	DOMBURG	M DE M	HPK416	0.33
?	?	DOMBURG	M DE M	HPK413	0.60
?	?	DOMBURG	M DE M	HPK420	0.56
?	?	DOMBURG	M DE M	HPK419	1.04
?	?	DOMBURG	M DE M	HPK422	0.55
?	Ca?	DOMBURG	M DE M	HPK415	0.43
?	?	DOMBURG	M DE M	HPK400	0.86
?	Ca?	DOMBURG		LIHA 12	0.57
?	Ca?	DOMBURG		LIHA 11	0.67
n01	E01	DOMBURG	M DE M	HPK427	0.72
d?	Ca?	DORESTAD			0.69
i?	B?	DORESTAD	DIRKS		0.00
d?	Ca127	DORESTAD		OPV	0.63
?	Ca130	DORESTAD		LIHA 14	1.12
d?	Ca129	DORESTAD	?	OPV1	0.69
i?	B?	DORESTAD	DIRKS 1870	PLE.d	0.00
n02	Ca?	Dunbar			0.00
g17	Ca120	HAMWIC	HAMWIC	115	0.92
d18	Cb08	HAMWIC	HAMWIC	116	0.82
f11	Ca116	HAMWIC	HAMWIC	118	0.73
?	C?	HAMWIC	HAMWIC	117	0.48
d?	C?	HAMWIC	HAMWIC	119	0.31
d?	Ca?	HEDEBY			0.00
i?	Ca?	HOLMSLAND KLIT		BAR 128	0.44
?	C?	KRINKBERG			0.00
c23	Ca019	MAURIK	OP DEN VELDE 82	17	1.02

d27	Ca093	MAURIK		MAURIK16	0.83
?	?	NORTH GERMANY		LBM1937	4.70
q01	G01	NR ROYSTON	BNJ 56	42	1.05
g15	Ca100	RIBE	RIBE	RB02	0.86
e18	Ca101	RIBE	RIBE	RB04	0.81
e19	D01	RIBE	RIBE	RB05	0.98
g16	Ca102	RIBE	RIBE	RB17	0.39
e?	Ca?	RIBE	RIBE	RB29	0.54
d29	Ca090	RIBE	RIBE	RB28	0.63
j19	Ca?	RIBE	RIBE	RB16	0.38
f?	Ca?	RIBE	RIBE	RB19	0.48
c?	Ca103	RIBE	RIBE	RB30	0.25
c20	Ca104	RIBE	RIBE	RB01	0.46
c?	Ca?	RIBE	RIBE	RB09	0.30
c?	Ca?	RIBE	RIBE	RB11	0.71
?	Ca?	RIBE	RIBE	RB12	0.82
?	C?	RIBE	RIBE	RB14	0.57
d?	C?	RIBE	RIBE	RB20	0.34
d?	Ca?	RIBE	RIBE	RB25	0.25
d?	C?	RIBE	RIBE	RB26	0.17
i?	C?	RIBE	RIBE	RB27	0.21
o03	E/F01	RIBE	RIBE	RB03	1.01
?	Ca121	RIBE	RIBE	RB06	0.38
?	?	RIBE	RIBE	RB07	0.28
r01	B15	RIBE	RIBE	RB08	0.71
k02	C?	RIBE	RIBE	RB10	0.00
c?	Ca118	RIBE	RIBE	RB15	0.65
p?	A?	ROTHERHITHE	BNJ57	96	1.04
q2	G2	ROYSTON	BNJ56	43	0.94
g18	Ca099	TACKLEY		BNJ 1976	0.83
o01	F01	TERWISPEL	LIHA	LIHA16	1.04
e20	Ca135	TERWISPEL	DIRKS 1863	LIHA17	0.98
n03	Ca?	TERWISPEL	DIRKS 1863		0.00
m03	Ca?	TERWISPEL		LFM65	0.00
r01	B15	THANET 1796	LBN	LBM148	1.03
c24	Ca131	THETFORD			1.03
?	Ca?	XANTEN	RLMB		1.13

APPENDIX 8

Using the formula suggested by Esty (1974) the coverage of the surviving dies was calculated for each of the main reverse group in the series as a whole. In addition confidence intervals of 95%, 90% and 68% were also calculated using Esty's formula. These graphically show the very wide limits of confidence because of the small samples involved.

For example for reverse group c the coverage is .364 or the known dies represent 36% of the total output. The 95% confidence interval is .203, or 20%. Thus there is a 95% possibility that the known dies of reverse c represent between 16% and 56% of the total output. In some of the other groups the interval is even greater. Further the coverage and confidence intervals were calculated for reverse groups c-j as a whole and for the obverse groups Ca-Cc and B and the combined obverse groups. The combined groups give more acceptable figures and it seems likely that c.40% of the Monster dies and c.30% of the Wodan dies are known.

Reverse Gp c

Coverage	=	.364	(36%)
95% confidence interval	=	.364 + .203	
90% " "	=	.364 + .169	
68% " "	=	.364 + .103	

Range 16-56%

Reverse Gp d

Coverage	=	.278	(28%)
95% confidence interval	=	.278	+ .226
90% " "	=	.278	+ .188
68% " "	=	.278	+ .103

Range 5-50%

Reverse Gp e

Coverage	=	.558	(56%)
95% confidence interval	=	.558	+ .260
90% " "	=	.558	+ .218
68% " "	=	.558	+ .133

Range 29-81%

Reverse Gp f

Coverage	=	.474	(47%)
95% confidence interval	=	.474	+ .396
90% " "	=	.474	+ .334
68% " "	=	.474	+ .202

Range 7-87%

Reverse Gp g

Coverage	=	.227	(23%)
95% confidence interval	=	.227	+ .215
90% " "	=	.227	+ .180
68% " "	=	.227	+ .103

Range 1-44%

Reverse Gp h

Coverage	=	.417	(42%)
95% confidence interval	=	.417	+ .362
90% " "	=	.417	+ .304
68% " "	=	.417	+ .184

Range 5-78%

Reverse Gp i

Coverage	=	.480	(48%)
95% confidence interval	=	.480	+ .223
90% " "	=	.480	+ .188
68% " "	=	.480	+ .114
Range	25-70%		

Reverse Gp j

Coverage	=	.182	(18%)
95% confidence interval	=	.182	+ .240
90% " "	=	.182	+ .202
68% " "	=	.182	+ .122
Range	0-42%		

All reverse groups (c-j)

Coverage	=	.380	(38%)
95% confidence interval	=	.380	+ .093
90% " "	=	.380	+ .079
68% " "	=	.380	+ .047
Range	29-47%		

Obverse Gp Ca

Coverage	=	.248	(25%)
95% confidence interval	=	.248	+ .092
90% " "	=	.248	+ .077
68% " "	=	.248	+ .047
Range	15-34%		

Obverse Gp Cb

Coverage	=	.570	(57%)
95% confidence interval	=	.570 + .240	
90% " "	=	.570 + .202	
68% " "	=	.570 + .122	

Range 33-81%

Obverse Gp Cc

Coverage	=	.350	(35%)
95% confidence interval	=	.350 + .254	
90% " "	=	.350 + .215	
68% " "	=	.350 + .130	

Range 9-60%

Obverse Gp B

Coverage	=	.560	(56%)
95% confidence interval	=	.560 + .297	
90% " "	=	.560 + .250	
68% " "	=	.560 + .152	

Range 26-85%

Total Obverse Groups (Ca, Cb, Cc, B)

Coverage	=	.315	(31%)
95% confidence interval	=	.315 + 0.10	
90% " "	=	.315 + 0.84	
68% " "	=	.315 + 0.51	

Range 21-41%

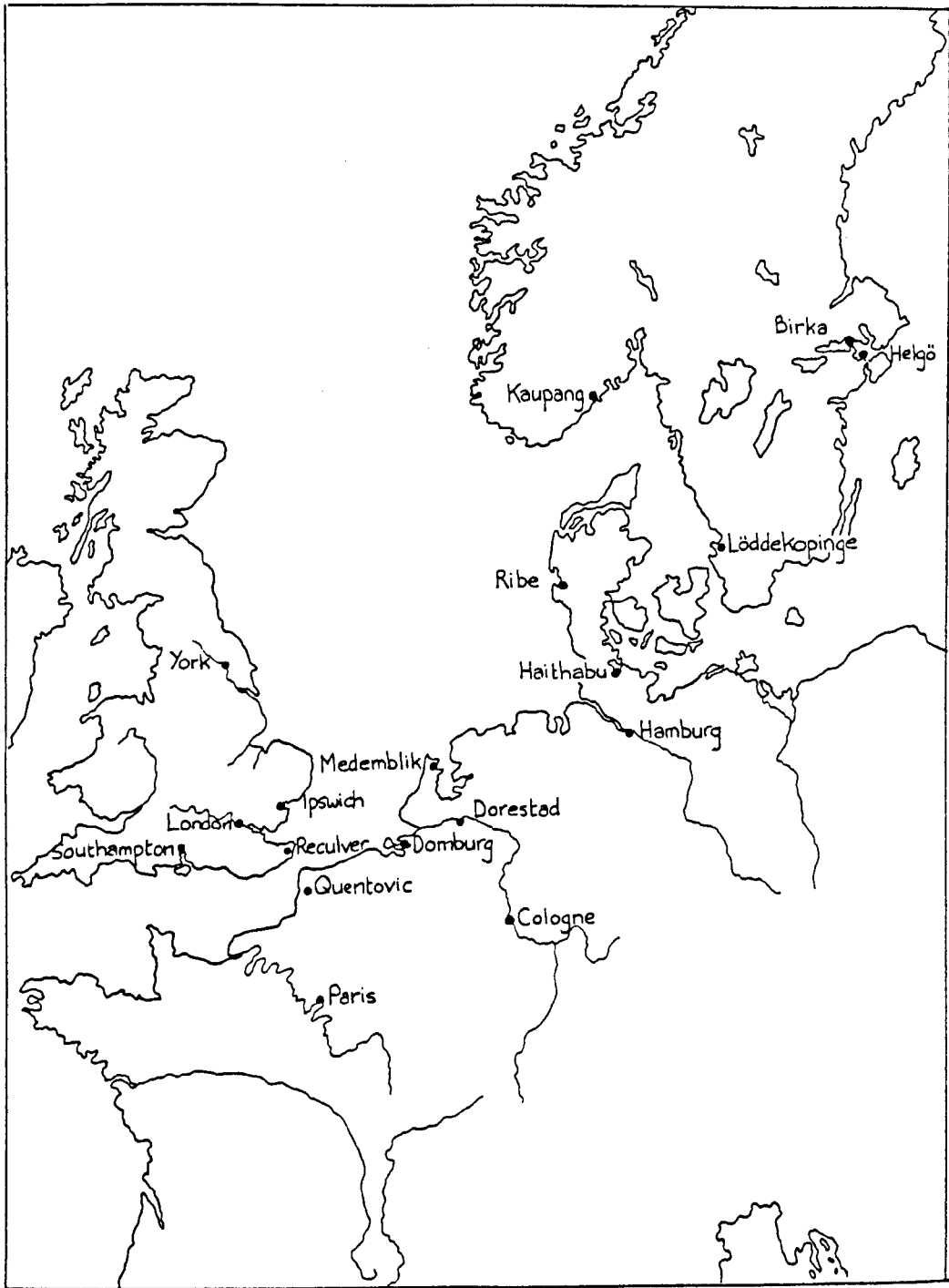


Fig. 1 : Major sites mentioned in the text

A CHRONOLOGY

	<i>ENGLISH</i>	<i>FRANKISH</i>	<i>FRISIAN</i>
680	Mucking (Bx)		
690	Hougham (A2, BIa) Milton Regis (A2-3, BIa-c) Finglesham (A2-3, BIb-c) Broadstairs (A2-3, BIb-c) Barham (A3, BIb-c)		
700	Southend (A3, BII, C(R1a-b)) Birchington (BII, C(R1b), D)	St-Pierre-les-Étioux (BII, C(R1a), D, E) Plassac (BI, D, Star?) Nohanent (B, D, E)	
710	Aston Rowant (A, B, C(R1x-y), D, E, F)	Bais (A, BI-II, D, E)	Escharen 1980 (D, D/E)
720	Garton-on-the-Wolds (G, J, K, R)	Cimiez (Pa, A, D, E, G, J, N, U (23e)?, W, X, Z)	Hallum (E, E/N, G, J, N var., T, X) ?Föhr (E, G, J, Star)
730	?Southampton B (H) ?Cambridge (Q, R)		
740	London B (K, L, U(23e)) London C (L)		
750			
760	Middle Harling (R, Beonna)		

