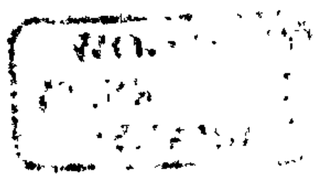
Bone, antler, tooth and horn technology and utilisation in prehistoric Scotland.

Andrew David Foxon

Volume II

Thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy, Department of Archaeology, University of Glasgow. February 1991.



VOLUME II CONTENTS

LIST OF FIGURES

Fig 3.7 The cycle of antler growth. From Davis 1987

a mature antler

b resorption begins at the base of the antler

c antler is shed

d skin covers pedicle

e new antler begins to grow

f antler fully grown and velvet about to be cast

Fig 3.8 Red deer antler development with age. From Schmid 1972

1 beam; 2 brow tine; 3 trez tine; 4 terminal tines; 5 bez tine; 6 crown: A procket; B 2-pointer; C 6-pointer; D 8-pointer; E 10-pointer; F 12-pointer

Fig 3.9 Antler morphology. From A MacGregor 1985

a roe deer; b fallow deer; c red deer; d reindeer; e elk

Fig 3.10 Section through a canine and a molar. From Vincent 1982; A MacGregor 1985

Fig 3.11 Section through a horn and the os cornu of a sheep. From Schmid 1972

Fig 4.1 Stress-strain curves. From Vincent 1982

a an elastic material

b an elastic-plastic material

c a plastic material

d a viscoelastic material

Fig 4.2 Stress-strain curves. From Vincent 1982; Wainwright et al 1976

a steel

b bone

c rubber

Fig 4.3 Forces within a loaded beam. From Wainwright et al 1976

Fig 4.4 The effect of a flaw on the reaction to tensile stress. From Wainwright et al 1976
a unnotched piece
b piece with notch or flaw

Fig 4.5 Differential reaction in three dimensions to tensile stress. From Wainwright et al 1976. Note the similarity between the longitudinal and transverse axes in the two pieces, and the difference between the radial axes
a laminar bone
b Haversian bone

Fig 4.6 Stress-strain curves. From A MacGregor 1985
a bone
b antler

Fig 4.7 Stress-strain curves. From A MacGregor 1985
a dry antler
b wet antler

Fig 5.1 Scotland: location of detailed maps Figs 5.2, 6.1, 8.1

Fig 5.2 Ardnamurchan and Loch Sunart: location of Fig 5.3

Fig 5.3 Location of Risga. Scale 1:50 000

Fig 5.4 Risga: points R 2-10; points/pins R 12-15; barbed points R 17-29; point/barb R 30; ?barb R 31; 'fish hook' R 32; point/hook R 33; blunts R 34-35. Scale 1:1

Fig 5.5 Risga: bladed tool R 36. From Clark 1956. Scale 1:3

Fig 5.6 Risga: bladed tools R 38-39, 41, 44; tongue-shaped object R 46; bevel-ended tools R 50, 53. Scale 1:1

Fig 5.7 Risga: bevel-ended tools R 57, 79, 84, 90, 96, 113, 138, 146, 156, 170, 193, 199, 239, 327. Scale 1:1

Fig 5.8 Risga: bevel-ended tools R 334, 403, 426, 438, 485, 552, 566, 568. Scale 1:1

Fig 6.1 Orkney: location of Figs 6.2, 7.1

Fig 6.2 Location of Skara Brae. Scale 1:50 000

Fig 6.3 Skara Brae, plan of the site. From Childe & Clarke 1983.

Fig 6.4 Skara Brae: points SB 75, 90, 91, 95, 102, 166, 169, 196, 361; perforated point SB 434; grooved point SB 441. Scale 1:1

Fig 6.5 Skara Brae: large points SB 404, 421, 430, 432; decorated points SB 443, 444. Scale 1:1

Fig 6.6 Skara Brae: awls SB 455, 458, 465; bird bone point SB 488; points/pins SB 529, 531, 539, 555. Scale 1:1

Fig 6.7 Skara Brae: pins SB 572, 573, 577, 578, 582, 591, 593. Scale 1:1

Fig 6.8 Skara Brae: spatulae SB 613, 614, 615; mandible blunt SB 638. Scale 1:1

Fig 6.9 Skara Brae: mandible blunt SB 676; long bone blunts SB 704, 708; slices SB 733, 740. Scale 1:1

Fig 6.10 Skara Brae: slices SB 741, 749, 756; metapodial mattocks SB 778, 780. Scale 1:1

Fig 6.11 Skara Brae: metapodial mattock SB 789. Scale 1:1

Fig 6.12 Skara Brae: scapula shovel SB 828. Scale 1:1

Fig 6.13 Skara Brae: scapula shovel SB 838. Scale 1:1

Fig 6.14 Skara Brae: astragalus polishers SB 869, 870; vessel SB 885. Scale 1:1

Fig 6.15 Skara Brae: vessel SB 886; antler adze sleeve SB 893; beads in process of manufacture SB 1051; pendants SB 1092, 1101, 1102; cube SB 1165, perforated plate SB 1184. Scale 1:1

Fig 7.1 Location of Midhowe. Scale 1:50 000

Fig 7.2 Midhowe, plan of the site

Fig 7.3 Midhowe: points M 2-4; points/pins M 5-7; pins M 8-10; pinhead M 11; blunts M 12-14, spatulae M 16-17. Scale 1:1

Fig 7.4 Midhowe: spatulae M 18, 22; pegged plate, large M 23; pegged plates, small M 27-28. Scale 1:1

Fig 7.5 Midhowe: pegged plates, small M 24-26, 29-30; handle M 32. Scale 1:1

Fig 7.6 Midhowe: handle M 33; socket M 34; ?socket M 35; cross-piece? M 38. Scale 1:1

Fig 7.7 Midhowe: cross-piece? M 40; combs, long-handled M 41-43, 47-48. Scale 1:1

Fig 7.8 Midhowe: combs, long-handled M 44-46, 49-50. Scale 1:1

Fig 7.9 Midhowe: comb, long-handled M 51; comb, single-sided M 52; comb, composite, double-sided M 53; whorls M 54, 57; scapula segment tools M 58, 59, 60. Scale 1:1

Fig 7.10 Midhowe: tube M 61; rings M 62-64; mattock M 66; antler debris M 91. Scale 1:1

Fig 7.11 Midhowe: cetacean vertebra cup, part, M 69; worked bone M 102. Scale 1:1

Fig 8.1 The Uists, location of fig 8.2

Fig 8.2 Location of Cnoc Sligeach, Sollas. Scale 1:50 000

Fig 8.3 Plan of wheelhouse A

Fig 8.4 Plan of wheelhouse B

Fig 8.5 Sollas: points SS 1-9; large point SS 11; perforated points SS 12-15; points/pins SS 16-18; pegs SS 19-21; blunts SS 24-25; spatula SS 26. Scale 1:1

Fig 8.6 Sollas: blunts SS 22-23; spatula SS 27; spatulate ?potting tools SS 28-29; pegged plates SS 30-33. Scale 1:1

Fig 8.7 Sollas: pegged plate SS 34; handles SS 35-37; socket SS 38; perforated bone SS 39; turned objects SS 40-43, 46. Scale 1:1

Fig 8.8 Sollas: turned objects SS 48-49; gaming piece/peg SS 53, cetacean bone ?blanks SS 57-59; ?polisher SS 60; toothed object SS 62; rib spatulate SS 63. Scale 1:1

Fig 8.9 Sollas: notched peg SS 61; tablet SS 64. Scale 1:1

Fig 8.10 Sollas: ?stake SS 65. Scale 1:1

LIST OF PLATES

Pl 6.5 Skara Brae: point SB 361; perforated points SB 436-37, 434; grooved points SB 440, 441, 438

Pl 6.6 Skara Brae: large points SB 428, 430, 429, 406; point/pin SB 539; large points SB 404, 432, 389

Pl 6.7 Skara Brae: perforated point SB 437, detail of perforation

Pl 6.8 Skara Brae: bird bone points SB 495, 486

Pl 6.9 Skara Brae: point/pin SB 534, detail of grinding on shaft

Pl 6.10 Skara Brae: pins SB 574, 580, 570, 568, 596, 576, 595, 587, 594, 589, 579, 585, 603, 575, 602, 604

Pl 6.11 Skara Brae: pin SB 576, detail of perforation

Pl 6.12 Skara Brae: pin SB 587, detail of polished head

Pl 6.13 Skara Brae: slices SB 754, 728, 749, 726, 733, 740, 748, 727, 741, 723

Pl 6.14 Skara Brae: metapodial mattocks SB 795, 799

Pl 6.15 Skara Brae: scapula shovels SB 838, 851

Pl 6.16 Skara Brae: pendants SB 1098, 1112, 1127, 1109, 1119, 1141, 1140, 1100; beads in process of manufacture SB 1056, 1057; beads SB 930, 935; boar's tusk SB 1152

Pl 6.17 Skara Brae: bead SB 947, detail of notching

Pl 6.18 Skara Brae: beads SB 1020, 950, 1007; pendants SB 1135, 1136

Pl 6.19 Skara Brae: beads SB 1042, 1021, 1039

Pl 7.1 Midhowe: pin M 9, detail of shaft

Pl 7.2 Midhowe: spatula M 18, detail of tip

Pl 7.3 Midhowe: handle M 32, detail of chatter marks

Pl 7.4 Midhowe: handle M 32, antler debris M 91; pegged plate, small M 28

Pl 7.5 Midhowe: long-handled combs, M 41, 43, 44, 45

Pl 7.6 Midhowe: long-handled comb M 48, detail of teeth

Pl 7.7 Midhowe: long-handled combs in process of manufacture M 49-50

Pl 7.8 Midhowe: long-handled comb in process of manufacture M 49, detail of sawing between teeth

Pl 7.9 Midhowe: antler-working debris M 91, detail of chop mark on surface and long facets

Pl 7.10 Midhowe: bone working debris, SB M 102, impact points

Pl 8.1 Sollas: point/pin SS 16, detail of shaft

Pl 8.2 Sollas: spatula SS 27, detail of tip

Pl 8.3 Sollas: turned object SS 42, detail of turned part

Pl 8.4 Sollas: turned object SS 49

Pl 8.5 Sollas: cetacean bone ?blank SS 56; cetacean bone working debris SS 131, 130, 134

Pl 8.6 Sollas: ?stake SS 65; notched bone SS 61

Pl 8.7 Sollas: cetacean bone working debris SS 128, detail of sawn end with central part split off

Pl 8.8 Sollas: cetacean bone working debris: 'chips' SS 141, 143, 145, 142, 144, 140

Pl 8.9 Sollas: cetacean bone working debris SS 155

CATALOGUE INTRODUCTION

The four catalogues presented below list the material from Risga, Skara Brae, Midhowe and Sollas which was examined for this study. For much of it, this is the first time it has been isolated and identified although some of the pieces from Skara Brae and Midhowe have been detailed before in the publications by Childe (e.g. 1931b) and Callander & Grant (1934). A complete catalogue of the material examined would run to several volumes in itself and so the purpose of including a shortened version here is to enable readers to identify individual pieces discussed in the text and relate all the items studied to museum accession numbers and/or find numbers. The information included on each item follows the following format:-

Object category as assigned by the writer;
catalogue number; description of animal and element origin;
other distinctive features; condition (i.e. complete or
broken); dimension; museum and accession number or find
number; excavator; year of excavation; location on site.

Not all these items of information can be given for all the pieces. A single dimension in millimetres is recorded, usually the length of an object but another dimension if that is considered more meaningful.

Abbreviations used for measurements are:-

diam	diameter
ht	height
l	length

Abbreviations are also given for the museums in which objects are located. These are:-

BM	British Museum, London
GAGM	Art Gallery & Museum, Kelvingrove, Glasgow
Hunt	Hunterian Museum, University of Glasgow
NMS	National Museum of Scotland, (all finds are in the Royal Museum of Scotland, Queen Street, formerly the National Museum of Antiquities of Scotland)
SB	Skara Brae site museum, Orkney
SM	Stromness Museum, Orkney
THM	Tankerness House Museum, Kirkwall, Orkney

For the Skara Brae material recovered from the excavations supervised by Childe, the year and finds number is given rather than the detailed location on site. This information is available from Childe's excavation diaries. The finds numbers are written on the objects in various coloured inks and pencil but in many cases are difficult to read. As a result there is a small group within each artefact category which have finds numbers which cannot be clearly read and cannot be linked into Childe's records although they are from the excavations supervised by him. Whatever information was legible is recorded. Black ink was used in 1927, red ink in 1928, green ink in 1929 and pencil from 1927-1930.

For site A at Sollas, the period to which individual objects can be attributed is given in the form 'Per A-C' i.e. period A-C (the early use of the site).

Within the text and catalogue references of this thesis the site names are abbreviated to:-

R	Risga
M	Midhowe
SB	Skara Brae
SS	Sollas

Figures (line drawings and illustrations) and plates within this volume are referred to as 'Fig' or 'Pl' followed by the chapter number and the number of plate within the illustration.

The purpose of the object line drawings is to present the reader with information on techniques of manufacture and wear. Items are shown with a firm outline at their outer edge, and any addition to the drawing conveys detail about the structure of the raw material, or the traces left on the surface by particular techniques of manufacture or uses. Cancellous tissue is represented by its trabecular structure, whereas compact bone is left plain. Grinding and trimming are shown by lines in the direction of the surface striae left by those techniques. The edge of cut and chop marks is identified. Since polishing leaves no visible striae, polished bone is also shown as plain.

Photographic plates are used when that medium can present the features under discussion in a way clearer than stylised line drawings.

Only a representative selection of the better preserved pieces in each category has been illustrated.

CATALOGUE OF OBJECTS FROM RISGA, LOCH SUNART, ARDNAMURCHAN

POINTS

1 compact bone, segment of shaft, broken, l 58, Hunt B.1951.1968.471

2 compact bone/antler, segment of shaft and tip, broken, l 52, Hunt B.1951.1967.1, Fig 5.4

3 compact bone, segment of shaft and tip, broken, l 50, Hunt B.1951.1967.2, Fig 5.4

4 compact bone, segment of shaft, broken, l 39, Hunt B.1951.1967.3, Fig 5.4

5 compact bone, segment of shaft and tip, broken, l 48, Hunt B.1951.1967.4, Fig 5.4

6 compact bone, segment of shaft and tip, broken, l 52, Hunt B.1951.1967.5, Fig 5.4

7 compact bone, segment of shaft, broken, l 44, Hunt B.1951.1967.7, Fig 5.4

8 compact bone, segment of shaft, broken, l 34, Hunt B.1951.1967.8, Fig 5.4

9 compact bone, segment of shaft, broken, l 35, Hunt B.1951.1967.9, Fig 5.4

10 antler, segment of shaft, broken, l 17, Hunt B.1951.1967.10, Fig 5.4

11 compact bone, segment of shaft, broken, l 76, Hunt B.1951.1971.38

POINTS/PINS

12 compact bone/antler, segment of shaft and tip, broken, l 41, Hunt B.1951.1967.6, Fig 5.4

13 compact bone/antler, segment of shaft and tip, broken, l 40, Hunt B.1951.1967.11, Fig 5.4

14 compact bone/antler, segment of shaft and tip, broken, l 38, Hunt B.1951.1967.12, Fig 5.4

15 compact bone/antler, segment of shaft and tip, broken, l 40, Hunt B.1951.1967.13, Fig 5.4

16 compact bone/antler, segment of shaft, broken, l 50, Hunt B.1951.1971.39

BARBED POINTS

17 antler, biserial barbs x 2 opposite, tip, broken, 1 49, Hunt B.1951.1961.1, Fig 5.4

18 antler, biserial barbs x 2 offset, shaft, broken, 1 28, Hunt B.1951.1961.2, Fig 5.4

19 antler, biserial barbs x 2 offset, shaft (?base), broken, 1 52, Hunt B.1951.1961.3, Fig 5.4

20 antler, single barb and base, complete, 1 42, Hunt 1951.1961.4, Fig 5.4

21 antler, biserial barbs x 2 offset, broken, 1 19, Hunt 1951.1961.5, Fig 5.4

22 antler, biserial barbs x 2 offset, broken, 1 56, Hunt 1951.1961.6, Fig 5.4

23 antler, biserial barbs, only 1 surviving, broken, 1 17, Hunt 1951.1961.7, Fig 5.4

24 antler, biserial barbs x 3 offset, broken, 1 46, Hunt 1951.1961.8, Fig 5.4

25 antler, biserial barbs, only one surviving, broken, 1 33, Hunt B.1951.1961.9, Fig 5.4

26 antler, biserial barbs x 2 offset, broken, 1 38, Hunt B.1951.1961.10, Fig 5.4

27 antler, biserial barbs x 2 offset, broken, 1 48, Hunt B.1951.1961.11, Fig 5.4

28 antler, biserial barbs x 2 offset, tip, broken, 1 52, Hunt 1951.1962, Fig 5.4

29 bone, mandible, uniserial barbs, 2+, perforated base, broken, 1 71, Hunt B.1951.1960, Fig 5.4

POINT/BARB

30 antler/compact bone, single hollow-based barb, 1 42, GAGM 55-96, Fig 5.4

?BARB

31 antler, angular, 1 43, Hunt B.1951.1964, Fig 5.4

'FISH HOOK'

32 antler/compact bone, pointed butt, tip and barb, broken, 1 40, Hunt B.1951.1963, Fig 5.4

POINT/HOOK

33 compact bone, broken, 1 41, GAGM '55-96, Fig 5.4

BLUNTS

34 antler, broken, 1 32, Hunt B.1964.2, Fig 5.4

35 compact bone, ridge, broken, 1 42, Hunt B.1951.1971.40, Fig 5.4

BLADED TOOLS

36 antler, 'beam mattock', perforated, axe-like blade, acute angle, broken across perforation, 1 199, GAGM '55-96, Fig 5.5

37 antler, beam, acute angle, broken piece of blade, 1 89, GAGM '55-96

38 antler, beam, acute angle, broken piece of blade and shaft, 1 160, Hunt B.1951.1969.1, Fig 5.6

39 antler, beam, acute angle, broken piece of blade and shaft, 1 145, Hunt B.1951.1969.2, Fig 5.6

40 antler, beam, steep angle, broken piece of narrow blade, 1 60, Hunt B.1951.1969.3

41 antler, beam, steep angle, broken piece of narrow blade, 1 33, Hunt B.1951.1969.4, Fig 5.6

42 antler, steep angle, polished area, broken longitudinally, 1 277, GAGM '55-96

43 deer metapodial, steep angle, broken piece of narrow blade, 1 50, GAGM '55-96

44 deer metapodial, ground blade, broken, 1 108, Hunt B.1951.1965, Fig 5.6

45 compact bone, segment of ground blade, broken, 1 58, Hunt B.1951.1968.169, Pl 5.5

TONGUE-SHAPED OBJECTS

46 compact bone, angled blade, broken, 1 60, Hunt B.1951.1970.9, Fig 5.6

47 compact bone, rounded blade, broken, 1 75, Hunt B.1951.1971.1

48 compact bone, broken, 1 36, Hunt B.1951.1971.41

BEVEL-ENDED TOOLS

DOUBLE-ENDED

(proximal end given first)

49 antler, blunt, broad, l 52, Hunt B.1951.1968.39

50 compact bone, ridge, blunt, blunt, l 61, Hunt B.1951.1968.31, Fig 5.6

51 compact bone, marrow cavity, blunt, broad, l 48, Hunt B.1951.1968.22

52 compact bone, marrow cavity, blunt, broad, l 51, Hunt B.1951.1968.24

53 compact bone, marrow cavity, blunt, broad, l 56, Hunt B.1951.1968.35, Fig 5.6

54 compact bone, marrow cavity, blunt, broad, l 57, Hunt B.1951.1968.286

55 compact bone, marrow cavity, blunt, broad, l 64, Hunt B.1951.1968.101

56 compact bone, corner, blunt, broad, l 42, Hunt B.1951.1968.28

57 compact bone, corner, blunt, broad, l 52, Hunt B.1951.1968.23, Fig 5.7

58 compact bone, corner, blunt, broad, l 58, Hunt B.1951.1968.236

59 compact bone, ridge, blunt, broad, l 52, Hunt B.1951.1968.235

60 compact bone, ridge, blunt, broad, l 54, Hunt B.1951.1968.25

61 compact bone, ridge, blunt, broad, l 54, Hunt B.1951.1968.100

62 compact bone, ridge, blunt, broad, l 58, Hunt B.1951.1968.29

63 compact bone, ridge, blunt, broad, l 60, Hunt B.1951.1968.30, Pls 5.6, 5.7

64 compact bone, ridge, blunt, broad, l 70, Hunt B.1951.1968.26

65 compact bone, ridge, blunt, broad, l 73, Hunt B.1951.1968.27

66 compact bone, ridge, broad, blunt, l 37, Hunt B.1951.1968.285

67 compact bone, marrow cavity, broad, broad, l 35, Hunt B.1951.1968.337

68 compact bone, marrow cavity, broad, broad, 1 37, Hunt B.1951.1968.3

69 compact bone, marrow cavity, broad, broad, 1 38, Hunt B.1951.1968.1

70 compact bone, marrow cavity, broad, broad, 1 38, Hunt B.1951.1968.32

71 compact bone, marrow cavity, broad, broad, 1 39, Hunt B.1951.1968.2

72 compact bone, marrow cavity, broad, broad, 1 39, Hunt B.1951.1968.33

73 compact bone, marrow cavity, broad, broad, 1 42, Hunt B.1951.1968.6

74 compact bone, marrow cavity, broad, broad, 1 45, Hunt B.1951.1968.4

75 compact bone, marrow cavity, broad, broad, 1 46, Hunt B.1951.1968.5

76 compact bone, marrow cavity, broad, broad, 1 46, Hunt B.1951.1968.234

77 compact bone, marrow cavity, broad, broad, 1 47, Hunt B.1951.1968.7

78 compact bone, marrow cavity, broad, broad, 1 48, Hunt B.1951.1968.10

79 compact bone, marrow cavity, broad, broad, 1 54, Hunt B.1951.1968.12, Fig 5.7

80 compact bone, marrow cavity, broad, broad, 1 54, Hunt B.1951.1968.14

81 compact bone, marrow cavity, broad, broad, 1 58, Hunt B.1951.1968.34

82 compact bone, marrow cavity, broad, broad, 1 64, Hunt B.1951.1968.16

83 compact bone, marrow cavity, broad, broad, 1 65, Hunt B.1951.1968.336

84 compact bone, marrow cavity, broad, broad, 1 67, Hunt B.1951.1968.17, Fig 5.7

85 compact bone, marrow cavity, broad, broad, 1 75, Hunt B.1951.1968.18

86 compact bone, corner, broad, broad, 1 37, Hunt B.1951.1968.385

87 compact bone, corner, broad, broad, 1 46, Hunt B.1951.1971.15, Pls 5.6, 5.8

88 compact bone, corner, broad, broad, 1 54, Hunt B.1951.1968.11

89 compact bone, blood channel, broad, broad, 1 54, Hunt B.1951.1968.13

90 compact bone, blood channel, broad, broad, 1 70, Hunt B.1951.1968.19, Fig 5.7, Pl 5.6

91 compact bone, blood channel, broad, broad, 1 74, Hunt B.1951.1968.20

92 compact bone, blood channel, broad, broad, 1 74, Hunt B.1951.1968.21

93 compact bone, ridge, broad, broad, 1 32, Hunt B.1951.1971.19

94 compact bone, ridge, broad, broad, 1 47, Hunt B.1951.1968.9

95 compact bone, ridge, broad, broad, 1 48, Hunt B.1951.1968.8

96 compact bone, ridge, broad, broad, 1 60, Hunt B.1951.1968.15, Fig 5.7

97 compact bone, ridge, broad, broad, 1 63, Hunt B.1951.1968.436

DOUBLE-ENDED WITH POINT

98 compact bone, ridge, point, blunt, 1 47, Hunt B.1951.1968.37, Pl 5.9

99 compact bone, marrow cavity, point, broad, 1 44, Hunt B.1951.1968.36, Pl 5.9

100 compact bone, marrow cavity, point, broad, 1 50, Hunt B.1951.1968.38, Pls 5.9, 5.10

101 compact bone, ridge, point, broad, 1 62, Hunt B.1951.1968.468, Pl 5.9

SINGLE-ENDED

102 antler, blunt, 1 43, Hunt B.1951.1968.41

103 antler, broad, 1 27, Hunt B.1951.1971.13

104 antler, broad, 1 30, Hunt B.1951.1971.35

105 antler, broad, l 32, Hunt B.1951.1968.42
106 antler, broad, l 32, Hunt B.1951.1968.43
107 antler, broad, l 32, Hunt B.1951.1968.51, Pl 5.11
108 antler, broad, l 34, Hunt B.1951.1971.36
109 antler, broad, l 34, Hunt B.1951.1968.44
110 antler, broad, l 35, Hunt B.1951.1968.45
111 antler, broad, l 38, GAGM '55-96, B
112 antler, broad, l 39, Hunt B.1951.1968.52, Pl 5.11
113 antler, broad, l 40, Hunt B.1951.1968.46, Fig 5.7
114 antler, broad, l 40, Hunt B.1951.1968.54
115 antler, broad, l 40, Hunt B.1951.1968.55
116 antler, broad, l 41, Hunt B.1951.1970.D5
117 antler, broad, l 42, Hunt B.1951.1968.53
118 antler, broad, l 42, Hunt B.1951.1968.56
119 antler, broad, l 42, Hunt B.1951.1968.57
120 antler, broad, l 43, Hunt B.1951.1968.40
121 antler, broad, l 43, Hunt B.1951.1968.47
122 antler, broad, l 43, Hunt B.1951.1968.48
123 antler, broad, l 43, Hunt B.1951.1968.60
124 antler, broad, l 44, Hunt B.1951.1968.49
125 antler, broad, l 45, Hunt B.1951.1968.469
126 antler, broad, l 46, Hunt B.1951.1971.10
127 antler, broad, l 47, Hunt B.1951.1970.D4
128 antler, broad, l 48, Hunt B.1951.1971.11
129 antler, broad, l 49, Hunt B.1951.1968.58, Pl 5.11
130 antler, broad, l 49, Hunt B.1951.1968.61
131 antler, broad, l 50, Hunt B.1951.1968.62
132 antler, broad, l 53, Hunt B.1951.1968.63
133 antler, broad, l 54, Hunt B.1951.1971.12
134 antler, broad, l 56, Hunt B.1951.1968.470
135 antler, broad, l 56, GAGM '55-96, A
136 antler, broad, l 62, Hunt B.1951.1968.50, Pl 5.11
137 antler, broad, l 69, Hunt B.1951.1970.D3
138 antler, broad, l 73, Hunt B.1951.1968.59, Fig 5.7, Pl 5.11
139 antler, broad, l 87, Hunt B.1951.1970.8
140 antler, broad, l 93, Hunt B.1951.1970.D2
141 antler, broad, l 105, Hunt B.1951.1970.D1
142 antler, broad, broken, l 22, Hunt B.1951.1971.9

143 compact bone, marrow cavity, blunt, 1 35, Hunt B.1951.1968.241

144 compact bone, marrow cavity, blunt, 1 36, Hunt B.1951.1971.23

145 compact bone, marrow cavity, blunt, 1 44, Hunt B.1951.1968.70

146 compact bone, marrow cavity, blunt, 1 45, Hunt B.1951.1968.252, Fig 5.7

147 compact bone, marrow cavity, blunt, 1 45, GAGM '55-96, C

148 compact bone, marrow cavity, blunt, 1 45, Hunt B.1951.1968.74

149 compact bone, marrow cavity, blunt, 1 48, Hunt B.1951.1968.102

150 compact bone, marrow cavity, blunt, 1 50, Hunt B.1951.1968.103

151 compact bone, marrow cavity, blunt, 1 50, Hunt B.1951.1968.365

152 compact bone, marrow cavity, blunt, 1 53, Hunt B.1951.1968.80

153 compact bone, marrow cavity, blunt, 1 58, Hunt B.1951.1968.86

154 compact bone, marrow cavity, blunt, gnawed, 1 60, Hunt B.1951.1968.88

155 compact bone, marrow cavity, blunt, 1 65, Hunt B.1951.1968.97

156 compact bone, corner, blunt, 1 39, Hunt B.1951.1968.66, Fig 5.7

157 compact bone, corner, blunt, 1 42, Hunt B.1951.1968.69

158 compact bone, corner, blunt, 1 48, Hunt B.1951.1968.75

159 compact bone, corner, blunt, 1 52, Hunt B.1951.1968.105

160 compact bone, corner, blunt, 1 54, Hunt B.1951.1968.82

161 compact bone, corner, blunt, 1 58, Hunt B.1951.1968.106

162 compact bone, corner, blunt, 1 60, Hunt B.1951.1968.92

163 compact bone, corner, blunt, 1 64, Hunt B.1951.1968.96

164 compact bone, corner, blunt, 1 87, Hunt B.1951.1968.110

165 compact bone, blood channel, blunt, 1 53, Hunt B.1951.1968.83

166 compact bone, blood channel, blunt, 1 71, Hunt B.1951.1968.281

167 compact bone, ridge, blunt, 1 27, Hunt B.1951.1968.64

168 compact bone, ridge, blunt, 1 33, Hunt B.1951.1968.65

169 compact bone, ridge, blunt, 1 40, Hunt B.1951.1968.67

170 compact bone, ridge, blunt, 1 41, Hunt B.1951.1968.68, Fig 5.7

171 compact bone, ridge, blunt, 1 43, Hunt B.1951.1968.71

172 compact bone, ridge, blunt, 1 44, Hunt B.1951.1968.118

173 compact bone, ridge, blunt, 1 46, Hunt B.1951.1968.72

174 compact bone, ridge, blunt, 1 46, Hunt B.1951.1968.73

175 compact bone, ridge, blunt, 1 47, Hunt B.1951.1968.77
176 compact bone, ridge, blunt, 1 48, Hunt B.1951.1968.76
177 compact bone, ridge, blunt, 1 48, Hunt B.1951.1968.78
178 compact bone, ridge, blunt, 1 49, Hunt B.1951.1968.79
179 compact bone, ridge, blunt, 1 49, Hunt B.1951.1968.104
180 compact bone, ridge, blunt, 1 53, Hunt B.1951.1968.81
181 compact bone, ridge, blunt, 1 54, Hunt B.1951.1968.84
182 compact bone, ridge, blunt, 1 57, Hunt B.1951.1968.85
183 compact bone, ridge, blunt, 1 58, Hunt B.1951.1968.87
184 compact bone, ridge, blunt, 1 58, Hunt B.1951.1971.29
185 compact bone, ridge, blunt, 1 60, Hunt B.1951.1968.89
186 compact bone, ridge, blunt, 1 60, Hunt B.1951.1968.90
187 compact bone, ridge, blunt, 1 61, Hunt B.1951.1968.94
188 compact bone, ridge, blunt, 1 61, Hunt B.1951.1968.107
189 compact bone, ridge, blunt, 1 61, Hunt B.1951.1971.3
190 compact bone, ridge, blunt, 1 62, Hunt B.1951.1968.91
191 compact bone, ridge, blunt, 1 64, Hunt B.1951.1968.93
192 compact bone, ridge, blunt, 1 64, Hunt B.1951.1968.95
193 compact bone, ridge, blunt, 1 74, Hunt B.1951.1968.108, Fig 5.7, Pl 5.12
194 compact bone, ridge, blunt, 1 78, Hunt B.1951.1968.109
195 compact bone, ridge, blunt, 1 84, Hunt B.1951.1968.98
196 compact bone, ridge, blunt, 1 92, Hunt B.1951.1968.99

197 compact bone, marrow cavity, broad, 1 26, Hunt B.1951.1971.20
198 compact bone, marrow cavity, broad, 1 31, Hunt B.1951.1971.22
199 compact bone, marrow cavity, broad, 1 31, Hunt B.1951.1968.112, Fig 5.7, Pl 5.13
200 compact bone, marrow cavity, broad, 1 31, Hunt B.1951.1968.113
201 compact bone, marrow cavity, broad, 1 31, Hunt B.1951.1968.179
202 compact bone, marrow cavity, broad, 1 31, Hunt B.1951.1968.238
203 compact bone, marrow cavity, broad, 1 31, Hunt B.1951.1968.288
204 compact bone, marrow cavity, broad, 1 32, Hunt B.1951.1968.440
205 compact bone, marrow cavity, broad, 1 32, Hunt B.1951.1971.31
206 compact bone, marrow cavity, broad, 1 33, Hunt B.1951.1968.289
207 compact bone, marrow cavity, broad, 1 35, Hunt B.1951.1968.115
208 compact bone, marrow cavity, broad, 1 35, Hunt B.1951.1968.116
209 compact bone, marrow cavity, broad, 1 35, Hunt B.1951.1968.390

210 compact bone, marrow cavity, broad, 1 35, Hunt B.1951.1968.393
211 compact bone, marrow cavity, broad, 1 35, Hunt B.1951.1968.442
212 compact bone, marrow cavity, broad, 1 35, Hunt B.1951.1971.16
213 compact bone, marrow cavity, broad, 1 36, Hunt B.1951.1968.114
214 compact bone, marrow cavity, broad, 1 36, Hunt B.1951.1968.140
215 compact bone, marrow cavity, broad, 1 36, Hunt B.1951.1968.141
216 compact bone, marrow cavity, broad, 1 36, Hunt B.1951.1968.445
217 compact bone, marrow cavity, broad, 1 37, Hunt B.1951.1968.142
218 compact bone, marrow cavity, broad, 1 37, Hunt B.1951.1968.242
219 compact bone, marrow cavity, broad, 1 37, Hunt B.1951.1968.294
220 compact bone, marrow cavity, broad, 1 37, Hunt B.1951.1968.338
221 compact bone, marrow cavity, broad, 1 37, Hunt B.1951.1968.340
222 compact bone, marrow cavity, broad, 1 37, Hunt B.1951.1971.25
223 compact bone, marrow cavity, broad, 1 38, Hunt B.1951.1968.292
224 compact bone, marrow cavity, broad, 1 38, Hunt B.1951.1968.293
225 compact bone, marrow cavity, broad, 1 39, Hunt B.1951.1968.117
226 compact bone, marrow cavity, broad, 1 39, Hunt B.1951.1968.144
227 compact bone, marrow cavity, broad, 1 39, Hunt B.1951.1968.244
228 compact bone, marrow cavity, broad, 1 39, Hunt B.1951.1971.21
229 compact bone, marrow cavity, broad, 1 40, Hunt B.1951.1968.243
230 compact bone, marrow cavity, broad, 1 40, Hunt B.1951.1968.245
231 compact bone, marrow cavity, broad, 1 40, Hunt B.1951.1968.296
232 compact bone, marrow cavity, broad, 1 40, Hunt B.1951.1968.298
233 compact bone, marrow cavity, broad, 1 40, Hunt B.1951.1968.341
234 compact bone, marrow cavity, broad, 1 40, Hunt B.1951.1968.343
235 compact bone, marrow cavity, broad, 1 40, Hunt B.1951.1968.394
236 compact bone, marrow cavity, broad, 1 40, Hunt B.1951.1968.395
237 compact bone, marrow cavity, broad, 1 40, Hunt B.1951.1971.27
238 compact bone, marrow cavity, broad, 1 41, Hunt B.1951.1968.145
239 compact bone, marrow cavity, broad, 1 41, Hunt B.1951.1968.346, Fig 5.7
240 compact bone, marrow cavity, broad, 1 41, Hunt B.1951.1968.396
241 compact bone, marrow cavity, broad, 1 41, Hunt B.1951.1968.397
242 compact bone, marrow cavity, broad, 1 41, Hunt B.1951.1968.398
243 compact bone, marrow cavity, broad, 1 42, Hunt B.1951.1968.182
244 compact bone, marrow cavity, broad, 1 42, Hunt B.1951.1968.247
245 compact bone, marrow cavity, broad, 1 42, Hunt B.1951.1968.297
246 compact bone, marrow cavity, broad, 1 42, Hunt B.1951.1968.300

247 compact bone, marrow cavity, broad, 1 42, Hunt B.1951.1968.449
248 compact bone, marrow cavity, broad, 1 43, Hunt B.1951.1968.146
249 compact bone, marrow cavity, broad, 1 43, Hunt B.1951.1968.192
250 compact bone, marrow cavity, broad, 1 43, Hunt B.1951.1968.193
251 compact bone, marrow cavity, broad, 1 43, Hunt B.1951.1968.249
252 compact bone, marrow cavity, broad, 1 43, Hunt B.1951.1968.403
253 compact bone, marrow cavity, broad, 1 43, Hunt B.1951.1968.409
254 compact bone, marrow cavity, broad, 1 43, Hunt B.1951.1968.448
255 compact bone, marrow cavity, broad, 1 43, Hunt B.1951.1968.451
256 compact bone, marrow cavity, broad, 1 44, Hunt B.1951.1968.119
257 compact bone, marrow cavity, broad, 1 44, Hunt B.1951.1968.147
258 compact bone, marrow cavity, broad, 1 44, Hunt B.1951.1968.251
259 compact bone, marrow cavity, broad, 1 44, Hunt B.1951.1968.301
260 compact bone, marrow cavity, broad, 1 44, Hunt B.1951.1968.349
261 compact bone, marrow cavity, broad, 1 44, Hunt B.1951.1968.401
262 compact bone, marrow cavity, broad, 1 44, Hunt B.1951.1968.453
263 compact bone, marrow cavity, broad, 1 45, Hunt B.1951.1968.120
264 compact bone, marrow cavity, broad, 1 45, Hunt B.1951.1968.148
265 compact bone, marrow cavity, broad, 1 45, Hunt B.1951.1968.191
266 compact bone, marrow cavity, broad, 1 45, Hunt B.1951.1968.194
267 compact bone, marrow cavity, broad, 1 45, Hunt B.1951.1968.250
268 compact bone, marrow cavity, broad, 1 45, Hunt B.1951.1968.350
269 compact bone, marrow cavity, broad, 1 45, Hunt B.1951.1968.354
270 compact bone, marrow cavity, broad, 1 45, Hunt B.1951.1968.408
271 compact bone, marrow cavity, broad, 1 45, Hunt B.1951.1971.30
272 compact bone, marrow cavity, broad, 1 46, Hunt B.1951.1968.121
273 compact bone, marrow cavity, broad, 1 46, Hunt B.1951.1968.150
274 compact bone, marrow cavity, broad, 1 46, Hunt B.1951.1968.198
275 compact bone, marrow cavity, broad, 1 46, Hunt B.1951.1968.303
276 compact bone, marrow cavity, broad, 1 46, Hunt B.1951.1968.306
277 compact bone, marrow cavity, broad, 1 46, Hunt B.1951.1968.406
278 compact bone, marrow cavity, broad, 1 46, Hunt B.1951.1968.407
279 compact bone, marrow cavity, broad, 1 46, Hunt B.1951.1968.455
280 compact bone, marrow cavity, broad, 1 47, Hunt B.1951.1968.254
281 compact bone, marrow cavity, broad, 1 47, Hunt B.1951.1968.355
282 compact bone, marrow cavity, broad, 1 47, Hunt B.1951.1968.410
283 compact bone, marrow cavity, broad, 1 47, Hunt B.1951.1971.18
284 compact bone, marrow cavity, broad, 1 48, Hunt B.1951.1968.123