Figure 2: Summary of Early Medieval Hoards
(From Blackburn 1984)

A CHRONOLOGY

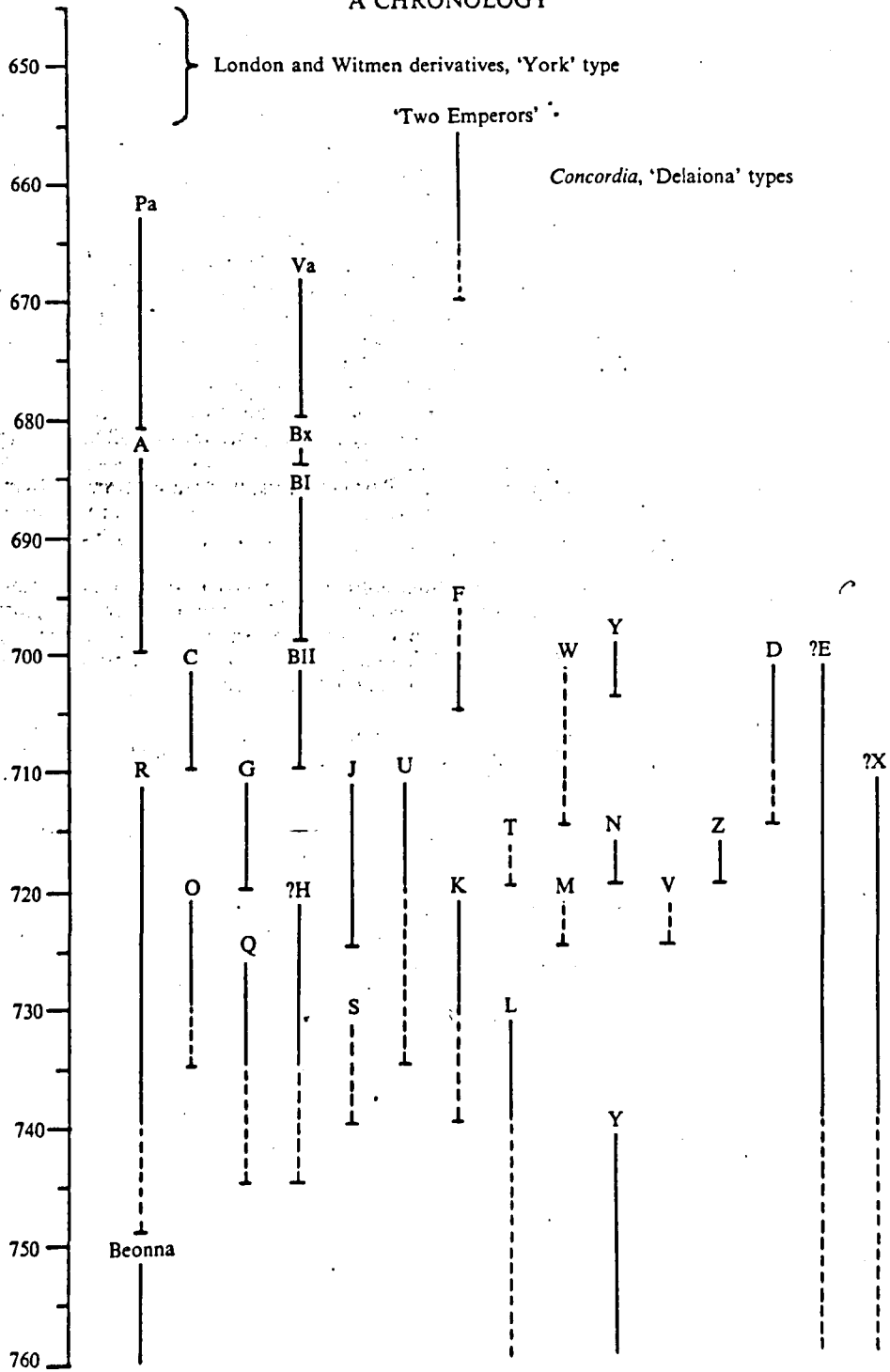


Figure 3: A Summary of the Chronology of the Sceatta Series (From Blackburn 1984)

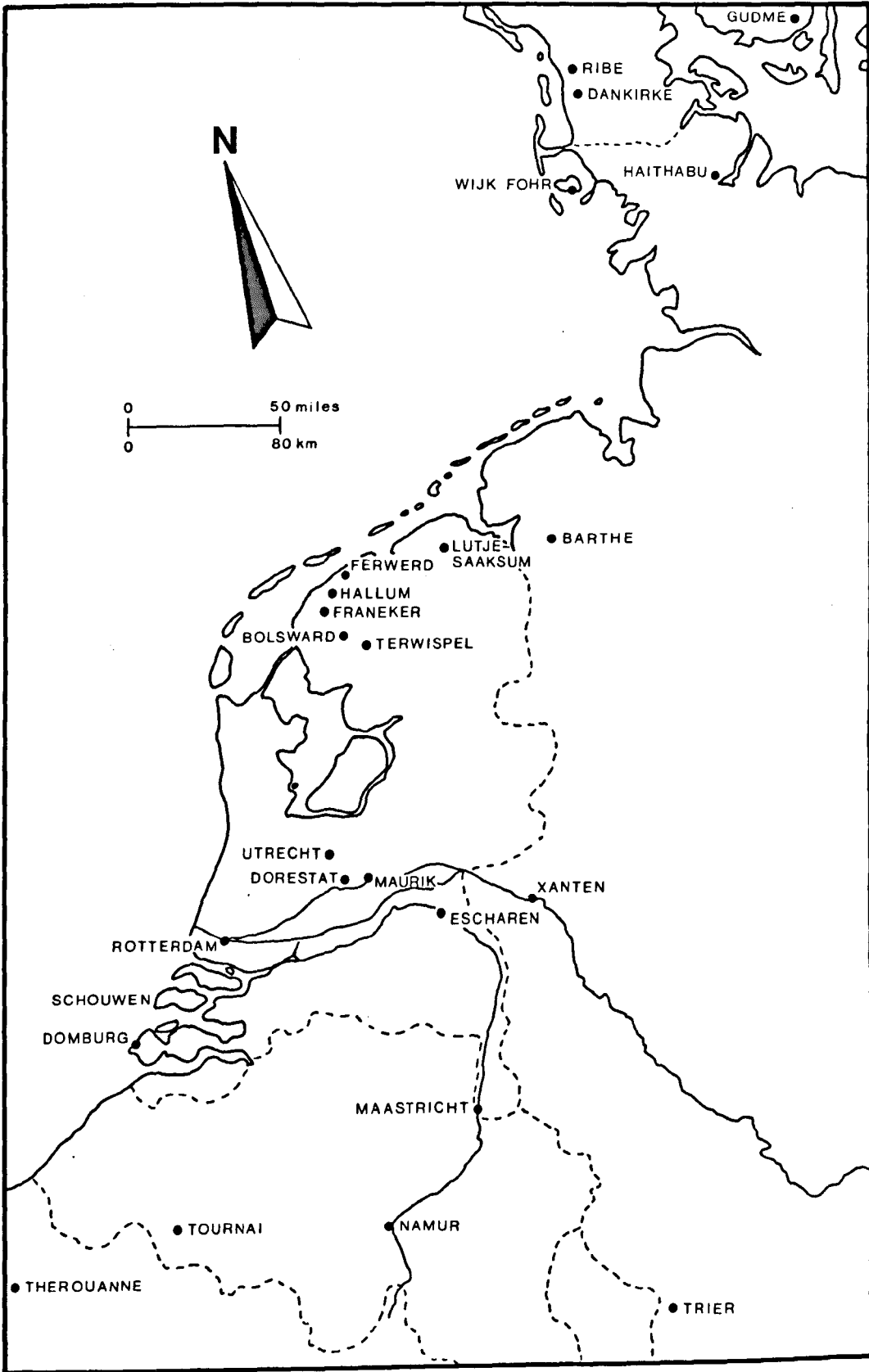


Fig 4: Detailed Map of Frisia
 (from Op den Velde et al 1984)

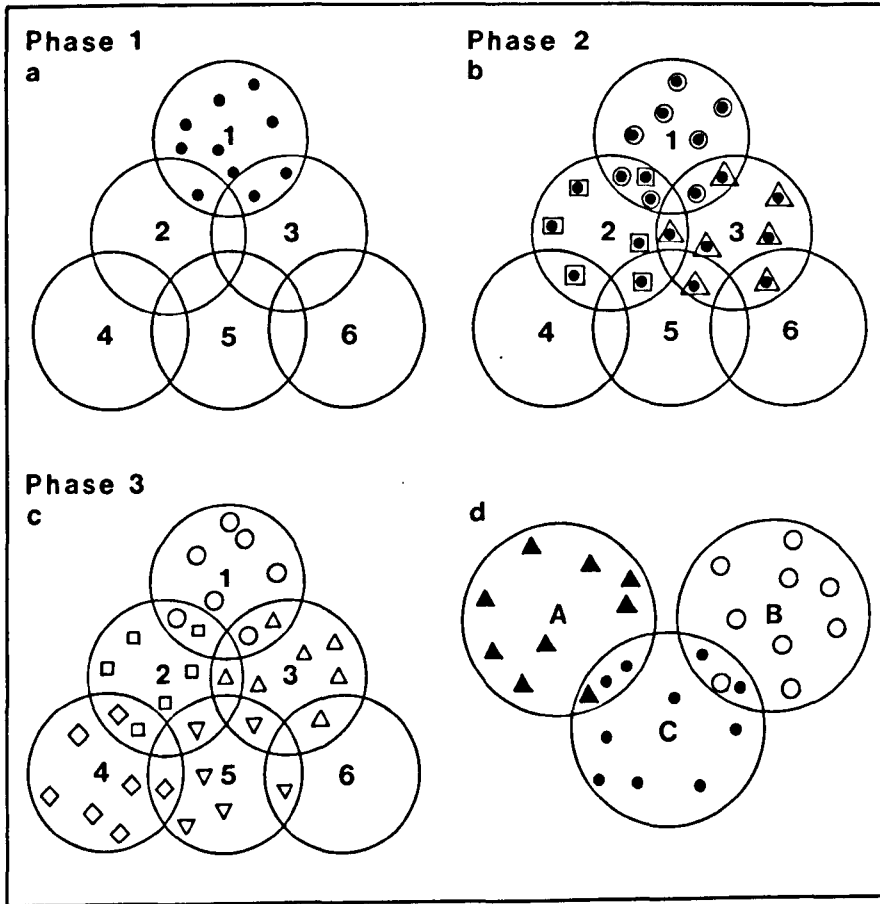


Fig 5: Model of the Spread of Coinage
(From Collis 1971)

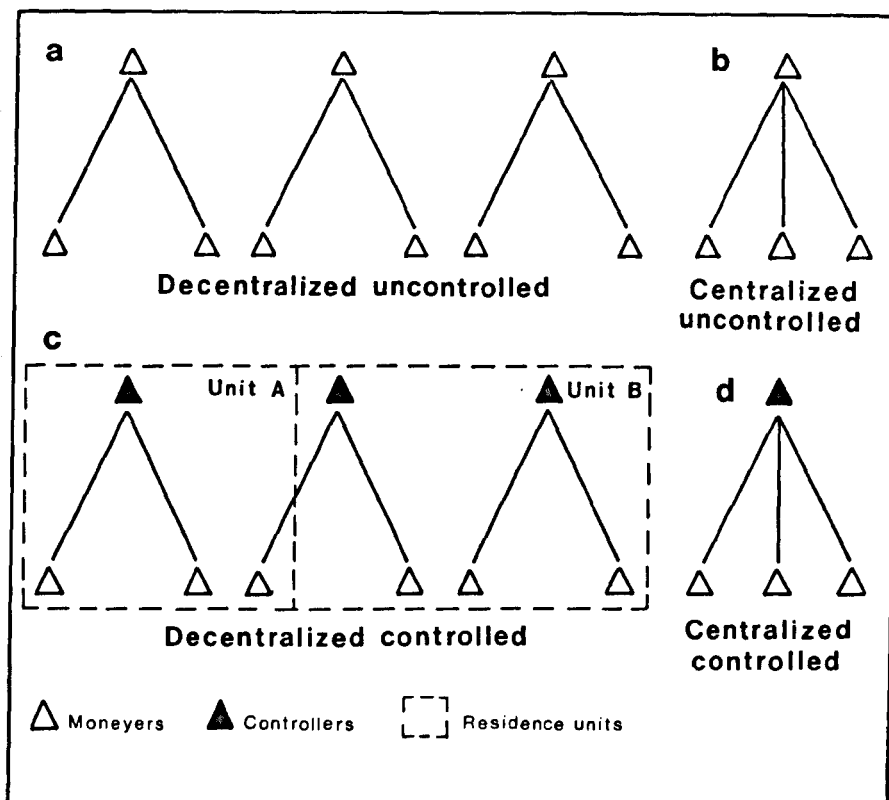
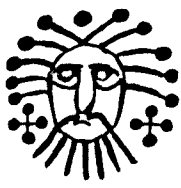


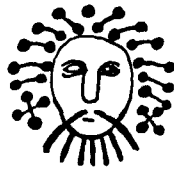
Fig 6: Model of the Organisation of Coin Production
(From Collis 1971)



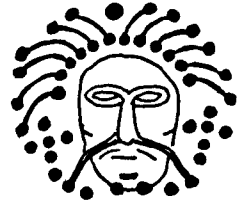
A



B₁



AB



G



B



Ca



Cb



Cc



Cd



D



E



E/F



F

Fig 7: Diagram of Series X Obverse Types

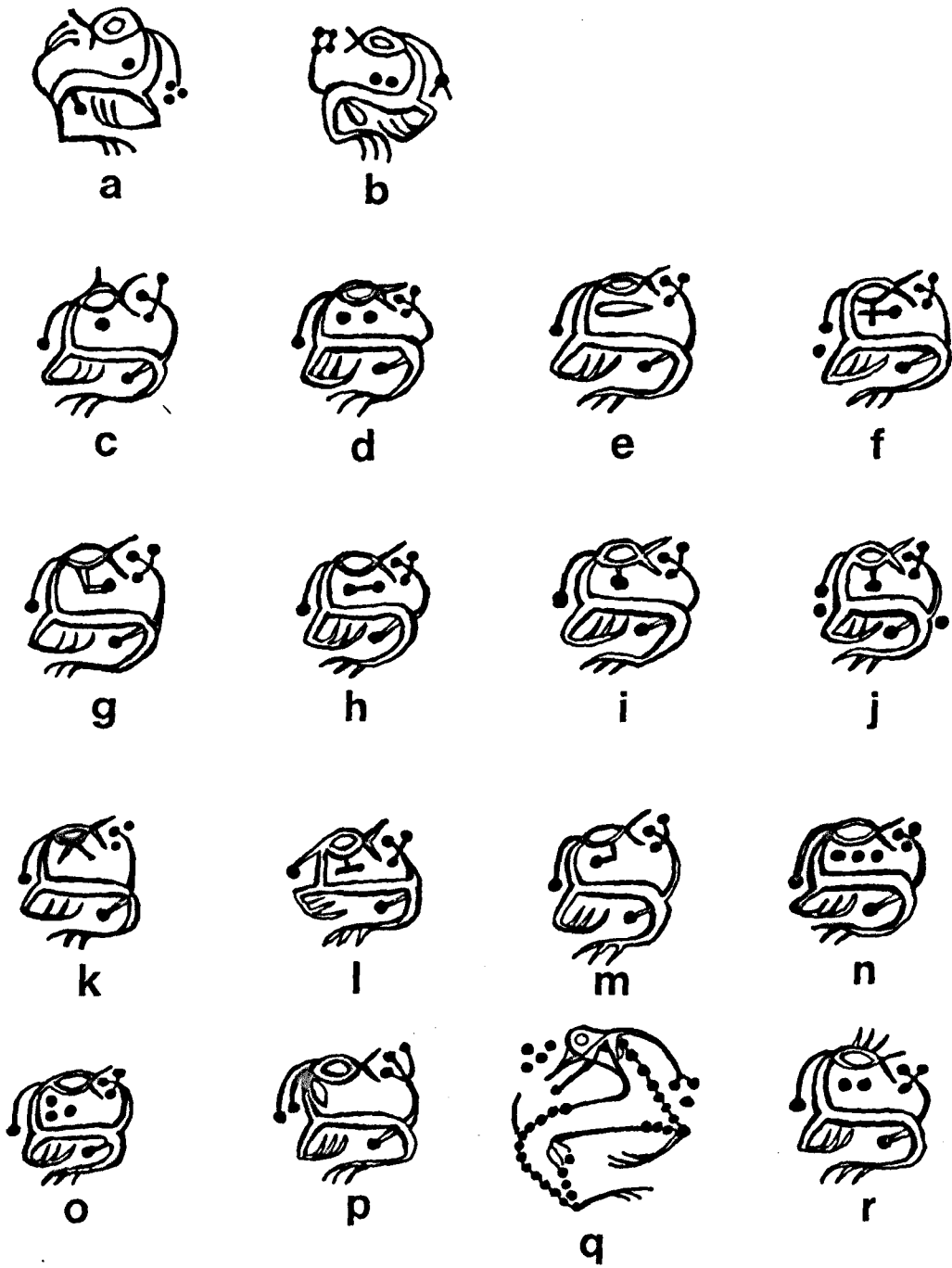


Fig 8: Diagram of Series X Reverse Types

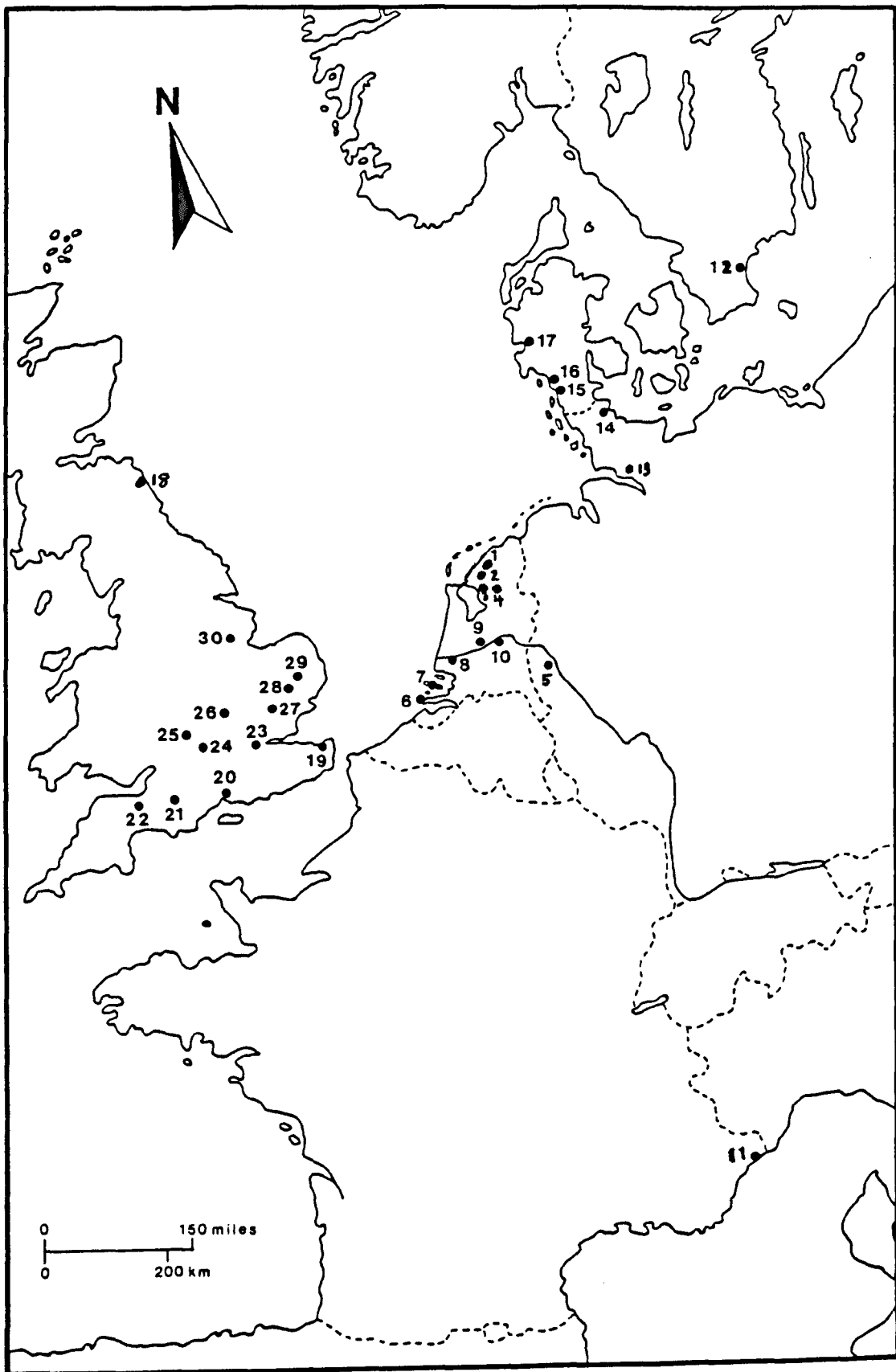


Fig 9: Distribution of Series X Scaettas
(after Op Den Velde et al 1984)

KEY TO FIGURE 9

1. Ferwerd
2. Hallum
3. Bolsward
4. Terwispel
5. Xanten
6. Schouwen
7. Domburg
8. Rotterdam
9. Maurik
10. Dorestad
11. Cimiez
12. Ahus
13. Krinkberg
14. Haithabu
15. Danekirke
16. Ribe
17. Holmsland Klit
18. Dunbar
19. Kent
20. Hamwic
21. Hod Hill
22. Wells
23. Rotherhithe
24. Datchet
25. Tackley
26. Baldock
27. Nr Royston
28. Nr Thetford

29. West Stow

30. Osbournby

A more detailed description of the finds is given in
Appendix 1.

Weight 0:99 gms.
Label 1866 Gevonden te Hallum

Die Axis



LFM 39

Provenance HALLUM HOARD

Type BMC North or

Bibliography



Obv



Rev

x2

Surface Condition Ag nVF

Remarks Av ϕ = 1.19 Wdi = 0.832

Weight 1:05 gms.
Label 1866 Gevonden te Hallum

Die Axis



LFM 39

Provenance HALLUM HOARD

Type BMC North or

Bibliography



Obv



Rev

x2

Surface Condition Ag nVF

Remarks Av ϕ = 1.20 Wdi = 0.875

Weight 1:07 gms.
Label 1866 Gevonden te Hallum

Die Axis



LFM395

Provenance HALLUM HOARD

Type BMC North or

Bibliography



x2

Surface Condition Ag silvery dark grey patina EF

Remarks Av ϕ = 1.43 Wdi = 0.748

Weight 1:18 gms.
Label 1866 Gevonden te Hallum

Die Axis



LFM396

Provenance HALLUM HOARD

Type BMC North or

Bibliography



Obv



Rev

x2

Surface Condition Ag silvery dark grey patina EF

Remarks Av ϕ = 1.26 Wdi = 0.937

Fig 10: Examples of Coinslips

REVERSE GROUPS IN THE HALLUM HOARD

(Total of 141 identifiable coins + 14 illegible)

<u>Reverse Gp.</u>	<u>Nos of coins.</u>	<u>Percentage.</u>
a	2	-
b	1	-
c	23	16.5%
d	18	13%
e	18	13%
f	13	9%
g	11	8.5%
h	10	7%
i	19	13.5%
j	19	13%
k	1	-
l	2	-
m	2	-

Figure 11

REVERSE DIES IN THE TERWISPEL HOARD.