285 compact bone, marrow cavity, broad, 1 48, Hunt B.1951.1968.199
286 compact bone, marrow cavity, broad, 1 48, Hunt B.1951.1968.358
287 compact bone, marrow cavity, broad, 1 48, Hunt B.1951.1968.359
288 compact bone, marrow cavity, broad, 1 48, Hunt B.1951.1968.363
289 compact bone, marrow cavity, broad, 1 48, Hunt B.1951.1968.411
290 compact bone, marrow cavity, broad, 1 49, Hunt B.1951.1968.124
291 compact bone, marrow cavity, broad, 1 49, Hunt B.1951.1968.204
292 compact bone, marrow cavity, broad, 1 49, Hunt B.1951.1968.260
293 compact bone, marrow cavity, broad, 1 49, Hunt B.1951.1968.412
294 compact bone, marrow cavity, broad, 1 49, Hunt B.1951.1968.472
295 compact bone, marrow cavity, broad, 1 50, Hunt B.1951.1968.153
296 compact bone, marrow cavity, broad, 1 50, Hunt B.1951.1968.201
297 compact bone, marrow cavity, broad, 1 50, Hunt B.1951.1968.364
298 compact bone, marrow cavity, broad, 1 50, Hunt B.1951.1968.414
299 compact bone, marrow cavity, broad, 1 51, Hunt B.1951.1968.125
300 compact bone, marrow cavity, broad, 1 51, Hunt B.1951.1968.262
301 compact bone, marrow cavity, broad, 1 51, Hunt B.1951.1968.366
302 compact bone, marrow cavity, broad, 1 51, Hunt B.1951.1968.367
303 compact bone, marrow cavity, broad, 1 51, Hunt B.1951.1968.368
304 compact bone, marrow cavity, broad, 1 51, Hunt B.1951.1968.416
305 compact bone, marrow cavity, broad, 1 52, Hunt B.1951.1968.127
306 compact bone, marrow cavity, broad, 1 52, Hunt B.1951.1968.156
307 compact bone, marrow cavity, broad, 1 52, Hunt B.1951.1968.208
308 compact bone, marrow cavity, broad, 1 52, Hunt B.1951.1968.310
309 compact bone, marrow cavity, broad, 1 52, Hunt B.1951.1968.314
310 compact bone, marrow cavity, broad, 1 53, GAGM '55-96, 7
311 compact bone, marrow cavity, broad, 1 53, Hunt B.1951.1968.128
312 compact bone, marrow cavity, broad, 1 53, Hunt B.1951.1968.157
313 compact bone, marrow cavity, broad, 1 53, Hunt B.1951.1968.207
314 compact bone, marrow cavity, broad, 1 53, Hunt B.1951.1968.311
315 compact bone, marrow cavity, broad, 1 53, Hunt B.1951.1968.313
316 compact bone, marrow cavity, broad, 1 53, Hunt B.1951.1968.369
317 compact bone, marrow cavity, broad, 1 54, Hunt B.1951.1968.158
318 compact bone, marrow cavity, broad, 1 54, Hunt B.1951.1968.161
319 compact bone, marrow cavity, broad, 1 54, Hunt B.1951.1968.209
320 compact bone, marrow cavity, broad, 1 54, Hunt B.1951.1968.210
321 compact bone, marrow cavity, broad, 1 54, Hunt B.1951.1968.266
322 compact bone, marrow cavity, broad, 1 54, Hunt B.1951.1968.312

323 compact bone, marrow cavity, broad, 1 54, Hunt B.1951.1968.370
324 compact bone, marrow cavity, broad, 1 54, Hunt B.1951.1968.371
325 compact bone, marrow cavity, broad, 1 54, Hunt B.1951.1968.386
326 compact bone, marrow cavity, broad, 1 54, Hunt B.1951.1968.418
327 compact bone, marrow cavity, broad, 1 55, Hunt B.1951.1968.159, Fig 5.7
328 compact bone, marrow cavity, broad, 1 55, Hunt B.1951.1968.160
329 compact bone, marrow cavity, broad, 1 55, Hunt B.1951.1968.167
330 compact bone, marrow cavity, broad, 1 55, Hunt B.1951.1968.212
331 compact bone, marrow cavity, broad, 1 55, Hunt B.1951.1968.213
332 compact bone, marrow cavity, broad, 1 55, Hunt B.1951.1968.267
333 compact bone, marrow cavity, broad, 1 55, Hunt B.1951.1971.37
334 compact bone, marrow cavity, broad, 1 56, Hunt B.1951.1968.133, Fig 5.8
335 compact bone, marrow cavity, broad, 1 56, Hunt B.1951.1968.134
336 compact bone, marrow cavity, broad, 1 56, Hunt B.1951.1968.162
337 compact bone, marrow cavity, broad, 1 56, Hunt B.1951.1968.163
338 compact bone, marrow cavity, broad, 1 56, Hunt B.1951.1968.164
339 compact bone, marrow cavity, broad, 1 56, Hunt B.1951.1968.216
340 compact bone, marrow cavity, broad, 1 56, Hunt B.1951.1968.316
341 compact bone, marrow cavity, broad, 1 56, Hunt B.1951.1968.420
342 compact bone, marrow cavity, broad, 1 56, Hunt B.1951.1968.422
343 compact bone, marrow cavity, broad, 1 56, Hunt B.1951.1968.463
344 compact bone, marrow cavity, broad, 1 57, GAGM '55-96, 5
345 compact bone, marrow cavity, broad, 1 57, Hunt B.1951.1968.165
346 compact bone, marrow cavity, broad, 1 57, Hunt B.1951.1968.166
347 compact bone, marrow cavity, broad, 1 57, Hunt B.1951.1968.168
348 compact bone, marrow cavity, broad, 1 57, Hunt B.1951.1968.215
349 compact bone, marrow cavity, broad, 1 57, Hunt B.1951.1968.317
350 compact bone, marrow cavity, broad, 1 58, Hunt B.1951.1968.269
351 compact bone, marrow cavity, broad, 1 58, Hunt B.1951.1968.270
352 compact bone, marrow cavity, broad, 1 58, Hunt B.1951.1968.272
353 compact bone, marrow cavity, broad, 1 58, Hunt B.1951.1968.373
354 compact bone, marrow cavity, broad, 1 58, Hunt B.1951.1968.423
355 compact bone, marrow cavity, broad, 1 58, Hunt B.1951.1968.424
356 compact bone, marrow cavity, broad, 1 58, Hunt B.1951.1968.428
357 compact bone, marrow cavity, broad, 1 58, Hunt B.1951.1968.465
358 compact bone, marrow cavity, broad, 1 59, GAGM '55-96, 6

359 compact bone, marrow cavity, broad, 1 59, Hunt B.1951.1968.273
360 compact bone, marrow cavity, broad, 1 60, GAGM '55-96, 3
361 compact bone, marrow cavity, broad, 1 60, Hunt B.1951.1968.170
362 compact bone, marrow cavity, broad, 1 60, Hunt B.1951.1968.274
363 compact bone, marrow cavity, broad, 1 60, Hunt B.1951.1968.275
364 compact bone, marrow cavity, broad, 1 60, Hunt B.1951.1968.376
365 compact bone, marrow cavity, broad, 1 60, Hunt B.1951.1968.377
366 compact bone, marrow cavity, broad, 1 61, Hunt B.1951.1968.218
367 compact bone, marrow cavity, broad, 1 62, Hunt B.1951.1968.172
368 compact bone, marrow cavity, broad, 1 62, Hunt B.1951.1968.219
369 compact bone, marrow cavity, broad, 1 62, Hunt B.1951.1968.425
370 compact bone, marrow cavity, broad, 1 64, Hunt B.1951.1968.326
371 compact bone, marrow cavity, broad, 1 64, Hunt B.1951.1968.378
372 compact bone, marrow cavity, broad, 1 65, Hunt B.1951.1968.173
373 compact bone, marrow cavity, broad, 1 65, Hunt B.1951.1968.221
374 compact bone, marrow cavity, broad, 1 65, Hunt B.1951.1968.222
375 compact bone, marrow cavity, broad, 1 65, Hunt B.1951.1968.223
376 compact bone, marrow cavity, broad, 1 66, Hunt B.1951.1968.135
377 compact bone, marrow cavity, broad, 1 66, Hunt B.1951.1968.224
378 compact bone, marrow cavity, broad, 1 66, Hunt B.1951.1968.330
379 compact bone, marrow cavity, broad, 1 66, Hunt B.1951.1968.331
380 compact bone, marrow cavity, broad, 1 66, Hunt B.1951.1968.429
381 compact bone, marrow cavity, broad, 1 67, Hunt B.1951.1968.175
382 compact bone, marrow cavity, broad, 1 67, Hunt B.1951.1968.176
383 compact bone, marrow cavity, broad, 1 67, Hunt B.1951.1968.186
384 compact bone, marrow cavity, broad, 1 68, Hunt B.1951.1968.226
385 compact bone, marrow cavity, broad, 1 68, Hunt B.1951.1968.279
386 compact bone, marrow cavity, broad, 1 68, Hunt B.1951.1968.379
387 compact bone, marrow cavity, broad, 1 68, Hunt B.1951.1968.431
388 compact bone, marrow cavity, broad, 1 70, Hunt B.1951.1968.380
389 compact bone, marrow cavity, broad, 1 71, Hunt B.1951.1968.230
390 compact bone, marrow cavity, broad, 1 72, Hunt B.1951.1968.229
391 compact bone, marrow cavity, broad, 1 72, Hunt B.1951.1971.8
392 compact bone, marrow cavity, broad, 1 73, Hunt B.1951.1968.177
393 compact bone, marrow cavity, broad, 1 73, Hunt B.1951.1968.228
394 compact bone, marrow cavity, broad, 1 75, Hunt B.1951.1968.333
395 compact bone, marrow cavity, broad, 1 76, Hunt B.1951.1968.334
396 compact bone, marrow cavity, broad, 1 78, GAGM '55-96, 1

397 compact bone, marrow cavity, broad, 1 78, Hunt B.1951.1968.384

398 compact bone, marrow cavity, broad, 1 80, Hunt B.1951.1968.178

399 compact bone, marrow cavity, broad, 1 81, Hunt B.1951.1968.138

400 compact bone, marrow cavity, broad, 1 82, Hunt B.1951.1968.139

401 compact bone, marrow cavity, broad, 1 82, Hunt B.1951.1968.231

402 compact bone, marrow cavity, broad, 1 83, Hunt B.1951.1971.2

403 compact bone, marrow cavity, broad, 1 90, Hunt B.1951.1968.233, Fig 5.8

404 compact bone, marrow cavity, broad, 1 100, Hunt B.1951.1971.14

405 compact bone, marrow cavity, broad, broken, 1 25, Hunt B.1951.1971.4

406 compact bone, marrow cavity, broad, broken, 1 27, Hunt B.1951.1968.111

407 compact bone, marrow cavity, broad, broken, 1 32, Hunt B.1951.1968.239

408 compact bone, marrow cavity, broad, broken, 1 33, GAGM '55-96

409 compact bone, marrow cavity, broad, broken, 1 34, Hunt B.1951.1968.441

410 compact bone, marrow cavity, broad, broken, 1 36, Hunt B.1951.1968.392

411 compact bone, corner, broad, 1 34, Hunt B.1951.1968.391

412 compact bone, corner, broad, 1 36, Hunt B.1951.1968.443

413 compact bone, corner, broad, 1 39, Hunt B.1951.1968.143

414 compact bone, corner, broad, 1 39, Hunt B.1951.1968.181

415 compact bone, corner, broad, 1 40, Hunt B.1951.1968.180

416 compact bone, corner, broad, 1 42, Hunt B.1951.1968.189

417 compact bone, corner, broad, 1 42, Hunt B.1951.1968.299

418 compact bone, corner, broad, 1 43, Hunt B.1951.1968.183

419 compact bone, corner, broad, 1 43, Hunt B.1951.1968.351

420 compact bone, corner, broad, 1 44, Hunt B.1951.1968.195

421 compact bone, corner, broad, 1 45, Hunt B.1951.1968.404

422 compact bone, corner, broad, 1 46, Hunt B.1951.1968.122

423 compact bone, corner, broad, 1 46, Hunt B.1951.1968.253

424 compact bone, corner, broad, 1 46, Hunt B.1951.1968.255

425 compact bone, corner, broad, 1 46, Hunt B.1951.1968.256

426 compact bone, corner, broad, 1 47, Hunt B.1951.1968.149, Fig 5.8

427 compact bone, corner, broad, 1 47, Hunt B.1951.1968.457

428 compact bone, corner, broad, 1 48, Hunt B.1951.1968.151

429 compact bone, corner, broad, 1 48, Hunt B.1951.1968.185

430 compact bone, corner, broad, 1 48, Hunt B.1951.1968.361

431 compact bone, corner, broad, 1 49, Hunt B.1951.1968.362

432 compact bone, corner, broad, 1 50, Hunt B.1951.1968.309

433 compact bone, corner, broad, 1 56, Hunt B.1951.1968.318

434 compact bone, corner, broad, 1 56, Hunt B.1951.1968.421

435 compact bone, corner, broad, 1 56, Hunt B.1951.1968.132

436 compact bone, corner, broad, 1 59, Hunt B.1951.1968.319

437 compact bone, corner, broad, 1 60, Hunt B.1951.1968.375

438 compact bone, corner, broad, 1 61, Hunt B.1951.1968.217, Fig 5.8

439 compact bone, corner, broad, 1 63, Hunt B.1951.1968.426

440 compact bone, corner, broad, 1 64, Hunt B.1951.1968.327

441 compact bone, corner, broad, 1 66, Hunt B.1951.1968.174

442 compact bone, corner, broad, 1 66, Hunt B.1951.1968.332

443 compact bone, corner, broad, 1 69, Hunt B.1951.1968.227

444 compact bone, corner, broad, 1 69, Hunt B.1951.1968.280

445 compact bone, corner, broad, 1 75, Hunt B.1951.1968.382

446 compact bone, corner, broad, 1 77, Hunt B.1951.1968.335

447 compact bone, corner, broad, 1 86, Hunt B.1951.1968.232

448 compact bone, corner, broad, broken, 1 24, Hunt B.1951.1968.237

449 compact bone, blood channel, broad, 1 38, Hunt B.1951.1971.7

450 compact bone, blood channel, broad, 1 41, Hunt B.1951.1968.344

451 compact bone, blood channel, broad, 1 42, Hunt B.1951.1968.246

452 compact bone, blood channel, broad, 1 43, Hunt B.1951.1968.447

453 compact bone, blood channel, broad, 1 44, Hunt B.1951.1968.348

454 compact bone, blood channel, broad, 1 44, Hunt B.1951.1968.450

455 compact bone, blood channel, broad, 1 48, Hunt B.1951.1968.152

456 compact bone, blood channel, broad, 1 49, Hunt B.1951.1968.155

457 compact bone, blood channel, broad, 1 50, Hunt B.1951.1968.126

458 compact bone, blood channel, broad, 1 50, Hunt B.1951.1968.154

459 compact bone, blood channel, broad, 1 51, Hunt B.1951.1968.265

460 compact bone, blood channel, broad, 1 52, Hunt B.1951.1968.129
461 compact bone, blood channel, broad, 1 53, Hunt B.1951.1968.130
462 compact bone, blood channel, broad, 1 60, Hunt B.1951.1968.325
463 compact bone, blood channel, broad, 1 61, Hunt B.1951.1968.171
464 compact bone, blood channel, broad, 1 67, Hunt B.1951.1968.225
465 compact bone, blood channel, broad, 1 70, Hunt B.1951.1968.137

466 compact bone, ridge, broad, 1 28, Hunt B.1951.1968.287
467 compact bone, ridge, broad, 1 28, Hunt B.1951.1968.437,
Pl 5.13
468 compact bone, ridge, broad, 1 30, Hunt B.1951.1968.438,
Pl 5.13
469 compact bone, ridge, broad, 1 32, Hunt B.1951.1968.387
470 compact bone, ridge, broad, 1 32, Hunt B.1951.1968.389
471 compact bone, ridge, broad, 1 33, Hunt B.1951.1971.32
472 compact bone, ridge, broad, 1 34, Hunt B.1951.1971.28
473 compact bone, ridge, broad, 1 35, Hunt B.1951.1968.446
474 compact bone, ridge, broad, 1 35, Hunt B.1951.1971.24
475 compact bone, ridge, broad, 1 36, Hunt B.1951.1968.291
476 compact bone, ridge, broad, 1 36, Hunt B.1951.1968.339
477 compact bone, ridge, broad, 1 36, Hunt B.1951.1968.444
478 compact bone, ridge, broad, 1 36, Hunt B.1951.1971.34
479 compact bone, ridge, broad, 1 38, Hunt B.1951.1968.240
480 compact bone, ridge, broad, 1 38, Hunt B.1951.1971.26
481 compact bone, ridge, broad, 1 38, Hunt B.1951.1971.33
482 compact bone, ridge, broad, 1 40, Hunt B.1951.1968.295
483 compact bone, ridge, broad, 1 40, Hunt B.1951.1968.342
484 compact bone, ridge, broad, 1 40, Hunt B.1951.1968.345
485 compact bone, ridge, broad, 1 41, Hunt B.1951.1968.400,
Fig 5.8
486 compact bone, ridge, broad, 1 42, Hunt B.1951.1971.5
487 compact bone, ridge, broad, 1 43, Hunt B.1951.1968.196
488 compact bone, ridge, broad, 1 43, Hunt B.1951.1968.248
489 compact bone, ridge, broad, 1 43, Hunt B.1951.1968.352
490 compact bone, ridge, broad, 1 44, Hunt B.1951.1968.304
491 compact bone, ridge, broad, 1 44, Hunt B.1951.1968.402
492 compact bone, ridge, broad, 1 44, Hunt B.1951.1968.452
493 compact bone, ridge, broad, 1 44, Hunt B.1951.1968.454

494 compact bone, ridge, broad, 1 45, Hunt B.1951.1968.197
495 compact bone, ridge, broad, 1 46, Hunt B.1951.1968.353
496 compact bone, ridge, broad, 1 46, Hunt B.1951.1968.356
497 compact bone, ridge, broad, 1 46, Hunt B.1951.1968.405
498 compact bone, ridge, broad, 1 47, Hunt B.1951.1968.257
499 compact bone, ridge, broad, 1 47, Hunt B.1951.1968.258
500 compact bone, ridge, broad, 1 47, Hunt B.1951.1968.305
501 compact bone, ridge, broad, 1 47, Hunt B.1951.1968.357
502 compact bone, ridge, broad, 1 47, Hunt B.1951.1971.17
503 compact bone, ridge, broad, 1 48, Hunt B.1951.1968.200
504 compact bone, ridge, broad, 1 48, Hunt B.1951.1968.203
505 compact bone, ridge, broad, 1 48, Hunt B.1951.1968.308
506 compact bone, ridge, broad, 1 48, Hunt B.1951.1968.360
507 compact bone, ridge, broad, 1 48, Hunt B.1951.1968.458
508 compact bone, ridge, broad, 1 49, Hunt B.1951.1968.259
509 compact bone, ridge, broad, 1 49, Hunt B.1951.1968.413
510 compact bone, ridge, broad, 1 50, Hunt B.1951.1968.202
511 compact bone, ridge, broad, 1 50, Hunt B.1951.1968.261
512 compact bone, ridge, broad, 1 50, Hunt B.1951.1968.307
513 compact bone, ridge, broad, 1 50, Hunt B.1951.1968.415
514 compact bone, ridge, broad, 1 51, Hunt B.1951.1968.205
515 compact bone, ridge, broad, 1 52, Hunt B.1951.1968.264
516 compact bone, ridge, broad, 1 52, Hunt B.1951.1968.417
517 compact bone, ridge, broad, 1 52, Hunt B.1951.1968.459
518 compact bone, ridge, broad, 1 53, Hunt B.1951.1968.315
519 compact bone, ridge, broad, 1 54, Hunt B.1951.1968.131
520 compact bone, ridge, broad, 1 54, Hunt B.1951.1968.460
521 compact bone, ridge, broad, 1 55, Hunt B.1951.1968.211
522 compact bone, ridge, broad, 1 55, Hunt B.1951.1968.268
523 compact bone, ridge, broad, 1 56, Hunt B.1951.1968.271
524 compact bone, ridge, broad, 1 56, Hunt B.1951.1968.419
525 compact bone, ridge, broad, 1 56, Hunt B.1951.1968.462
526 compact bone, ridge, broad, 1 57, Hunt B.1951.1968.214
527 compact bone, ridge, broad, 1 57, Hunt B.1951.1968.320
528 compact bone, ridge, broad, 1 58, Hunt B.1951.1968.464
529 compact bone, ridge, broad, 1 59, Hunt B.1951.1968.374
530 compact bone, ridge, broad, 1 60, Hunt B.1951.1968.321
531 compact bone, ridge, broad, 1 60, Hunt B.1951.1968.322

532 compact bone, ridge, broad, 1 60, Hunt B.1951.1968.323

533 compact bone, ridge, broad, 1 61, Hunt B.1951.1968.324

534 compact bone, ridge, broad, 1 61, Hunt B.1951.1968.276

535 compact bone, ridge, broad, 1 62, Hunt B.1951.1968.466

536 compact bone, ridge, broad, 1 65, GAGM '55-96, 2

537 compact bone, ridge, broad, 1 65, Hunt B.1951.1968.329

538 compact bone, ridge, broad, 1 66, Hunt B.1951.1968.328

539 compact bone, ridge, broad, 1 66, Hunt B.1951.1968.136

540 compact bone, ridge, broad, 1 68, Hunt B.1951.1968.278

541 compact bone, ridge, broad, 1 68, Hunt B.1951.1968.430

542 compact bone, ridge, broad, 1 69, GAGM '55-96, 4

543 compact bone, ridge, broad, 1 70, Hunt B.1951.1968.381

544 compact bone, ridge, broad, 1 71, Hunt B.1951.1968.467

545 compact bone, ridge, broad, 1 72, Hunt B.1951.1968.283

546 compact bone, ridge, broad, 1 72, Hunt B.1951.1968.432

547 compact bone, ridge, broad, 1 73, Hunt B.1951.1968.284

548 compact bone, ridge, broad, 1 73, Hunt B.1951.1968.433

549 compact bone, ridge, broad, 1 74, Hunt B.1951.1968.282

550 compact bone, ridge, broad, 1 76, Hunt B.1951.1968.383

551 compact bone, ridge, broad, 1 82, Hunt B.1951.1968.434

552 compact bone, ridge, broad, 1 85, Hunt B.1951.1968.435, Fig 5.8

553 compact bone, ridge and concavity, broad, 1 33, Hunt B.1951.1968.187

554 compact bone, ridge and concavity, broad, 1 35, Hunt B.1951.1968.290

555 compact bone, ridge and concavity, broad, 1 39, Hunt B.1951.1968.188

556 compact bone, ridge and concavity, broad, 1 43, Hunt B.1951.1968.190

557 compact bone, ridge and concavity, broad, 1 47, Hunt B.1951.1968.456

558 compact bone, ridge and concavity, broad, 1 48, Hunt B.1951.1968.184

559 compact bone, ridge and concavity, broad, 1 53, Hunt B.1951.1968.206

560 compact bone, ridge and concavity, broad, l 58, Hunt B.1951.1968.427

561 compact bone, ridge and concavity, broad, l 63, Hunt B.1951.1968.220

562 compact bone, concavity, broad, l 30, Hunt B.1951.1968.439, Pl 5.13

563 compact bone, concavity, broad, l 33, Hunt B.1951.1968.388

564 compact bone, concavity, broad, l 44, Hunt B.1951.1968.302

565 compact bone, concavity, broad, l 55, Hunt B.1951.1968.461

566 compact bone, concavity, broad, l 60, Hunt B.1951.1968.277, Fig 5.8

567 compact bone, rib, broad, l 35, Hunt B.1951.1971.6

568 compact bone, rib, broad, l 40, Hunt B.1951.1968.347, Fig 5.8

569 compact bone, rib, broad, l 42, Hunt B.1951.1968.399

570 compact bone, rib, broad, l 52, Hunt B.1951.1968.263

571 compact bone, rib, broad, l 53, Hunt B.1951.1968.372

CATALOGUE OF OBJECTS FROM SKARA BRAE, ORKNEY

POINTS

1 compact bone, broken, 1 60, SM A255, Watt

2 sheep metapodial, ground head, complete, 1 57, SM A255, Watt

3 sheep metatarsal, proximal, almost complete, 1 71, SM A255, Watt

4 sheep metapodial, ground head, complete, 1 50, SM A255, Watt

5 sheep metapodial, ground head, broken, 1 40, SM A255, Watt

6 sheep metapodial, ground head, broken, 1 47, SM A255, Watt

7 sheep metapodial, broken, 1 66, SM A255, Watt

8 sheep metapodial, ground head, complete, 1 77, SM A255, Watt

9 sheep metapodial, ground head, broken, 1 44, SM A255, Watt

10 sheep metapodial, ground head, broken, 1 33, SM A255, Watt

11 sheep metapodial, ground head, complete, 1 65, SM A255, Watt

12 sheep metapodial, ground head, complete, 1 60, SM A255, Watt

13 sheep metapodial, ground head, complete, 1 59, SM A255, Watt 29

14 sheep metapodial, ground head, broken, 1 21, SM A255, Watt

15 sheep metapodial, ground head, complete, 1 54, SM A255, Watt

16 sheep metapodial, almost complete, 1 93, SM A255, Watt

17 sheep metapodial, ground head, broken, 1 34, SM A255, Watt

18 sheep metapodial, ground head, complete, 1 60, SM A255, Watt

19 ?sheep metapodial, broken, 1 53, SM A255, Watt

20 sheep metapodial, complete, 1 79, SM A255, Watt

21 sheep metapodial, complete, 1 93, SM A255, Watt

22 sheep metapodial, ground head, complete, 1 71, SM A255, Watt

23 sheep metapodial, ground head, complete, 1 58, SM A255, Watt

24 sheep metapodial, ground head, complete, 1 75, SM A255, Watt

25 sheep metapodial, almost complete, 1 72, SM A255, Watt 7

26 sheep metapodial, broken, 1 43, SM A255, Watt

27 sheep metapodial, ground head, complete, 1 62, SM A255, Watt

28 sheep metapodial, ground head, broken, 1 55, SM A255, Watt

29 sheep metapodial, complete, 1 81, SM A255, Watt

30 sheep metapodial, complete, 1 84, SM A255, Watt 26

31 sheep metapodial, ground head, almost complete, 1 104, SM A255, Watt 25

32 sheep metapodial, ground head, complete, 1 64, SM A255, Watt

33 sheep metapodial, complete, 1 64, SM A255, Watt 28

34 sheep metapodial, ground head, almost complete, 1 89, SM A255, Watt

35 sheep metapodial, ground head, broken, 1 25, SM A255, Watt

36 compact bone, angular head, complete, 1 70, SM A255, Watt

37 compact bone, angular head, complete, 1 80, SM A255, Watt

38 compact bone, flattened head, complete, 1 54, SM A255, Watt

39 compact bone, broken, 1 35, SM A255, Watt

40 compact bone, broken, 1 62, SM A255, Watt

41 compact bone, angular head, complete, 1 89, SM A255, Watt

42 compact bone, broken, 1 44, SM A255, Watt

43 compact bone, ?broken, 1 50, SM A255, Watt

44 compact bone, broken, 1 47, SM A255, Watt

45 compact bone, ground head, complete, 1 57, SM A255, Watt

46 compact bone, broken, 1 59, SM A255, Watt

47 compact bone, broken, 1 39, SM A255, Watt

48 compact bone, broken, 1 19, SM A255, Watt

49 compact bone, broken, 1 35, SM A255, Watt

50 compact bone, ground head, complete, 1 49, SM A255, Watt

51 ?sheep metapodial, broken, 1 56, SM A255, Watt

52 compact bone, broken, 1 55, SM A255, Watt

53 compact bone, broken, 1 29, SM A255, Watt

54 sheep metapodial, ground head, complete, 1 85, SM A255, Watt

55 compact bone, broken, 1 73, SM ?A255/258, Watt

56 sheep metapodial, ground head, broken, 1 53, SM ?A255/258, Watt

57 sheep metapodial, complete, 1 59, THM S.2a, Watt

58 sheep metapodial, complete, 1 107, THM S.14, Watt

59 sheep metapodial, complete, 1 109, THM S.15, Watt

60 sheep metapodial, complete, 1 114, THM S.16, Watt

61 sheep metapodial, complete, 1 96, THM S.17, Watt

62 sheep metapodial, ground head, complete, 1 100, THM S.18, Watt

63 sheep metapodial, ground head, complete, 1 118, NMS HA 42, Watt

64 sheep metapodial, complete, 1 82, NMS HA 63, Watt

65 sheep metapodial, ground head, complete, 1 84, NMS HA 64, Watt

66 sheep metapodial, complete, 1 91, NMS HA 65, Watt

67 sheep metapodial, complete, 1 73, NMS HA 66, Watt

68 sheep metapodial, ground head, complete, 1 61, NMS HA 67, Watt

69 sheep metapodial, ground head, complete, 1 75, NMS HA 68, Watt

70 sheep metapodial, ground head, complete, 1 61, NMS HA 69, Watt

71 sheep metapodial, ground head, almost complete, 1 64, NMS HA 71, Watt

72 sheep metapodial, ground head, almost complete, 1 59, NMS HA 72, Watt

73 sheep metapodial, proximal, complete, 1 104, NMS HA 73, Watt

74 sheep metapodial, ground head, broken, 1 80, NMS HA 74, Watt

75 sheep metapodial, ground head, complete, 1 123, NMS HA 75, Watt, Fig 6.4

76 compact bone, broken, 1 36, NMS HA 77, Watt

77 sheep metapodial, proximal, ground head, complete, 1 65, NMS HA 81, Watt

78 sheep metapodial, proximal, ground head, complete, 1 59, NMS HA 82, Watt

79 compact bone, complete, 1 61, NMS HA 83, Watt

80 compact bone, complete, 1 61, NMS HA 84, Watt

81 sheep metapodial, ground head, complete, 1 57, NMS HA 86, Watt

82 compact bone, broken, 1 83, NMS HA 89, Watt

83 sheep metapodial, ground head, complete, 1 85, NMS HA 379, Paterson 1927, 30

84 sheep metapodial, ground head, complete, 1 87, NMS HA 335, Paterson 1927, 34

85 sheep metapodial, ground head, complete, 1 74, NMS HA 337, Paterson 1927, 35

86 sheep metapodial, ground head, complete, 1 73, NMS HA 339, Paterson 1927, 35

87 sheep metapodial, ground head, complete, 1 76, NMS HA 338, Paterson 1927, 36

88 sheep metapodial, ground head, complete, 1 70, NMS HA 341, Paterson 1927, 36

89 sheep metapodial, immature, ground head, broken, 1 88, NMS HA 370, Paterson 1927, 36

90 sheep metapodial, ground head, complete, 1 77, NMS HA 390, Paterson 1927, 36, Fig 6.4

91 sheep metapodial, proximal, complete, 1 80, NMS HA 402, Paterson 1927, 36, Fig 6.4

92 sheep metapodial, broken, 1 48, NMS HA 411 L.1933.237, Paterson 1927, 36

93 sheep metapodial, ground head, complete, 1 82, NMS HA 336, Paterson 1927, 37

94 sheep metapodial, broken, 1 44, THM, Paterson 1927, 38

95 sheep metapodial, ground head, complete, 1 72, NMS HA 340, Paterson 1927, 39, Fig 6.4

96 sheep metapodial, broken, 1 39, NMS HA 411 L.1933.238, Paterson 1927, 39

97 sheep metapodial, ground head, almost complete, 1 67, NMS HA 391, Paterson 1927, 45

98 sheep metapodial, ground head, almost complete, 1 72, THM, Childe 1928, 4

99 sheep metapodial, ground head, almost complete, 1 76, NMS HA 347, Childe 1928, 5

100 sheep metapodial, ground head, broken, 1 46, BM 1938 1-1 4a, Childe 1928, 6

101 sheep metapodial, ground head, complete, 1 78, BM 1938 1-1 11c, Childe 1928, 9

102 compact bone, complete, 1 70, BM 1938 1-1 13, Childe 1928, 11, Fig 6.4

103 sheep metapodial, complete, 1 74, NMS HA 350, Childe 1928, 17

104 sheep metapodial, ground head, complete, 1 59, THM, Childe 1928, 18

105 sheep metapodial, ground head, complete, 1 64, THM, Childe 1928, 19

106 sheep metapodial, ground head, broken, 1 73, BM 1938 1-1 2b, Childe 1928, 19

107 sheep metapodial, ground head, almost complete, 1 94, NMS HA 346, Childe 1928, 20

108 sheep metapodial, ground head, complete, 1 83, BM 1938 1-1 2a, Childe 1928, 21

109 sheep metapodial, ground head, complete, 1 59, THM, Childe 1928, 22

110 sheep metapodial, broken, l 73, THM, Childe 1928, 23

111 sheep metapodial, ground head, complete, l 61, NMS HA 397, Childe 1928, 34

112 sheep metapodial, ground head, complete, l 78, THM, Childe 1928, 35

113 sheep metapodial, ground head, complete, l 66, NMS HA 383, Childe 1928, 36

114 sheep metapodial, ground head, almost complete, l 59, THM, Childe 1928, 37

115 sheep metapodial, broken, l 31, THM, Childe 1928, 47

116 sheep metapodial, ground head, almost complete, l 76, BM 1938 1-1 2e, Childe 1928, 48

117 sheep metapodial, ground head, broken, l 76, THM, Childe 1928, 49

118 sheep metapodial, ground head, complete, l 64, BM 1938 1-1 2d, Childe 1928, 50

119 sheep metapodial, ground head, complete, l 84, BM 1938 1-1 2f, Childe 1928, 54

120 sheep metapodial, broken, l 54, THM, Childe 1928, 55

121 compact bone, decayed, l 58, BM 1938 1-1 12e, Childe 1928, 61

122 sheep metapodial, ground head, complete, l 74, BM 1938 1-1 134, Childe 1928, 72

123 sheep metapodial, proximal, ground head, almost complete, l 83, NMS HA 392, Childe 1928, 73

124 sheep metapodial, ground head, complete, l 74, THM, Childe 1928, 76

125 sheep metapodial, broken, l 55, THM, Childe 1928, 78

126 sheep metapodial, ground head, complete, l 60, THM, Childe 1928, 79

127 sheep metapodial, ground head, complete, l 68, THM, Childe 1928, 84

128 sheep metapodial, ground head, almost complete, l 84, THM, Childe 1928, 84

129 sheep metapodial, ground head, complete, l 64, BM 1938 1-1 4b, Childe 1928, 84

130 sheep metapodial, ground head, complete, l 65, THM 1983/169, Childe 1928, 90

131 sheep metapodial, almost complete, l 64, THM, Childe 1928, 91

132 compact bone, broken, l 48, BM 1938 1-1 152, Childe 1928, 104

133 sheep metapodial, ground head, complete, l 78, THM 1983/168, Childe 1928, 106

134 sheep metapodial, ground head, complete, l 59, THM, Childe 1928, 121

135 sheep metapodial, ground head, complete, l 73, SM A262, Childe 1928, 123

136 sheep metapodial, ground head, complete, l 57, BM 1938 1-1 135, Childe 1928, 131

137 sheep metapodial, proximal, complete, l 61, BM 1938 1-1 9d, Childe 1928, 134

138 sheep metapodial, complete, l 73, BM 1938 1-1 1, Childe 1928, 144

139 sheep ?tibia, complete, l 71, BM 1938 1-1 148, Childe 1928, 146

140 sheep metapodial, proximal, complete, l 80, THM, Childe 1928, 148

141 sheep metapodial, ?proximal, almost complete, l 59, NMS HA 394, Childe 1928, 153

142 sheep metapodial, ground head, broken, l 43, THM, Childe 1928, 159

143 sheep metapodial, ground head, complete, l 55, NMS HA 385, Childe 1928, 160

144 sheep metapodial, ground head, almost complete, l 67, NMS HA 393, Childe 1928, 161

145 ?sheep metapodial, ground head, complete, l 82, THM, Childe 1928, 161

146 sheep metapodial, ground head, complete, l 63, THM, Childe 1928, 162

147 sheep metapodial, ground head, complete, l 77, THM, Childe 1928, 162

148 sheep metapodial, complete, l 68, THM, Childe 1928, 163

149 sheep metapodial, broken, l 25, THM, Childe 1928, 164

150 sheep metapodial, ground head, complete, l 52, THM, Childe 1928, 165

151 ?sheep metapodial, ground head, broken, l 58, THM, Childe 1928, 173

152 sheep metapodial, immature, ground head, complete, l 60, NMS HA 384, Childe 1928, 176

153 sheep metapodial, ground head, complete, l 55, THM, Childe 1928, 185

154 sheep metapodial, ground head, broken, l 45, THM, Childe 1928, 187

155 sheep metapodial, proximal, complete, l 51, THM, Childe 1928, 189

156 sheep metapodial, ground head, almost complete, l 84, BM 1938 1-1 149, Childe 1928, 193

157 sheep metapodial, ground head, almost complete, l 47, SB, Childe 1928, 194

158 sheep metapodial, ground head, complete, l 69, THM, Childe 1928, 199

159 sheep metapodial, ground head, complete, l 63, THM, Childe 1928, 204

160 sheep metapodial, ground head, complete, l 55, THM, Childe 1928, 206

161 sheep metapodial, ground head, almost complete, l 47, THM, Childe 1928, 222

162 sheep metapodial, proximal, complete, l 71, THM, Childe 1928, 226

163 sheep metapodial, ground head, complete, l 84, BM 1938 1-1 11a, Childe 1928, 226

164 sheep metapodial, proximal, complete, l 48, NMS HA 403, Childe 1928, 226

165 sheep metapodial, ground head, complete, l 55, SB, Childe 1928, 227

166 sheep metapodial, ground head, complete, l 76, NMS HA 349, Childe 1928, 227, Fig 6.4

167 compact bone, broken, l 58, broken, THM, ?Childe 1928, 252

168 sheep metapodial, ground head, complete, l 93, BM 1938 1-1 136, Childe 1928, ?258

169 sheep metapodial, ground head, complete, l 52, NMS HA 355, Childe 1928, 285, Fig 6.4

170 sheep metapodial, ground head, complete, l 75, BM 1938 1-1 137, Childe 1928, 319

171 sheep metapodial, ground head, complete, l 64, THM, Childe 1928, 348

172 sheep metapodial, almost complete, l 74, BM 1938 1-1 138, Childe 1928, 348

173 sheep metapodial, broken, l 75, BM 1938 1-1 150, Childe 1928, 348

174 sheep metapodial, ground head, complete, l 71, NMS HA 353, Childe 1928, 356

175 sheep metapodial, ground head, complete, l 60, BM 1938 1-1 11b, Childe 1928, ?360

176 sheep metapodial, ground head, complete, l 88, THM, ?Childe 1928, 361

177 sheep metapodial, ground head, complete, l 54, BM 1938 1-1 11d, Childe 1928, 362

178 sheep metapodial, ground head, complete, l 59, THM, ?Childe 1928, 363

179 sheep metapodial, ground head, complete, l 64, BM 1938 1-1 151, Childe 1928, ?365

180 sheep metapodial, immature, complete, l 49, BM 1938 1-1 154, Childe 1928, ?366

181 sheep metapodial, ground head, complete, l 77, BM 1938 1-1 2c, Childe 1928, ?374

182 sheep metapodial, ground head, complete, reground, l 75, THM, Childe 1928, ?375

183 sheep metapodial, ground head, complete, l 76, NMS HA 352, Childe 1928, 378

184 sheep metapodial, ground head, complete, l 71, NMS HA 351, Childe 1928, 379

185 sheep metapodial, proximal, l 62, BM 1938 1-1 9e, Childe 1928, ?379

186 sheep metapodial, ground head, complete, l 66, THM, Childe 1928, ?380

187 sheep metapodial, ground head, broken, l 52, SM A262, Childe 1929, 13

188 compact bone, broken, l 40, SM A262, Childe 1929, 15

189 compact bone, complete, l 82, NMS HA 436, Childe 1929, 17

190 sheep metapodial, broken, l 71, SM A262, Childe 1929, 21

191 sheep metapodial, immature, complete, 1 84, BM 1938 1-1 9a, Childe 1929, 38

192 sheep metapodial, ground head, complete, 1 61, BM 1938 1-1 2h, Childe 1929, ?45