(Total of recognisable coins 86 out of 149)

<u>Reverse Gp</u>	<u>Nos of Coins</u>	<u>Percentage.</u>
c	18	21%
d	5	6%
e	19	22%
f	10	11.5%
g	9	10.5%
h	3	3.5%
i	9	10.5%
j	8	9%
k	1	-
l	1	-
m	1	-
n	1	-
o	1	-

Figure 12

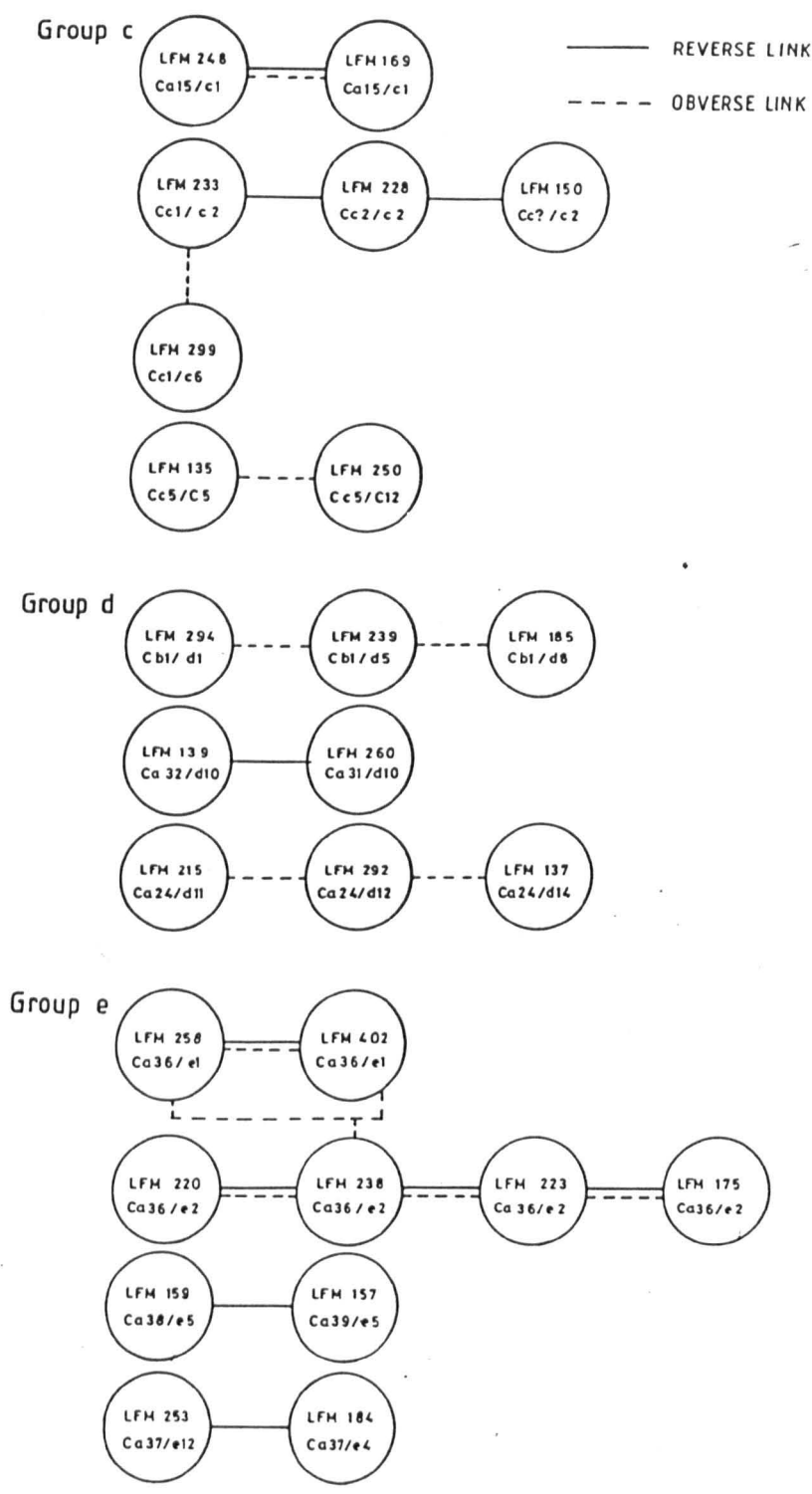
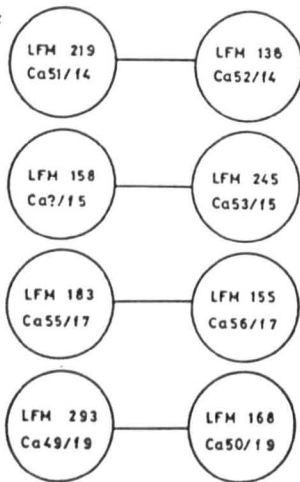
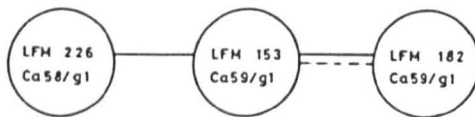


Fig.13: Diagram of Die Links in the Hallum Hoard

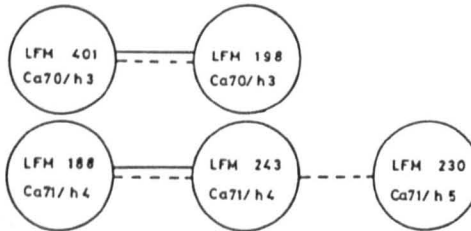
Group f



Group g



Group h



Group i

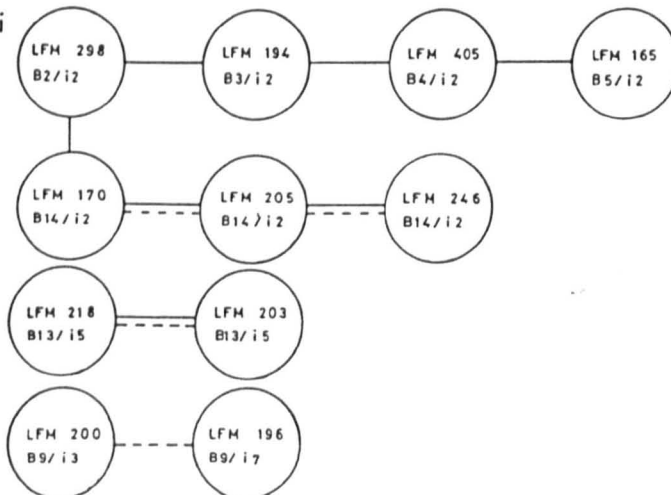


Fig. 13(cont.)

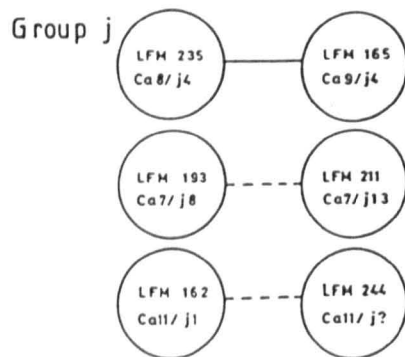


Fig.13(cont.)

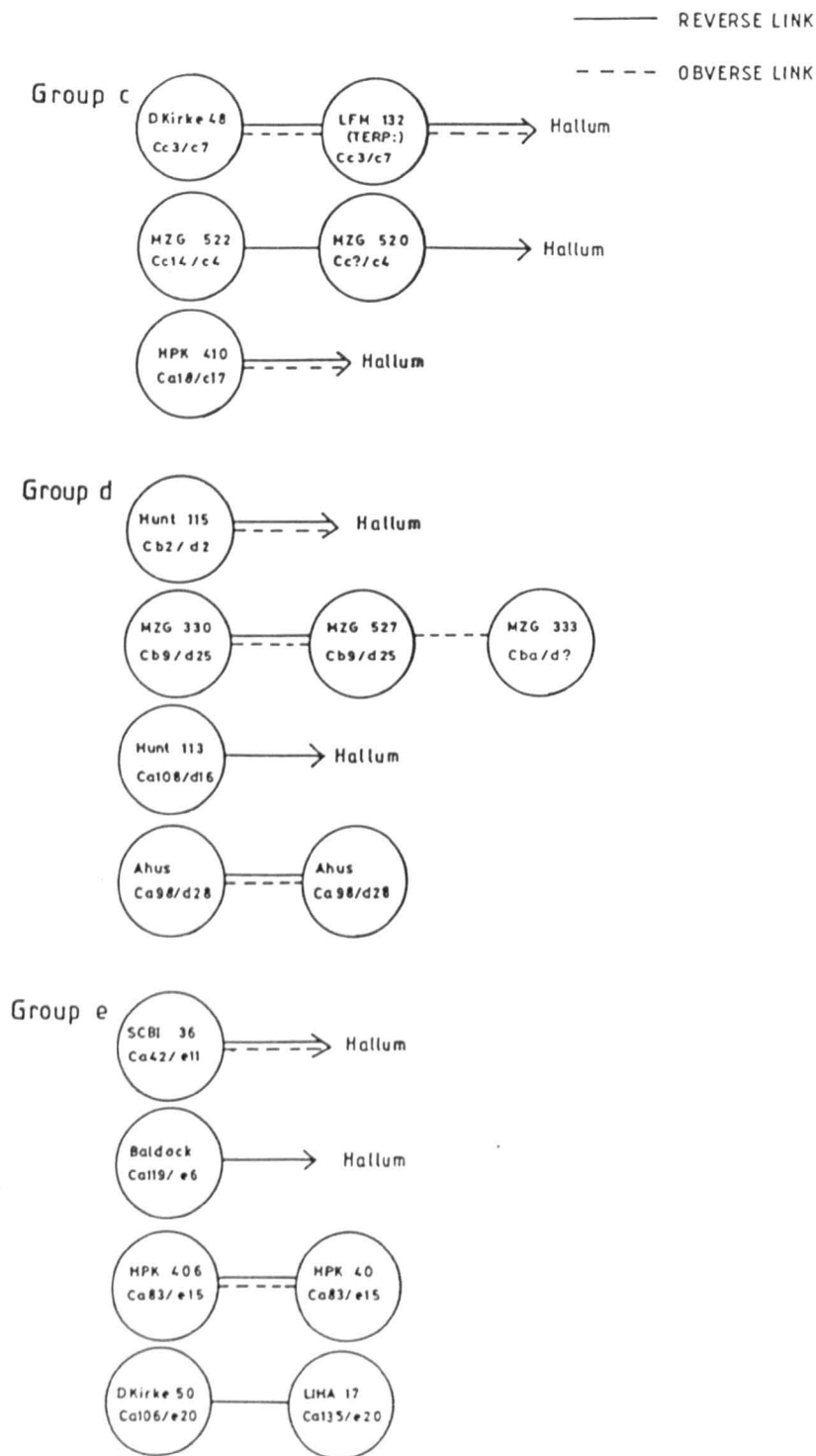


Fig.14: Diagram of Die Links amongst non-Hallum Coins

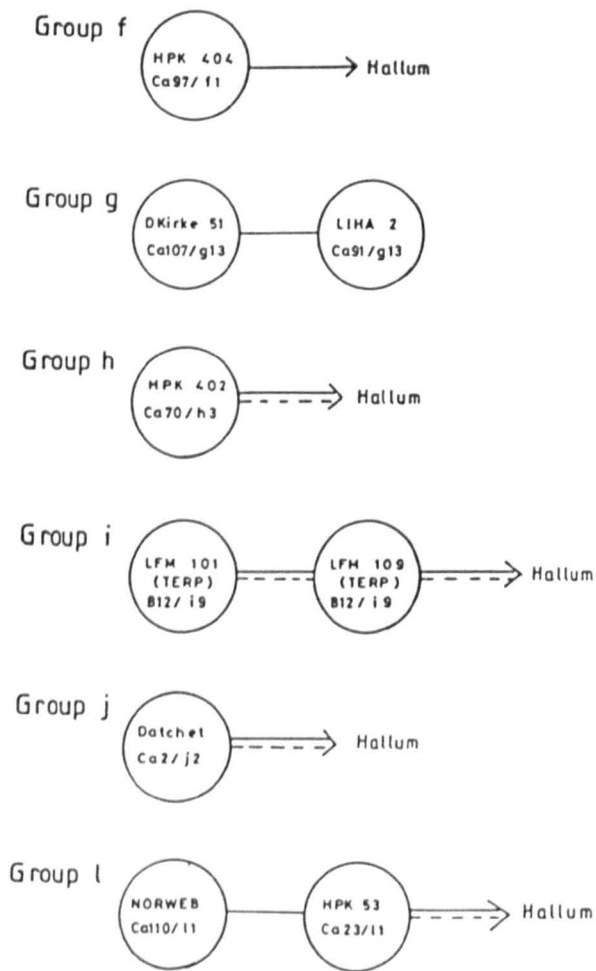


Fig.14 (cont.)

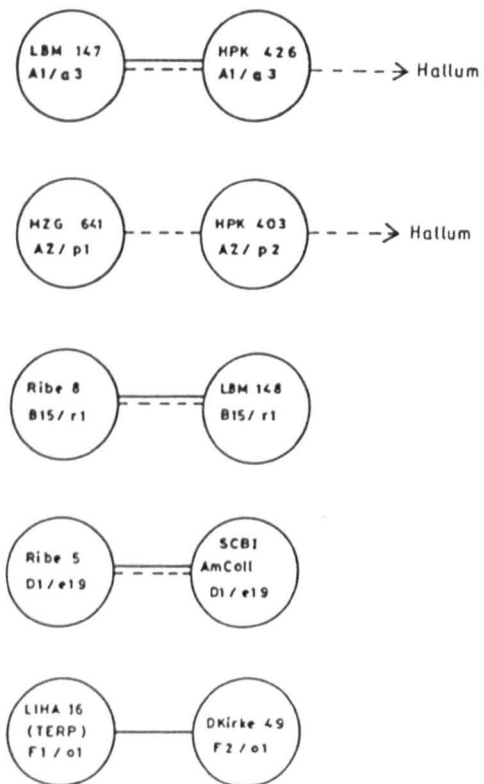


Fig.14(cont.)

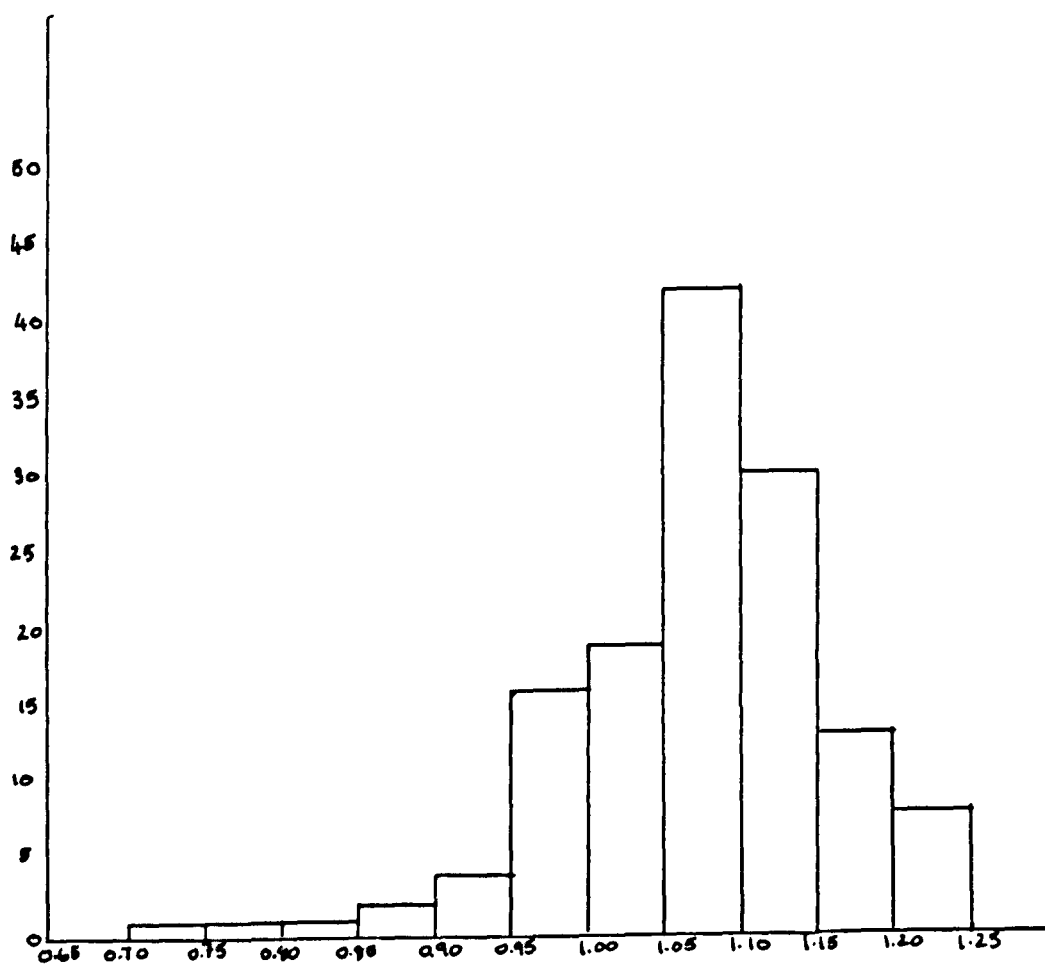
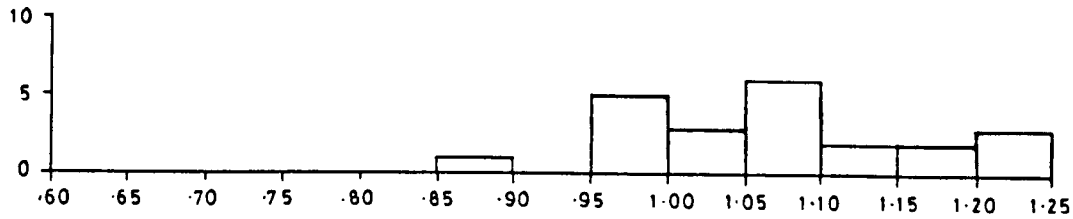


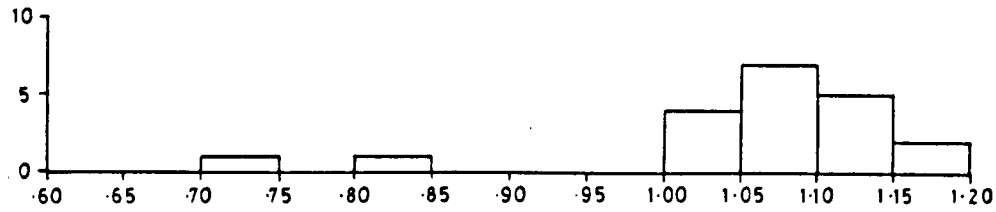
Fig 15: Histogram of Weights of Coins in Hallum