193 sheep metapodial, ground head, broken, 1 58, SM A262, Childe 1929, 52

194 sheep metapodial, ground head, complete, 1 63, SM A262, ?Childe 1929, 53

195 sheep metapodial, ground head, broken, 1 82, BM 1938 1-1 12f, Childe 1929, ?56

196 sheep metapodial, ground head, complete, 1 45, NMS HA 362, Childe 1929, 59, Fig 6.4

197 sheep metapodial, ground head, complete, 1 67, SM A262, Childe 1929, ?60

198 sheep metapodial, ground head, complete, 1 85, SM A262, Childe 1929, 64

199 sheep metapodial, complete, 1 57, SM A262, Childe 1929, 67

200 compact bone, broken, 1 6, BM 1938 1-1 155, Childe 1929, 68

201 sheep metapodial, ground head, complete, 1 87, BM 1938 1-1 2g, Childe 1929, 72

202 compact bone, broken, 1 54, BM 1938 1-1 12d, Childe 1929, 74

203 compact bone, complete, 1 80, SM A262, Childe 1929, 80

204 sheep metapodial, almost complete, 1 40, SM A262, Childe 1929, 82

205 sheep metapodial, ground head, complete, 1 63, SM A262, Childe 1929, 100

206 sheep metapodial, ground head, complete, 1 65, SM A262, Childe 1929, 138

207 sheep metapodial, broken, 1 62, SM A262, Childe 1929, 157

208 sheep metapodial, ground head, complete, 1 63, SM A262, Childe 1929, 158

209 sheep metapodial, ground head, broken, 1 70, SM A262, Childe 1929, 159

210 sheep metapodial, ground head, complete, 1 70, BM 1938 1-1 11e, Childe 1929, 160

211 sheep metapodial, ground head, complete, 1 45, SM A262, Childe 1929, 162

212 compact bone, broken, 1 47, SM A262, Childe 1929, 164

213 sheep metapodial, ground head, complete, 1 69, NMS HA 358, Childe 1929, 165

214 ?sheep metapodial, complete, 1 63, SM A262, Childe 1929, 166

215 compact bone, broken, 1 86, SM A262, Childe 1929, 179

216 sheep metapodial, complete, 1 75, SM A262, Childe 1929, 182

217 sheep metapodial, ground head, complete, 1 56, BM 1938 1-1 10, Childe 1929, 192

218 compact bone, ground head, complete, 1 65, SM A262, Childe 1929, 203

219 compact bone, ground head, complete, 1 87, BM 1938 1-1 3, Childe 1929, 207

220 sheep metapodial, ground head, complete, 1 59, SM A262, Childe 1929, 208

221 sheep metapodial, ground head, broken, 1 75, SM A262, Childe 1929, 209

222 sheep metapodial, ground head, almost complete, 1 61, SM A262, Childe 1929, 210

223 sheep metapodial, proximal, complete, 1 96, BM 1938 1-1 7, Childe 1929, 213

224 sheep metapodial, broken, 1 67, SM A262, Childe 1929, 216

225 sheep metapodial, ground head, complete, 1 65, SM A262, Childe 1929, 219

226 sheep metapodial, complete, 1 72, NMS HA 357, Childe 1929, 226

227 sheep metapodial, complete, 1 64, SM A262, Childe 1929, 228

228 sheep metapodial, ground head, complete, 1 71, SM A262, Childe 1929, 230

229 compact bone, ?complete, 1 78, SM A262, Childe 1929, 231

230 sheep metapodial, ground head, complete, 1 75, BM 1938 1-1 6c, Childe 1929, 237

231 sheep metapodial, ground head, complete, 1 51, NMS HA 360, Childe 1929, 237

232 sheep metapodial, immature, broken, 1 58, BM 1938 1-1 9c, Childe 1929, 292

233 sheep metapodial, ground head, complete, 1 84, SM A262, Childe 1929, 293

234 sheep metapodial, ground head, complete, 1 66, NMS HA 366, Childe 1929, 294

235 sheep metapodial, ground head, complete, l 63, NMS HA 387, Childe 1929, 301

236 sheep metapodial, ground head, complete, l 86, SM A262, Childe 1929, 303

237 sheep metatarsal, proximal, complete, l 70, BM 1938 1-1 9f, Childe 1929, 303

238 sheep metapodial, immature, complete, l 82, BM 1938 1-1 5, Childe 1929, 305

239 sheep metapodial, ground head, broken, l 50, BM 1938 1-1 140, Childe 1929, 306

240 sheep metapodial, ground head, broken, l 55, SM A262, Childe 1929, 307

241 sheep metapodial, immature, complete, l 55, BM 1938 1-1 6a, Childe 1930, 320

242 sheep metapodial, ground head, complete, l 56, NMS HA 369, Childe 1930, 333

243 sheep metapodial, complete, l 53, THM 1983/174, Childe 1930, 352

244 sheep metapodial, ground head, complete, l 54, SB, Childe 1930, 357

245 sheep metapodial, broken, l 52, THM, Childe 1930, 363

246 sheep metapodial, broken, l 42, THM, Childe 1930, 369

247 sheep metapodial, ground head, broken, l 46, THM, Childe 1930, 370

248 sheep metapodial, ground head, broken, l 51, THM, Childe 1930, 372

249 sheep metapodial, proximal, broken, l 93, BM 1938 1-1 156, Childe 1930, 380

250 sheep metapodial, ground head, complete, l 75, NMS HA 365, Childe 1930, 388

251 sheep metapodial, proximal, complete, l 63, SB, Childe 1930, 391

252 sheep metapodial, ground head, broken, l 37, BM 1938 1-1 144, Childe 1930, 406

253 sheep metapodial, ground head, broken, l 34, BM 1938 1-1 145, Childe 1930, 406

254 sheep metapodial, ground head, complete, l 52, SB, Childe 1930, 412

255 sheep metapodial, ground head, complete, l 52, SB, Childe 1930, 414

256 sheep metapodial, broken, l 43, SM A262, Childe 1930, 417

257 sheep metapodial, ground head, complete, l 66, THM, Childe 1930, 426

258 sheep metapodial, ground head, complete, l 61, NMS HA 367, Childe 1930, 429

259 sheep metapodial, ground head, almost complete, l 75, BM 1938 1-1 146, Childe 1930, 438

260 sheep metapodial, almost complete, l 64, THM, Childe 1930, 471

261 sheep metapodial, ground head, complete, l 64, THM, Childe 1930, 472

262 compact bone, ?broken, l 48, SM A262, Childe 1930, 475

263 sheep metapodial, ground head, broken, l 33, THM, Childe 1930, 47n

264 sheep metapodial, ground head, almost complete, l 74, SB, Childe 1930, 483

265 sheep metapodial, complete, l 70, SM A262, Childe 1930, 485

266 sheep metapodial, ground head, complete, l 59, THM, Childe 1930, 486

267 sheep metapodial, broken, l 44, THM, Childe 1930, 493

268 sheep metapodial, proximal, broken, l 94, SB, Childe 1930, 495

269 ?sheep metapodial, ground head, broken, l 74, THM, Childe 1930, 501

270 sheep metapodial, broken, l 55, NMS HA unreg, Childe 1930, 560

271 compact bone, broken, l 88, SB, Childe 1930, 576

272 sheep metapodial, ground head, complete, l 65, SB, Childe 1930, 603

273 ?sheep metapodial, ground head, almost complete, l 55, BM 1938 1-1 157, Childe 1930, 609

274 sheep metapodial, ground head, complete, l 67, THM 1983/175, Childe 1930, 612

275 ?sheep metapodial, broken, l 33, THM, Childe 1930, 613

276 sheep metapodial, ground head, complete, l 61, SM A262, Childe 1930, 615

277 sheep metapodial, almost complete, 1 63, THM, Childe 1930, 621

278 sheep metapodial, proximal, broken, 1 95, SB, Childe 1930, 629

279 sheep metapodial, complete, 1 78, SM A262, Childe 1930, ?Chamber4'

280 sheep metapodial, ground head, complete, 1 70, BM 1938 1-1 139, Childe 1930, 4'

281 sheep metapodial, ground head, complete, 1 82, THM, Childe 1928/1930, 331

282 sheep metapodial, complete, 1 57, BM 1938 1-1 142, Childe 1928/1930, 392

283 sheep metapodial, ground head, almost complete, 1 77, SM A262, Childe 346 pencil

284 sheep metapodial, ground head, complete, 1 60, NMS HA 398, Childe 4 pencil

285 sheep metapodial, almost complete, 1 51, THM, Childe 5 pencil

286 sheep metapodial, ground head, complete, 1 76, NMS HA 348, Childe 42 red

287 sheep metapodial, ground head, almost complete, 1 62, NMS HA 368, Childe 69 pencil

288 sheep metapodial, ground head, almost complete, 1 52, SB, Childe 120 pencil

289 sheep metapodial, ground head, complete, 1 73, SB, Childe 137 red

290 sheep metapodial, ground head, broken, 1 63, SB, Childe 150 pencil

291 sheep metapodial, ground head, broken, 1 29, THM, Childe 168 pencil

292 sheep metapodial, immature, complete, 1 61, BM 1938 1-1 9b, Childe 191 green

293 sheep metapodial, immature, complete, 1 51, BM 1938 1-1 6b, Childe 225

294 sheep metapodial, complete, 1 62, THM, Childe 229 red

295 sheep metapodial, ground head, complete, 1 60, THM, Childe 229 red

296 sheep metapodial, ground head, broken, 1 63, SM A262, Childe 242 green

297 compact bone, broken, 1 47, BM 1938 1-1 153, Childe 283 red

298 sheep metapodial, ground head, almost complete, 1 56, NMS HA 371, Childe 3?9 pencil

299 metapodial, ground head, complete, 1 49, SB, Childe 302 red

300 sheep metapodial, ground head, broken, 1 71, SB, Childe 305 red

301 sheep metapodial, ground head, complete, 1 66, NMS HA 398a, Childe 322 pencil

302 sheep metapodial, broken, 1 33, NMS HA unreg, Childe 338

303 sheep metapodial, ground head, complete, 1 50, NMS HA 361, Childe 352 green

304 sheep metapodial, complete, 1 81, SB, Childe 400 pencil

305 compact bone, complete, 1 69, SM A262, Childe 434 pencil

306 compact bone, broken, 1 42, NMS HA 411 L.1933.318, Childe 458 pencil

307 sheep metapodial, ground head, broken, 1 40, BM 1938 1-1 147, Childe 504

308 sheep metapodial, complete, 1 126, NMS HA 363, Childe 535 pencil

309 sheep metapodial, ground head, broken, 1 57, BM 1938 1-1 143, Childe 544

310 sheep metapodial, ground head, broken, 1 56, SB, Childe 573 pencil

311 sheep metapodial, ground head, complete, 1 74, SB, Childe 593 pencil

312 sheep metapodial, ground head, almost complete, 1 90, NMS HA 364, Childe 610/615

313 sheep metapodial, complete, 1 58, NMS HA 372e, Childe 692

314 sheep metapodial, ground head, complete, 1 58, BM 1938 1-1 141, Childe 888

315 sheep metapodial, ground head, broken, 1 68, THM

316 compact bone, broken, 1 62, THM

317 compact bone, broken, 1 59, THM

318 compact bone, broken, 1 59, THM

319 sheep metapodial, broken, 1 48, THM

320 sheep metapodial, ground head, broken, 1 35, THM

321 sheep metapodial, ground head, broken, 1 23, THM

322 sheep metapodial, ground head, complete, 1 54, SM A262, Childe

323 compact bone, complete, 1 60, SM A262, Childe

324 compact bone, broken, 1 34, SM A262, Childe

325 ?sheep metapodial, ground head, broken, 1 94, SM A262, Childe

326 sheep metapodial, complete, 1 95, SM

327 sheep metapodial, ground head, complete, 1 68, SM

328 sheep metapodial, ground head, complete, 1 65, SB

329 compact bone, ground head, complete, 1 75, SB

330 sheep metapodial, ground head, complete, 1 82, SB

331 sheep metapodial, ground head, complete, 1 76, SB

332 sheep metapodial, ground head, complete, 1 65, SB

333 sheep metapodial, proximal, complete, 1 57, SB

334 sheep metapodial, ground head, broken, 1 60, SB

335 sheep metapodial, proximal, complete, 1 47, SB

336 sheep metapodial, ground head, complete, 161, SB

337 sheep metapodial, ground head, complete, 1 90, SB

338 sheep metapodial, ground head, complete, 1 74, SB

339 ?sheep metapodial, broken, 1 47, BM 1938 1-1 158

340 sheep metapodial, broken, 1 63, BM 1938 1-1 159

341 sheep metapodial, ground head, complete, 1 79, BM 1938 1-1 160

342 sheep metapodial, ground head, complete, 1 79, BM 1938 1-1 165

343 sheep metapodial, ground head, broken, 1 21, BM 1938 1-1 167

344 sheep metapodial, ground head, almost complete, 1 49, BM 1938 1-1 8

345 compact bone, broken, 1 64, BM 1938 1-1 12c

346 sheep metapodial, ground head, almost complete, 1 62, NMS HA 342

347 sheep metapodial, ground head, complete, 1 63, NMS HA 343

348 sheep metapodial, broken, 1 58, NMS HA 344

349 sheep metapodial, ground head, complete, 1 59, NMS HA 345

350 sheep metapodial, ground head, almost complete, 1 56, NMS HA 359

351 sheep metapodial, ground head, complete, 1 51, NMS HA 372

352 sheep metapodial, ground head, complete, 1 113, NMS HA 372c

353 sheep metapodial, ground head, complete, 1 64, NMS HA 380

354 sheep metapodial, ground head, complete, 1 57, NMS HA 381

355 sheep metapodial, ground head, complete, 1 52, NMS HA 386

356 compact bone, complete, 1 91, NMS HA 388

357 sheep metapodial, ground head, complete, 1 60, NMS HA 389

358 sheep metapodial, ground head, almost complete, 1 104, NMS HA 359b

359 sheep metapodial, ?proximal, complete, 1 63, NMS HA 389d

360 sheep metapodial, proximal, complete, 1 99, NMS HA 396

361 sheep metapodial, ground head, complete, 1 73, NMS HA 398b, Fig 6.4, Pl 6.5

362 sheep metapodial, ground head, complete, 1 89, NMS HA 398c

363 sheep metapodial, ground head, almost complete, 1 49, NMS HA 398d

364 sheep metapodial, ground head, complete, 1 94, NMS HA 404

365 sheep metatarsal, proximal, complete, 1 93, NMS HA 404a

366 sheep metapodial, ground head, complete, 1 58, NMS HA 408

367 compact bone, segment, complete, 1 68, NMS HA 411, L.1933.294

368 sheep metapodial, broken, 1 40, NMS HA 411, L.1933.2019

369 ?sheep metapodial, broken, 1 62, NMS HA 411, L.1933.2023

370 sheep metapodial, broken, 1 41, NMS HA 411, L.1933.2025

371 sheep metapodial, broken, 1 35, NMS HA 411, L.1933.2026

372 compact bone, complete, 1 97, NMS HA 435

373 compact bone, complete, 1 51, NMS HA 442a

374 ?sheep metapodial, broken, 1 48, NMS HA unreg

LARGE POINTS

375 cattle metapodial, flattened head, almost complete, 1 109, SM A255, Watt

376 ?cattle metapodial, broken, 1 57, SM A255, Watt

377 compact bone, broken, 1 64, SM A255, Watt

378 ?cattle metapodial, proximal, complete, 1 99, SM A255, Watt

379 compact bone, complete, 1 110, SM A255, Watt

380 cattle metatarsal, complete, 1 145, SM ?A255/258, Watt

381 cattle metapodial, broken, 1 92, SM ?A255/258, Watt

382 ?cattle metapodial, complete, 1 122, SM ?A255/258, Watt

383 cattle metapodial, complete, 1 138, SM ?A255/258, Watt 9

384 compact bone, broken, 1 106, SM ?A255/258, Watt

385 cattle metapodial, flattened head, complete, 1 145, THM S.12, Watt

386 cattle/deer metapodial, ground head, broken, 1 118, NMS HA 45, Watt

387 cattle/deer metapodial/tibia, ground head, broken, 1 147, NMS HA 54, Watt

388 cattle ?metapodial, broken, 1 105, NMS HA 56, Watt

389 cattle/deer metapodial, ground head, complete, 1 88, NMS HA 61, Watt, Pl 6.6

390 deer/cattle ?metapodial, broken, 1 158, NMS HA 76, Watt

391 compact bone, almost complete, 1 99, NMS HA 79, Watt

392 cattle/deer metapodial, complete, 1 185, NMS HA 373, Watt

393 cattle/deer metapodial, complete, 1 135, NMS HA 374, Watt

394 ?ulna, complete, 1 181, NMS HA 443, Watt

395 deer/cattle metapodial, ground head, complete, 1 100, NMS HR 90

396 cattle metapodial, flattened head, complete, 1 103, THM 1983/186, Paterson 1927, 1a

397 deer/cattle metapodial, complete, 1 106, BM 1938 1-1 14, Paterson 1927, 15

398 deer/cattle metacarpal, complete, 1 119, THM, Paterson 1927, 39

399 compact bone, broken, 1 155, THM, Paterson 1927, 39

400 deer/cattle metapodial, ground head, complete, 1 88, SB, Childe 1928, 9

401 deer/cattle metapodial, proximal, ground head, complete, 1 138, NMS HA 376, Childe 1928, 25

402 compact bone, broken, 1 24, THM, Childe 1928, 81

403 cattle/deer ?metapodial, broken, 1 71, NMS HA 411, L.1933.293, Childe 1928, 84

404 cattle/deer metapodial, ground head, almost complete, 1 129, NMS HA 377, Childe 1928, 154, Fig 6.5, Pl 6.6

405 deer/cattle metapodial, ground head, complete, 1 102, NMS HA 378, Childe 1928, 239

406 deer/cattle metapodial, ground head, complete, 1 274, NMS HA 372a, Childe 1928, 259, Pl 6.6

407 cattle metapodial. ground head, broken, 1 106, BM 1938 1-1 15, Childe 1928, 341

408 cattle metapodial, almost complete, 1 78, THM, Childe 1929, 134

409 compact bone, complete, 1 72, THM, Childe 1929, 167

410 ?cattle metapodial, broken, 1 111, SB, Childe 1929, 214

411 cattle metapodial, ground head, complete, 1 108, SB, Childe 1929, 245

412 cattle/deer metatarsal, broken, 1 125, NMS HA 485, Childe 1929, 290

413 cattle metapodial, ground head, almost complete, 1 109, SB, Childe 1930, 311

414 ?cattle metapodial, broken, 1 95, THM, Childe 1930, 350

415 deer metapodial, 1 128, SB, Childe 1930, 402

416 sheep tibia, complete, 1 102, SM A262, Childe 1930, 449

417 cattle metapodial, ground head, broken, 1 98, SB, Childe 1930, 531

418 cattle metapodial, ground head, broken, 1 82, NMS HA unreg, Childe 1930, ?583

419 cattle metapodial, ground head, broken, 1 81, SM A262, Childe 1930, ?591

420 cattle metapodial, ground head, complete, 1 153, SB, Childe 1930, 600

421 cattle metapodial, ground head, complete, 1 159, THM 1983/166, Childe 67 pencil, Fig 6.5

422 deer/cattle metapodial, 1 84, BM 1938 1-1 20, Childe 164 pencil

423 cattle metapodial, complete, 1 96, THM

424 sheep radius, complete, 1 75, THM

425 compact bone, rounded head, complete, 1 138, THM

426 ?cattle metapodial, immature, almost complete, 1 86, SM, ?171

427 sheep ?ulna, complete, 1 136, BM 1938 1-1 168

428 cattle/deer metapodial, ground head, complete, 1 80, NMS HA 372b, Pl 6.6

429 cattle metatarsal, ground head, complete, 1 154, NMS HA 372d, Pl 6.6

430 cattle metacarpal, complete, 1 146, NMS HA 330, Fig 6.5, Pl 6.6

431 cattle/deer metapodial, ground head, complete, 1 102, NMS HA 389a

432 cattle/deer metapodial, ground head, complete, 1 127, NMS HA 389c, Fig 6.5, Pl 6.6

433 cattle/deer metapodial, broken, 1 85, NMS HA 490

PERFORATED POINTS

434 sheep metapodial, ground head, perforated, complete, 1 74, NMS HA 405, Watt, Fig 6.4, Pl 6.5

435 compact bone, ground head, perforated, complete, 1 60, NMS HA 437, Childe 1928, 155

436 sheep metapodial, ground head, perforated, complete, 1 69, NMS HA 399, Childe ?1930, 357, Pl 6.5

437 sheep metapodial, ground head, perforated, broken, 1 66, NMS HA 400, Pls 6.5, 6.7

GROOVED POINTS

438 sheep metapodial, ground head, complete, single groove below head, 1 60, NMS HA 406, Childe 1928, 147, Pl 6.5

439 sheep metapodial, ground head, complete, remains of single groove below head, 1 61, NMS HA 354

440 ?deer metapodial, proximal, complete, single groove below head, 1 77, NMS HA 407, Pl 6.5

441 sheep metapodial, complete, single groove below head, 1 77, NMS HA 407a, Fig 6.4, Pl 6.5

DECORATED POINTS

442 ?sheep metapodial, ground head, 3 horizontal grooves on shaft, almost complete, 1 82, SM A255, Watt

443 cattle/deer metapodial, ground head, complete, herringbone grooving on shaft, 4 strokes on one side and 3 strokes on the other, 1 135, NMS HA 329, Watt, Fig 6.5

444 cattle/deer metapodial, ground head, complete, 3 horizontal grooves below head with 2 oblique grooves between the lower 2, 1 89, NMS HA 328, Paterson 1927, 12, Fig 6.5

445 sheep metapodial, ground head, complete, 3 oblique grooves on shaft, 1 92, THM 1983/167, Childe 1930, 365

AWLS

446 sheep metapodial, ground head, complete, 1 72, SM A255, Watt

447 sheep metatarsal, proximal, complete, 1 85, SM A255, Watt

448 sheep metapodial, complete, 1 95, SM A255, Watt

449 sheep metapodial, ground head, complete, 1 81, SM A255, Watt

450 sheep metapodial, ground head, complete, 1 80, SM A255, Watt

451 cattle metapodial, complete, 1 169, SM ?A255/258, Watt

452 cattle metapodial, ground head, complete, 1 122, SM ?A255/258, Watt

453 sheep metapodial, rounded head, complete, 1 118, THM S.13, Watt

454 sheep metapodial, broken, 1 65, THM S.19, Watt

455 cattle metacarpal, ground head, complete, 1 128, NMS HA 51, Watt, Fig 6.6

456 sheep metatarsal, proximal, broken, 1 85, NMS HA 55, Watt

457 sheep metatarsal, immature, complete, 1 88, NMS HA 62, Watt

458 sheep metatarsal, complete, 1 76, NMS HA 70, Watt, Fig 6.6

459 cattle metacarpal, complete, 1 178, NMS HA 484, Watt

460 sheep metapodial, broken, 1 66, NMS HA 411 L.1933.228, Paterson 1927, 36

461 ?sheep metapodial, broken, 1 46, SM A262, Childe 1928, 3

462 sheep metapodial, heavily ground, complete, 1 70, NMS HA 409, Childe 1928, 24

463 sheep metapodial, immature, almost complete, 1 69, SM A262, Childe 1928, 215

464 sheep metatarsal, complete, 1 77, THM 1983/173, Childe 1928, 224

465 sheep metatarsal, complete, 1 126, NMS HA 319, Childe 1928, 273, Fig 6.6

466 sheep metapodial, ground head, broken, 1 93, BM 1938 1-1 16, Childe 1928, 230, Chamber 7

467 sheep metapodial, immature, complete, 1 68, SM A262, Childe 1928, ?394

468 sheep metacarpal, ground head, complete, 1 79, NMS HA 320a, Childe 1929, 8

469 sheep metapodial, ?immature, complete, 1 80, SB, Childe 1929, 169

470 sheep metapodial, almost complete, 1 61, SM A262, Childe 1929, 181

471 sheep metapodial, complete, 1 66, BM 1938 1-1 17, Childe 1929, 186

472 sheep metatarsal, proximal, complete, 1 100, NMS HA 401, Childe 1929, 291

473 sheep tibia, complete, 1 197, NMS HA 487, Childe 1929, 309

474 sheep metapodial, ground head, complete, 1 89, SM A262, Childe 51 green

475 cattle metatarsal, ground head, almost complete, 1 132, SM A262, Childe

476 sheep metapodial, complete, 1 98, SB

477 sheep metapodial, eroded head, 1 84, NMS HA 410

478 sheep metatarsal, broken, 1 65, NMS HA 411 L.1933.239

479 compact bone, broken, 1 61, NMS HA 411 L.1933.236

BIRD BONE POINTS

480 ?humerus, complete, 1 107, SM A255, Watt

481 ?ulna, almost complete, 1 95, SM A255, Watt

482 ?humerus, broken, 1 106, SM ?A255/258, Watt

483 ?humerus, complete, 1 112, SM ?A255/258, Watt

484 ?humerus, broken, 1 145, SM ?A255/258, Watt

485 ?humerus, almost complete, 1 126, SM ?A255/258, Watt

486 gannet humerus, complete, 1 130, NMS HA 57, Watt, Pl 6.8

487 compact bone, broken, 1 84, NMS HA 58, Watt

488 gannet humerus, complete, 1 91, NMS HA 59, Watt, Fig 6.6

489 humerus, broken, 1 139, NMS HA 60, Watt

490 gannet humerus, ground head, complete, l 120, NMS HA 324, Paterson 1927, 35

491 gannet humerus, almost complete, l 111, THM 1983/171, Childe 1928, 10

492 gannet humerus, complete, l 88, NMS HA 320, Childe 1929, 59
493 ?humerus, broken, l 121, THM, Childe 1929, 89
494 gannet humerus, broken, l 81, THM, Childe 1929, 168
495 gannet humerus, complete, l 134, NMS HA 321, Childe 1929, 223, Pl 6.8
496 humerus, complete, l 110, BM 1938 1-1 18, Childe 1929, 271
497 humerus, almost complete, l 140, BM 1938 1-1 19, Childe 1929, 274
498 humerus, broken, l 81, SM A262, Childe 1929

499 gannet humerus, ground head, complete, l 96, NMS HA 325, Childe ?1930, 317
500 humerus, ground head, complete, l 93, SM A262, Childe 1930, 348
501 compact bone, broken, l 72, SM A262, Childe 1930, 439
502 ?humerus, broken, l 77, THM, Childe 1930, 509
503 gannet humerus, complete, l 116, THM 1983/172, Childe 1930, 544

504 compact bone, broken, l 124, SB, Childe ?43 pencil
505 ?gannet humerus, broken, l 125, NMS HA 327, Childe 319 pencil

506 compact bone, broken, l 120, SB
507 gannet humerus, complete, l 73, SB
508 gannet humerus, broken, l 94, SB
509 gannet humerus, complete, l 127, NMS HA 322
510 gannet humerus, complete, l 114, NMS HA 323
511 gannet humerus, complete, l 86, NMS HA 326
512 gannet humerus, complete, l 117, NMS HA 327a
513 gannet humerus, complete, l 71, NMS HA 327b
514 gannet humerus, complete, l 118, NMS HA 328a

515 ulna, complete, 1 74, NMS HA 328b

516 compact bone, broken, 1 46, NMS HA 411 L.1933.2024

POINTS/PINS

517 compact bone, flattened head, broken, 1 104, SM A255, Watt

518 compact bone, broken, 1 56, SM A255, Watt

519 compact bone, broken, 1 77, SM A255, Watt

520 sheep metapodial, ground head, complete, 1 130, SM A255, Watt

521 compact bone, ?complete, 1 74, SM A255, Watt

522 sheep metapodial, ground head, complete, 1 97, SM A255, Watt

523 compact bone, flattened head, broken, 1 35, SM A255, Watt

524 sheep metapodial, ground head, complete, 1 119, SM ?A255/258, Watt

525 sheep metapodial, ground head, complete, 1 105, SM ?A255/258, Watt 30

526 ?sheep metapodial, ground head, complete, 1 111, SM ?A255/258, Watt

527 compact bone, broken, 1 49, NMS HA 80, Watt

528 compact bone, broken, 1 52, NMS HA 85, Watt

529 sheep metapodial, proximal, ground head, complete, 1 100, NMS HA 395, Paterson 1927, 32, Fig 6.6

530 compact bone, broken, 1 64, THM, Paterson 1927, 37

531 sheep metapodial, ground head, complete, 1 103, NMS HA 333, Paterson 1927, 38, Fig 6.6

532 sheep metapodial, immature, ground head, complete, 1 101, NMS HA 382, Childe 1928, 7

533 sheep metapodial, broken, 1 81, BM 1938 1-1 12g, Childe 1928, 43

534 sheep metapodial, ground head, complete, 1 125, NMS HA 331, Childe 1928, 118, Chamber 5, Pl 6.9

535 compact bone, complete, 1 129, THM 1983/163, Childe 1928, 149

536 compact bone, broken, 1 55, SM A262, Childe 1928, 186

537 sheep metapodial, ground head, complete, 1 119, THM 1983/165, Childe 1928, 227

538 compact bone, broken, 1 61, SM A262, Childe 1928, ?253

539 cattle/deer metapodial, ground head, complete, 1 171, NMS HA 375, Childe 1928, ?257, Fig 6.6, Pl 6.6

540 compact bone, broken, 1 59, BM 1938 1-1 12b, Childe 1928, 304

541 sheep metapodial, proximal, ground head, complete, 1 100, NMS HA 395, Childe 1929, 32

542 compact bone, broken, 1 38, SM A262, Childe 1929, 220

543 sheep metapodial, ground head, complete, 1 108, SM A262, Childe 1929, 296

544 sheep metapodial, ground head, complete, 1 117, THM 1983/170, Childe 1930, 324

545 sheep metapodial, proximal, complete, 1 102, THM 1983/164, Childe 1930, 373

546 ?sheep metapodial, broken, 1 71, NMS HA 411 L.1933.290, Childe 1930, 404

547 compact bone, complete, 1 90, SB, Childe 1930, 441

548 sheep metapodial, ground head, broken, 1 80, THM, Childe 1930, 455

549 compact bone, complete, 1 57, THM, Childe 1930, 514

550 sheep metapodial, ground head, complete, 1 92, BM 1938 1-1 2, Childe 1930, 578

551 compact bone, almost complete, 1 88, THM, Childe 45 pencil

552 compact bone, broken, 1 62, SM A262, Childe 110 green

553 compact bone, broken, 1 62, THM, Childe 392 pencil

554 compact bone, broken, 1 38, SM A262, Childe

555 sheep metapodial, ground head, complete, 1 111, NMS HA 332, Fig 6.6

556 sheep metapodial, ground head, complete, 1 98, NMS HA 334

557 sheep metapodial, ground head, complete, 1 102, NMS HA 356

558 sheep metapodial, proximal, ground head, almost complete, 1 93, NMS HA 398e

PINS

559 bone, ball head, broken, 1 131, SM A255, Watt

560 ?cetacean bone, broken, 1 64, SM A255, Watt

561 bone, broken, 1 44, SM A255, Watt

562 bone, broken, 1 59, SM A255, Watt

563 cetacean bone, giant, square head, lateral bulb and loop, complete, 1 233, THM S.8, Watt in Petrie 17

564 bone, perforated square head, broken, 1 90, THM S.21, Watt

565 bone, ball head, broken, 1 77, THM S.22, Watt

566 bone, rectangular head, perforated, broken, 1 72, THM S.23, Watt

567 bone, perforated square head, 1 45, THM S.24 Watt

568 bone, lateral bulb and loop, broken, 1 57, NMS HA 90, Watt, Pl 6.10

569 ?cetacean bone, ball head, broken, 1 85, NMS HA 414, Watt

570 cetacean bone, round head, perforated, broken, 1 60, NMS HA 417, Watt, Pl 6.10

571 cetacean bone, ball head, lateral bulb and perforation, grooved below head and twice on shaft, broken, 1 71, NMS HA 423, Watt

572 cetacean bone, giant, square head, expanded perforated shaft, complete, 1 250, NMS HA 424, Watt, Fig 6.7

573 bone, broken head, square perforated expansion on the shaft, 1 166, NMS HA 425, Watt 3, Fig 6.7

574 bone, broken head, square perforated expansion on the shaft, 1 130, NMS HA 426, Watt 41, Pl 6.10

575 bone, flattened head, complete, 1 98, NMS HA 438, Paterson 1927, 30, Pl 6.10

576 bone, round head, lateral bulb and loop, broken, 1 48, NMS HA 421, Paterson 1927, 35, Pls 6.10, 6.11

577 cetacean bone, giant, ball head with groove below, large lateral bulb and loop, broken, 1 146, NMS HA 422, complete, Paterson 1927, 47, Fig 6.7

578 cetacean bone, mushroom head with flattened edge, 3 further expansions on the shaft with flattened edges, lateral bulb and loop, broken, 1 210, NMS HA 430, Paterson 1927, Fig 6.7

579 bone, flat head, complete, 1 119, NMS HA 433, Childe 1928, 85, Pl 6.10

580 bone, broken head, perforated shaft, 1 119, NMS HA 429, Childe 1928, 86, Pl 6.10

581 bone, lateral bulb and loop, complete, 1 83, THM, Childe 1928, 172

582 bone, ball head, broken, 1 46, THM, Childe 1928, 329, Fig 6.7

583 bone (?baculum), flat head, lateral bulb, 1 157, NMS HA 489, Childe 1928, ?

584 bone, broken head, 1 108, NMS HA 444, Childe 1928 ?

585 bone, round head, broken, 1 109, NMS HA 412, Childe 1929, 25, Pl 6.10

586 bone, broken, 1 68, SB, Childe 1929, 127

587 bone, ball head, perforated shaft, broken, 1 53, NMS HA 415, Childe 1929, 260, Pls 6.10, 6.12

588 bone, broken, 1 94, SM A262, Childe 1930, 415

589 bone, rectangular head and expanded shaft, broken, 1 75, NMS HA 428, Childe 1930, 461, Pl 6.10

590 bone, conical head, lateral bulb and loop, broken, 1 70, NMS HA 420, Childe 1930, 536

591 bone, lateral bulb, broken, 1 73, THM, Childe 1930, 550, Fig 6.7

592 bone, ball head, lateral bulb, 1 113, SM A253

593 bone, lateral bulb and loop, broken, 1 67, SB, Fig 6.7

594 cetacean bone, ball head, broken, 1 72, NMS HA 413, Pl 6.10

595 bone, conical head, perforated shaft, broken, 1 36, NMS HA 416, Pl 6.10

596 bone, lateral bulb, broken, 1 94, NMS HA 418, Pl 6.10

597 bone, conical head, lateral bulb, broken, 1 70, NMS HA 419

598 cetacean bone, rectangular head, perforated shaft, broken, 1 140, NMS HA 427

599 cetacean bone, mushroom head, broken, 1 46, NMS HA 431

600 bone, flat head, complete, 1 138, NMS HA 432

601 bone, square head, complete, 1 114, NMS HA 434

602 bone, flat head, complete, 1 90, NMS HA 436a, Pl 6.10

603 bone, flat head, complete, 1 97, NMS HA 439, Pl 6.10

604 bone, flat head, complete, 1 82, NMS HA 439a, Pl 6.10

605 bone, flat head, complete, 1 128, NMS HA 440

606 bone, broken, 1 63, NMS HA 441

SPATULAE

607 sheep metapodial, split, complete, 1 103, SM A255, Watt

608 compact bone, complete, 1 47, SM A255, Watt

609 compact bone, broken, 1 170, SM ?A255/258, Watt

610 compact bone, ?broken, 1 88, SM ?A255/258, Watt

611 cattle/deer long bone, tongue tip, broken, 1 111, NMS HA 39, Watt

612 sheep metatarsal, ?iron age, broken, 1 104, NMS HA 78, Watt

613 deer/cattle metatarsal, tongue tip, complete, 1 222, NMS HA 482, Watt 19, Fig 6.8

614 cattle metatarsal, tongue tip, complete, 1 114, NMS HA 483, Watt, Fig 6.8

615 compact bone, flat, 1 109, NMS HA 465, Childe 1928, 138, Fig 6.8

616 deer/cattle metatarsal, large, broken, 1 115, THM, Childe 1928, 184

617 cetacean bone, waisted with expanded round tip, broken, 1 100, NMS HA 510, Childe 1928, 297

618 bone, flat, one end pointed, complete, 1 114, NMS HA 488, Childe 1929, 23

619 compact bone, curved tip, ?broken, 1 101, NMS HA 503, Childe 1930, 395

620 antler, broken, 1 71, THM

621 compact bone, 1 98, THM

622 compact bone, one pointed end almost complete, 1 109, SB

623 deer/cattle long bone, tongue tip, broken, 1 120, NMS HA 481

MANDIBLE BLUNTS

624 complete, 1 226, SM ?A255/258, Watt

625 double-ended, complete, 1 151, SM ?A255/258, Watt
626 complete, 1 133, SM ?A255/258, Watt
627 complete, 1 111, SM ?A255/258, Watt
628 complete, 1 108, SM ?A255/258, Watt
629 broken, 1 61, SM ?A255/258, Watt
630 ?double-ended, 1 96, SM ?A255/258, Watt
631 ?complete, 1 92, SM ?A255/258, Watt
632 complete, 1 120, NMS HA 46, Watt
633 complete, 1 108, NMS HA 47, Watt
634 complete, 1 133, NMS HA 48, Watt

635 complete, 1 158, NMS HA 172, Stewart 1913

636 complete, 1 73, SB, Paterson 1927, 37

637 complete, 1 154, NMS HA 453, Childe 1928, 96
638 complete, 1 126, NMS HA 461, Childe 1928, 100, Fig 6.8
639 complete, 1 138, NMS HA 455, Childe 1928, 280
640 broken, 1 124, BM 1938 1-1 32, Childe 1928, 236
641 complete, 1 151, THM 1983/185, Childe 1928, 303

642 complete, 1 133, SB, Childe 1929, 30
643 complete, 1 115, SM A262, Childe 1929, 31
644 complete, 1 75, SM A262, Childe 1929, 73
645 complete, 1 126, NMS HA 462, Childe 1929, 96
646 complete, 1 95, SB, Childe 1929, 113
647 complete, 1 113, SM A262, Childe 1929, 132
648 complete, 1 198, NMS HA 452, Childe 1929, 135
649 complete, 1 127, THM 1983/183, Childe 1929, 141
650 complete, 1 133, NMS HA 457, Childe 1929, 144
651 complete, 1 131, NMS HA 460, Childe 1929, 147
652 part, 1 120 BM 1938 1-1 36, Childe 1929, 233
653 complete, 1 103, BM 1938 1-1 33, Childe 1929, 275
654 complete, 1 62, BM 1938 1-1 35, Childe 1929, 275

655 broken, 1 71, THM, Childe 1930, 314
656 complete, 1 136, THM 1983/182, Childe 1930, 416
657 complete, 1 117, SB, Childe 1930, 444

658 complete, 1 133, SB, Childe 1930, 467

659 complete, 1 110, THM 1983/176, Childe 1930, 469

660 complete, 1 143, SB, Childe 1930, 523

661 complete, 1 123, BM 1938 1-1 29, Childe 1930, 542

662 complete, 1 99, BM 1938 1-1 34, Childe 1930, 607

663 complete, 1 148, NMS HA 454, Childe 1930, 619

664 complete, 1 139, NMS HA 456, Childe 1930, 622

665 complete, 1 116, NMS HA 463, Childe 1930, 623

666 complete, 1 124, NMS HA 459, Childe 6 or 9 pencil

667 complete, 1 144, THM 1983/184, Childe 190 pencil

668 complete, 1 63, THM, Childe 137 black/red

669 broken, 1 61, THM 'NMAS'

670 complete, 1 140, SB

671 complete, 1 133, SB on loan to NMS

672 broken, 1 100, SB on loan to NMS

673 ?broken, 1 123, SB on loan to NMS

674 complete, 1 120, SB on loan to NMS

675 complete, 1 129, NMS HA 458, '35'

676 complete, 1 147, NMS HA 464a, Fig 6.9

LONG BONE BLUNTS

677 cattle metapodial, split, 1 138, SM ?A255/258, Watt

678 sheep tibia, complete, 1 193, SM ?A255/258, Watt

679 compact bone, complete, 1 85, SM ?A255/258, Watt

680 ?cetacean bone, broken, 1 191, SM ?A255/258, Watt

681 compact bone, 1 121, SM ?A255/258, Watt

682 ?cetacean bone, complete, 1 130, BM 66 8-1 12, Watt

683 ?sheep tibia, broken, 1 59, SM A255/258/262

684 compact bone, complete, 1 123, NMS HA 43, Watt

685 cattle/deer metapodial, 1 124, NMS HA 44, Watt

686 sheep tibia, complete, 1 167, NMS HA 52, Watt

687 sheep tibia, complete, 1 138, NMS HA 53, Watt

688 sheep tibia, complete, 1 208, NMS HA 111, Watt

689 deer/cattle metacarpal, complete, 1 119, THM, Paterson 1927, 39

690 compact bone, broken, 1 98, SM A262, Childe 1928, 151

691 sheep tibia, broken, 1 110, NMS HA 497, Childe 1929, 31
692 sheep ?radius, complete, 1 97, NMS HA 496, Childe 1929, 61
693 deer/cattle tibia, perforated, broken, 1 108, NMS HA 585, Childe 1929, 79
694 cattle metapodial, 1 131, BM 1938 1-1 30, Childe 1929, 202
695 sheep tibia, complete, 1 110, NMS HA 498, Childe 1929, 215
696 sheep tibia, complete, 1 164, THM, Childe 1929, 232

697 sheep tibia, perforated, broken, 1 162, NMS HA 500, Childe 1930, 358
698 sheep metatarsal, complete, 1 92, SM A262, Childe 1930, 376
699 sheep tibia, broken, 1 98, THM, Childe 1930, 454
700 compact bone, complete, 1 101, NMS HA 502, Childe 1930, 463
701 sheep tibia, complete, 1 139, THM, Childe 1930, 512
702 cattle metacarpal, 1 126, BM 1938 1-1 31, Childe 1930, 517
703 compact bone, broken, 1 95, SM A262, Childe 1930, 623
704 sheep tibia, complete, 1 181, NMS HA 499, Childe 1930, Fig 6.9

705 compact bone, complete, 1 130, SB, Childe 43 pencil
706 sheep tibia, complete, 1 174, THM, Childe 216 pencil

707 compact bone, complete, 1 149, NMS HA 464
708 compact bone, complete, 1 165, NMS HA 501, Fig 6.9
709 cattle ?metatarsal, complete, 1 108, SB on loan to NMS

SLICES
710 complete, 1 66, SM A255, Watt
711 broken, 1 70, SM A255, Watt
712 complete, 1 81, SM A255, Watt
713 complete, 1 77, SM A255, Watt
714 broken, 1 55, SM A255, Watt
715 complete, 1 87, SM A255, Watt 10
716 complete, 1 66, SM A255, Watt
717 complete, 1 66, SM A255, Watt
718 complete, 1 112, THM S.7, Watt
719 complete, 1 98, THM S.8, Watt

720 complete, 1 79, BM 66 8-1 13, Watt

721 complete, 1 67, BM 66 8-1 14, Watt

722 complete, 1 68, NMS HA 91, Watt

723 complete, 1 69, NMS HA 92, Watt, Pl 6.13

724 broken, 1 69, NMS HA 93, Watt

725 broken, 1 82, NMS HA 95, Watt

726 broken, 1 66, NMS HA 96, Watt, Pl 6.13

727 complete, 1 68, NMS HA 471, Paterson 1927, 13, Pl 6.13

728 complete, 1 97, NMS HA 468, Paterson 1927, 23, Pl 6.13

729 complete, 1 57, SB, Paterson 1927, 36

730 complete, 1 61, NMS HA 474, Childe 1928, 2

731 complete, 1 71, NMS HA 469, Childe 1928, 16

732 complete, 1 98, SM A262, Childe 1928, 65

733 complete, 1 67, NMS HA 472, Childe 1928, 92, Fig 6.9, Pl 6.13

734 complete, 1 55, SM A262, Childe 1928, 95

735 complete, 1 65, SB, Childe 1928, 98

736 complete, 1 67, SM A262, Childe 1928, 143

737 complete, 1 70, SB, Childe 1928, 195

738 complete, 1 64, THM, Childe 1928, 207

739 complete, 1 77, THM, Childe 1928, 221

740 complete, 1 58, NMS HA 475, Childe 1928, 255, Fig 6.9, Pl 6.13

741 complete, 1 71, NMS HA 470, Childe 1928, 288, Fig 6.10, Pl 6.13

742 complete, 1 102, NMS HA 467, Childe 1928, 314

743 broken, 1 71, BM 1938 1-1 56, Childe 1928, 332

744 almost complete, 1 121, SM A262, Childe 1928, 340

745 complete, 1 69, SB, Childe 1928, ?354

746 complete, 1 122, BM 1938 1-1 23, Childe 1928, ?373

747 complete, 1 61, BM 1938 1-1 22b, Childe 1929, 35

748 almost complete, 1 51, NMS HA 478, Childe 1929, 102, Pl 6.13

749 complete, 1 66, NMS HA 473, Childe 1929, 221, Fig 6.10, Pl 6.13

750 complete, 1 63, BM 1938 1-1 21, Childe 1929, 247

751 complete, 1 57, SM A262, Childe 1929, 250

752 complete, 1 68, SB, Childe 1929, 295

753 broken, 1 44, BM 1938 1-1 22c, Childe 1930, 407

754 complete, 1 103, NMS HA 466, Childe 1930, 464, Pl 6.13

755 complete, 1 65, BM 1938 1-1 22a, Childe 385 pencil

756 complete, 1 116, NMS HA 478c, Childe 521 pencil, Fig 6.10

757 complete, 1 64, THM 36

758 complete, 1 89, THM

759 complete, 1 107, THM

760 complete, 1 69, SM

761 complete, 1 56, NMS HA 476

762 complete, 1 53, NMS HA 477

763 complete, 1 61, NMS HA 478a

764 complete, 1 94, NMS HA 478b

765 complete, 1 88, NMS 'Hut 2, Cell'

METAPODIAL MATTOCKS

766 blade, broken, 1 87, SM ?A255/258, Watt

767 blade, broken, 1 84, SM ?A255/258, Watt

768 blade, broken, 1 99, SM ?A255/258, Watt

769 cattle metacarpal, complete, 1 127, SM ?A255/258, Watt

770 cattle metacarpal, broken, 1 107, SM ?A255/258, Watt

771 blade, broken, 1 90, SM ?A255/258, Watt

772 cattle metacarpal, complete, 1 108, SM ?A255/258, Watt 20

773 cattle metatarsal, complete, 1 127, SM ?A255/258, Watt 21

774 cattle metacarpal, complete, 1 180, THM S.3 Watt

775 cattle metacarpal, almost complete, 1 128, NMS HA 32, Watt

776 cattle metacarpal, broken, 1 145, NMS HA 33, Watt

777 cattle metacarpal, ground sagittal ridge on upper surface, broken, 1 122, NMS HA 34,Watt

778 cattle metatarsal, perforation through lateral edges, complete, 1 120, NMS HA 35, Watt, Fig 6.10

779 cattle metacarpal, complete, 1 88, NMS HA 36, Watt

780 cattle metacarpal, ground sagittal ridges on upper surfaces, complete, 1 87, NMS HA 37, Watt, Fig 6.10

781 blade, broken, 1 75, NMS HA 38, Watt

782 blade, broken, 1 160, NMS HA 40, Watt

783 cattle metatarsal, broken, 1 128, NMS HA 41, Watt

784 blade, broken, 1 72, NMS HA 94, Watt

785 blade, broken, 1 39, NMS HA 98, Watt

786 cattle metacarpal, broken, 1 95, THM, Childe 1928, 67

787 cattle metatarsal, complete, 1 109, THM 1983/179, Childe 1928, 191

788 cattle metacarpal, broken, 1 124, BM 1938 1-1 26, Childe 1928, 214

789 cattle metacarpal, ground sagittal ridges on upper surfaces, complete, 1 204, NMS HA 445, Childe 1928, 269, Fig 6.11

790 cattle metacarpal, broken, 1 171, THM, Childe 1928, 270

791 cattle metacarpal, broken, 1 128, BM 1938 1-1 25, Childe 1928, 278

792 cattle metapodial, decayed, 1 78, BM 1938 1-1 28c, Childe 1928, 299

793 cattle metatarsal, broken, 1 207, NMS HA 449, Childe 1928, 337

794 cattle metacarpal, complete, 1 120, SM A262, Childe 1928, 351

795 cattle metacarpal, complete, 1 156, NMS HA 451, Childe 1928, 355, Pl 6.14

796 cattle metatarsal, perforation through lateral edges, broken, 1 105, THM, Childe 1929, 26

797 cattle metacarpal, complete, 1 110, BM 1938 1-1 27, Childe 1929, 85

798 cattle metacarpal, broken, 1 111, THM, Childe 1929, 170

799 cattle metacarpal, complete, 1 115, NMS HA 448, Childe 1929, 257, Pl 6.14

800 cattle metacarpal, complete, 1 114, SB, Childe 1930, 335

801 blade, broken, 1 97, SB, Childe 1930, 336

802 cattle metatarsal, broken, 1 114, SM A262, Childe 1930, 368

803 cattle metacarpal, ground sagittal ridges on upper surfaces, broken, 1 115, NMS HA 450, Childe 1930, 453

804 cattle metatarsal, broken, 1 123, BM 1938 1-1 24, Childe 1930, 510

805 cattle metacarpal, ground sagittal ridges on upper surfaces, complete, 1 99, NMS HA 446, Childe 1930, 520

806 cattle metacarpal, broken, l 108, THM, Childe 1930, 546

807 cattle metatarsal, proximal, unperforated, almost complete, l 127, NMS HA 504, Childe 1930, 575

808 cattle metapodial, broken, l 75, THM, Childe 1930, 608

809 blade, broken, l 101, BM 1938 1-1 28b, Childe 1930, 608

810 blade, broken, l 106, BM 1938 1-1 28a, Childe 1930

811 cattle metacarpal, complete, l 140, NMS HA 447, Childe 6 pencil

812 cattle metacarpal, complete, l 113, SB, Childe 347 pencil

813 cattle metatarsal, complete, l 121, THM 530

814 cattle metatarsal, complete, l 125, THM 530

815 cattle metacarpal, complete, l 129, THM 531

816 cattle metatarsal, complete, l 135, THM

817 cattle metacarpal, in process of manufacture, perforated bone, l 215, THM

818 cattle metacarpal, complete, l 111, SM

819 cattle metatarsal, broken, l 127, SB

820 cattle metatarsal, complete, l 140, SB

821 cattle metacarpal, broken, l 80, SB

SCAPULA SHOVELS

822 broken, W-shaped, l 186, SM ?A255/258, Watt

823 broken, l 102, SM ?A255/258, Watt

824 cattle, U-shaped, almost complete, l 213, SM ?A255/258, Watt

825 broken, ?U-shaped, l 115, SM ?A255/258, Watt

826 cattle, W-shaped, broken, l 170, THM, Watt in Petrie 39

827 cattle, U-shaped, almost complete, l 211, NMS HA 113, Watt

828 cattle, W-shaped, complete, l 210, NMS HA 171, Watt, Fig 6.12

829 cattle, W-shaped, broken, l 225, SM A262, Childe 1928, 271

830 cattle, U-shaped, almost complete, l 215, BM 1938 1-1 50, Childe 1929, 48

831 cattle, W-shaped, broken, l 258, THM 1983/178, Childe 1929, 48

832 cattle, W-shaped, broken, l 197, SB, Childe 1929, 98

833 cattle, W -shaped, almost complete, 1 216, THM, Childe 1929, 98

834 cattle, W-shaped, complete, 1 264, SM A262, Childe 1929, 109

835 cattle, U-shaped, almost complete, 1 240, NMS HA 514a, Childe 1929, 109

836 cattle, W-shaped, broken, 1 35, THM, Childe 1929, 282

837 cattle, broken, 1 215, BM 1938 1-1 162, Childe 1930, 321

838 cattle, U-shaped, complete, 1 190, NMS HA 514, Childe 1930, 340, Fig 6.13, Pl 6.15

839 cattle, U-shaped, broken, 1 213, BM 1938 1-1 51, Childe 1930, 341

840 cattle, ?U-shaped, broken, 1 232, SB, Childe 1930, 436

841 cattle, U-shaped, almost complete, 1 205, NMS HA 512, Childe 1930, 602

842 cattle, broken, 1 163, NMS HA 506, Childe 7 pencil

843 cattle, ?W-shaped, broken, 1 136, SM A262, Childe 585 was 285 = ?1930 pencil

844 cattle, broken, 1 239, SB, Childe 595 was 295 pencil = ? 1930

845 cattle, broken, THM KR

846 ?cattle, U-shaped, complete, 1 245, SM

847 ?cattle, broken, 1 79, SB

848 cattle, broken, 1 178, SB

849 ?cattle, broken, 1 87, SB

850 cattle, broken, 1 178, BM 1938 1-1 163

851 ?cattle, broken, 1 158, NMS HA 505, Pl 6.15

852 cattle, U-shaped, complete, 1 228, NMS HA 511

853 cattle, W-shaped, broken, 1 218, NMS HA 513

854 ?cattle, W-shaped, broken, 1 101, NMS HA 515

855 ?cattle, W-shaped, broken, 1 123, SM on loan to NMS

856 ?cattle, W-shaped, broken, 1 72, SM on loan to NMS

857 deer/cattle, W-shaped, broken, 1 78, SM on loan to NMS

858 cattle/deer, W-shaped, broken, 1 155, SM on loan to NMS

859 cattle/deer, broken, 1 91, SM on loan to NMS

ASTRAGALUS POLISHERS

860 ?deer, complete, 1 53, NMS HA 131, Watt

861 ?deer, complete, 1 52, NMS HA 520, Childe 1928, ?309

862 cattle, complete, 1 66, THM 1983/180, Childe 1929, 49

863 cattle, complete, 1 66, THM, Childe 1929, 187

864 cattle, complete, 1 78, THM, Childe 1929, 187

865 cattle, complete, 1 70, BM 1938 1-1 48, Childe 1929, 187

866 cattle, complete, 1 73, SB, Childe 1929, 187

867 cattle, complete, 1 62, BM 1938 1-1 47, Childe 1929

868 cattle, complete, 1 68, SB, Childe 1930, 337

869 cattle, complete, 1 66, NMS HA 519, Childe 143 pencil, Fig 6.14

870 cattle, complete, 1 82, NMS HA 517, Childe 229 green, Fig 6.14

871 cattle, complete, 1 71, SM A262, Childe Chamber 4

872 cattle, complete, 1 68, SB

873 cattle, complete, 1 76, SB

874 sheep, complete, 1 28, THM 1983/187

875 cattle, complete, 1 71, NMS HA 518

876 cattle, complete, 1 63, SM on loan to NMS

877 cattle, complete, 1 72, SM on loan to NMS

878 cattle, complete, 1 71, SM on loan to NMS

879 cattle, complete, 1 71, SM on loan to NMS

880 cattle, complete, 1 61, SM on loan to NMS

881 cattle, complete, 1 67, SM on loan to NMS

882 cattle, complete, 1 74, SM on loan to NMS

883 deer, complete, 1 49, SM on loan to NMS

CUPS & VESSELS

884 large cetacean vertebra vessel in process of manufacture?, diam 965, NMS HA 589a, Watt

885 small cetacean vertebra containing red pigment, diam 113 x 92, THM 1983/177, Childe 1928, 266, Fig 6.14

886 small cetacean vertebra containing red pigment, diam 86 x 50, NMS HA 586, Childe 1928, 321, Fig 6.15

887 long bone unfused epiphysis containing red pigment, THM 1983/189, Childe 1930, 545

888 cetacean vertebra cup, diam 235 x 225, SM

889 large cetacean vertebra bowl, diam 292, NMS HA 577a

890 large cetacean vertebra bowl, broken, ht 130, NMS HA 577b

891 small cetacean vertebra containing red pigment, diam 51, NMS HA 587

892 large fish vertebra containing red pigment, diam 25, NMS HA 588

ANTLER SOCKETS/MACEHEAD

893 adze sleeve, perforated and hollowed, l 41, NMS HA 578, Childe 1930, 385, Fig 6.15

894 ?macehead/axe socket, broken, l 93, THM

ANTLER PICK

895 shed, brow tine worn, l 350, BM 1938 1-1 49, Childe

ANTLER

896 base, burr and beam, shed, chopped, l 240, THM on loan to NMS KD 36

897 base, burr and beam, shed, chopped, broken, l 190, NMS HA 119

898 beam, chopped, l 240, SB on loan to NMS

899 beam, polished, broken, l 210, NMS HA 521

900 beam, shed, THM

901 crown, smoothed and polished, l 90, SB on loan to NMS SM 15

902 crown, polished, broken, l 75, NMS HA 521 L.1933.1853

903 tines x 7, broken, SM A264

904 tine, smoothed, BM 1938 1-1 52

905 tine, smoothed, BM 1938 1-1 53

906 tine, smoothed, BM 1938 1-1 54

907 tine, smoothed, BM 1938 1-1 55

908 tine, chopped, THM

909 tine, chopped, polished shaft and tip, 1 170, SB on loan to NMS SM 5

910 tine, smoothed and polished, 1 60, SB on loan to NMS SM 12

911 tine, chopped, 1 300, NMS HA 521 L.1933.1851, Childe 1929, 244

912 tine, chopped, broken, 1 130, HA 521 L.1933.2015

BEADS

913 26 beads, THM S.25 on loan to NMS KD1, 12 large bone Watt
14 large disc

914 17 beads, THM S.26 on loan to NMS KD5, 1 tooth root Watt
15 bone
1 small disc

915 1 bead, BM 78 11-12 1, large bone, Watt

916 91 beads, NMS HA 99, 6 tooth root, Watt
3 large bone
46 bone (2 segmented 2)
2 large disc
34 small disc

917 1 bead, NMS HA 101, tooth root (2 segmented)

918 119 beads, BM 1938 1-1 66, 115 tooth root Paterson 1927
3 bird bone
1 small disc

919 5 beads, NMS HA 524 L.1933.1786-1790, 1 bone
1 large disc
3 small disc
Paterson 1927, 24, 32, 37

920 2 beads, NMS HA 524a, 1 large bone with recessed ends
1 small bone Paterson 1927, 34

921 1 bead, THM on loan to NMS KD 29, 1 large disc,
Paterson 1927, 45

922 125 beads, NMS HA 523, 106 tooth root (6 segmented 2)
10 bone
3 bird bone
4 small disc
2 unusual shapes
Paterson 1927, 11, 32; Childe 1928, 283, 287; Childe 1929, 171, 172, 173; Childe 1930, 353, 417, 477

923 101 beads, NMS HA 526 L.1933.1521-1619, 59 tooth root
13 bone
29 small disc
Paterson, 1927, 37; Childe 1928, 272

924 170 beads, NMS HA 526a, 136 tooth root (1 segmented 2)
28 bone
9 large disc
6 small disc
1 squared, perforated
Paterson 1927, 37; Childe 1928, 39, 87, 277; Childe 1929, 2

925 17 beads, SM on loan to NMS Stromness 39, 15 bone
2 small disc
Childe 1928, 1, 31, 32, 33, 44, 62, 71, 75, 83, 150, 156, 157, 190, 283, 343

926 33 beads, SM A262, 29 tooth root Childe 1928, ?33
3 bone
1 small disc

927 1 bead, SM on loan to NMS Stromness 37, 1 large bone
Childe 1928, 66

928 1 bead, SB on loan to NMS SM 25, 1 tooth root (segmented 2)
Childe 1928, 74

929 25 beads, NMS HA 524 L.1933.1279-1303, 16 bone (1 rib, 1 cylinder)
9 small disc
Childe 1928, 260

930 1 bead, NMS HA 531, 1 large bone, cuboid Childe 1928, 272, Pl 6.16

931 3 beads, THM on loan to NMS KD, 3 tooth root (3 segmented 3)
Childe 1928, 272

932 1 bead, THM on loan to NMS KD 11, 1 large bone
Childe 1928, 287

933 18 beads, SB, 3 tooth root Childe 1928, 312
1 incisor
8 bone
6 small disc

934 11 beads, SM A262, 1 large bone Childe 1928, 371
5 bone (2 segmented 2)
5 small disc

935 1 bead, NMS HA 575, 1 parallelepiped Childe 1928 ?382,
Pl 6.16

936 2 beads, SM A262, 2 large bone Childe 1928, 383

937 100 beads, SM A262, 87 tooth root (1 perforated at right angles to cavity)
7 bone Childe 1928, 383
4 bird bone
2 small disc

938 1 bead, BM 1938 1-1 44, bone, large, square section,
Childe 1928, ?383

939 1 bead, BM 1938 1-1 45, bone, large Childe 1928, 383

940 1 bead, BM 1938 1-1 46a, bone, large Childe 1928, ?383

941 1 bead, BM 1938 1-1 46b, bone, large Childe 1928, ?383

942 1 bead, BM 1938 1-1 46c, bone, large Childe 1928, ?383

943 1 bead, BM 1938 1-1 46d, bone, large Childe 1928, ?383

944 1 bead, BM 1938 1-1 46e, bone, large Childe 1928, ?383

945 1 bead, BM 1938 1-1 46f, bone, large Childe 1928, ?383

946 1 bead, THM on loan to NMS KD, 1 bone (segmented 2)
Childe 1928 ?387

947 6 beads, THM on loan to NMS KD, 5 bone (1 segmented 3,
4 segmented 2), Pl 6.17
Childe 1928, 387

948 42 beads, SM A262, 42 small disc Childe 1928,
'SW Chamber 7, passage

949 1 bead, SM on loan to NMS STROMNESS 36, 1 large bone,
Childe ?1928

950 49 beads, THM on loan to NMS KD3, 22 tooth root
(22 segmented 2)
27 small disc
Childe 1928, 260; 1929, 36, Pl 6.18

951 1 bead, NMS HA 527, 1 large bone, transverse perforations
Childe 1929, ?276

952 1 bead, BM 1938 1-1 61, bone (segmented 2) Childe 1930, 432

953 1 bead, BM 1938 1-1 60, cattle premolar Childe 1930, 62

954 1 bead, BM 1938 1-1 57, large bone Childe 303 pencil

955 1 bead, NMS HA 530, 1 large squared disc Childe 321

956 1 bead, NMS HA 531a, large bone, Childe 522

957 4 beads, NMS HA 558, 4 tooth root (2 segmented 2,
2 segmented 3) Childe 547

958 82 beads, THM 'NMAS' - 80 tooth root Childe
1 bone
1 bird bone

959 1 bead, THM, 'NMAS' - bone, segmented 3 Childe

960 41 beads, SM A262, 40 tooth root (21 segmented 2, 1 segmented
3, 1 segmented 5)
1 bone Childe

961 13 beads, SM A262, 11 large discs Childe
1 small disc
1 flat perforated

962 59 beads, SM A262, small discs Childe

963 1 bead, SM A262, large bone Childe

964 46 beads, SM A262, 43 tooth root Childe
3 bone

965 29 beads, SM A262, 24 tooth root Childe
4 bone
1 bird bone

966 100 beads, SM A262, 97 tooth root (1 segmented 2) Childe
1 bone
1 bird bone
1 small disc

967	52 beads, SM A262, 47 tooth root	Childe
	5 bone	
968	50 beads, SM A262, 44 tooth root (1 segmented 2)	Childe
	5 bone	
	1 bird bone	
969	49 beads, SM A262, 36 tooth root (1 segmented 2)	Childe
	13 bone	
970	98 beads, SM A262, 85 tooth root (2 perforated at right angles to cavity)	Childe
	8 bone	
	3 small disc	
	2 bird bone	
971	89 beads, SM A262, 86 tooth root (1 segmented 2)	Childe
	3 bird bone	
972	26 beads, SM A262, 25 tooth root	Childe
	1 small disc	
973	45 beads, SM A262, 31 tooth root	Childe
	1 bone	
	13 small disc	
974	51 beads, SM A262, 51 tooth root	Childe
975	50 beads, SM A262, 47 tooth root	Childe
	1 bone	
	2 bird bone	
976	68 beads, SM A262, 67 tooth root	Childe
	1 bone	
977	34 beads, SM A262, 16 tooth root	Childe
	7 bone	
	11 small disc	
978	51 beads, SM A262, 51 tooth root	Childe
979	35 beads, SM A262, 34 tooth root	Childe
	1 bird bone	
980	23 beads, BM 1938, 17 tooth root	Childe
	6 large bone	
981	63 beads, BM 1938 1-1 64, 1 tooth root	Childe
	46 bone	
	6 bird bone	
	10 small disc	

982 97 beads, BM 1938 1-1 65, 93 tooth root (1 segmented 2) Childe
3 bone
1 bird bone
983 72 beads, BM 1938 1-1 62, 1 tooth root (transverse perforation)
71 small disc Childe
984 97 beads, BM 1938 1-1 68, 88 tooth root (1 transverse perforation)
3 bone Childe
1 bird bone
4 small disc
985 12 beads, BM 1938 1-1 67, 6 tooth root (2 segmented 2) Childe
1 bone
5 small disc
986 99 beads, NMS HA 522 L.1933.330-429, 86 tooth root Childe
13 bone
987 200 beads, NMS HA 522 L.1933.430-629, 189 tooth root (2 segmented 2, 1 transverse)
11 bone Childe
988 98 beads, NMS HA 522 L.1933.630-729, 91 tooth root Childe
4 bird bone
3 small disc
989 99 beads, NMS HA 522 L.1933.730-829, 94 tooth root Childe
2 bone
2 bird bone
1 large disc
990 100 beads, NMS HA 522 L.1933.830-929, 94 tooth root (1 segmented 2)
6 bone Childe
991 87 beads, NMS HA 522 L.1933.930-1018, 65 tooth root Childe
21 bone
1 small disc
992 40 beads, NMS HA 522 L.1933.1019-1098, 40 tooth root Childe
993 79 beads, NMS HA 522 L.1933.1099-1178, 78 tooth root Childe
1 bone
994 49 beads, NMS HA 524 L.1933.1179-1228, 30 bone Childe
3 large disc
16 small disc

995 50 beads, NMS HA 524 L.1933.1229-1278, 10 large bone Childe
40 large disc
996 95 beads, NMS HA 525 L.1933.1423-1520, 93 disc Childe
2 large disc
997 18 beads, NMS HA 526 L.1933.1304-1322, 10 bone Childe
4 large disc
4 small disc
998 36 beads, NMS HA 558 L.1933.1620-1655, 31 tooth root (31 segmented 2)
5 bone
(4 segmented 2, segmented 3) Childe
999 99 beads, NMS HA 522 L.1933.1872-1971, 93 tooth root
(2 segmented 2)
4 bone Childe
4 bird bone

1000 17 beads, THM - 16 tooth root
1 bone
1001 44 beads, SM, 22 tooth root
14 bone
3 large bone
4 large discs
1 small disc
1002 15 beads, SM 8 tooth root
6 bone
1 small disc
1003 61 beads, SM 1 tooth root
60 small disc
1004 32 beads, SM 2 tooth root (1 segmented 2)
30 bone (5 segmented 2)
1005 6 beads, NMS HA 159, 6 tooth root
1006 2 beads, NMS HA 522, 2 tooth root
1007 100 beads, NMS HA 525, 100 small disc, Pl 6.18
1008 48 beads, NMS HA 526, 35 tooth root (5 segmented 2)
3 bone (3 segmented 2)
1 large bone
2 large disc
7 disc

1009 3 beads, NMS HA 526, 1 tooth root
2 bone

1010 1 bead, NMS HA 528, 1 large disc (transverse)

1011 1 bead, NMS HA 529, 1 bone (transverse) 1 bead, NMS HA 529a
1 bone (longitudinal and transverse cylinder)

1012 1 bead, NMS HA 555, 1 ivory (double perforation)

1013 66 beads, THM on loan to NMS KD 2, 66 bone

1014 74 beads, THM on loan to NMS KD 4, 74 small disc

1015 1 bead, THM on loan to NMS KD 6, 1 large bone

1016 1 bead, THM on loan to NMS KD 7, 1 large bone (double perforation)

1017 1 bead, THM on loan to NMS KD 8, 1 large bone (double perforation)

1018 1 bead, THM on loan to NMS KD 9, 1 large ivory

1019 1 bead, THM on loan to NMS KD 10, 1 large disc

1020 5 beads, THM on loan to NMS KD 12, 9 tooth root
(2 segmented 2)
82 bone
4 small disc, Pl 6.18

1021 98 beads, THM on loan to NMS KD 13, 91 tooth root, Pl 6.19
4 bone
2 bird bone
1 small disc

1022 30 beads, SB on loan to NMS SM 15, 2 tooth root
(2 segmented 2)
20 bone
8 small disc

1023 75 beads, SB on loan to NMS SM 16, 41 tooth root
20 bone
14 small disc

1024 99 beads, SB on loan to NMS SM 17, 70 tooth root
16 bone
3 bird bone

1025 1 bead, SB on loan to NMS SM 18, 1 large ivory

1026 1 bead, SB on loan to NMS SM 19, 1 large bone

1027 1 bead, SB on loan to NMS SM 20, 1 large bone

1028 1 bead, SB on loan to NMS SM 21, 1 bone (1 segmented 2)

1029 1 bead, SB on loan to NMS SM 22, 1 bone (1 segmented 3)

1030 1 bead, SB on loan to NMS SM 23, 1 tooth root (1 segmented 2)

1031 1 bead, SB on loan to NMS SM 24, 1 tooth root (1 segmented 2)

1032 99 beads, SB on loan to NMS SM 26, 95 tooth root
4 bird bone

1033 100 beads, SB on loan to NMS SM 27, 92 tooth root
(2 segmented 2)
1 bone
7 bird bone

1034 100 beads, SB on loan to NMS SM 28, 97 tooth root
1 incisor
2 bird bone

1035 1 bead, THM on loan to NMS KD 30, 1 large bone

1036 91 beads, THM on loan to NMS KD 31, 32 tooth root
57 bone
2 small disc

1037 98 beads, THM on loan to NMS KD 32, 84 tooth root
(1 segmented 2, 1 transverse)
14 bone

1038 73 beads, THM on loan to NMS KD 33, 72 tooth root
1 bone

1039 100 beads, THM on loan to NMS KD 34, 98 tooth root, Pl 6.19
(2 segmented 2)
2 bone

1040 36 beads, SB on loan to NMS SM 35, 1 tooth root (transverse)
35 small disc

1041 34 beads, SM on loan to NMS STROMNESS 38, 29 bone
5 small disc

1042 100 beads, SM on loan to NMS STROMNESS 40, 95 tooth root,
5 bone
Pl 6.19

1043 9 beads, 9 tooth root

1044 6 beads, 5 tooth root
1 bone

BEADS IN PROCESS OF MANUFACTURE

1045 sheep metapodial notched for 4 beads, NMS HA 100, Watt

1046 sheep metapodial notched for 8 beads, NMS HA 556, Watt

1047 bone for making disc beads, notched, 3 beads, NMS HA 571, Watt

1048 bone for making large disc beads, 3 beads, NMS HA 175, Stewart

1049 cattle incisor, apex removed, BM 1938 1-1 58, Paterson 1927, 36

1050 bone cylinder for disc beads, NMS HA 580, Paterson 1927, 39

1051 bone for making disc beads, notched, 4 beads, NMS HA 572, Childe 1928, 320, Fig 6.15

1052 sheep metapodial notched for 6 beads, decayed, THM

1053 large parallelepiped block with marrow cavity, THM

1054 tooth root, unfinished, SM

1055 cattle incisor, apex removed, NMS HA 559

1056 cattle incisor, apex removed, NMS HA 560, Pl 6.16

1057 cattle incisor, apex removed, NMS HA 560a, Pl 6.16

1058 cattle incisor, notched for 2 beads, NMS HA 561

1059 bone for making disc beads NMS HA 566

BEAD MAKING DEBRIS

1060 5 cattle incisor crowns, SM A255/258/262

1061 cattle canine crown, SM A255/258/262

1062 cattle incisor crown, NMS HA 564a, Childe 1928, 53

1063 sheep metapodial end, NMS HA 557, Childe 1928, ?370

1064 cattle incisor crown, THM 1983/195, Childe 1929, 103

1065 cattle incisor crown, THM 1983/195, Childe 1929, 145

1066 cattle incisor crown, THM 1983/195, Childe 1929, 148

1067 sheep metatarsal end, THM on loan to NMS KD, Childe 1929

1068 sheep metatarsal end, THM on loan to NMS KD

1069 cattle incisor crown, BM 1938 1-1 59b, Childe 1930, 488

1070 sheep metatarsal end, THM, Childe 1930, 496

1071 cattle incisor crown, BM 1938 1-1 59a, Childe 1930, 502

1072 cattle incisor crown, NMS HA 562

1073 cattle incisor crown, NMS HA 563

1074 cattle incisor crown, NMS HA 564

1075 cattle incisor crown, NMS HA 564b

PENDANTS

1076 tusk, perforated, complete, 1 70, THM on loan to NMS KD 1, S.25, Watt

1077 tusk, perforated, complete, 1 70, THM on loan to NMS KD 1, S.25, Watt

1078 tusk, perforated, complete, 1 41, THM on loan to NMS KD 5, S.26, Watt

1079 tusk, perforated, complete, 1 42, THM on loan to NMS KD 5, S.26, Watt

1080 tusk, perforated, complete, NMS HA 99, Watt

1081 tusk, perforated, complete, NMS HA 99, Watt

1082 bone, perforated, complete, 1 56, THM, Paterson 1927, 40

1083 bone, perforated, complete, 1 78, THM, Paterson 1927, 40

1084 tusk, perforated, complete, 1 64, THM, Paterson 1927, 40

1085 tusk, perforated, complete, 1 54, SB, Paterson 1927, 40

1086 tusk, perforated, complete, 1 60, SB, Paterson 1927, 40

1087 ?whale bone, perforated, broken, 1 35, BM 1938 1-1 161, Paterson 1927, 40

1088 tusk, perforated, complete, 1 76, BM 1938 1-1 37, Paterson 1927, 40

1089 tusk, perforated, broken, 1 53, BM 1938 1-1 41, Paterson 1927, 40

1090 antler/bone, unperforated, complete, 1 39, BM 1938 1-1 42, Paterson 1927, 40

1091 bone, perforated, complete, 1 43, SM A262, Paterson 1927, 40

1092 tusk, perforated, complete, 1 40, THM on loan to NMS KD, Paterson 1927, 40, Fig 6.15

1093 antler, perforated, broken, 1 41, THM on loan to NMS KD, Paterson 1927, 40

1094 tusk, perforated, complete, 1 63, THM on loan to NMS KD, Paterson 1927, 40

1095 tusk, perforated, complete, 1 52, NMS HA 533, Paterson 1927, 40

1096 tusk, perforated, complete, 1 53, NMS HA 537, Paterson 1927, 40

1097 bone, unperforated, complete, 1 32, THM on loan to NMS KD, Childe 1928, 80

1098 antler, unperforated, claw-shaped, 1 38, NMS HA 570, Childe 1928, 99, Pl 6.16

1099 tusk, perforated, broken, 1 41, THM on loan to NMS KD, Childe 1928, 135

1100 tusk, unperforated, notched at both ends, 1 59, NMS HA 549, Childe 1928, 181, Pl 6.16

1101 antler/cetacean bone, perforated, complete, 1 39, Childe 1928, 223, Fig 6.15

1102 tusk, perforated, complete, 1 58, THM on loan to NMS KD, Childe 1928, 230, Fig 6.15

1103 cetacean bone, perforated, complete, 1 46, NMS HA 543, Childe 1928, 240

1104 antler, perforated, complete, 1 66, NMS HA 545, Childe 1928, 242

1105 tusk, perforated, complete, 1 73, NMS HA 535, Childe 1928, 245

1106 antler, perforated, complete, 1 55, SB, Childe 1928, 272

1107 tusk, perforated, complete, 1 36, NMS HA 540, Childe 1928, 272

1108 bone, perforated, complete, 1 41, NMS HA 541, Childe 1928, 272

1109 tusk, perforated, complete, 1 37, NMS HA 542, Childe 1928, 272, Pl 6.16

1110 tusk, perforated, complete, 1 50, NMS HA 534, Childe 1928, 290

1111 tusk, unperforated, complete, 1 63, NMS HA 536, Childe 1928, 298

1112 tusk, perforated, broken, 1 41, BM 1938 1-1 38, Childe 1928, 305, Pl 6.16

1113 bone, perforated, complete, 1 68, BM 1938 1-1 39, Childe 1928, 305

1114 bone, perforated, complete, 1 47, NMS HA 544, Childe 1928, 342

1115 bone, unfinished perforation, 1 24, NMS HA 568, Childe 1928, 342

1116 tusk, unfinished perforation, 1 45, NMS HA 567, Childe 1928, ?368

1117 bone, perforated, complete, 1 67, SB, Childe 1928, 276

1118 antler/bone, perforated, complete, 1 32, THM on loan to NMS, Childe 1928, ?385

1119 tusk, perforated, complete, l 30, NMS HA 539, Childe 1928, Pl 6.16

1120 tusk, perforated, broken, l 33, THM 'NMAS' Childe
1121 tusk, perforated, complete, l 32, SM A262, Childe
1122 tusk, perforated, complete, l 42, SM A262, Childe
1123 tusk, perforated, complete, l 43, SM A262, Childe
1124 tusk, perforated, complete, l 55, SM A262, Childe
1125 tusk, perforated, decaying, l 40, BM 1938 1-1 43, Childe

1126 tusk, perforated, complete, l 56, THM, Childe 30 pencil
1127 antler, unperforated, complete, l 42, NMS HA 569, Childe 44 pencil, Pl 6.16
1128 bone, perforated, complete, l 53, SM A262, Childe 584 red

1129 bone, perforated, complete, l 29, SM
1130 antler, perforated, complete, l 47, SB
1131 antler, perforated, complete, l 48, SB
1132 tooth, ?otter, perforated, complete, l 34, BM 1938 1-1 195
1133 tooth, ?otter, perforated, complete, l 34, BM 1938 1-1 196

1134 tusk, perforated, complete, l 69, THM on loan to NMS KD 2
1135 tusk, perforated, complete, l 46, THM on loan to NMS KD 3, Pl 6.18
1136 tusk, perforated, complete, l 35, THM on loan to NMS KD 3, Pl 6.18
1137 tusk, perforated, complete, l 20, NMS HA 524a
1138 tusk, perforated, complete, l 89, NMS HA 532
1139 tusk, perforated, complete, l 39, NMS HA 538
1140 tooth, ?otter, perforated, complete, l 18, NMS HA 539a, Pl 6.16
1141 tusk, perforated, complete, l 20, NMS HA 542a, Pl 6.16

1142 tusk, perforated, complete, l 44, NMS HA 542b
1143 tusk, perforated, complete, l 46, NMS HA 542c
1144 tusk, perforated, complete, l 99, NMS HA 546
1145 antler/bone, unperforated, claw-like, l 39, NMS HA 570a

BOARS' TUSKS

1146 segment with perforation at both ends and an incised, geometric, triangular design, 1 61, NMS HA 554, Paterson 1927, 43