Fig 16: Histogram of weights of Reverse Grops in Hallum

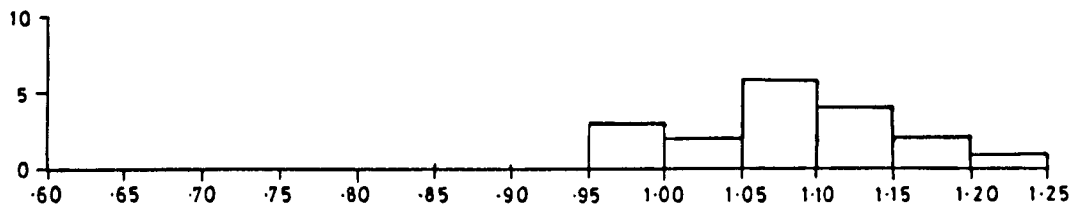
REVERSE GROUP c



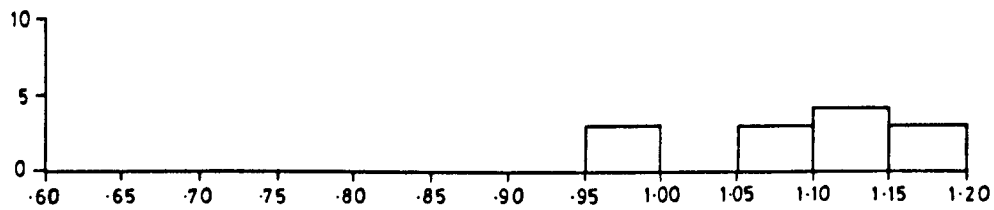
REVERSE GROUP d



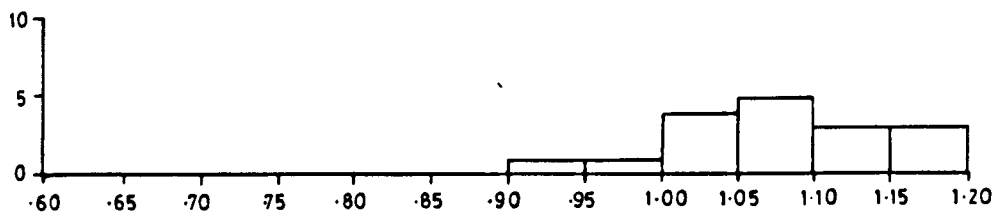
REVERSE GROUP e



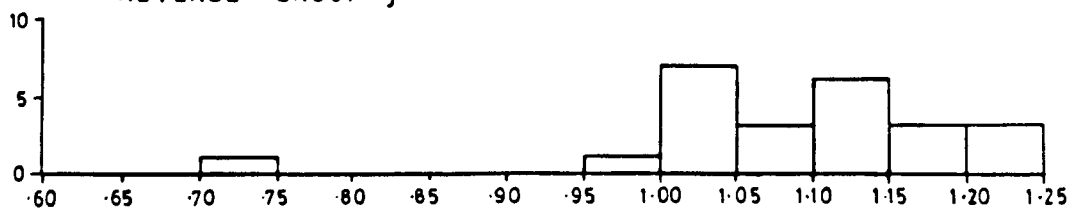
REVERSE GROUP f



REVERSE GROUP i



REVERSE GROUP j



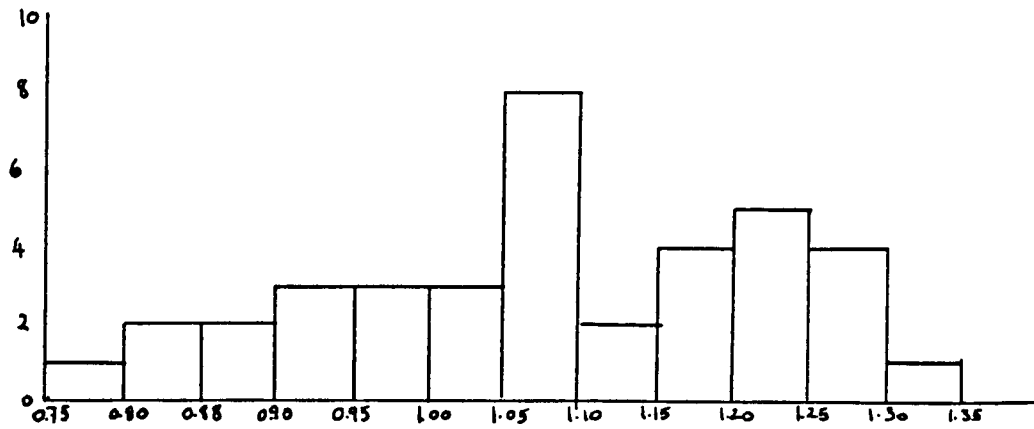


Fig 18: Histogram of Weights of 50 Coins in Hallum and Franeker

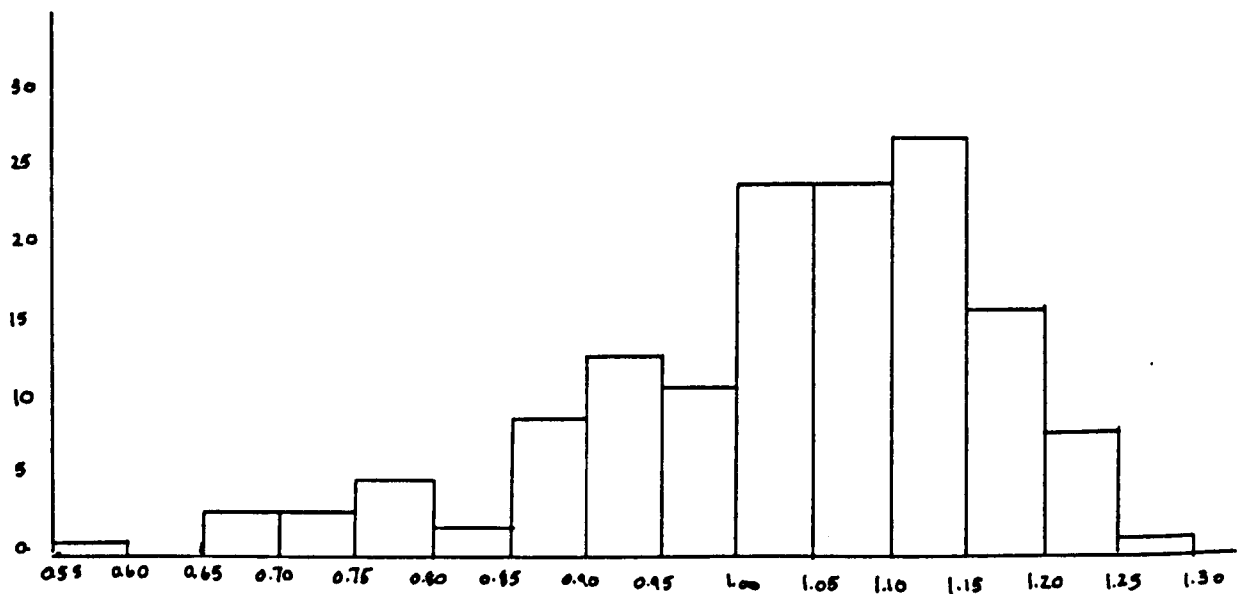


Fig 17: Histogram of Weights of Coins in Terwispeel

Figure 19a: Obverse and Associated Reverse Groups

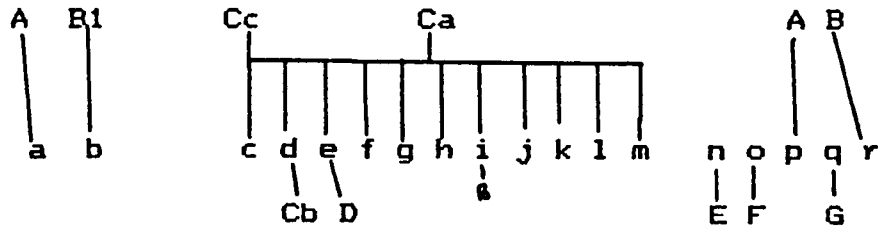


Figure 19b: The Die Axis of the Series X Sceattas
(From Hill 1977)

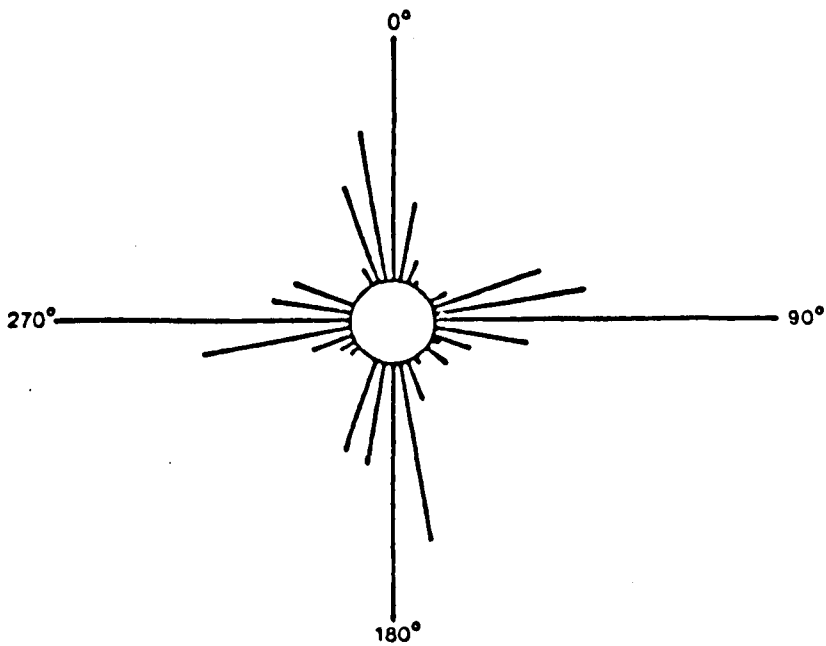
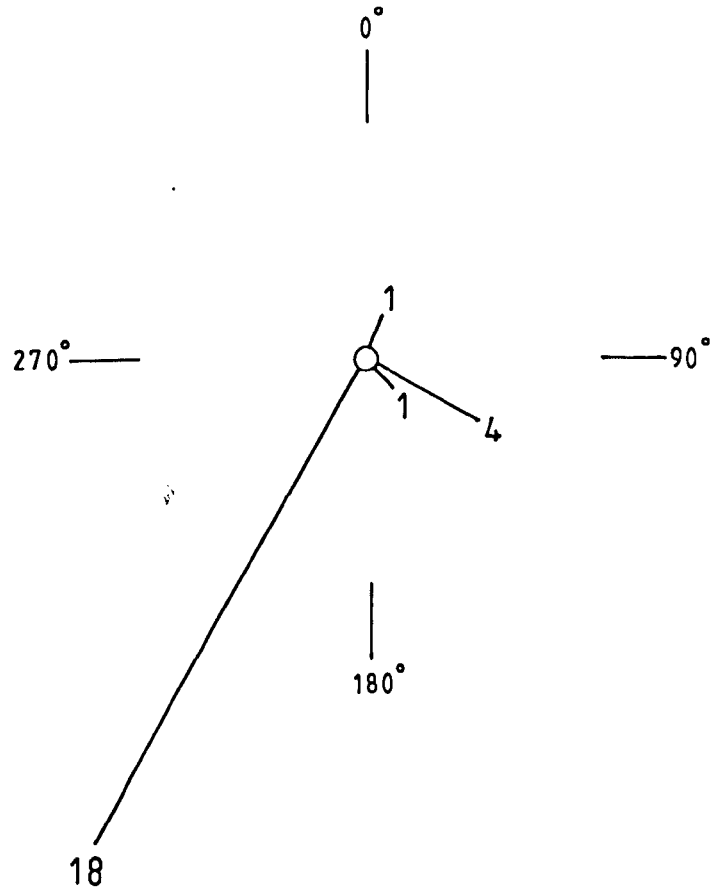


Fig.19c

24 die linked coins from Kloster Barthe Hoard



20 coins of Series A

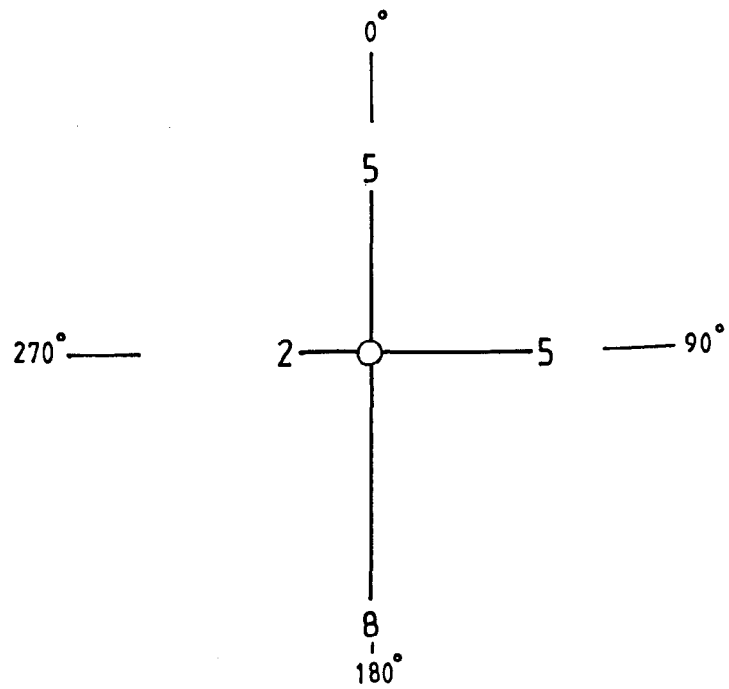


Figure 20: Numbers of Obverse and Reverse Dies.

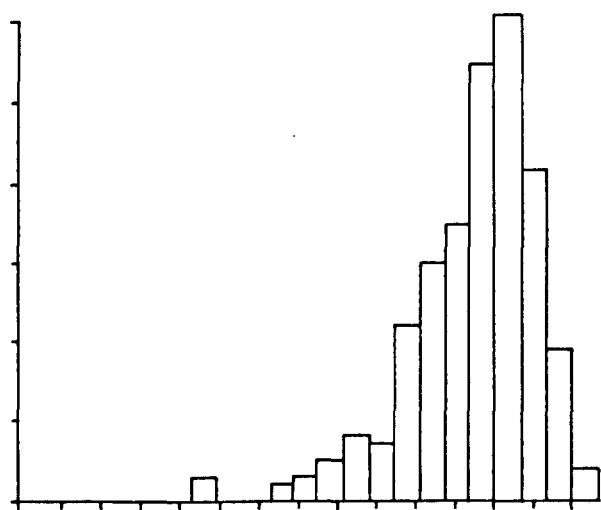
Obverse Dies

A	B	Ca	Cb	Cc	Cd	D	E	F	E/F	G
5	18	135	9	16	1	1	1	3	1	2

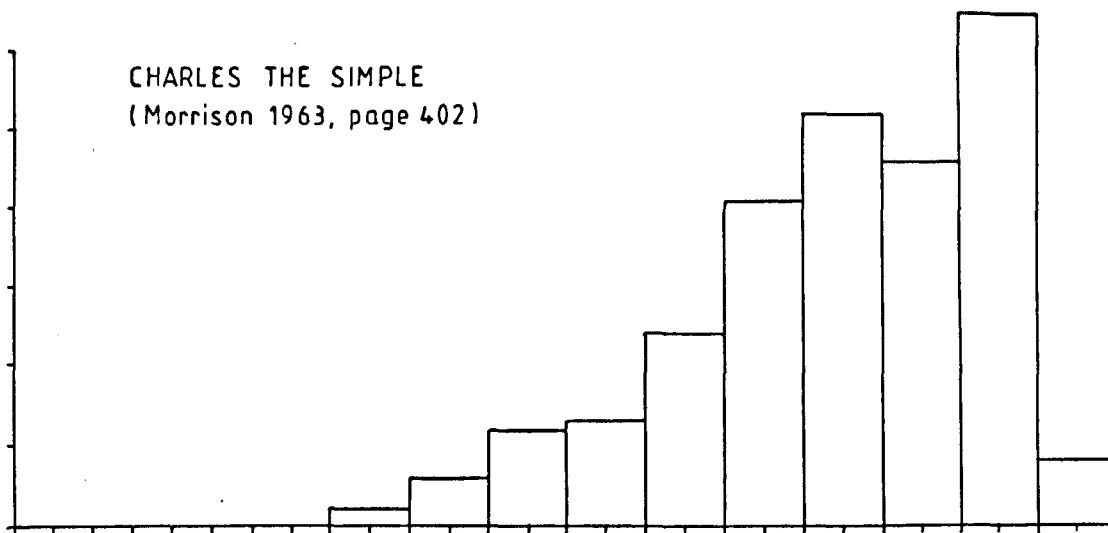
Reverse Dies

a	b	c	d	e	f	g	h	i	j	k	l
5	1	25	31	24	14	19	9	16	20	2	3
m	n	o	p	q	r						
3	3	3	2	2	1						