1147 tusk, perforated at tip, 1 95, NMS HA 554a, Childe 1928, 15

1148 segment, 1 49, THM 1983/191, Childe 1928, 200

1149 perforated segment, 1 53, BM 1938 1-1 40, Childe 1928, 305

1150 rectangular segment with two perforations, decorated with incised lines and saltire, 1 53, NMS HA 553, Childe 1928, 305

1151 tusk, notched at both ends, 1 69, NMS HA 550, Childe 1928, 525

1152 segment, ground, 1 57, NMS HA 548, Childe 1929, 58, Pl 6.16

1153 segment, ground, 1 61, NMS HA 534a, Childe 1929, 194

1154 segment, ground, 1 47, NMS HA 547, Childe 1930, 457

1155 perforated segment, 1 48, THM, Childe 101 pencil

1156 segment, notched at tip, 1 73, NMS HA 551, Childe 75 pencil

1157 perforated segment, 1 76, SM

1158 tusk, notched at both ends, broken, 1 56, NMS HA 552

MISCELLANEOUS OBJECTS

1159 unused cattle nasal bone, 1 123, THM S.10, Watt in Petrie 38

1160 cattle nasal bone, slightly notched, 1 132, NMS HA 479, Watt 7

1161 blunt object, broken, 1 100, SM A255, Watt

1162 sheep tibia, immature, double pointed blunt, 1 148, SM ?A255/258, Watt

1163 ?blade, 1 200, SM ?A255/258, Watt

1164 double pointed sheep metatarsal, 1 78, NMS HA 480, Watt 8

1165 cube decorated with notches and dots, 1 18, NMS HA 573, Watt 16, Fig 6.15

1166 cube decorated with notches and dots, 1 23, NMS HA 574, Watt 15

1167 tusk (?walrus), THM, Paterson 1927, 15

1168 ivory playing piece, decorated with groove, lines and dots, 1 37, NMS HA 576, Paterson 1927, 20

1169 broken scapula, THM, Childe 1928, 167

1170 ground plaque, 1 71, THM, Childe 1928, 237

1171 bone flake, 1 50, THM, Childe 1928, 316

1172 molar playing piece, diam 18, NMS HA 565, Childe 1928, ?381

1173 bird bone tube, 1 118, NMS HA 579, Childe 1928, ?358

1174 worked scapula/skull, 1 83, NMS HA 516, Childe 1929, 101

1175 worked bone, ground, 1 40, NMS HA 583, Childe 15 pencil

1176 ground bone, 1 24, SM A262, Childe, 3 red

1177 worked sheep metapodial, 1 75, SM A262

1178 cube of bone, ground, NMS HA 584

CETACEAN BONE

1179 sawn block, 1 117, NMS HA 582, Paterson 1927, 42

1180 vertebra, perforated and with geometric decoration, 1 80, NMS HA 577, Childe 1929, 18

1181 perforated, rounded block, NMS HA 589a, Childe 1929, 242

1182 large perforated rectangle, cancellous, 1 286, NMS HA 589, Childe 1929, 310

1183 cetacean bone ?macehead, perforated, broken, 1 80, SB on loan to NMS

1184 epiphyseal plate, perforated, diam 52, NMS HA 581, Fig 6.15

1185 block with rounded ends, 1 186, SB on loan to NMS

1186 shaped block, 1 75, SB on loan to NMS

1187 ?walrus baculum, trimmed, 1 525, SB on loan to NMS

1188 cut piece from epiphysis, 1 206, SB on loan to NMS

NATURALLY POLISHED PIECES OF BONE

1189 compact, 1 75, SM A255, Watt

1190 compact, 1 113, SM ?A255/258, Watt

1191 compact, 1 100, SM ?A255/258, Watt

1192 compact, 1 88, SM ?A255/258, Watt

1193 compact, 1 99, SM ?A255/258, Watt

1194 compact, 1 79, SM ?A255/258, Watt 9

1195 compact, 1 100, SM ?A255/258, Watt

1196 compact, 1 74, SM ?A255/258, Watt

1197 compact, 1 50, SM ?A255/258, Watt

1198 compact, 1 122, NMS HA 50, Watt

1199 compact, 1 47, NMS HA 97, Watt

1200 compact, 1 76, THM, Childe 1928, 177

1201 compact, 1 86, NMS HA 494, Childe 1928, 192

1202 compact, 1 98, NMS HA 495, Childe 1928, 338

1203 compact, 1 159, NMS HA 491, Childe 1928, 353

1204 compact, 1 75, THM, Childe 1929, 297

1205 compact, 1 66, THM, Childe 1930, 561

1206 compact, 1 88, NMS HA 493, Childe 1930

1207 compact, 1 112, NMS HA 492

1208 compact, 1 38, NMS HA 507

1209 compact, 1 30, NMS HA 508

CATALOGUE OF OBJECTS FROM THE BROCH OF MIDHOWE, ROUSAY, ORKNEY

POINTS

1 sheep ulna, complete, 1 114, NMS GAM 20

2 gannet ulna, almost complete, 1 80, NMS GAM 21, Fig 7.3

3 sheep metacarpal, complete, 1 56, NMS GAM 32, Fig 7.3

4 compact bone, complete, 1 89, NMS GAM 182, Fig 7.3

POINTS/PINS

5 pig fibula, broken, 1 93, NMS GAM 22, Fig 7.3

6 pig fibula, complete, 1 95, NMS GAM 23, Fig 7.3

7 compact bone, broken, 1 63, NMS GAM 26, Fig 7.3

PINS

8 compact bone, broken, 1 102, NMS GAM 24, Fig 7.3

9 compact bone, broken, 1 85, NMS GAM 25, Fig 7.3, Pl 7.1

10 compact bone/antler, broken, 1 32, NMS GAM 28, Fig 7.3

PINHEAD

11 cattle premolar, perforated, broken, 1 25, NMS GAM 48, peat-like layer, compartment C to SW of tank, Fig 7.3

BLUNTS

12 cattle innominate or scapula, complete, 1 128, NMS GAM 29, peat-like layer, compartment C between tank and divisional wall, Fig 7.3

13 sheep tibia, broken, 1 116, NMS GAM 30, Fig 7.3

14 compact bone, broken, 1 65, NMS GAM 39, Fig 7.3

15 compact bone, complete, 1 95, NMS GAM 182

SPATULAE

16 sheep metatarsal, ground head, complete, 1 111, NMS GAM 12, Fig 7.3

17 sheep metatarsal, complete, 1 105, NMS GAM 13, W end of cubicle in compartment C, Fig 7.3

18 sheep metatarsal, ground head, 1 109, NMS GAM 14, peat-like layer, compartment compartment C NE of tank, Fig 7.4, Pl 7.2

19 sheep metacarpal, eroded, complete, l 103, NMS GAM 15

20 sheep metapodial, ?immature, broken, l 91, NMS GAM 16, peat-like layer, compartment C, E side

21 sheep metatarsal, complete, l 110, NMS GAM 17, floor level in lobby of compartment C

22 sheep metacarpal, ground head, complete, l 116, NMS GAM 18, Fig 7.4

PEGGED PLATE, LARGE

23 cetacean bone, roughly rectangular, 6 peg holes, 3 holes in a line at each end, almost complete, l 236, NMS GAM 55, floor level in lobby of compartment C, Fig 7.4

PEGGED PLATES, SMALL

24 antler, beam, 2 peg holes, 1 peg, surface decorated with parallel cuts, broken, l 159, NMS GAM 67, Fig 7.5

25 antler, tine, two large peg holes, almost complete, l 165, NMS GAM 68, peat-like layer, compartment C, NE of tank, Fig 7.5

26 antler, beam, 2 peg holes, broken, l 143, NMS GAM 70, Fig 7.5

27 antler, beam, 2 peg holes, broken, l 66, NMS GAM 71, ?Chamber H2 on top of wall by S entrance, Fig 7.4

28 antler, beam, unfinished and unperforated, broken, l 101, GAM 90, Fig 7.4, Pl 7.4

29 antler, beam, 3 peg holes, broken, l 105, GAM 182, Fig 7.5

30 antler, peg, complete, l 40, NMS GAM 182, Fig 7.5

HANDLES

31 antler, tine, rectangular socket, complete, l 222, NMS GAM 69, floor level, lobby of compartment C

32 antler, beam, sub-oval socket, broken, l 115, NMS GAM 72, Fig 7.5, Pls 7.3, 7.4

33 antler, beam, sub-oval socket, broken, l 119, NMS GAM 73, Fig 7.6

SOCKET

34 antler, base and burr, narrow, rectangular socket, circular shaft hole, complete, l 102, NMS GAM 179, Fig 7.6

?SOCKET

35 deer metatarsal, perforated, ?binding marks, broken, 1 95, NMS GAM 181, Fig 7.6

SOCKETED OBJECTS

36 cetacean phalanx, sub-square socket, complete, 1 310, NMS GAM 53, outside S wall of broch, 9 inches above rock

37 ?cetacean bone, ?square socket, broken, 1 108, NMS GAM 58

CROSS PIECES?

38 antler, beam, narrow longitudinal circular perforation, large circular transverse perforation, complete, 1 70, NMS GAM 65, high up in debris within entrance passage to mural cell A , Fig 7.6

39 antler, beam, large circular transverse perforation, broken, 1 75, NMS GAM 66, at foot of rock cut steps to SE of broch

40 antler, tine, circular transverse perforation with rectangular notches above and below, broken, 1 75, NMS GAM 94, compartment H3, Fig 7.7

COMBS, LONG-HANDLED

41 cetacean bone, fish-tailed, waisted, 13 teeth, 10 complete, 1 112, NMS GAM 2, floor of lobby compartment C, Fig 7.7, Pl 7.5

42 cetacean bone, fish-tailed, waisted, 9 (?+) teeth, 7 complete, 1 122, NMS GAM 3, Fig 7.7

43 cetacean bone, fish-tailed but broken, waisted, 5+ teeth, all broken, 1 101, NMS GAM 4, floor of cubicle, compartment C, Fig 7.7, Pl 7.5

44 antler, eroded butt, waisted, 9 teeth, 9 complete, 1 134, NMS GAM 5, southern cell K, Fig 7.8, Pl 7.5

45 cetacean bone, fish tail, waisted, 11 teeth, 7 complete, 1 125, NMS GAM 6, E of centre of divisional wall, compartment D, Fig 7.8, Pl 7.5

46 antler, broken butt, ?perforated, waisted, 8 teeth, 1 almost complete, 1 103, NMS GAM 7, E of centre of divisional wall, compartment D, Fig 7.8

47 antler, broken butt, slightly concave sides, decorated with incised saltire, 10 teeth, 3 complete, 1 69, NMS GAM 8, NE cubicle, compartment D, Fig 7.7

48 cetacean bone, flat butt, straight sides, 8 teeth, 7 complete, 1 88, NMS GAM 9, peat-like layer compartment C, NE of tank, Fig 7.7, Pl 7.6

49 antler, butt broken, straight sides, 9 teeth, 9 complete but unfinished, 1 77, NMS GAM 10, 5 ft above floor in cubicle, compartment C, Fig 7.8, Pls 7.7, 7.8

50 cetacean bone, fish-tailed but broken, waisted, 10+ teeth, grooved but unsawn, 1 108, NMS GAM 11, Fig 7.8, Pl 7.7

51 antler, fish-tailed, waisted, 8+ teeth all broken, 1 93, NMS GAM 182, Fig 7.9

COMB, SINGLE-SIDED

52 cetacean bone, broken, perforated thin butt, groove below, 9+ teeth, 2 complete, 1 49, NMS GAM 163, Fig 7.9

COMB, COMPOSITE, DOUBLE-SIDED

53 single segment of teeth with side plates and 2 iron rivets, teeth all broken, 22+ on one side, 20+ on the other, 8 ring and dot decorations on the side plate, 1 34, NMS GAM 1, at higher level on path between inner ditch and broch tower, Fig 7.9

WHORLS

54 cetacean bone, flattened surfaces, rodent gnawed, drilled perforation, complete, diam 30, NMS GAM 47, outside E end of drain compartment D, Fig 7.9

55 cattle femur head, sawn, drilled perforation, complete, diam 41, NMS GAM 49

56 cattle femur head, unfinished perforation, complete, diam 40, NMS GAM 51

57 cattle femur head, chopped, drilled perforation, complete, diam 39, NMS GAM 182, Fig 7.9

SCAPULA SEGMENT TOOLS

58 sheep scapula, segment with spine, ground blades, complete, 1 44, NMS GAM 43, lower level in inner ditch, Fig 7.9

59 sheep scapula, segment with spine, rounded blade, broken, 1 71, NMS GAM 44, Fig 7.9

60 cattle/deer scapula, segment with spine, rounded blades, broken, 1 86, NMS GAM 182, Fig 7.9

TUBE

61 bird ulna, surface scraped, articular ends sawn off, complete, 1 163, NMS GAM 45, floor level lobby of compartment C, Fig 7.10

RINGS

62 cetacean bone, eroded, complete, diam 25, NMS GAM 57, NE cubicle compartment C, Fig 7.10

63 antler, hollowed, broken, 1 29, NMS GAM 182, ?wall head to S of entrance H3, Fig 7.10

64 cetacean bone, eroded, broken, diam 44, NMS GAM 182, Fig 7.10

?MIRROR HANDLE

65 cetacean bone, Y-shaped, broken, 1 85, NMS GAM 56, foot of rock cut steps SE of broch

MATTOCK

66 antler, chopped rounded blade, broken, 1 180, NMS GAM 91, Fig 7.10

PICKS

67 antler, brow tine and beam, broken, 1 262, NMS GAM 74

68 antler, brow tine and beam, broken, 1 331, NMS GAM 75

CETACEAN VERTEBRA CUP/VESSEL

69 fragment showing rim, wall and base, ht 145, NMS GAM 60, lower level inner ditch, Fig 7.11

PERFORATED BOAR'S TUSK

70 segment of tusk with broken drilled perforation, 1 49, NMS GAM 182

ANTLER-WORKING DEBRIS : BEAM/SKULL/PEDICLE/BURR

71 pedicle, chopped, 1 44, NMS GAM 52

72 base, burr and beam, shed, split, broken, 1 275, NMS GAM 76

73 base, burr and beam, shed, chopped, broken, 1 273, NMS GAM 77

74 base, burr and beam, shed, chopped and split, broken, 1 233, NMS GAM 78

75 base, burr and beam, shed, broken, 1 174, NMS GAM 79

76 skull, pedicles and base of two tines, unshed, one beam sawn one chopped, 1 162, NMS GAM 92

77 base, burr and beam, shed, chopped, broken, 1 151, NMS GAM 93

78 base, burr and beam, shed, split, complete, 1 190, NMS GAM 182

79 base, pedicle and beam, unshed, broken, 1 147, NMS GAM 182

80 base, pedicle and beam, unshed, ?split, broken, 1 165, NMS GAM 182

81 base, burr and beam, shed, chopped, broken, 1 232, NMS GAM 182

82 beam, chopped, 1 191, NMS GAM 182

ANTLER-WORKING DEBRIS : TINES AND CROWNS

83 tine, shed, sawn and split, complete, 1 179, NMS GAM 80

84 tine, sawn and split, chopped, complete, 1 175, NMS GAM 81

85 tine, chopped and split, complete, 1 114, NMS GAM 82

86 tine, chopped and split, complete, 1 138, NMS GAM 83

87 tine, chopped and split, complete, 1 132, NMS GAM 84

88 tine, sawn, chopped and split, complete, 1 105, NMS GAM 85

89 tine, shed, split, complete, 1 108, NMS GAM 86

90 tine tip, chopped and sawn, complete, 1 38, NMS GAM 87

91 tine, chopped and split, complete, 1 125, NMS GAM 88, Fig 7.10, Pls 7.4, 7.9

92 tine segment, chopped and split, complete, 1 54, NMS GAM 89

93 tine chopped and split, broken, 1 152, NMS GAM 182

94 tine, split, complete, 1 140, NMS GAM 182

95 tine chopped and split, complete, 1 104, NMS GAM 182

96 crown, chopped and split, complete, 1 98, NMS GAM 182

97 crown, sawn, complete, 1 130, NMS GAM 182

98 crown, broken, 1 212, NMS GAM 182

99 crown, sawn, complete, 1 207, NMS GAM 182

100 tine chopped and split, complete, 1 159, NMS GAM 190

WORKED BONE : LAND MAMMAL

101 sheep tibia segment, split, complete, 1 99, NMS GAM 31

102 cattle metacarpal segment, split, 3 points of impact, one end rubbed, complete, 1 150, NMS GAM 33, Fig 7.11, Pl 7.10

WORKED BONE : CETACEAN

103 paddle bone segment, sawn and split, broken, 1 242, NMS GAM 54

104 paddle bone segment, chopped, broken, 1 201, NMS GAM 59

105 vertebral epiphysis, chopped, broken, 1 126, NMS GAM 61

106 paddle bone, split, complete, 1 134, NMS GAM 62, near floor outside E end of drain compartment D

107 ?skull, split, sawn and ?chiselled, complete, 1 100, NMS GAM 63, near floor outside E end of drain compartment D

108 paddle bone segment chopped, broken, 1 63, NMS GAM 182

NATURALLY POLISHED PIECES OF BONE

109 compact bone, 1 30, NMS GAM 34

110 compact bone, 1 98, NMS GAM 35

111 compact bone, 1 98, NMS GAM 36

112 compact bone, 1 115, NMS GAM 37

113 compact bone, 1 86, NMS GAM 38

114 compact bone, 1 73, NMS GAM 40

115 compact bone, 1 54, NMS GAM 41

116 rib, 1 58, NMS GAM 42

117 compact bone, 1 49, NMS GAM 182

118 compact bone, 1 89, NMS GAM 182

119 compact bone, 1 84, NMS GAM 182

120 compact bone, 1 135, NMS GAM 182

121 compact bone, 1 106, NMS GAM 182

UNWORKED MATERIAL

122 sheep ulna, 1 103, NMS GAM 19

123 bird bone, 1 71, NMS GAM 27

124 small mammal caudal vertebra, 1 22, NMS GAM 46

125 cattle femur head, diam 29, NMS GAM 50

126 cattle horn core, 1 208, NMS GAM 182

127 antler, shed, unworked, broken, 1 565, NMS GAM 182

128 antler, shed, unworked, broken, 1 186, NMS GAM 182

129 boars' tusks x 21, unworked, NMS GAM 64 & 182

CATALOGUE OF OBJECTS FROM CNOC SLIGEACH, SOLLAS, NORTH UIST

POINTS

Midden pre-dating wheelhouse B

1 sheep metatarsal, proximal, complete, l 75, WB 13/5, midden, Fig 8.5

2 compact bone, complete, l 57, WB 13/5, midden, Fig 8.5

Wheelhouse B (contemporary with the wheelhouse)

3 split rib, complete, l 40, WB 1/2, Cell 1, floor, Fig 8.5

4 compact bone, complete, l 86, WB 1/3, Cell 1, floor, Fig 8.5

5 split rib, broken, l 35, WB 1/9, Cell 1, floor 2, Fig 8.5

6 compact bone, shouldered, ?broken, l 61, WB 4/3, Cell 4, floor 2, Fig 8.5

7 compact bone, complete, l 77, WB 5/24, Cell 5, lowest of four floors, Fig 8.5

8 compact bone, complete, l 62, WB 14/3, Cell 14, floor 1, Fig 8.5

9 compact bone, complete, l 81, WB Q/62, NW quadrant, below floor 1, Fig 8.5

10 split rib, complete, l 72, WB unstratified

LARGE POINT

Wheelhouse B (contemporary with the wheelhouse)

11 scapula segment, complete, l 144, WB 12/3, Cell 12, floor, Fig 8.5

PERFORATED POINTS

Wheelhouse A

12 sheep <u>os malleolare</u>, complete, l 74, A22/20 = no 48, Per A–C, Fig 8.5

13 compact, rounded head, broken, l 27, A/23 W/5 = no 51, Per A–C, Fig 8.5

14 compact bone, expanded angular shoulders, complete, l 87, WH/A/17 = no 17, Per D–F, Fig 8.5

Wheelhouse B (contemporary with the wheelhouse)

15 compact bone, expanded angular shoulders, complete, 1 74, WB Q/17, SE quadrant, upper floor, Fig 8.5

POINTS/PINS

Wheelhouse B (contemporary with the wheelhouse)

16 compact bone, chisel-head tip waisted, complete, 1 83, WB 8/24, Cell 8, floor 1, Fig 8.5, Pl 8.1

17 compact bone, flat head, complete, 1 84, WB 13/1, Cell 13, floor, E side, Fig 8.5

18 compact bone, broken, 1 35, WB 1323/3, floor, Fig 8.5

PEGS

Wheelhouse A

19 antler, ?for handle plate, complete, 1 61, A 22/18 = no 45, Per D-F, Fig 8.5

20 antler, waisted tip, complete, 1 71, WH/A/73 = no 73, Per D-F, Fig 8.5

Wheelhouse B (contemporary with the wheelhouse)

21 antler, ?for handle plate, complete, 1 50, WB 10/8, Cell 10, floor, Fig 8.5

BLUNTS

Wheelhouse A

22 antler segment, flattened tip, complete, 1 127, WH/A/90 = no 90, Per F, Fig 8.6

23 antler segment, rounded tip, complete, 1 114, A/22/7 = no 31, post wheelhouse, Fig 8.6

Wheelhouse B (contemporary with the wheelhouse)

24 compact bone, complete, 1 81, WB 7/10, Cell 7, pit 1, Fig 8.5

25 sheep metatarsal, complete, 1 67, WB 12/3, Cell 12, floor, Fig 8.5

SPATULAE

Wheelhouse B (contemporary with the wheelhouse)

26 compact bone, miniature, broken, 1 40, WB 6/22, Cell 6, pit cut into lowest of four floors, Fig 8.5

27 compact bone, one end pointed, complete, 1 108, WB Q/83, NE quadrant, pit 5, Fig 8.6, Pl 8.2

SPATULATE ?POTTING TOOLS

Wheelhouse A

28 antler tine, grooved butt, spatulate tip, complete, 1 148, WH/A/62 = no 62, Per A–C, Fig 8.6

Wheelhouse B (contemporary with the wheelhouse)

29 compact bone, pointed butt, spatulate tip, curved circular–sectioned shaft, complete, 1 165, WB 10/10, Cell 10, pit in floor, Fig 8.6

PEGGED PLATES

Wheelhouse A

30 antler, beam, 4 perforations, one in each corner, complete, 1 4, A22/9 = no 33, Per D–F, Fig 8.6

31 antler, beam, 3 perforations in line, 3 pegs surviving, complete, 1 70, WH/A/82 = no 82, Per D–F, Fig 8.6

32 antler, beam, 4 perforations in line, part of one peg surviving, complete, 1 70, WH/A/93 = no 93, post wheelhouse, Fig 8.6

Wheelhouse B (contemporary with the wheelhouse)

33 antler, 2 large perforations, broken, 1 70, WB 13/6, Cell 13, sand below floor 2, Fig 8.6

34 antler, beam, 4 perforations, 2 pairs of 2, complete, 1 74, WB 13/6, Cell 13, sand below floor 2, Fig 8.7

HANDLES

Wheelhouse A

35 antler tine, one long rectangular socket, one short circular socket, complete, 1 88, A23 W+/4, Per D–F, Fig 8.7

midden pre-dating wheelhouse B

36 antler tine, circular socket, broken, l 38, EN/2, N of entrance passage, Fig 8.7

Wheelhouse B (contemporary with the wheelhouse)

37 antler tine, grooved butt, circular socket, complete, l 82, WB E/5, crevice in S entrance wall of courtyard 15ft outside the entrance, Fig 8.7

SOCKET

Wheelhouse A

38 antler beam, transverse circular perforation, longitudinal socket, broken, l 121, WH/A/81 = no 81, Per A-C, Fig 8.7

PERFORATED BONE

Wheelhouse B (contemporary with the wheelhouse)

39 sheep metacarpal, gnawed, ?complete, l 94, WB 8/12, Cell 8, pit 4, Fig 8.7

TURNED OBJECTS

Wheelhouse A

40 antler tine, ?complete, l 91, diam 20, A22 SW/12 = no 39, Per A-C, Fig 8.7

41 antler beam, broken, l 82, diam 24, A23 W+/4 = no 50, Per D-F, Fig 8.7

42 antler tine, complete, l 68, diam 15, A23 W+/4 = no 50, Per D-F, Fig 8.7, Pl 8.3

43 antler tine, ?complete, l 79, diam 24, WH/A/74 = no 74, Fig 8.7

44 antler ?beam, broken, l 78, WH/A/90, Per F

Midden pre-dating wheelhouse B

45 antler tine, broken, l 33, diam 28, WB EN/7

46 antler beam, broken, l 34, diam 33, WB SC/3, Fig 8.7

47 antler beam, broken, l 47, diam 30, WB SC/3

Wheelhouse B (contemporary with the wheelhouse)

48 antler beam, broken, l 102, diam 34, WB 5/3, Cell 5, floor 1, Fig 8.8

49 cetacean bone, complete, l 148, diam 47, WB 13/3, Cell 13, floor 2, Fig 8.8, Pl 8.4

50 antler tine, broken, l 77, diam 25, WB Cells 1-14

51 cetacean bone, broken, l 42, Q/44, NW Quadrant, floor, (Part of cetacean bone above?)

52 antler beam, broken, l 97, diam 27, WB Q/56/59/65

GAMING PIECE/PEG

Wheelhouse B (contemporary with the wheelhouse)

53 antler, two part, ball-shaped head with small inserted peg, complete, l 26, diam 13, WB Q/60, NW quadrant, pit 20, Fig 8.8

CETACEAN VERTEBRA CUPS/VESSELS

Wheelhouse B (contemporary with the wheelhouse)

54 wall fragment of large vessel, immature, broken, l 206, ht 164, WB Q/76

55 vessel in process of manufacture?, l 300, ht 116, WB Q/101, SW quadrant, pit 15

CETACEAN BONE ?BLANKS

Midden pre-dating wheelhouse B

56 grooved, complete, l 62, WB EE/1, Pl 8.5

57 notched, complete, l 82, WB EE/1, Fig 8.8

58 peg, complete, l 76, WB EE/1, Fig 8.8

59 notched, complete, l 107, WB SC/2, Fig 8.8

?POLISHER

Post wheelhouse B refill

60 antler, broken, l 66, 1323/2, floor, N side, Fig 8.8

MISCELLANEOUS OBJECTS

Midden pre-dating wheelhouse B

61 cetacean, bone, notched 2-3 times, rectangular, complete, l 239, WB EN/6, Fig 8.9, Pl 8.6

Wheelhouse B (contemporary with the wheelhouse)

62 compact bone, toothed, broken, 1 74, WB 13/9, Cell 5, crevice in outer wall, Fig 8.8

63 split rib spatulate with notch, complete, 1 138, WB Q/2, NE quadrant, upper floor of central area by cells 11-19, Fig 8.8

64 small tablet of compact bone, complete, 1 36, WB Q/23, SE quadrant, upper floor of central area, Fig 8.9

65 cetacean bone ?stake, circular, waisted, broken, 1 270, WB 10/2, Cell 10, floor, Fig 8.10, Pl 8.6

WORKED BONE

Wheelhouse B (contemporary with the wheelhouse)

66 sheep metapodial, split, 1 60, WB 5/6, Cell 5, floor 2

67 sheep tibia, split, 1 95, WB 6/25, Cell 6, floor 3 left half

68 ?sheep tibia, immature, trimmed all over, complete, 1 77, WB 12/4, Cell 12 floor

69 compact bone, split, 1 38, WB 13/5, Cell 13

70 rib split, 1 114, WB Cells 1-14

ANTLER-WORKING DEBRIS : BEAM/SKULL/PEDICLE/BURR

Wheelhouse A

71 beam, chopped, sawn, 1 35, WH/A/1+4+5, Per A-C

72 burr and brow tine, shed, split and chopped, 1 128, WH/A/22SW = adjacent to A 22 SW/12 (= no 39), Per A

73 beam, chopped and split, trimmed, complete, 1 65, WH/A/58 = no 58, Per F

74 beam, split, 1 81, WH/A/71, Per F

75 beam, split, 1 49, WH/A/71, Per F

76 beam, split, 1 40, WH/A/71, Per F

77 beam, split, 1 25, WH/A/71, Per F

78 beam, chopped, broken, 1 156, WH/A/71, Per F

79 beam and tine, chopped and split, 1 115, WH/A/78, Per F

80 beam, sawn and split, complete, 1 61, WH/A/78, Per F

81 beam, split, broken, 1 75, WH/A/80, post wheelhouse

82 beam and tine split, sawn tine, complete, 1 110, WH/A/80, post wheelhouse

83 beam, chopped and split, 1 69, WH/A/92, post wheelhouse

84 beam, sawn and split, 1 83, WH/A/98, Per F

Midden pre-dating wheelhouse B

85 beam, split, complete, 1 84, WB EE/2

86 beam, sawn, broken, 1 60, WB EN/5

87 beam, sawn and split, complete, 1 29, WB EN/5

88 beam, chopped and split, trimmed, 1 53, WB ES/3

89 beam, sawn and split, 1 108, WB SC/3

90 beam, split, trimmed, 1 55, WB SC/3

Souterrain cutting

91 beam, sawn, split, broken, 1 38, WB S/6

92 beam, sawn, chopped, broken, 1 86, WB S/6

93 beam, chopped, broken, 1 44, WB S/6

Wheelhouse B (contemporary with the wheelhouse)

94 beam, chopped, complete, 1 56, WB 5/26, Cell 5

95 beam, chopped, trimmed, 1 183, WB 13/1, Cell 13, floor 1

96 beam, sawn and chopped, 1 121, WB 14/5, Cell 14

97 base, burr and beam, shed, chopped, 1 57, WB Cells 1-14

98 beam, chopped and split, trimmed, complete, 1 68, WB Cells 1-14

99 beam, chopped and split, burnt, broken, 1 53, WB Q/38, NE quadrant, unstratified

100 beam, trimmed, broken, 1 47, WB Q/39, SE quadrant, unstratified

101 beam, chopped, trimmed 1 78, WB Q/73, SW quadrant, floor

102 beam, split, broken, 1 62, WB Q/73, SW quadrant, floor

103 beam, split, complete, 1 60, WB A/3, Cell A refill

104 beam, split, trimmed, 1 79, WB C/1

105 beam, chopped, 1 48, WB C/3

ANTLER-WORKING DEBRIS : TINES AND CROWNS

Wheelhouse A

106 tine, broken, 1 69, WH/A/2 = A23/E ½, Per A

107 tine, chopped, 1 88, WH/A/6 = A23/E 6/7, Per A

108 tine, chopped and split, 1 113, WH/A/15, floor in centre, S end of diagonal section

109 tine, sawn, complete, 1 80, WH/A/26 = A22 E/3, Per F

110 tine, sawn, trimmed, 1 66, WH/A/84, Per F

111 tine, sawn and split, 1 60, WH/A/96, Per F

Midden pre-dating wheelhouse B

112 tine tip, sawn and split, complete, 1 50, WB EE/1

113 tine tip, split, worn tip, complete, 1 39, WB EN/1

114 tine, chopped and split, complete, 1 68, WB EN/4

115 tine, sawn and split, complete, 1 75, WB EN/7

Wheelhouse B (contemporary with the wheelhouse)

116 tine, split and sawn, trimmed, complete, 1 84, WB 5/26, Cell 5

117 tine, sawn and split, complete, 1 168, WB 13/4, Cell 13

118 tine, sawn and split, complete, 1 105, WB 14/5, Cell 14

119 tine, chopped and split, complete, 1 94, WB unstratified

120 crown, chopped and split, complete, 1 103, WB A/1, Cell A refill

121 tine, split, broken, 1 45, WB A/3, Cell A refill

122 tine tip, sawn and split, 1 41, WB C/3

123 tine, chopped, 1 179, WB 1323/2, floor

124 tine, chopped, trimmed, 1 95, WB/108

CETACEAN BONE WORKING DEBRIS

Midden pre-dating wheelhouse B

125 segment, rectangular, sawn ends, split sides, 1 45, WB EE/1

126 segment, rectangular, chopped and split, 1 116, WB EE/1

127 segment, rectangular, sawn ends, split sides, 1 50, WB EE/1

128 segment, rectangular, split sides, sawn ends, 1 55, WB EE/1, Pl 8.7

129 segment, rectangular, sawn ends, split sides, 1 67, WB EE/1

130 segment, rectangular, sawn ends, split sides, 1 77, WB EE/1, Pl 8.5

131 segment, rectangular, split sides, sawn ends, 1 62, WB EE/1, Pl 8.5

132 segment, rectangular, sawn ends, split sides, 1 52, WB EE/1

133 segment, rectangular, sawn ends, split sides, 1 67, WB EE/1

134 segment, rectangular, sawn ends, split sides, 1 75, WB EE/1, Pl 8.5

135 segment, rectangular, sawn ends, split sides, 1 66, WB EE/1

136 segment, rectangular, sawn ends, split sides, 1 63, WB EE/1

137 segment, elongated, split, 1 100, WB EE/1

138 segment, rectangular, sawn ends, split sides, 1 77, WB EE/1

139 chip, split, 1 28, WB EE/2

140 chip, split, 1 31, WB EE/2, Pl 8.8

141 chip, split, 1 43, WB EE/2, Pl 8.8

142 chip, split, 1 24, WB EE/2, Pl 8.8

143 chip, split, 1 30, WB EE/2, Pl 8.8

144 chip, split, 1 60, WB EE/2, Pl 8.8

145 chip, split, 1 56, WB EE/2, Pl 8.8

146 chip, split, 1 35, WB EE/2

147 segment, rectangular, split, broken, 1 130, WB EN/5

148 segment, rectangular, split sides, sawn ends, 1 201, WB EN/6

149 segment, rectangular, split sides, sawn ends, central groove for further sawing, 1 55, WB ES/3

150 chip, split, pointed, 1 71, WB ES/3

151 chip, split, pointed, 1 112, WB FF/8

152 segment, rectangular, sawn ends, split sides, 1 55, WB SC/2

Wheelhouse B (contemporary with the wheelhouse)

153 segment, rectangular, split sides, sawn ends, 1 27, WB 2/6, Cell 2, pit in floor

154 segment, rectangular, sawn ends, split sides, 1 39, WB 9/35, Cell 9, floor

155 section from paddle bone, sub-oval, 1 107, diam 107, WB 13/7, Cell 13, Pl 8.9

156 segment, rectangular, split sides, sawn ends, 1 49, WB C/2

UNWORKED

Wheelhouse A

157 bird fibula, 1 62, A23/3 = no A 23/3, Per A-C

158 cattle scapula, 1 210, WH/A/75, Per A

159 sheep metacarpal, 1 93, WH/A/78

160 antler, 1 59, WH/A/80, post wheelhouse

161 sheep metatarsal, 1 115, WH/A/90, Per F

162 cattle scapula, 1 140, WH/A/90, Per F

163 cattle scapula, 1 217, WH/A/98, Per F

164 antler, 1 43, WH/A/98, Per F

165 compact bone, split, eroded, 1 27, A/1, Per C

Midden pre-dating wheelhouse B

166 antler, 1 63, WB EE/2

167 cattle scapula, 1 114, WB EN/4

Wheelhouse B (contemporary with the wheelhouse)

168 antler, shed, 1 244, WB 1/6, in and below floor 1

169 cattle tibia, split, 1 126, WB 4/13, sand between floors 2 & 3

170 cattle femur head, immature, 1 47, WB 5/6, floor 2

171 antler, 1 23, WB 5/28, pit 1

172 compact bone, 1 69, WB 13/3, Cell 13, floor 2

173 compact bone, 1 74, WB Q/56/59/65

174 sheep metatarsal, 1 42, WB Q/4, SW quadrant floor

175 cattle scapula, 1 93, WB A/3

A.R.U. WORKED BONE

site/year		trench/square		layer (initial) (final)			find no.
co-ords N E Z D		recovery process		object			
animal group		complete		burnt			exam. by/date
		bkn anc		colour			microscope
name		bkn mod	l	b	d	t	o obj
bone		wt	l	b	d	t	o wkd area
anat. description & comments							
prox		dist					
L lat		R lat					
upper		lower					
modification : human		non-human					
modifiers		sequence of modification					
sketch		parallels					
x-section		comments					
		cleaned					
		drawn					
		photographed					

Fig 1.1 Recording sheet for worked bone

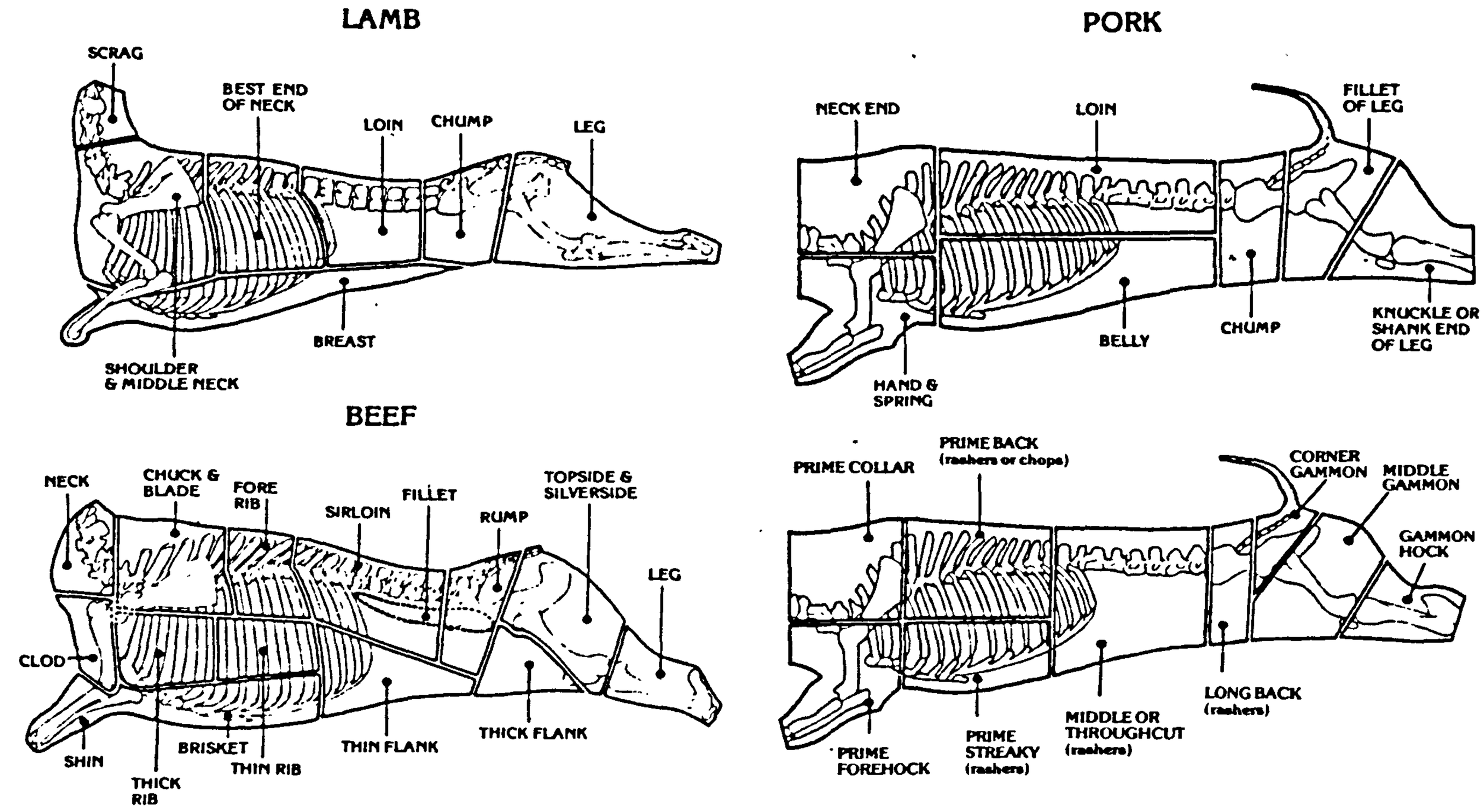


Fig 2.1 British meat cuts in the 1980's. From Davis 1987

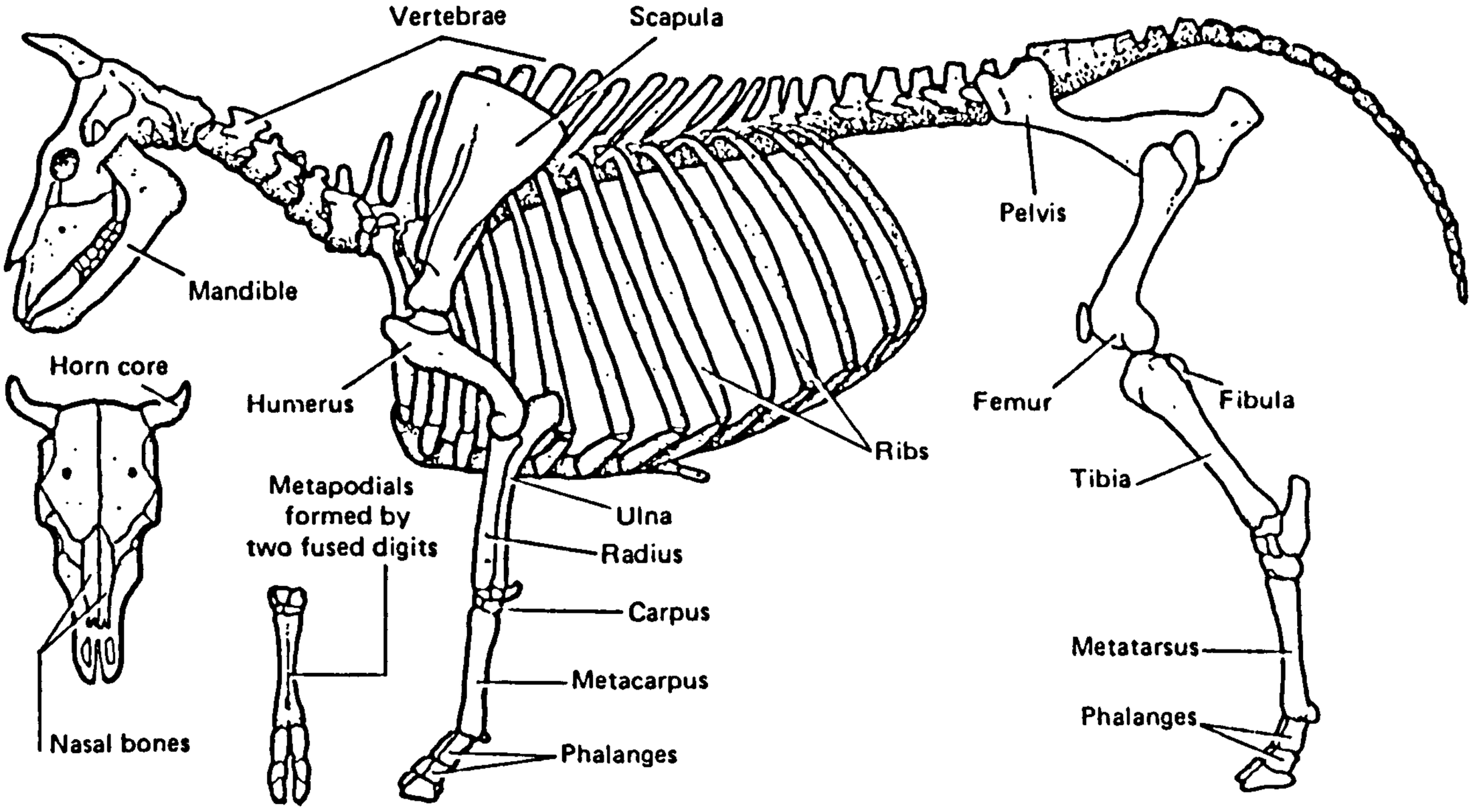


Fig 3.1 Cattle skeleton and named bones. From A MacGregor 1985

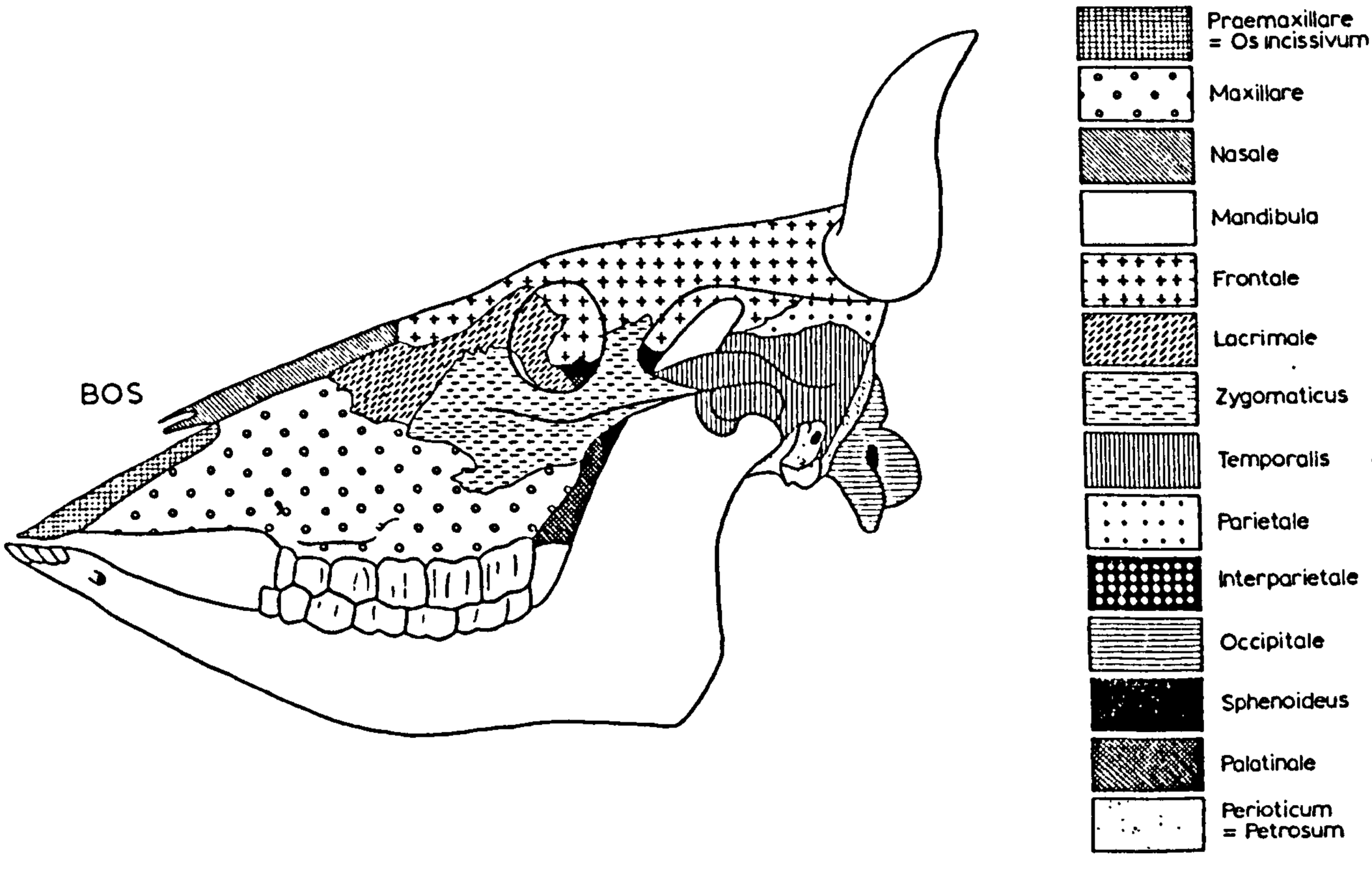


Fig 3.2 Cattle skull and constituent bones. From Schmid 1972

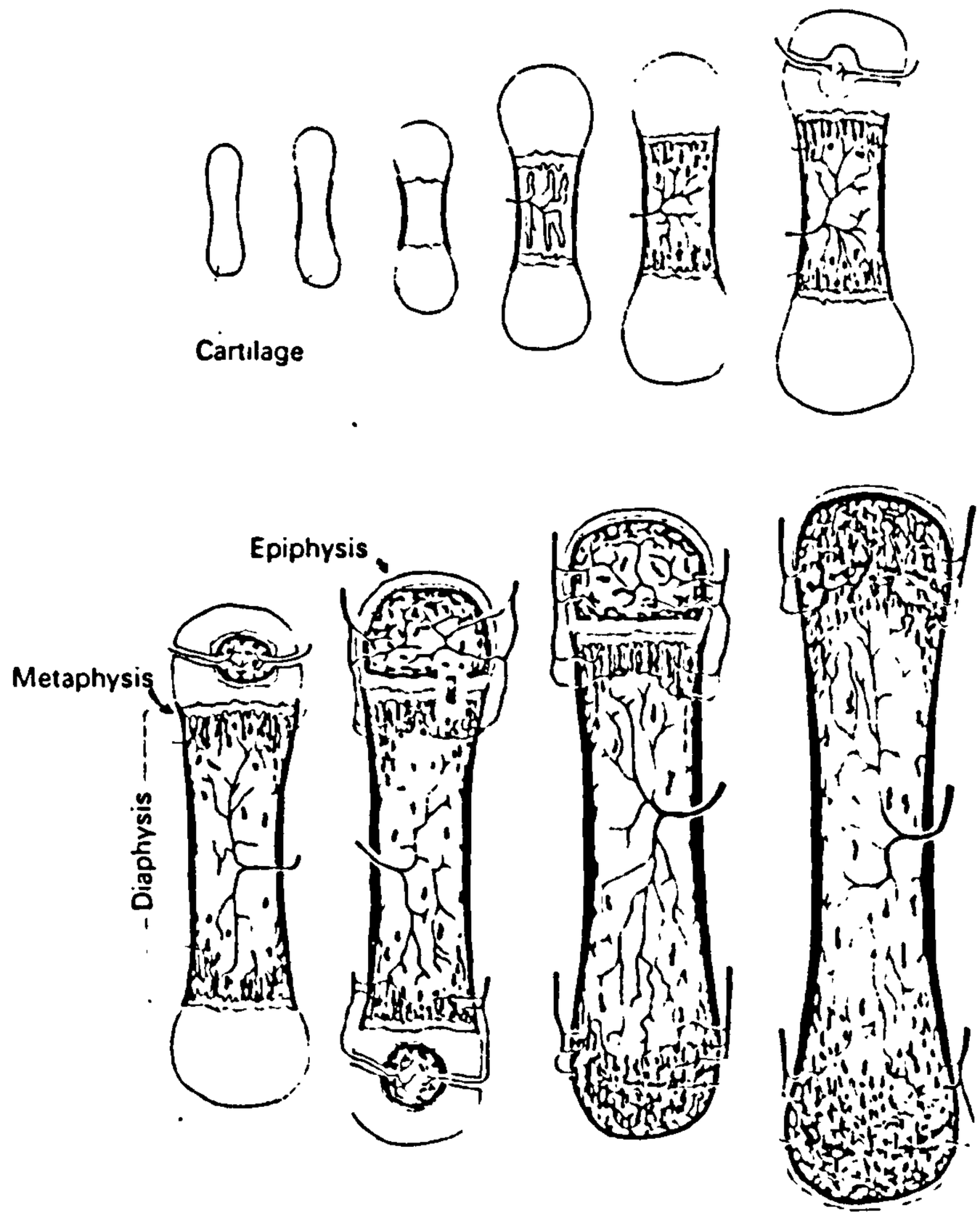


Fig 3.3 Long bone growth by endochondral ossification. From Davis 1987

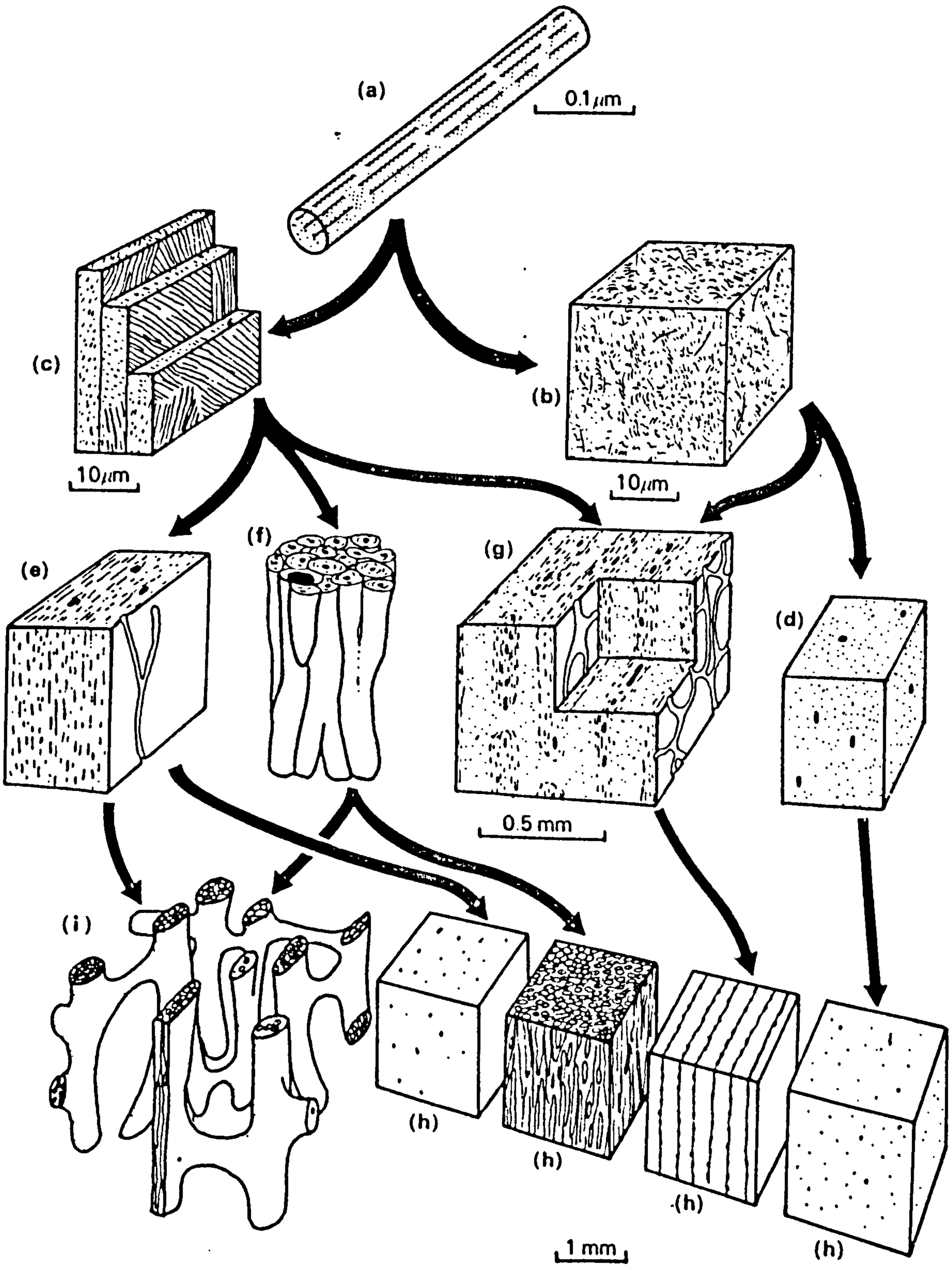


Fig 3.4 The structure of bone. From Wainwright et al. 1976
a. collagen fibril
b. woven bone
c. lamellar bone
d. woven bone
e. primary lamellar bone
f. Haversian bone
g. laminar bone
h. compact bone
i. cancellous bone

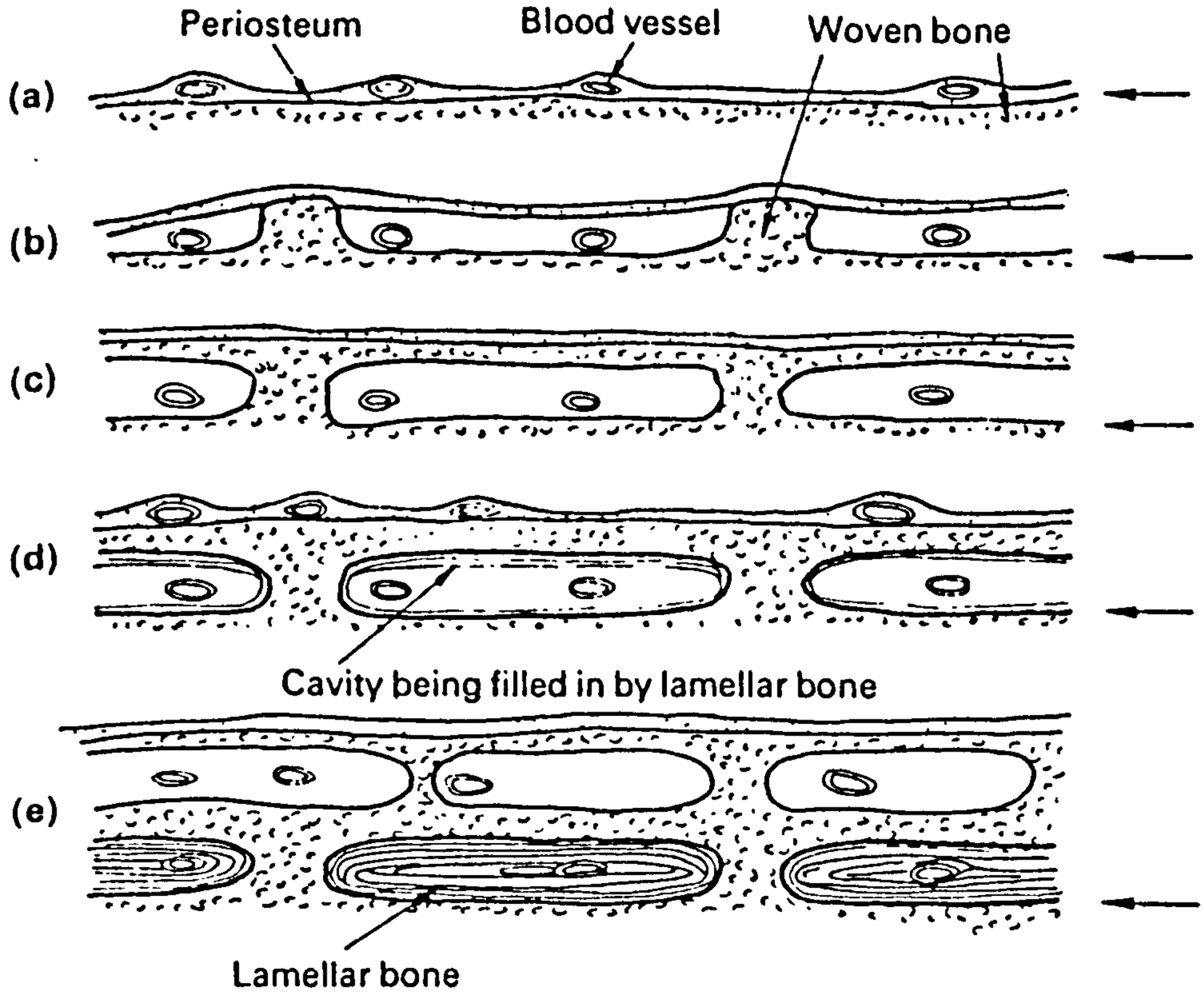


Fig 3.5 The development of laminar bone by the formation of woven bone and lamellar bone. From Wainwright et al. 1976

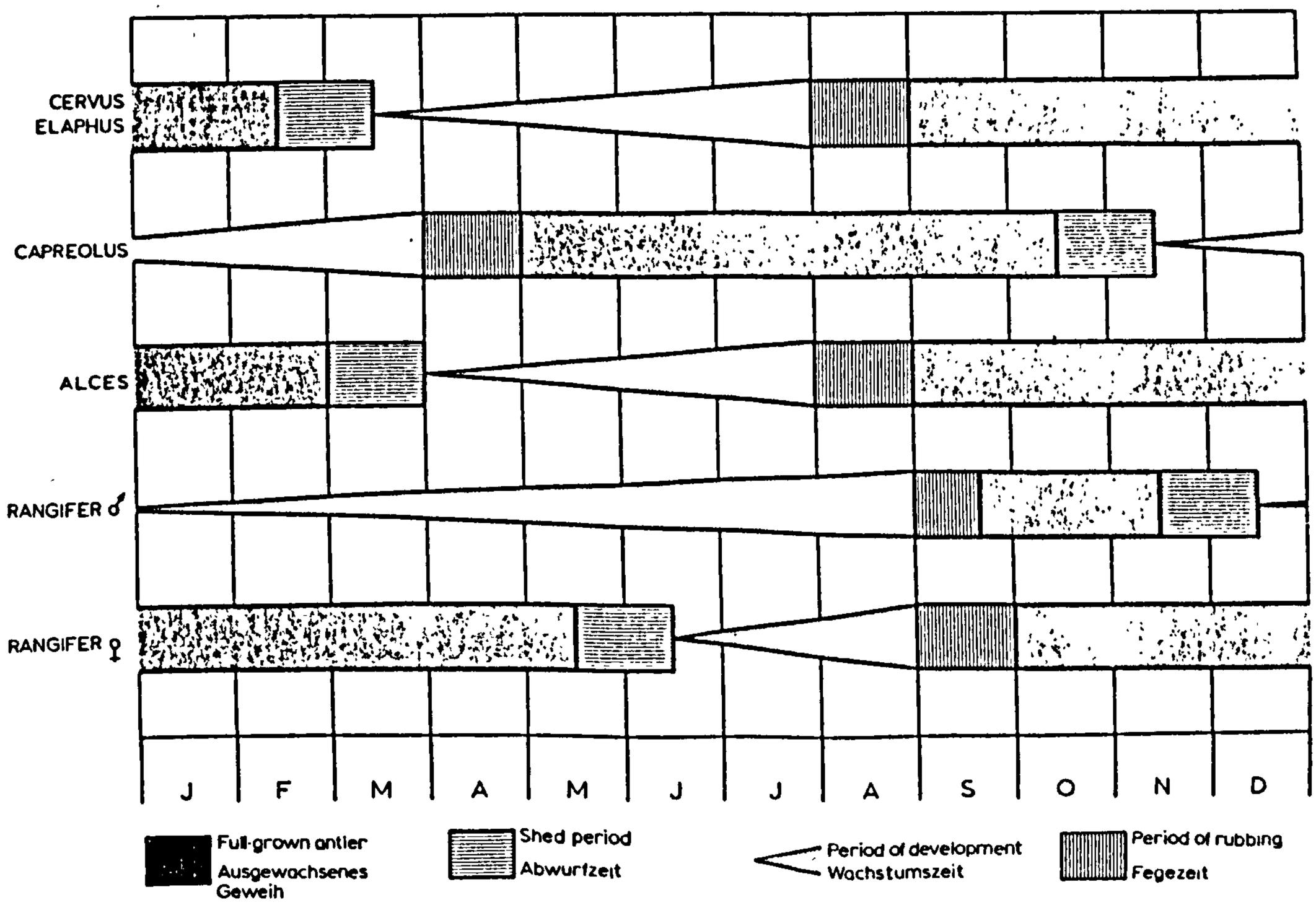


Fig 3.6 Cycles of antler development for red deer (cervus elaphus), roe deer (capreolus), elk (alces) and male and female reindeer (rangifer). From Schmid 1972

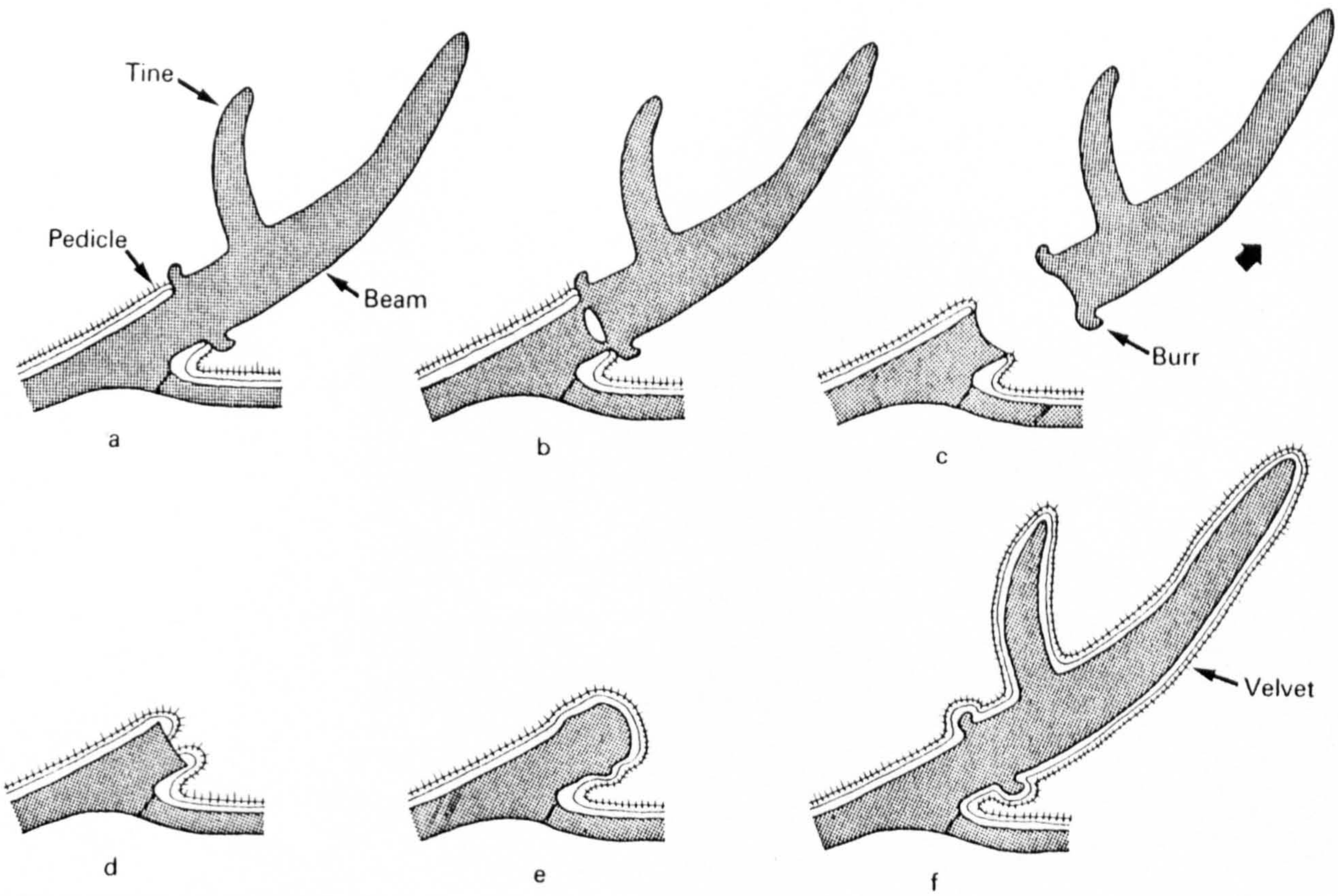


Fig 3.7 The cycle of antler growth. From Davis 1987
a mature antler
b resorption begins at the base of the antler
c antler is shed
d skin covers pedicle
e new antler begins to grow
f antler fully grown and velvet about to be cast

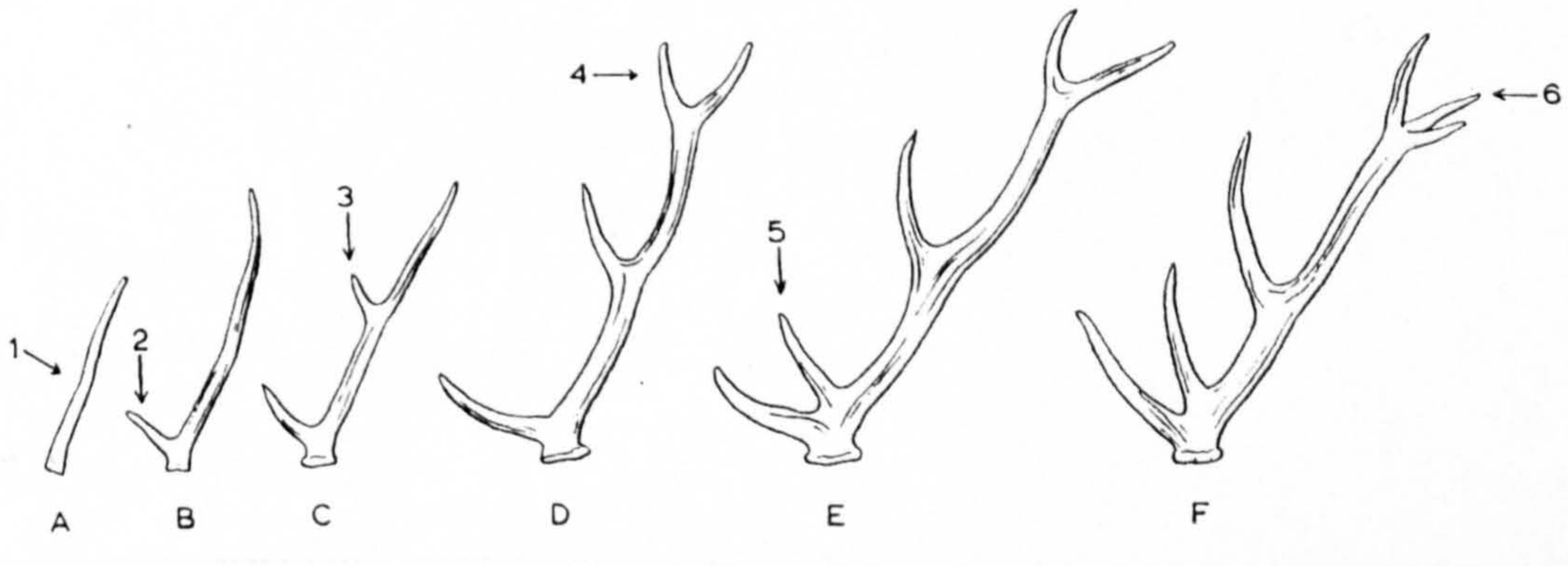


Fig 3.8 Red deer antler development with age. From Schmid 1972
1 beam; 2 brow tine; 3 trez tine; 4 terminal tines; 5 bez tine; 6 crown: A pricket; B 2-pointer; C 6-pointer; D 8-pointer; E 10-pointer; F 12-pointer

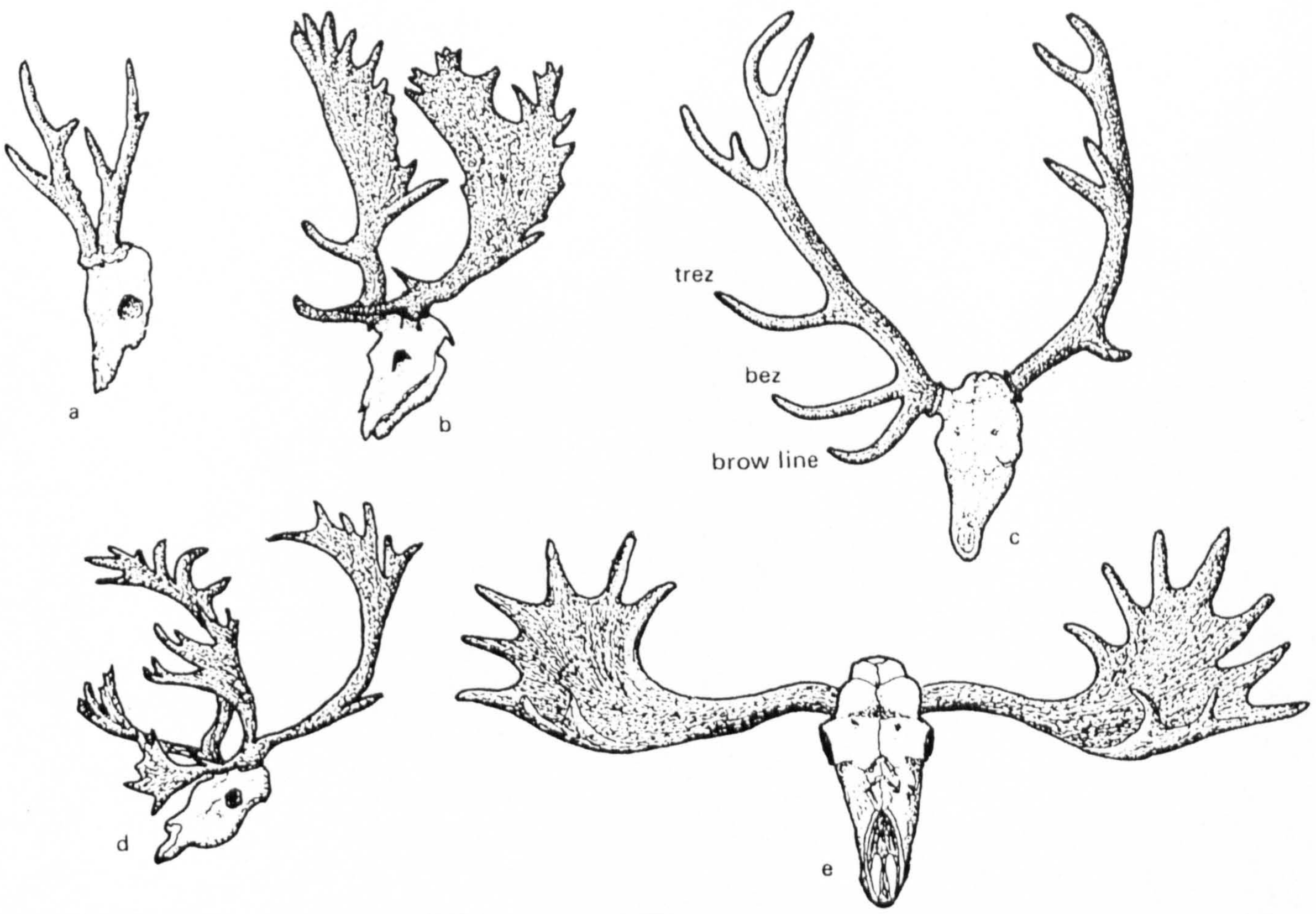


Fig 3.9 Antler morphology. From A MacGregor 1985
a roe deer; b fallow deer; c red deer; d reindeer; e elk

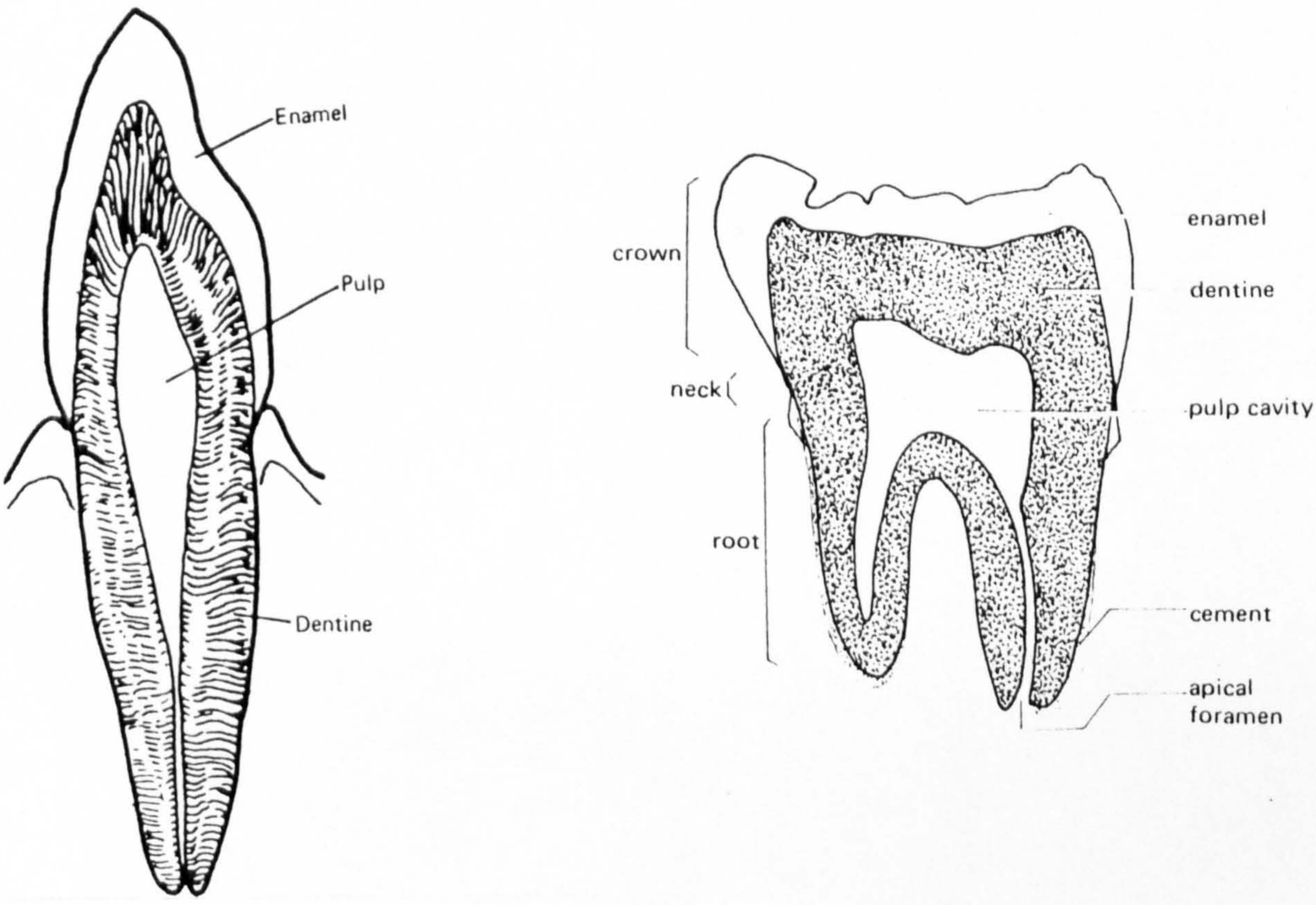


Fig 3.10 Section through a canine and a molar. From Vincent 1982; A MacGregor 1985