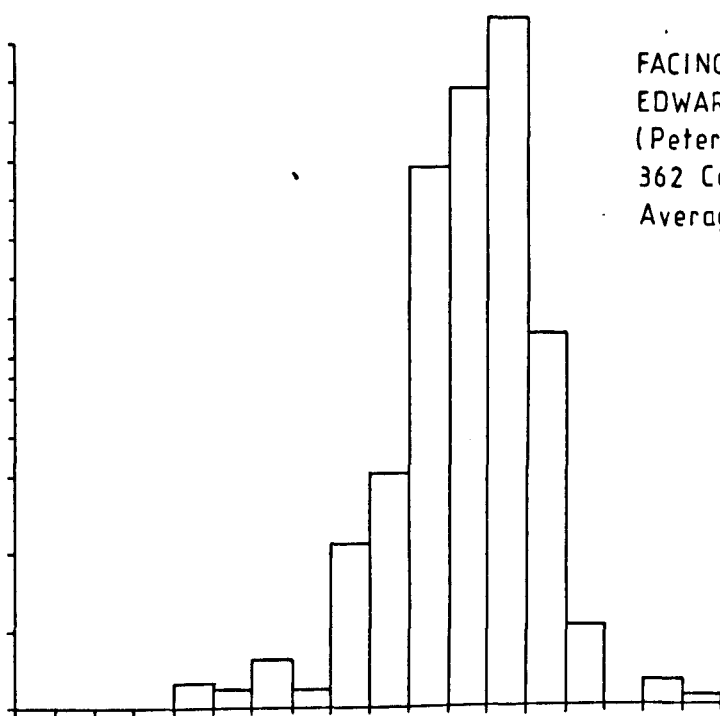
Fig 21: Histogram of Weights of 10th-11th Century Coins



SHORT CROSS Type of CNUT
(Butler 1961, page 211)



CHARLES THE SIMPLE
(Morrison 1963, page 402)



FACING SMALL CROSS Type of
EDWARD the CONFESSOR
(Pettersson, page 192)
362 Coins
Average Weight 1.07 grams

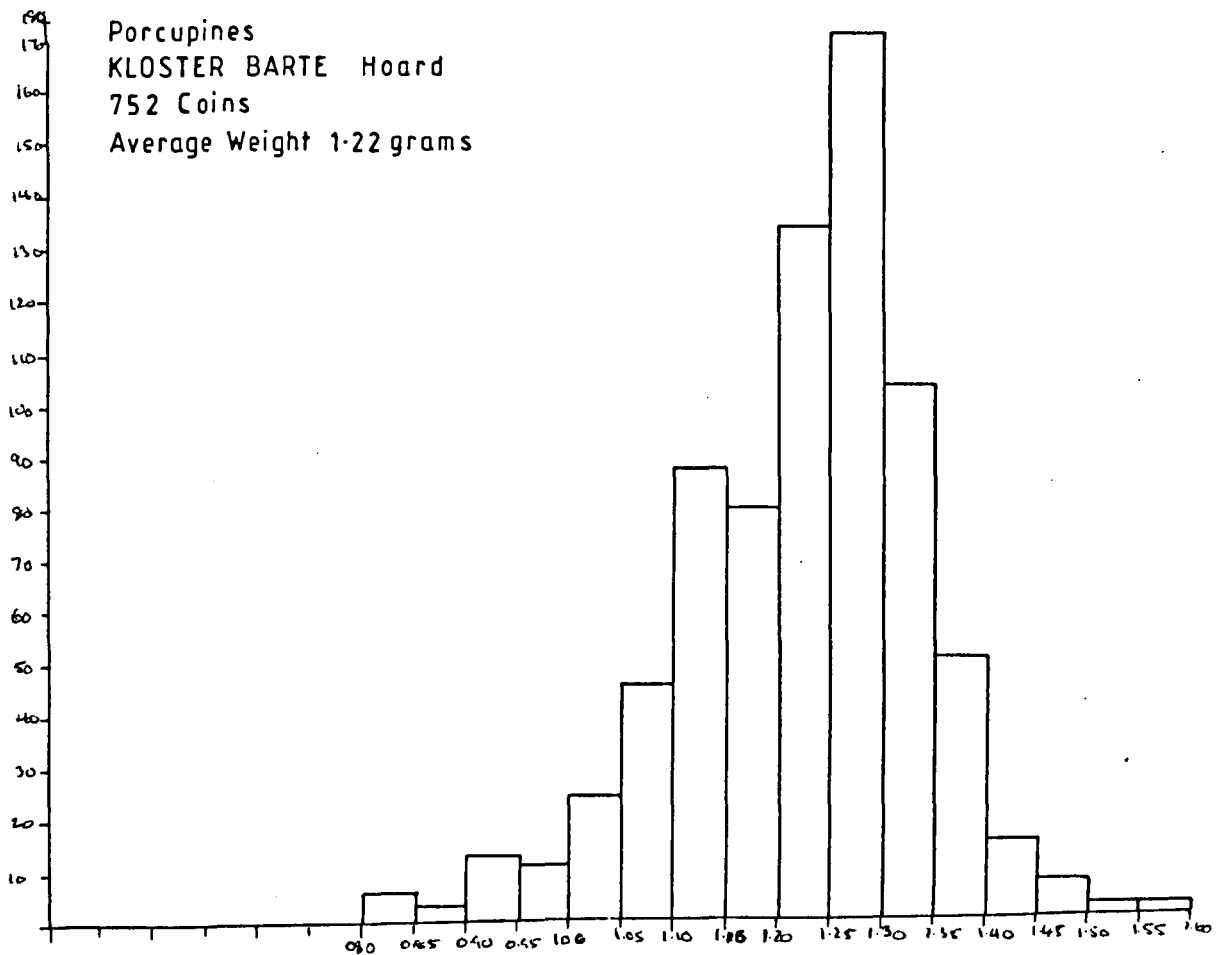
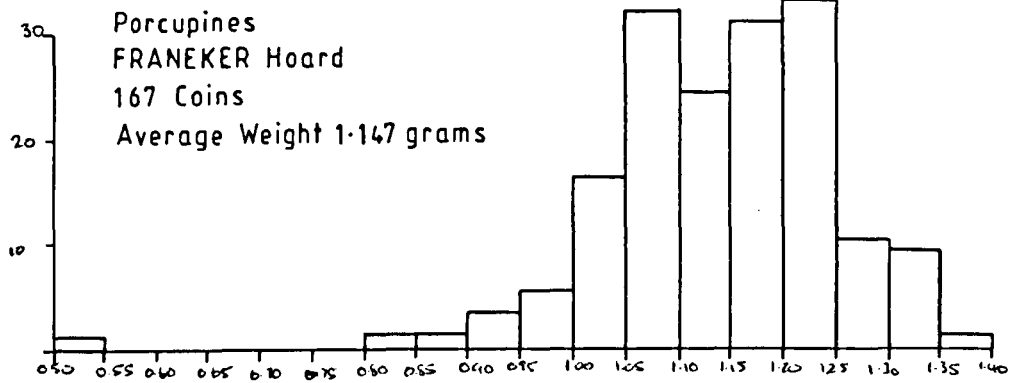


Fig 21

FIGURE 23

TABLE SHOWING RATIO OF DIE LINKAGE WITHIN THE HALLUM HOARD.

Rev Gp	Rev links	Obv links	Die Dups	Total	Nos/coins	Ratio
c	3	4	2	11	23	0.48
d	1	6	0	7	18	0.39
e	2	2	6	16	18	0.89
f	8	0	0	8	13	0.62
g	0	0	2	4	11	0.36
h	0	0	4	8	10	0.80
i	4	2	5	16	19	0.84
j	2	4	0	6	19	0.31
k	0	0	0	0	1	-
l	0	0	0	0	2	-
m	0	0	0	0	2	-

(1 die duplicate = 2 die links)

Group 1	Gp c	0.48
	Gp d	0.39
	Gp g	0.36
	Gp j	0.31
Group 2	Gp e	0.89
	Gp i	0.84
	Gp h	0.80
	Gp f	0.62

FIGURE 24

TABLE SHOWING RATIO OF DIE LINKAGE IN WHOLE OF SERIES X

Main Reverse Groups

Rev Gp	Rev links	Obv links	Die Dups	total	Nos of coins	ratio
c	7	4	7	25	37	.67
d	4	6	6	22	39	.56
e	6	2	12	32	33	.96
f	10	2	0	12	20	.60
g	2	0	2	6	23	.26
h	0	0	5	10	13	.77
i	4	4	7	22	24	.92
j	2	4	2	10	23	.43

Smaller Reverse Groups

a	0	0	2	4	6	.66
l	3	2	0	5	8	.63
m	2	0	0	2	4	.50
n	2	0	0	2	4	.50
o	0	0	2	4	4	1.0

(1 die duplicate = 2 die links)

Ranking of Main Reverse Groups.

g .26
j .43
d .56
f .60
c .67
h .77
i .92
e .96

FIGURE 25

BREAKDOWN OF SINGLETONS AND NON-SINGLETONS IN THE HALLUM HOARD

Nos of specimens	No. of Dies								
	c	d	e	f	g	h	i	j	
1	17	16	10	5	8	6	10	16	
2	1	1	2	4		2	1	1	
3	1				1				
4			1						
5									
6									
7							1		
Total Coins	22	18	18	13	11	10	19	18	
Die Survival Ratio	1.23	1.09	1.60	1.80	1.32	1.43	1.78	1.09	

FIGURE 26

BREAKDOWN OF SINGLETONS AND NON-SINGLETONS
IN MAIN GROUPS.

Main Reverse Groups

Nos of Specimens	No. of Dies							
	c	d	e	f	g	h	i	j
1	19	26	15	9	17	7	13	18
2	4	5	7	5	1	1	2	2
3	2				1	1		
4			1					
5								
6								
7							1	
Total Coins	33	36	33	19	22	12	24	22
Die Survival Ratio	1.52	1.26	1.76	1.65	1.23	1.53	1.70	1.16
Total 201								

The Main Obverse Groups.

Nos of Specimens	No. of Dies			
	Ca	Cb	Cc	B
1	118	6	13	11
2	12	1	2	4
3	3	2	1	1
4				
5				
6	1			
Total Coins	157	14	20	22
Die Survival Ratio	1.25	1.95	1.40	1.65
Total 213				

NUMBERS OF EQUIVALENT DIES

Using the formula;

$$\frac{\text{NON-SINGLETONS}}{\text{KNOWN COINS}} = \frac{\text{KNOWN DIES}}{\text{TOTAL OUTPUT}}$$

and the calculation of 95% confidence limit from Esty (1984)

In the Hallum Hoard:

Reverse/Monster die:

$$\frac{41}{129} = \frac{104}{32\%+11\%} = 241-495$$

ie: there are an estimated 241-495 Monster dies

Obverse/Wodan die:

$$\frac{36}{134} = \frac{111}{27\%+8\%} = 317-584$$

ie: there are an estimated 317-584 Wodan dies.

In the Series X as a Whole:

Reverse/Monster dies ;

$$\frac{77}{177} = \frac{157}{43\%+9\%} = 301-461$$

ie: there are an estimated 301-461 Monster dies.

Obverse/Wodan dies (Ca, Cb, Cc, E)

$$\frac{65}{213} = \frac{175}{30\%+10\%} = 437-875$$

ie: there are an estimated 437-875 Wodan dies.

Figure 27 (cont)

Comparison with Equivalent dies in other coinages:

	Obv	Rev	
N'thumb Eadberht	187-382	287-730	(Metcalf 1984)
Type 49 Hamwic	154-541 or 105-254	216-?	(Metcalf 1988)
Series X	301-461	437-875	

Coinage of Aethelred II from the Lincoln Mint
(Lyon 1971).