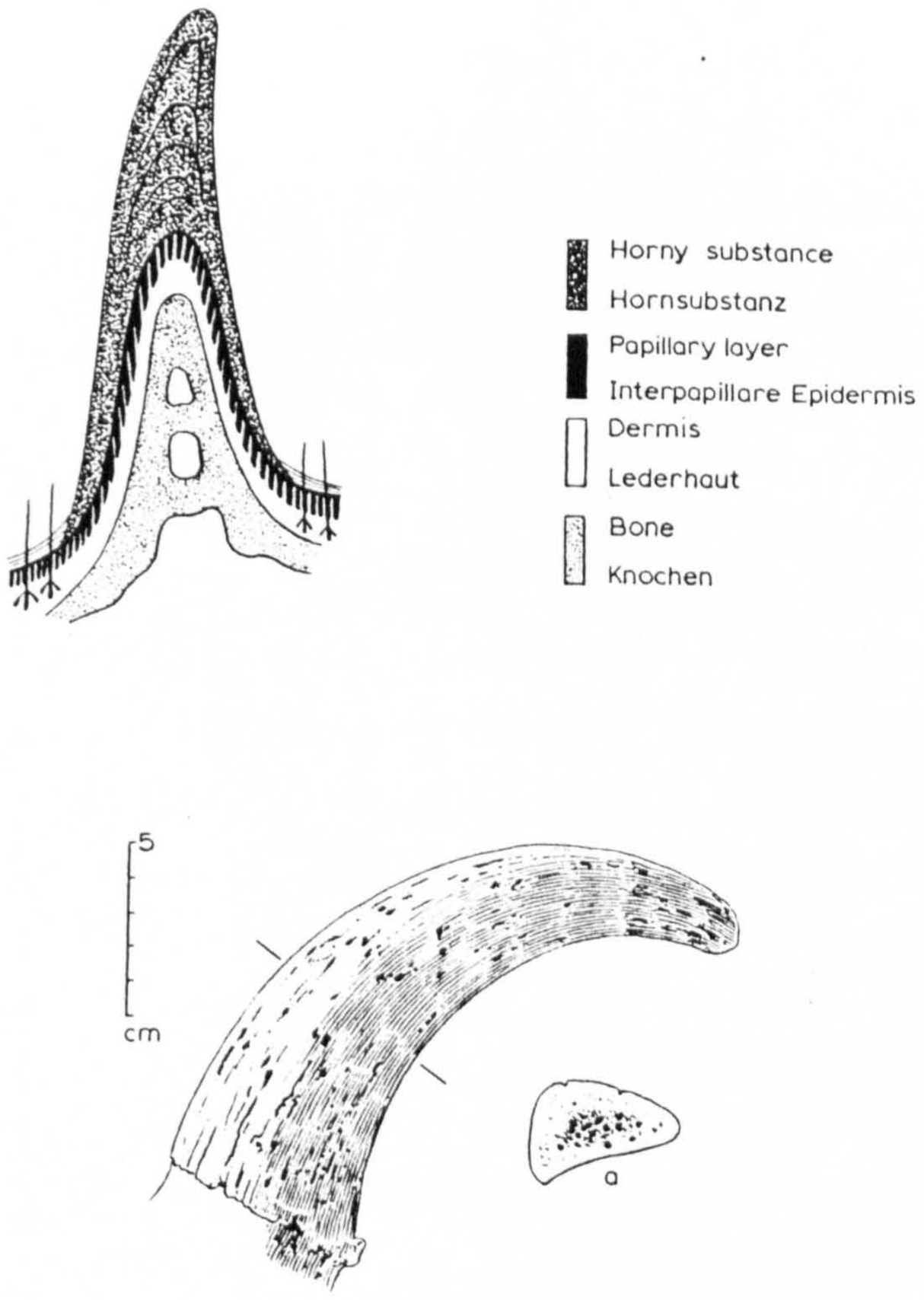


Fig 3.11 Section through a horn and the os cornu of a sheep. From Schmid 1972

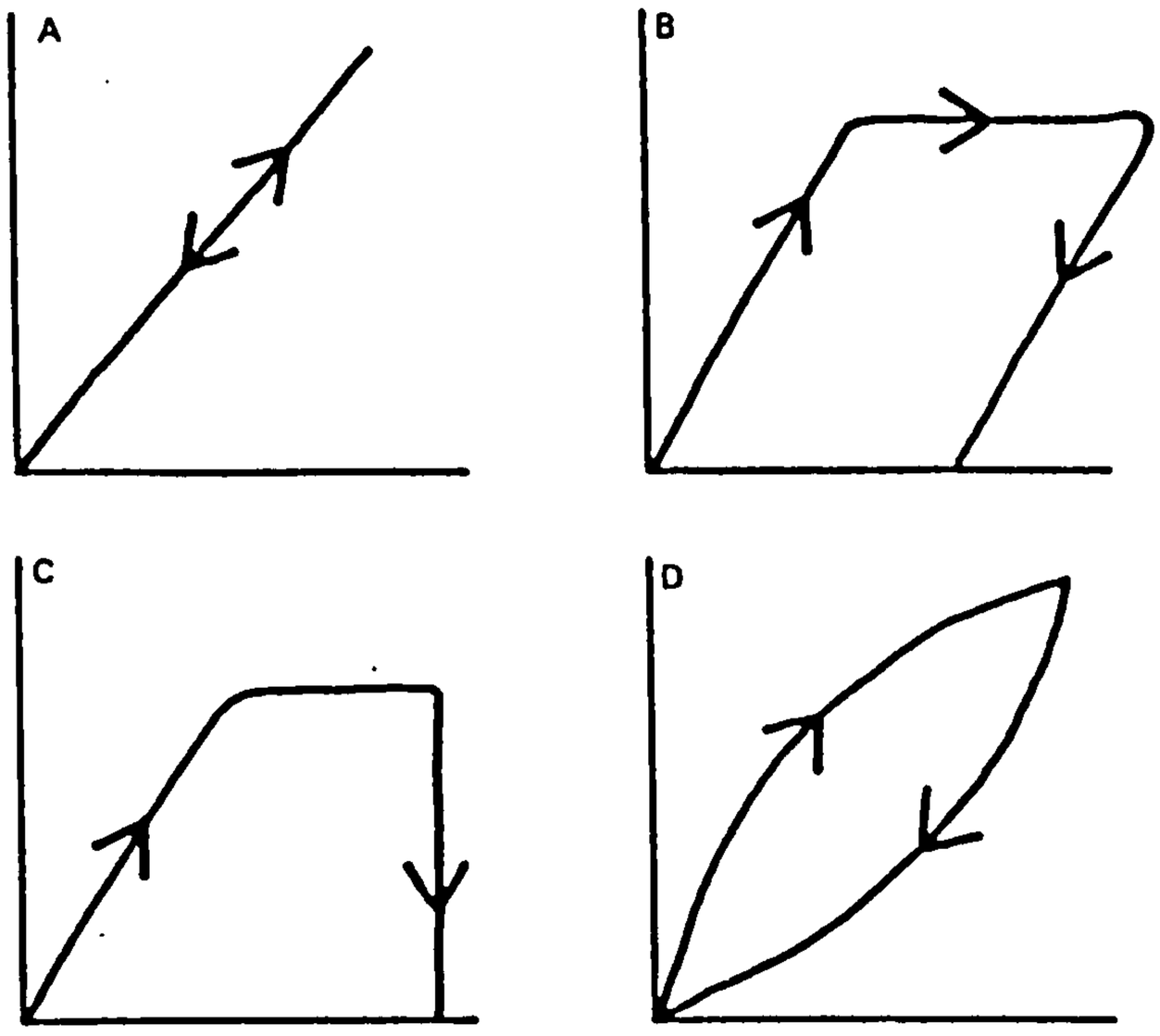


Fig 4.1 Stress-strain curves. From Vincent 1982
a an elastic material
b an elastic-plastic material
c a plastic material
d a viscoelastic material

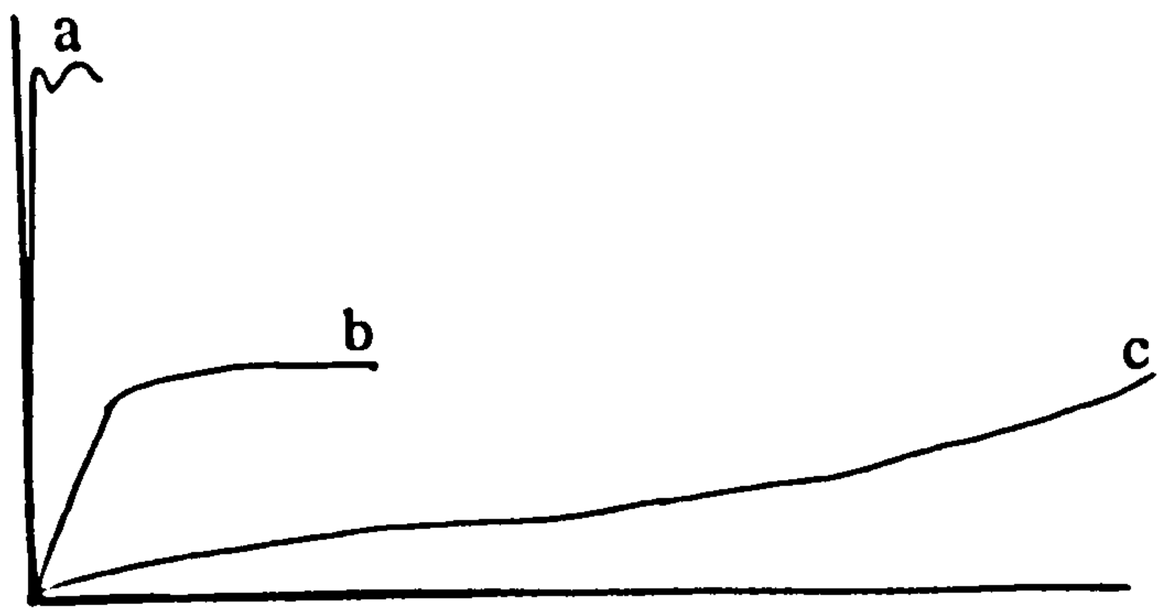


Fig 4.2 Stress-strain curves. From Vincent 1982; Wainwright et al. 1976
a steel
b bone
c rubber

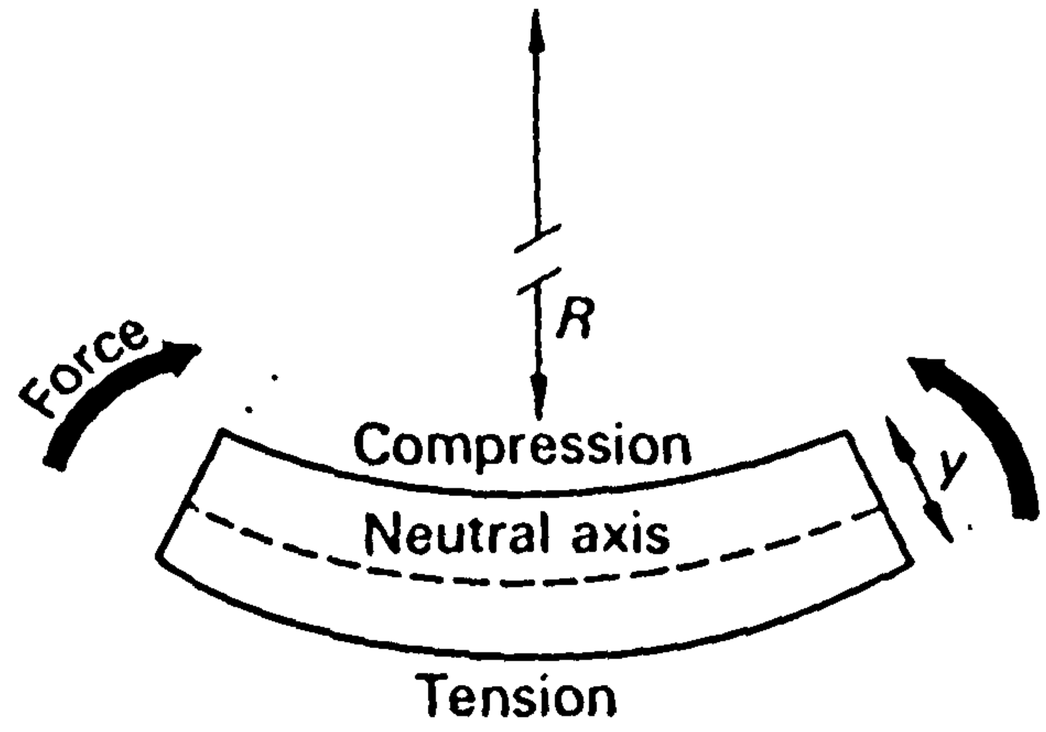


Fig 4.3 Forces within a loaded beam. From Wainwright et al. 1976

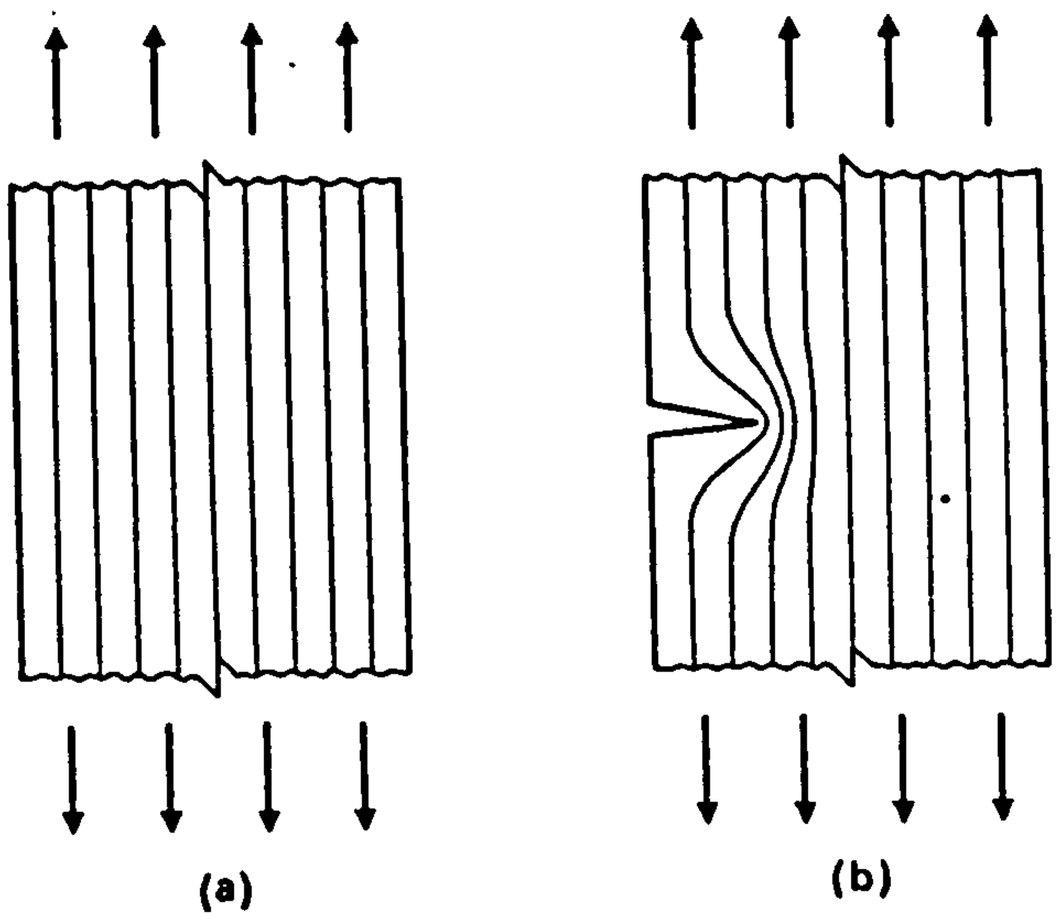


Fig 4.4 The effect of a flaw on the reaction to tensile stress. From Wainwright et al. 1976
a unnotched piece
b piece with notch or flaw

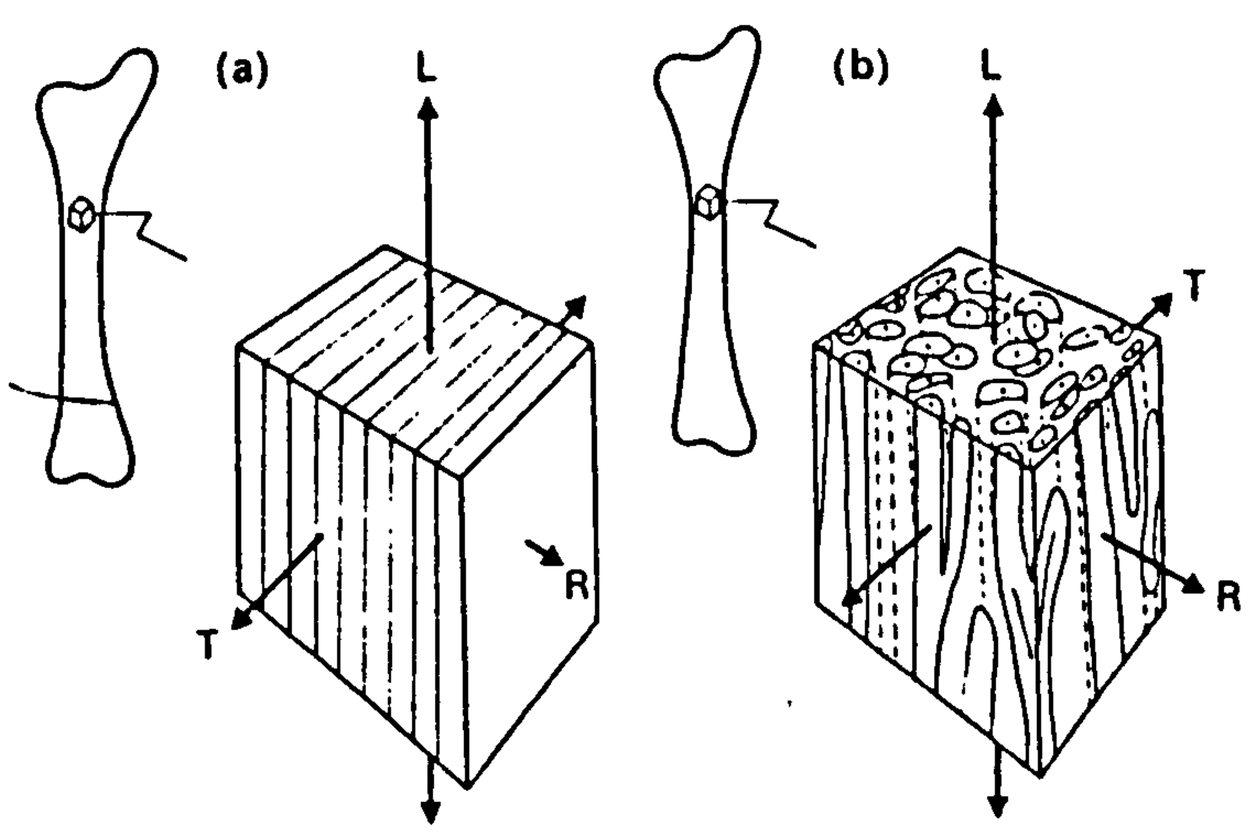


Fig 4.5 Differential reaction in three dimensions to tensile stress. From Wainwright et al. 1976. Note the similarity between the longitudinal and transverse axes in the two pieces, and the difference between the radial axes
a laminar bone
b Haversian bone

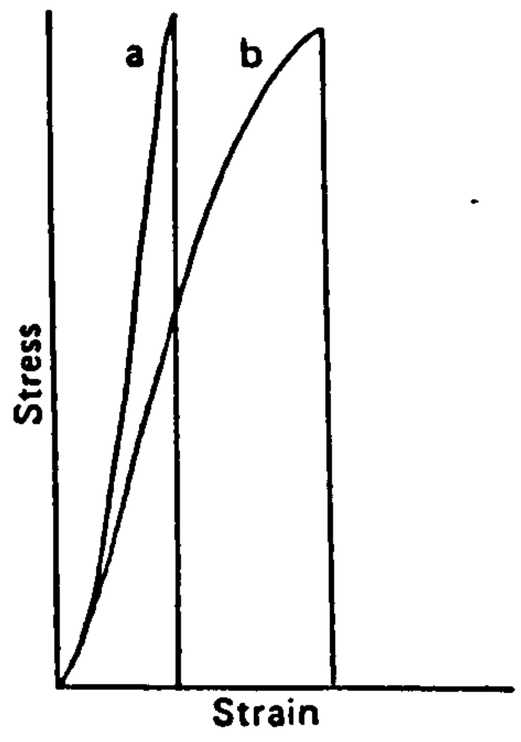


Fig 4.6 Stress-strain curves. From A MacGregor 1985
a bone
b antler

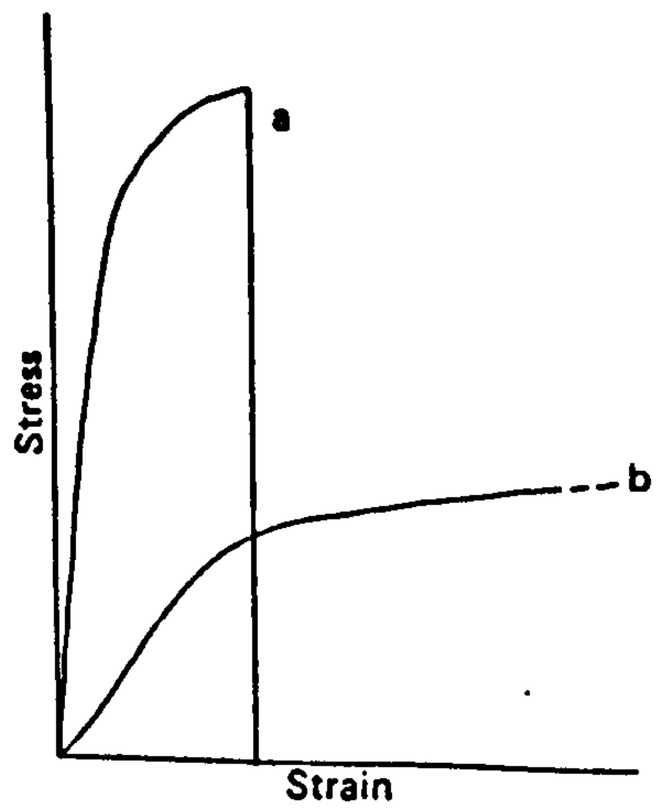


Fig 4.7 Stress-strain curves. From A MacGregor 1985
a dry antler
b wet antler

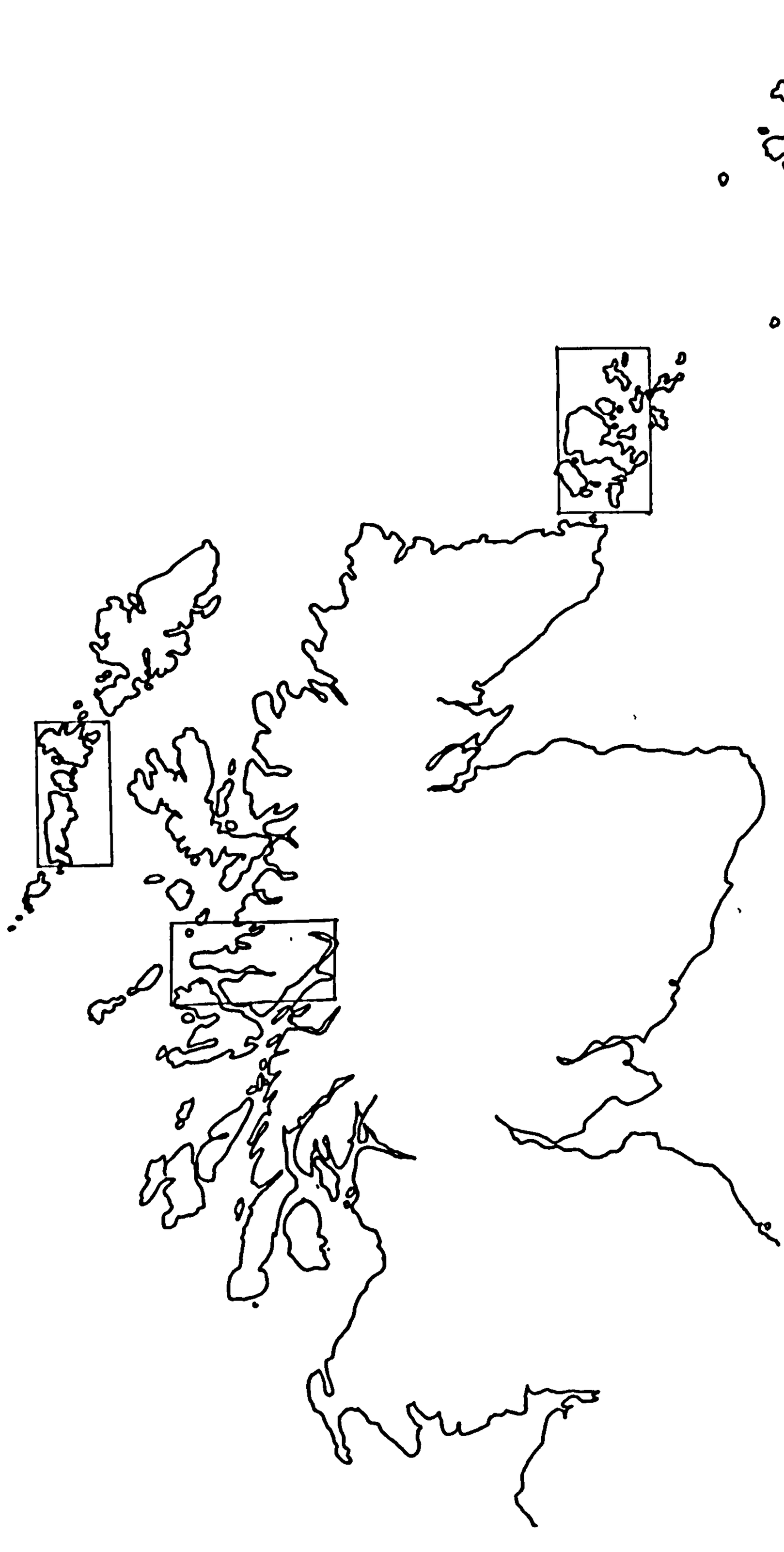


Fig 5.1 Scotland: location of detailed maps Figs 5.2, 6.1, 8.1

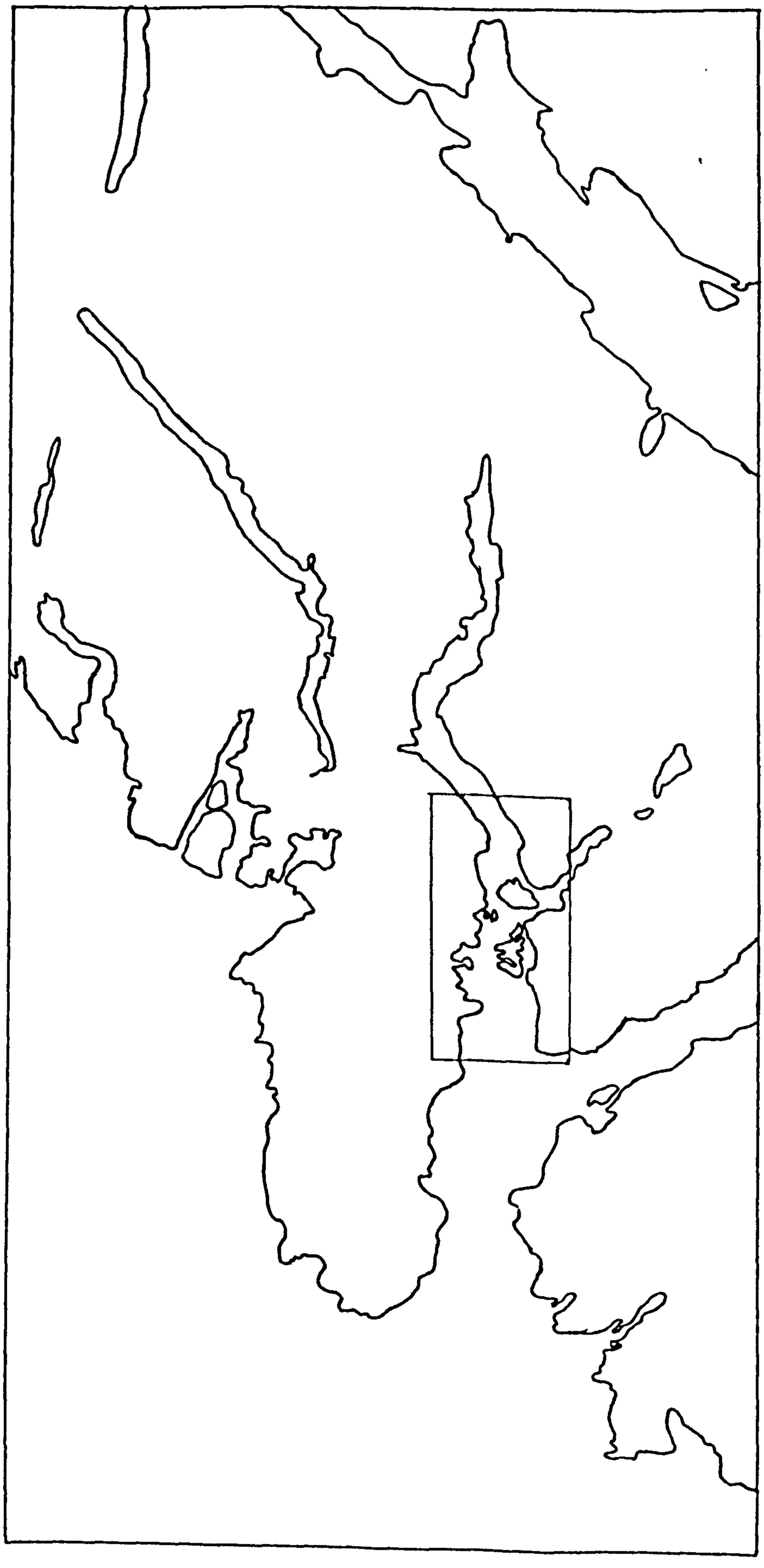


Fig 5.2 Ardnamurchan and Loch Sunart: location of Fig 5.3

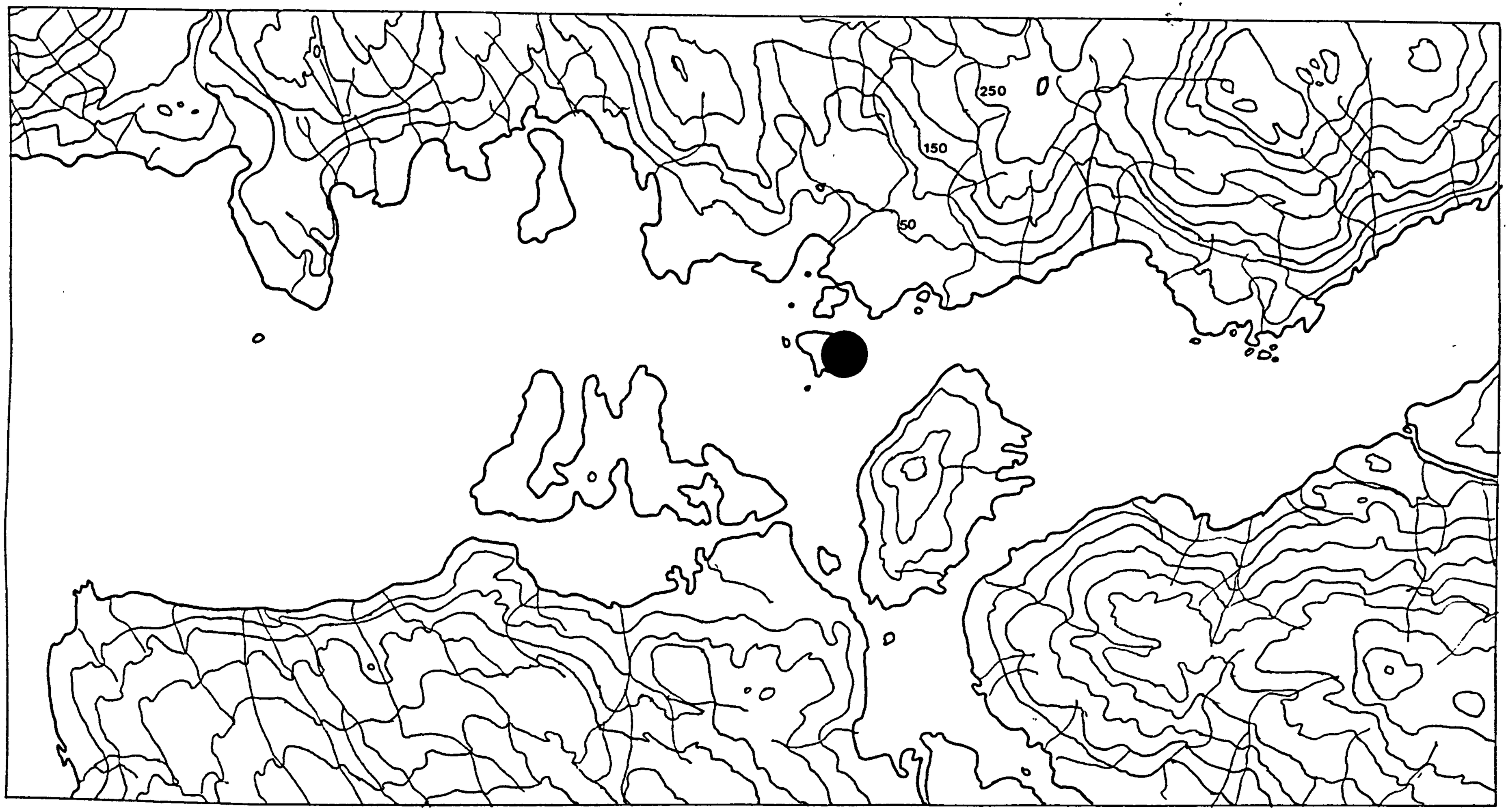


Fig 5.3 Location of Risga. Scale 1:50 000
Contours in 50 metre intervals

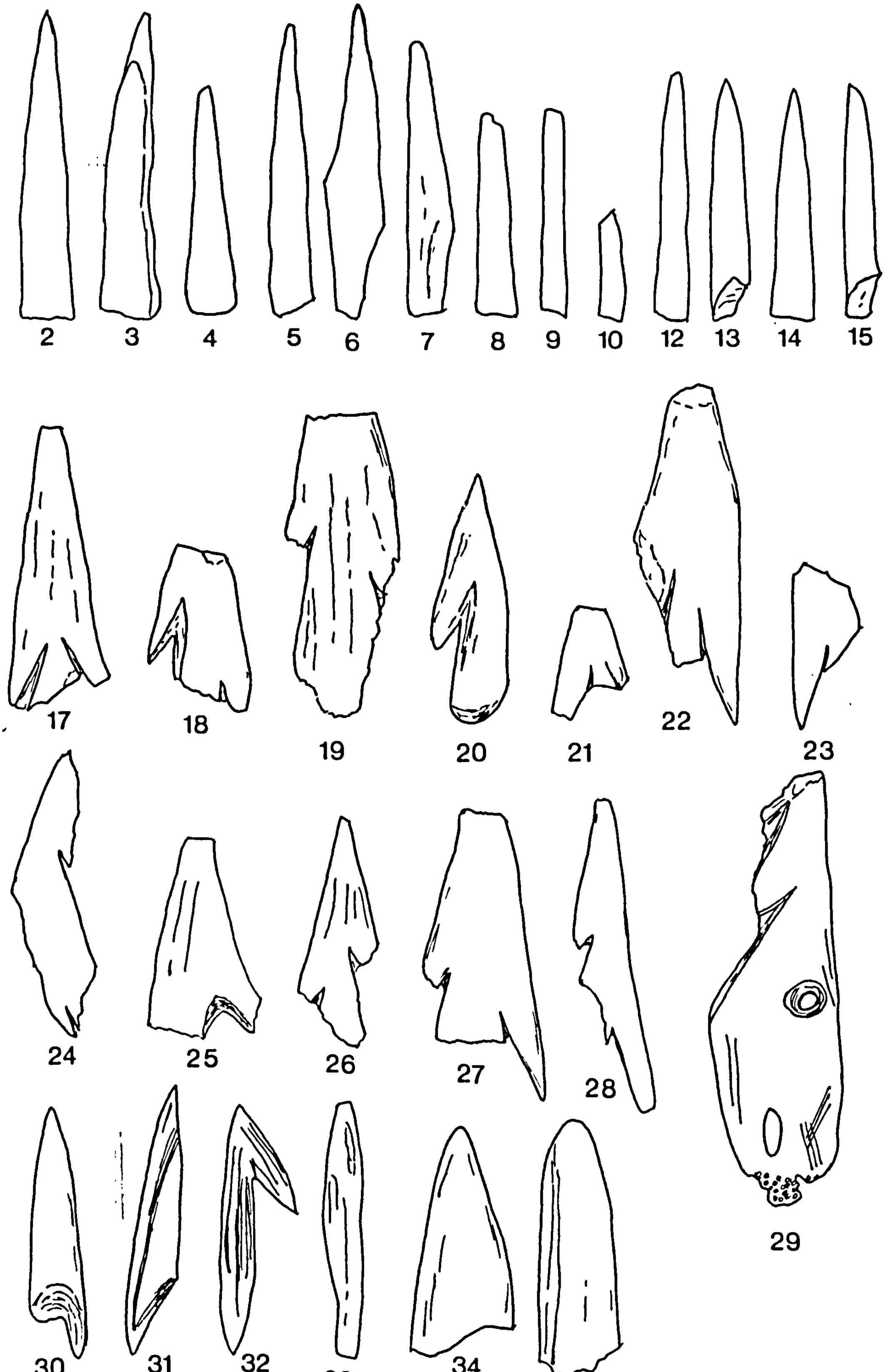


Fig 5.4 Risga: points R 2-10; points/pins R 12-15; barbed points R 17-29; point/barb R 30; ?barb R 31; 'fish hook' R 32; point/hook R 33; blunts R 34-35. Scale 1:1