First Hand	37-72	55-126
Crux	127-158	176-226
Long Cross	164-176	201-215
Helmet	96-119	93-121
Last Small Cross	294-325	346-395

FIGURE 28

EQUIVALENT DIES IN MAIN REVERSE GROUPS.

Reverse Gp	Hallum	Whole Series
c	83	60
d	154	110
e	30	51
f	15	26
g	33	82
h	20	21
i	26	35
j	154	111

NOTE ON THE PLATES

Where possible the photographs have been reproduced at twice actual size (x2). In some cases, particularly in the non hoard coins, negatives were not available and this scale could not be adhered to. For many of the coins from HPK and MZG photographs at 2.5-3.0 x actual size were available and these were used. For other coins the scale varies and in some cases only photocopies of published photographs were available.

PLATE 1 : CONTINENTAL SERIES OF SCEATTAS



MADLINUS



WODAN MONSTER
Series X



PORCUPINE
Series E



STAR OF DAVID



RUNIC
Series D



INTERLACE



PLATE 2 : HALLUM - Reverse groups a and b



A01/a01
LFM391



A02/a02
LFM300



B01/b01
LFM303



PLATE 3 : HALLUM - Reverse group c



Ca15/c01

LFM248



Ca15/c01

LFM169



Cc01/c02

LFM233



Cc02/c02

LFM228



Cc?/c02

LFM150



Cc11/c03

LFM212



Cc12/c04

LFM406



Cc05/c05

LFM135



Cc01/c06

LFM299



Cc03/c07

LFM213



Cc04/c08

LFM195



Cc08/c09

LFM192



PLATE 4 : HALLUM - Reverse group c, cont.



Cc09/c10

LFM156



Cc10/c11

LFM206



Cc05/c12

LFM250



Cc07/c13

LFM167



Ca16/c14

LFM221



Ca28/c15

LFM393



Cc13/c16

LFM178



Ca18/c17

LFM252



Cc06/c18

LFM180



Ca17/c19

LFM143



Ca21/c?

LFM134



PLATE 5 : HALLUM - Reverse group d



Cb01/d01
LFM294



Cb02/d02
LFM217



Cb03/d03
LFM261



Cb04/d04
LFM191



Cb01/d05
LFM239



Cb05/d06
LFM201



Cb06/d07
LFM224



Cb01/d08
LFM185



Cb07/d09
LFM263



Ca31/d10
LFM260



Ca32/d10
LFM139



Ca24/d11
LFM215



PLATE 6 : HALLUM - Reverse group d, cont.



Ca24/d12
LFM292



Ca26/d13
LFM189



Ca24/d14
LFM137



Ca33/d15
LFM197



Ca34/d16
LFM154



Ca30/d17
LFM251

PLATE 7 : HALLUM - Reverse group e



Ca36/e01
LFM258



Ca36/e01
LFM402



Ca36/e02
LFM223



Ca36/e02
LFM220



Ca36/e02
LFM238



Ca36/e02
LFM175



Ca45/e03
LFM257



Ca37/e04
LFM184



Ca38/e05
LFM159



Ca39/e05
LFM157



Ca47/e06
LFM403



Ca44/e07
LFM172



PLATE 8 : HALLUM - Reverse group e, cont.



Ca41/e08
LFM227



Ca40/e09
LFM187



Ca43/e10
LFM259



Ca42/e11
LFM256



Ca37/e12
LFM253



Ca46/e13
LFM136

PLATE 9 : HALLUM - Reverse group f



Ca79/f01
LFM145



Ca48/f02
LFM186



Ca27/f03
LFM392



Ca51/f04
LFM219



Ca52/f04
LFM138



Ca?/f05
LFM158



Ca53/f05
LFM245



Ca57/f06
LFM173



PLATE 10 : HALLUM - Reverse group f, cont.



Ca55/f07

LFM183

Ca56/f07

LFM155

Ca54/f08

LFM231



Ca49/f09

LFM293

Ca50/f09

LFM168

PLATE 11 : HALLUM - Reverse group g



Ca58/g01
LFM226



Ca59/g01
LFM153



Ca59/g01
LFM182



Ca60/g02
LFM229



Ca61/g03
LFM190



Ca62/g04
LFM216



Ca65/g05
LFM234



Ca66/g06
LFM210



Ca63/g07
LFM222



Ca67/g08
LFM199



Ca64/g09
LFM249



Ca?/g?
LFM301



PLATE 12 : HALLUM - Reverse group h



Ca68/h01
LFM297



Ca69/h02
LFM242



Ca70/h03
LFM401



Ca70/h03
LFM198



Ca71/h04
LFM188



Ca71/h04
LFM243



Ca71/h05
LFM230



Ca72/h06
LFM254



Ca73/h07
LFM174



Ca22/h08
LFM181



PLATE 13 : HALLUM - Reverse group i



Ca12/i01
LFM240



B14/i02
LFM205



B14/i02
LFM170



B14/i02
LFM246



B02/i02
LFM298



B03/i02
LFM194



B04/i02
LFM405



B05/i02
LFM165



B09/i03
LFM200



B11/i04
LFM166



B13/i05
LFM218



B13/i05
LFM203

PLATE 14 : HALLUM - Reverse group i, cont.



B7/i06

LFM176



B09/i07

LFM196



B07/i08

LFM151



B12/i09

LFM237



B10/i10

LFM177



B08/i11

LFM160



B06/i12

LFM163



PLATE 15 : HALLUM - Reverse group j



Ca11/j01
LFM162



Ca02/j02
LFM291



Ca20/j03
LFM148



Ca08/j04
LFM235



Ca09/j04
LFM161



Ca04/j05
LFM171



Ca05/j06
LFM404



Ca06/j07
LFM247



Ca07/j08
LFM193



PLATE 16 : HALLUM - Reverse group j, cont.



Ca?/j09
LFM179



Ca13/j10
LFM149



Ca03/j11
LFM204



Ca10/j12
LFM202



Ca07/j13
LFM211



Ca14/j14
LFM232



PLATE 17 : HALLUM - Reverse group j, cont.



Ca78/j15
LFM295



Ca75/j16
LFM262



Ca01/j17
LFM152



Ca11/j?
LFM244

PLATE 18 : HALLUM - Reverse groups k, l, m



Ca35/k01

LFM255



Ca23/l01

LFM296



Ca25/l02

LFM164



Ca76/m01

LFM394



Ca77/l02

LFM208



PLATE 19 : NON-HALLUM OBVERSE GROUPS A-B, and associate reverses



A01/a03
LBM147



A01/a03
HPK426



A02/p01
MZG641



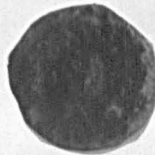
A02/p02
HPK403



A03/a04
HPK424



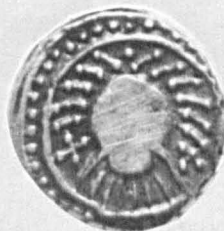
A04/?
SCBI AmC



A04/a05
MZG523



Rotherhithe



A6/01
LFM446

PLATE 20 : NON-HALLUM - Reverse group c



Cc14/c04
MZG522



Cc7/c4
MZG520



Cc3/c07
D'kirke 48



Ca18/c17
HPK410



Ca104/c20
Ribe 1



Cc15/c22
HPK17231



Ca19/c23
Maurik 17



Ca131/c24
Thetford

PLATE 20a : NON-HALLUM - Reverse group C, cont.



Cc16/c21
HPK 17231



Ca105/c25
D'kirke

PLATE 21 : NON-HALLUM - Reverse group d



Cb02/d02
Hunt 115

Ca108/d16
Hunt 113

Cb08/d18
Hamwic 116

Ca86/d19
HPK408



Ca87/d20
HPK414

Ca88/d21
HPK397

Ca89/d22
HPK17241

C?/d23
MZG631



Cb?/d24
MZG 633

Cb09/d25
MZG527

Cb09/d25
MZG330

Cb?/d25
MZG333

PLATE 22 : NON-HALLUM - Reverse group d, cont.



Ca?/d26
MZG338



Ca93/d27
Maurik 16



Ca98/d28
Ahus



Ca90/d29
Ribe 28



Ca92/d30
Brussels



Ca133/d31
LBM150



BELFORT 5776

PLATE 23 : NON-HALLUM - Reverse group e



Ca119/e06
Baldock



Ca42/e11
Berlin 31
(SCBI)



Ca83/e15
HPK406



Ca83/e15³
HPK40



Ca84/e16
HPK412



Ca85/e17
HPK17238



Ca101/e18
Ribe 4



D01/e19
Ribe 5



D01/e19
SCBI30 103
American



Ca106/e20
D'kirk 50



Ca120/e20
LIHA



Ca109/e21
SCBI Fitz



PLATE 24 : NON-HALLUM - Reverse group e, cont.



Ca?/e22
LIHA 10

Ca?/e23?
SCBI
Berlin 32

Ca124/e24
LBM

PLATE 25 : NON-HALLUM - Reverse group f



Ca82/f01
HPK404



Ca79/f10
MZG341



Ca116/f11
Hamwic 116



Ca96/f12
HPK418



Ca128/f13
SCBI Berlin



Ca134/f14
OXF123



PLATE 26 : NON-HALLUM - Reverse group g



Ca81/g10
HPK421

Ca80/g11
HPK43

Ca95/g12
HPK42

Ca91/g13
LIHA 2



Ca107/g13
D'kirk

Ca125/g14
Bruss 29

Ca100/g15
Ribe 2

Ca102/g16
Ribe 17



Ca120/g17
HAM115

Ca99/g18
Tackley

Ca94/g19
Ahus

PLATE 27 : NON-HALLUM - Reverse group h



Ca70/h3
HPK402



Ca111/h?
SCBI Norweb



Ca123/h9
LBM149

PLATE 28 : NON-HALLUM - Reverse group i



B12/i19
LFM101

?/i13
MZG525

B17/i14
LFM438



B16/i15
SCBI HUNT114

B18/i16
LBM

PLATE 29 : NON-HALLUM - Reverse group j



Ca2/j2
Datchet



Ca122/j18
HPK403a



Ca?/j19
Ribe 16



Ca132/j20
PBN



PLATE 30 : NON-HALLUM - Reverse groups k, l, m



C?/k2
Ribe 10



Ca110/11
Norweb

Ca23/11
HPK53

Ca115/14
SCBI 30

Ca114/15
MZG647



Ca112/l3

?/m3
LFM65

PLATE 31 : NON-HALLUM - Reverse groups n, o, r



E1/n1
HPK427



Ca?/n2
Dunbar



?/n3
Dirks 1863



F1/o1
LIHA 16



F2/o1
D'kirk 49



F3/o2
HPK423



E/F1/o3
Ribe 3

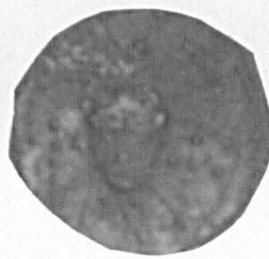


B15/r1
Ribe 8

PLATE 32 : ENGLISH TYPES



x 4



x 4

G1/q1
Royston

G2/q2
Royston



Type 30a
Locketf

Type 30a
BMC 145

Type 30a
BMC 146

Type 30a
N. Ferriby



Type 51
Royston



Type 81
Hamwic

PLATE 33 : IRREGULAR TYPES



LFM133



LFM140



HPK417

Plate 34: Hallum, Sigillum David.



LFM280



LFM281



LFM282



LFM283



LFM284



LFM285



LFM286



LFM287



LFM288



LFM289



LFM290



LFM387



Plate 36: Hallum, English and Merovingian Series.



LFM268
Series G



LFM269
Series G



LFM270
Series G



LFM276
Series T



LFM266
Series J



LFM272
Series E/N



LFM271
Maastricht



LFM267
Maastricht



LFM277
Merovingian



LFM278
Merovingian



LFM279
Merovingian



LFM265
?

Plate 37: Hallum, Series E.



LFM264



LFM274



LFM275



LFM325



LFM373



LFM377



LFM407



LFM413



LFM414



LFM415



LFM416



LFM417



LFM 418