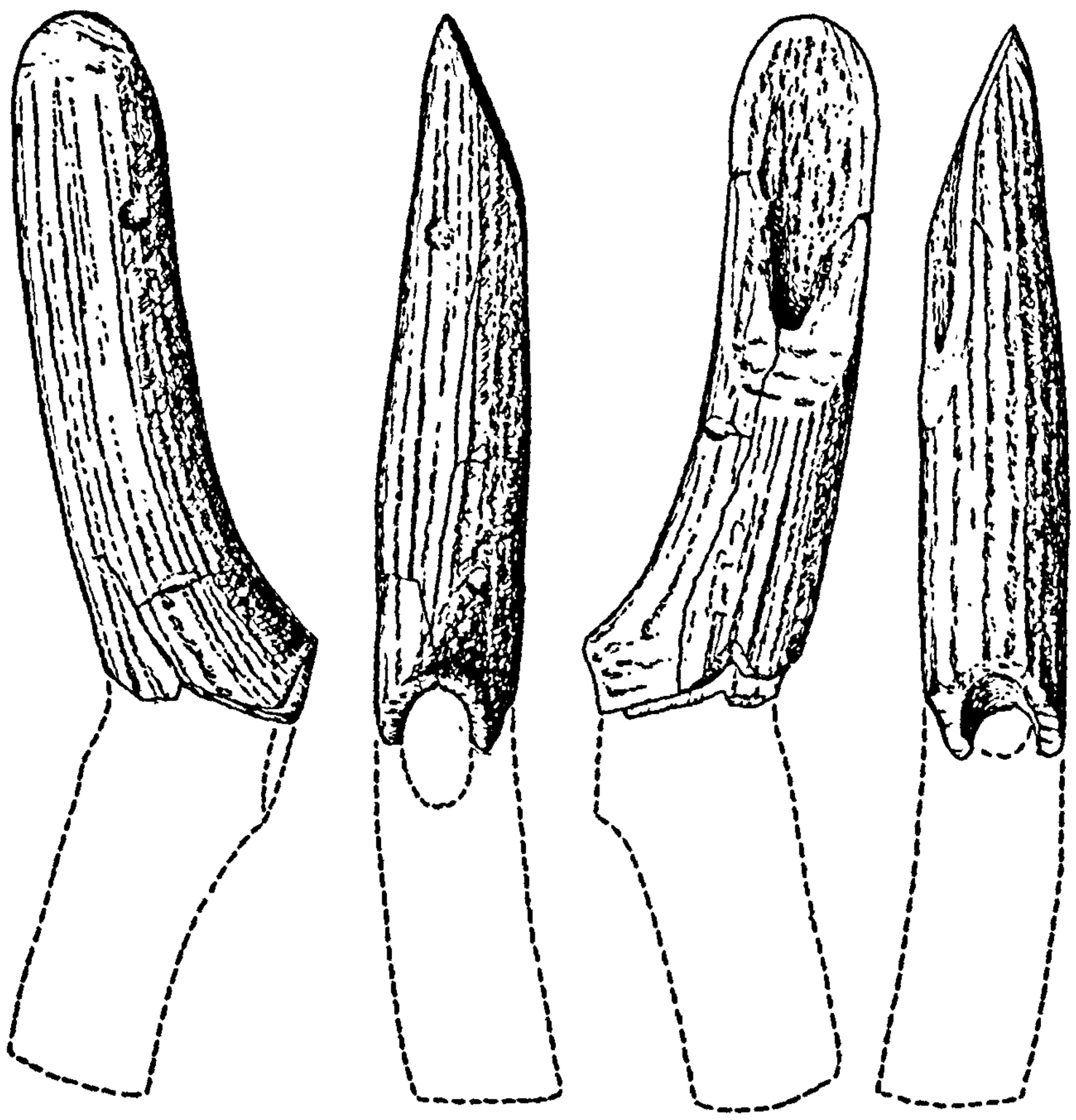


Fig 5.5 Risga: bladed tool R 36. From Clark 1956. Scale 1:3

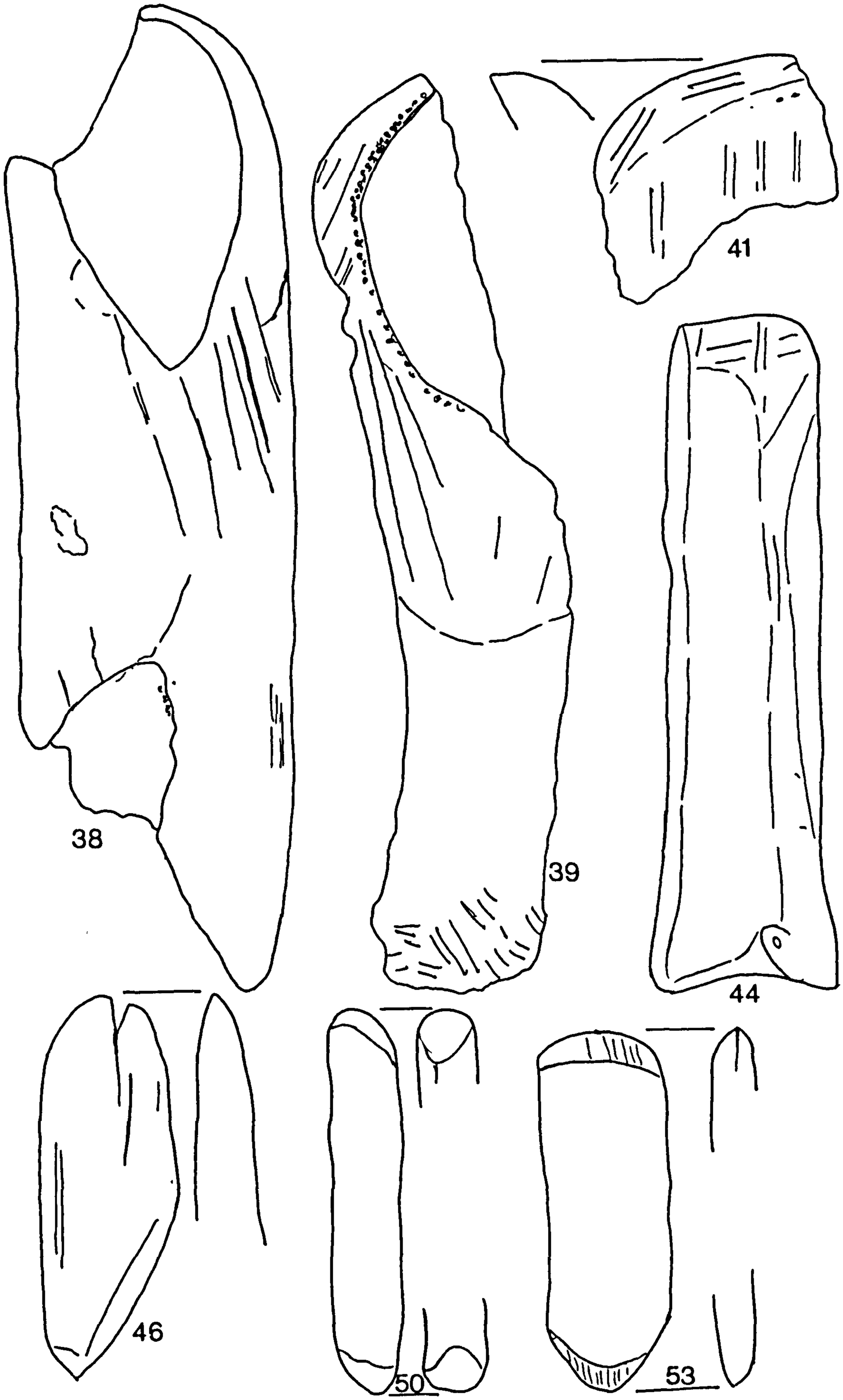


Fig 5.6 Risga: bladed tools R 38–39, 41, 44; tongue-shaped object R 46; bevel-ended tools R 50, 53. Scale 1:1

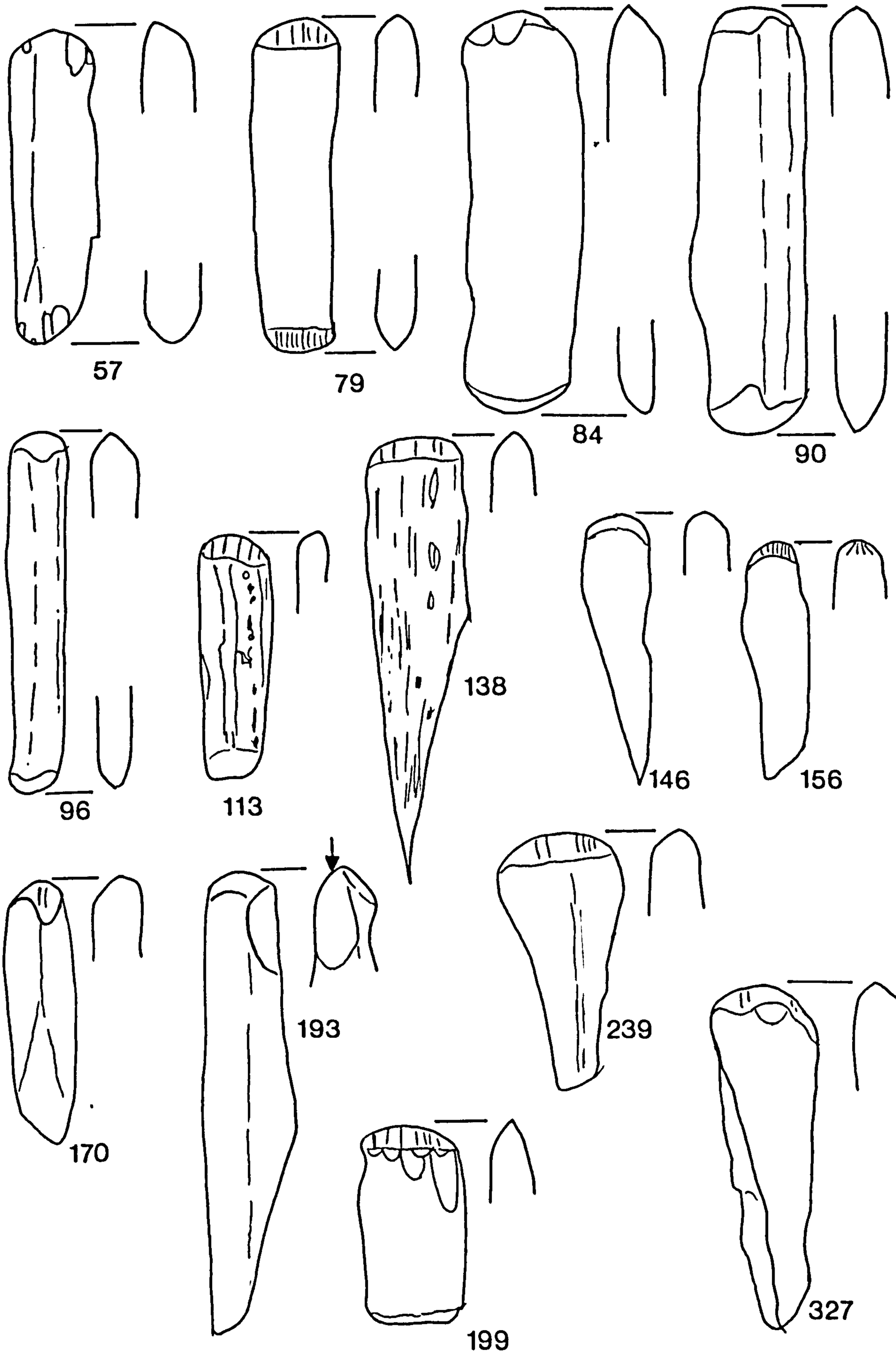


Fig 5.7 Risga: bevel-ended tools R 57, 79, 84, 90, 96, 113, 138, 146, 156, 170, 193, 199, 239, 327. Scale 1:1

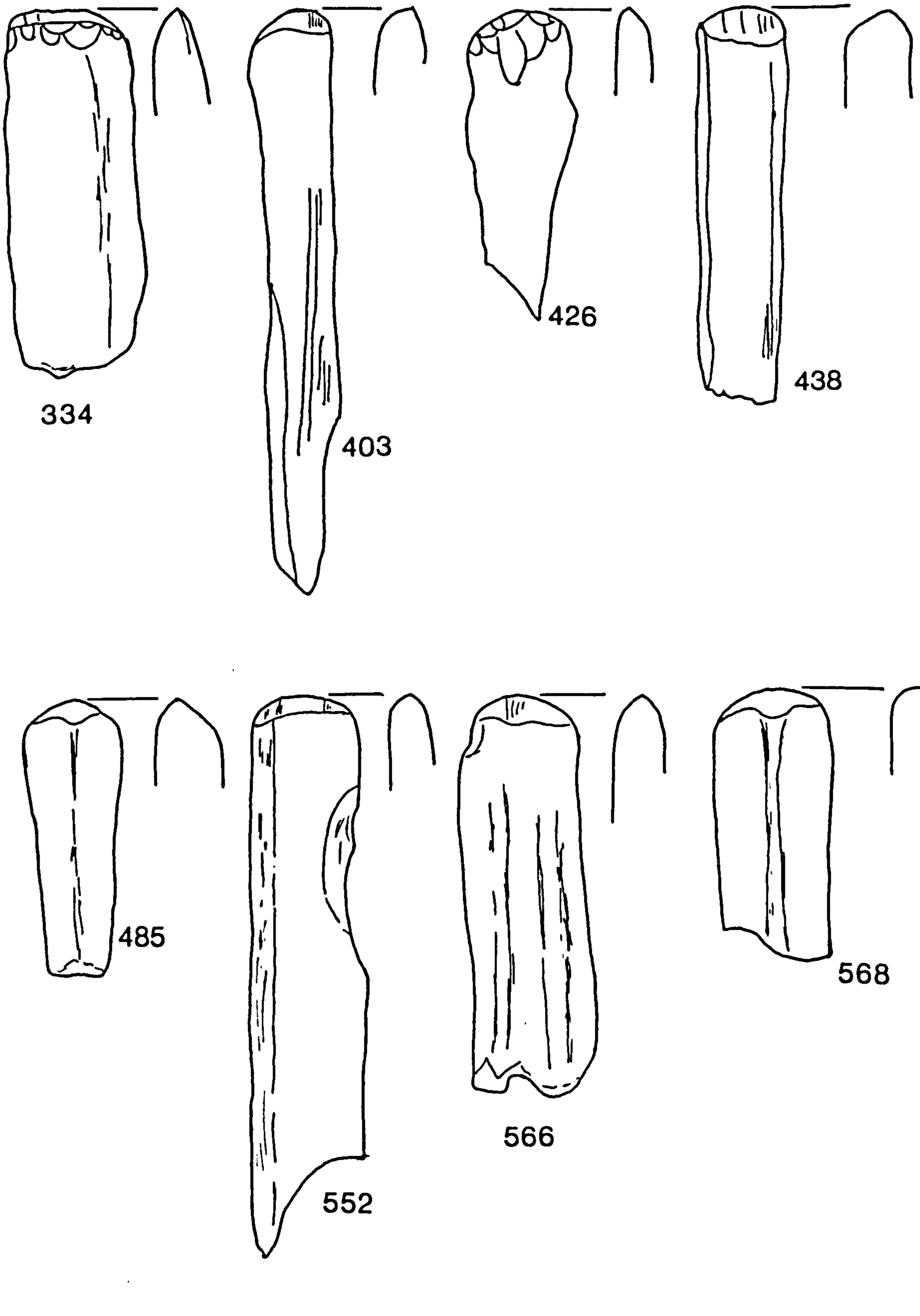


Fig 5.8 Risga: bevel-ended tools R 334, 403, 426, 438, 485, 552, 566, 568. Scale 1:1

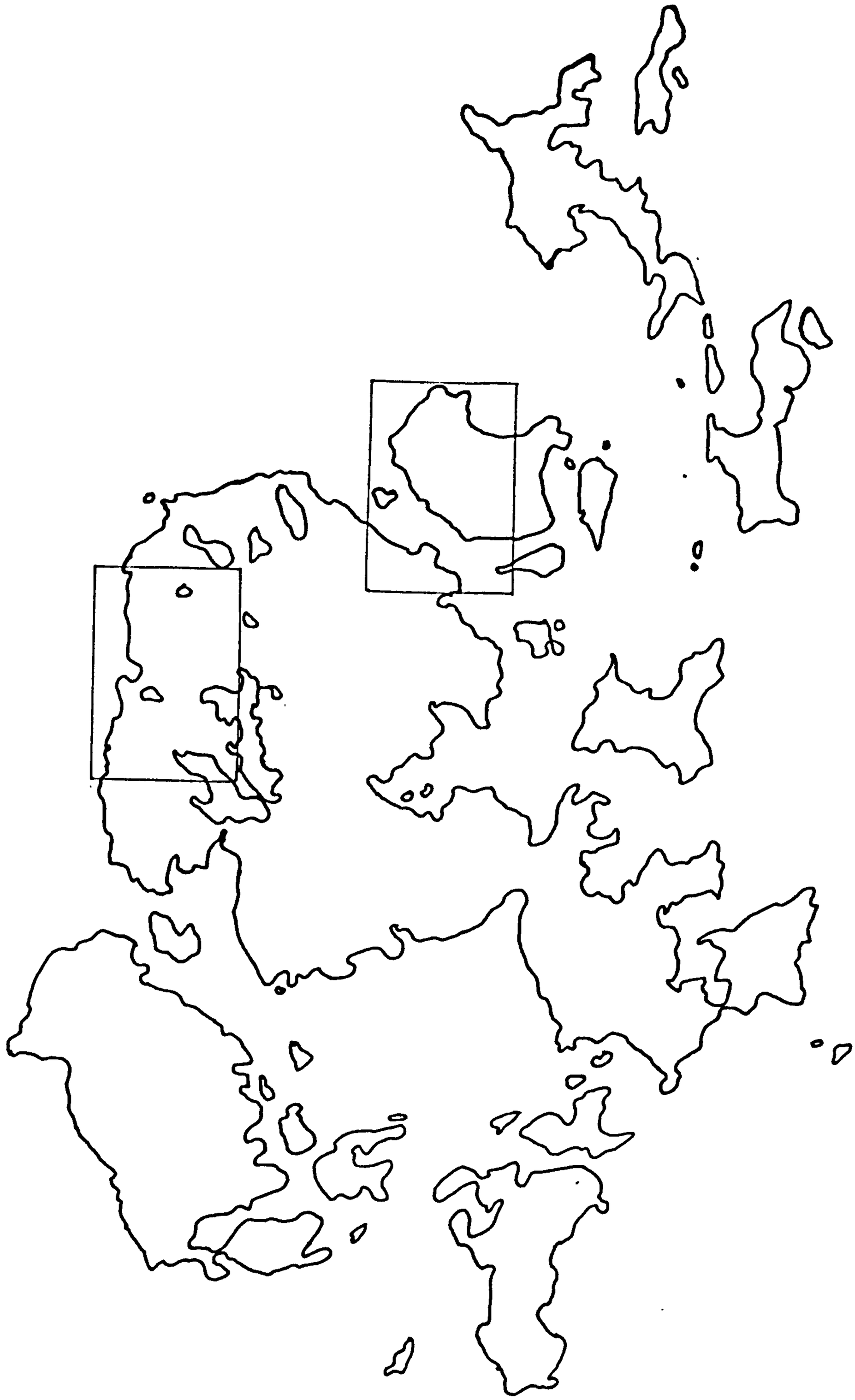


Fig 6.1 Orkney: location of Figs 6.2, 7.1

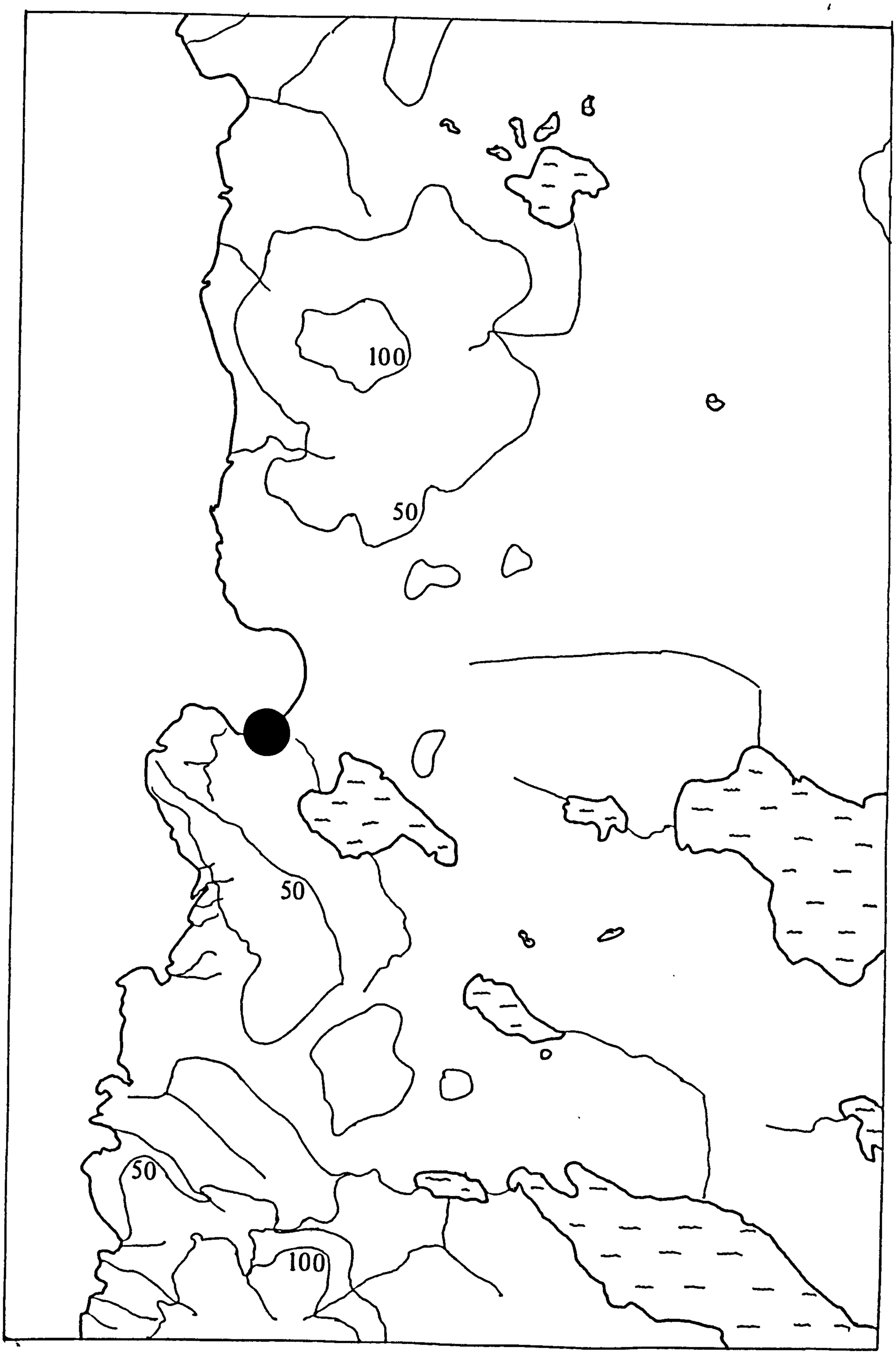


Fig 6.2 Location of Skara Brae. Scale 1:50 000
Contours in 50 metre intervals

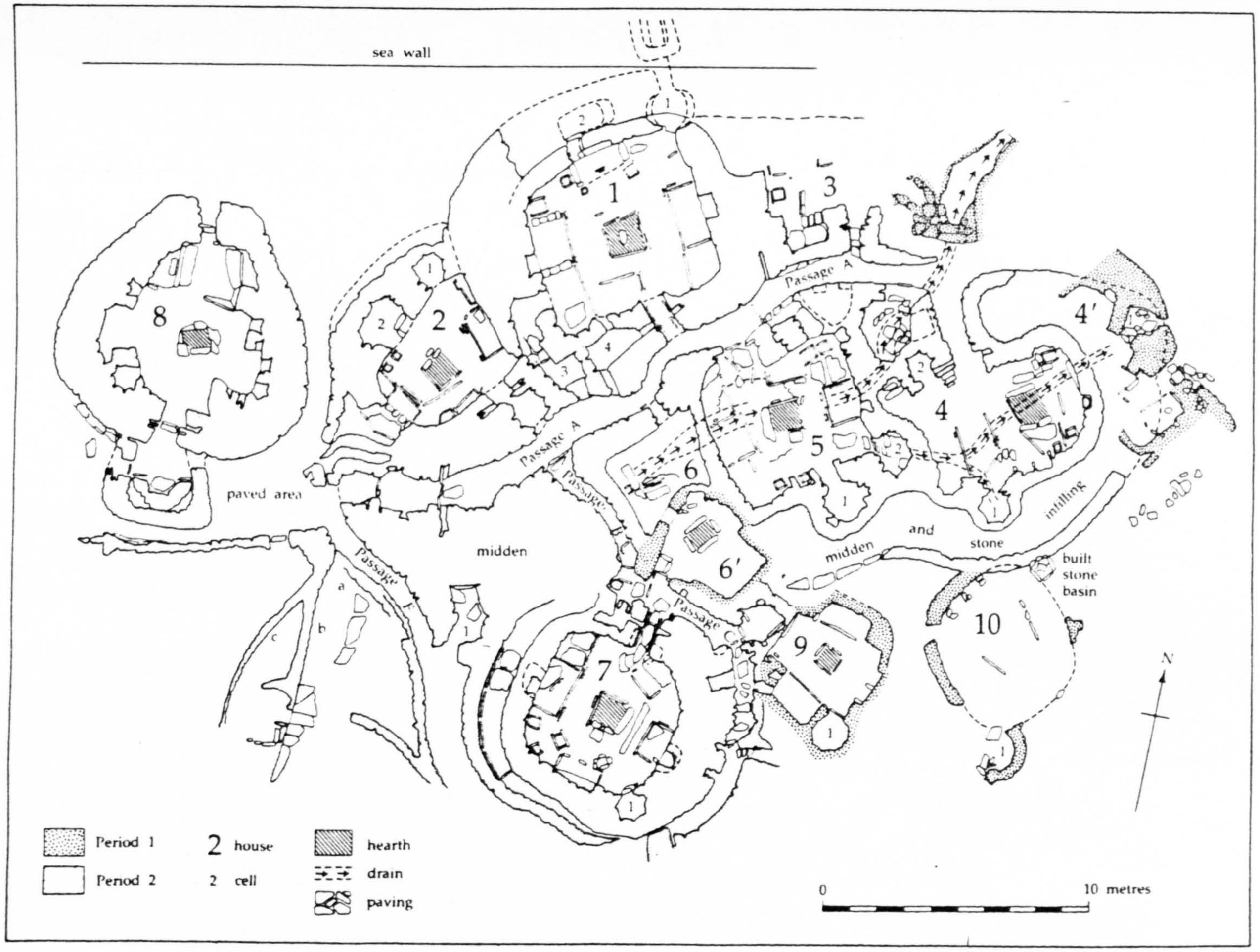


Fig 6.3 Skara Brae, plan of the site. From Childe & Clarke 1983.

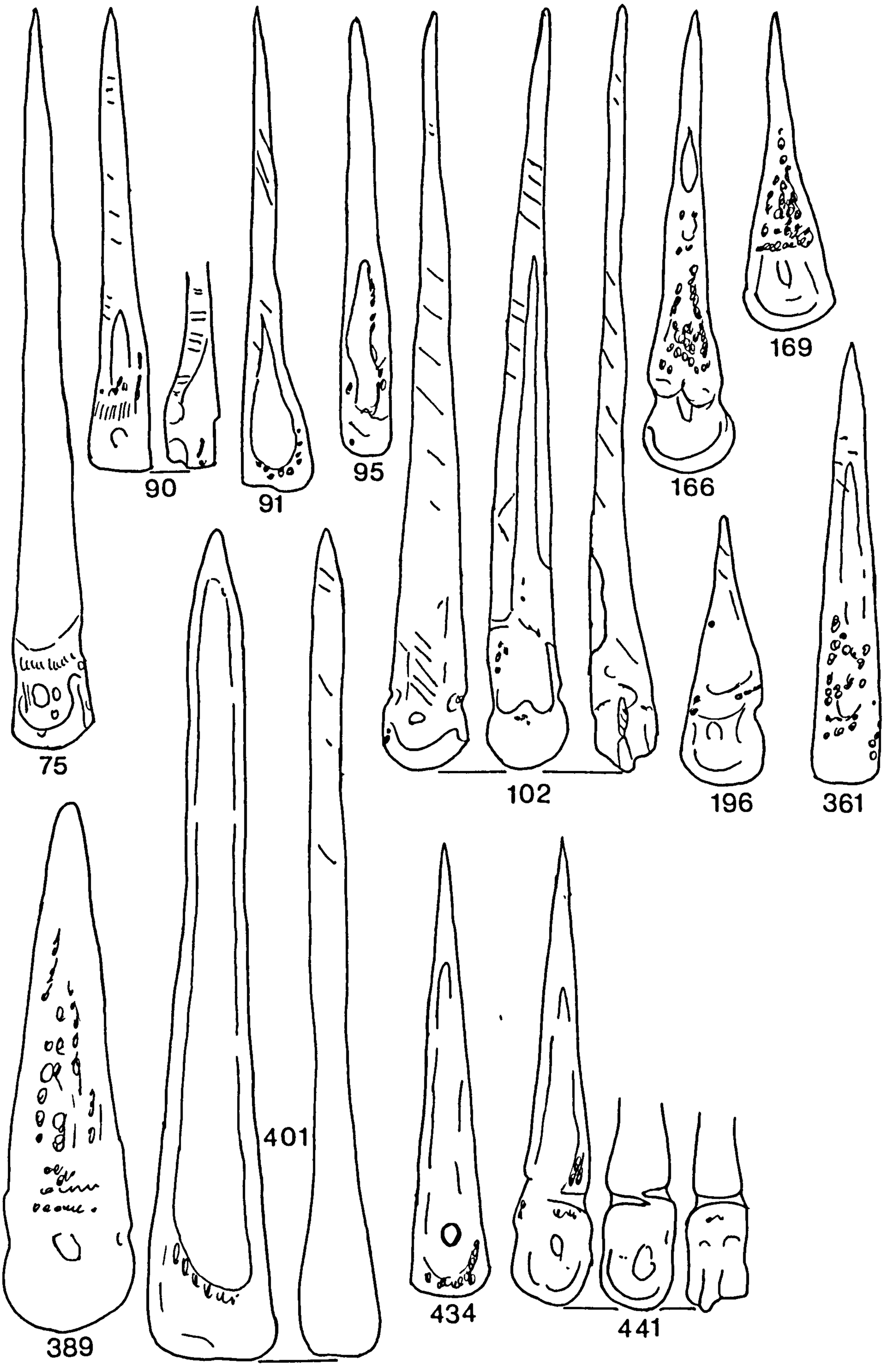


Fig 6.4 Skara Brae: points SB 75, 90, 91, 95, 102, 166, 169, 196, 361; perforated point SB 434; grooved point SB 441. Scale 1:1

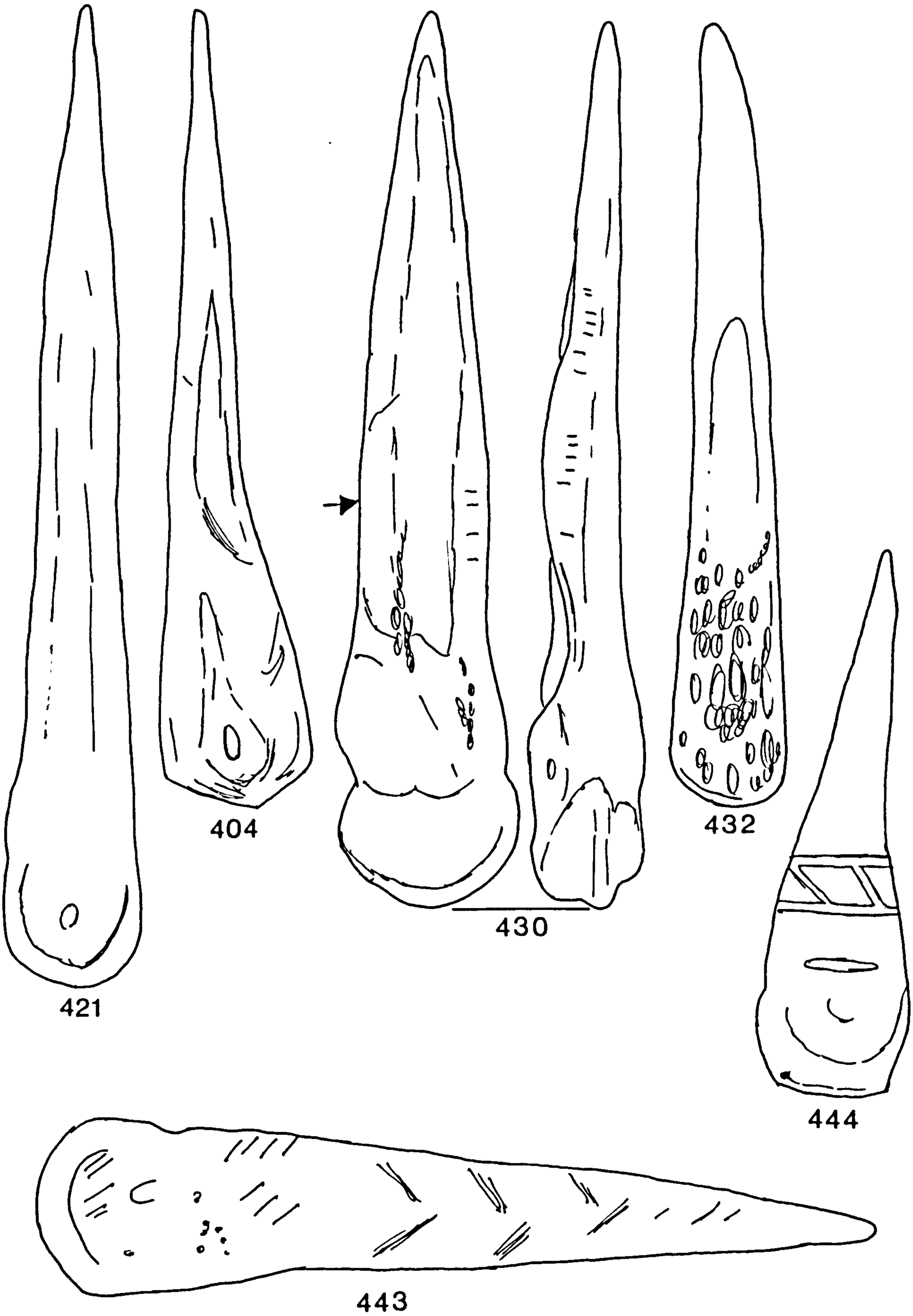


Fig 6.5 Skara Brae: large points SB 404, 421, 430, 432; decorated points SB 443, 444. Scale 1:1

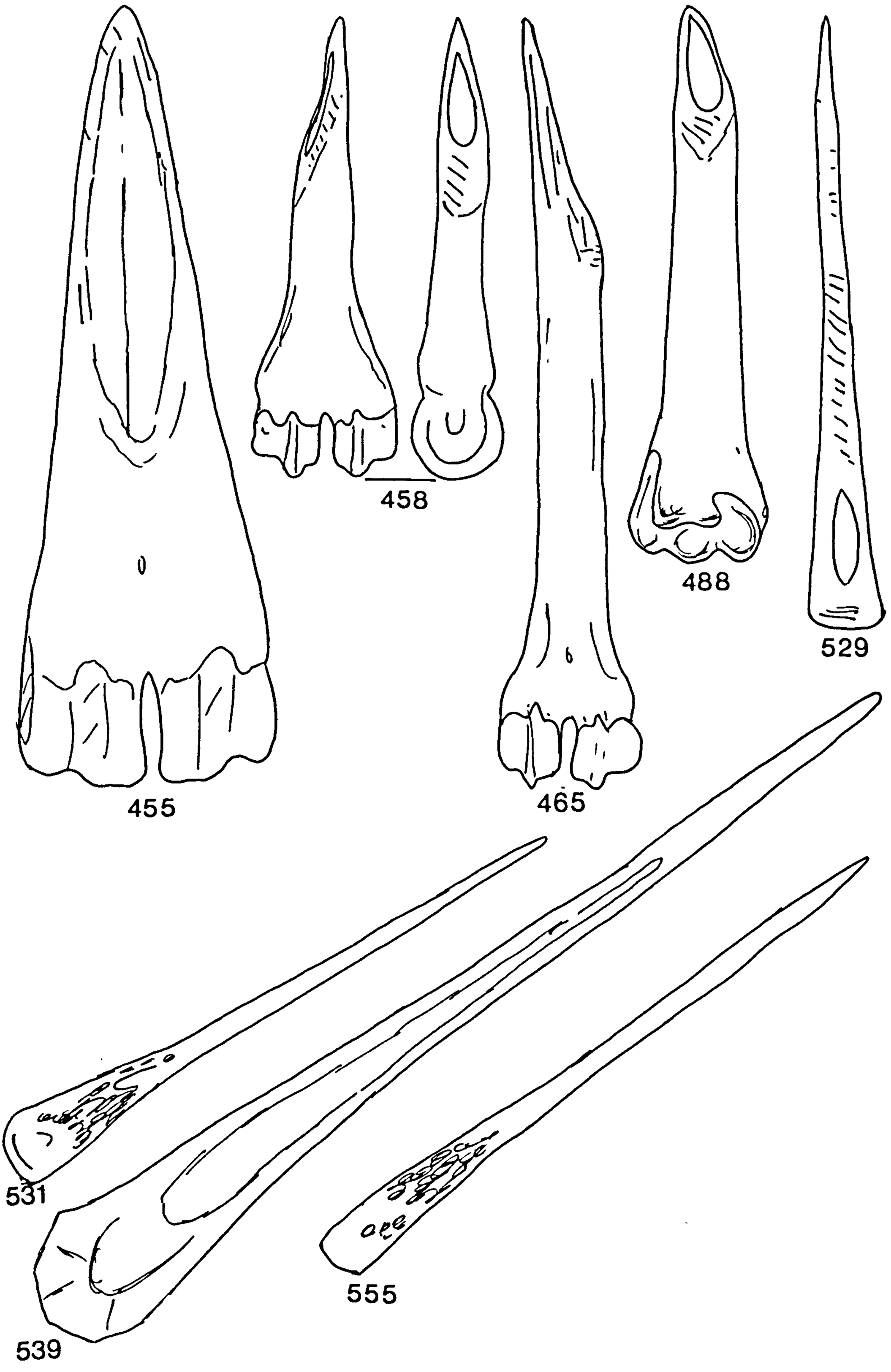


Fig 6.6 Skara Brae: awls SB 455, 458, 465; bird bone point SB 488; points/pins SB 529, 531, 539, 555. Scale 1:1

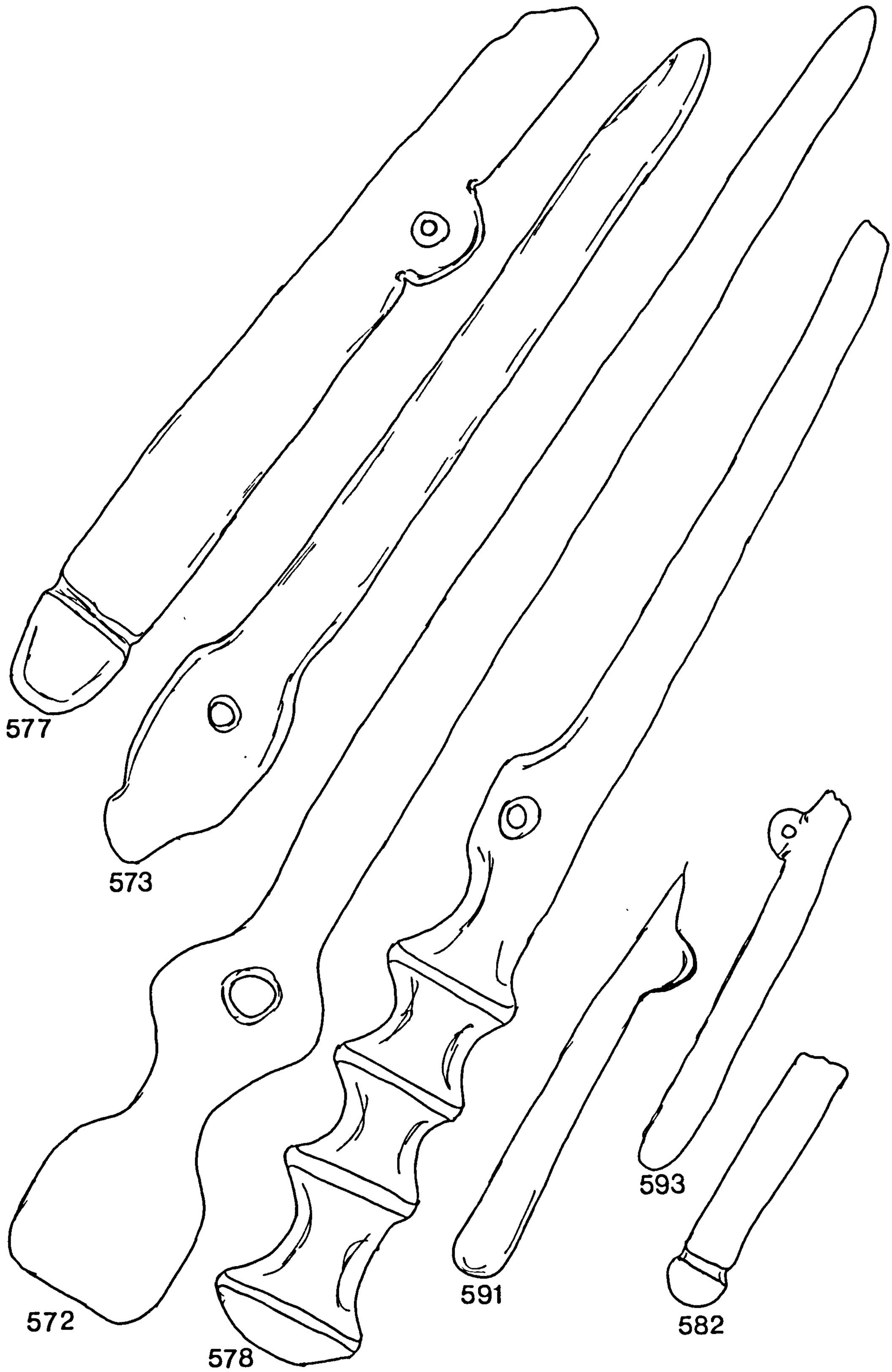


Fig 6.7 Skara Brae: pins SB 572, 573, 577, 578, 582, 591, 593.
Scale 1:1

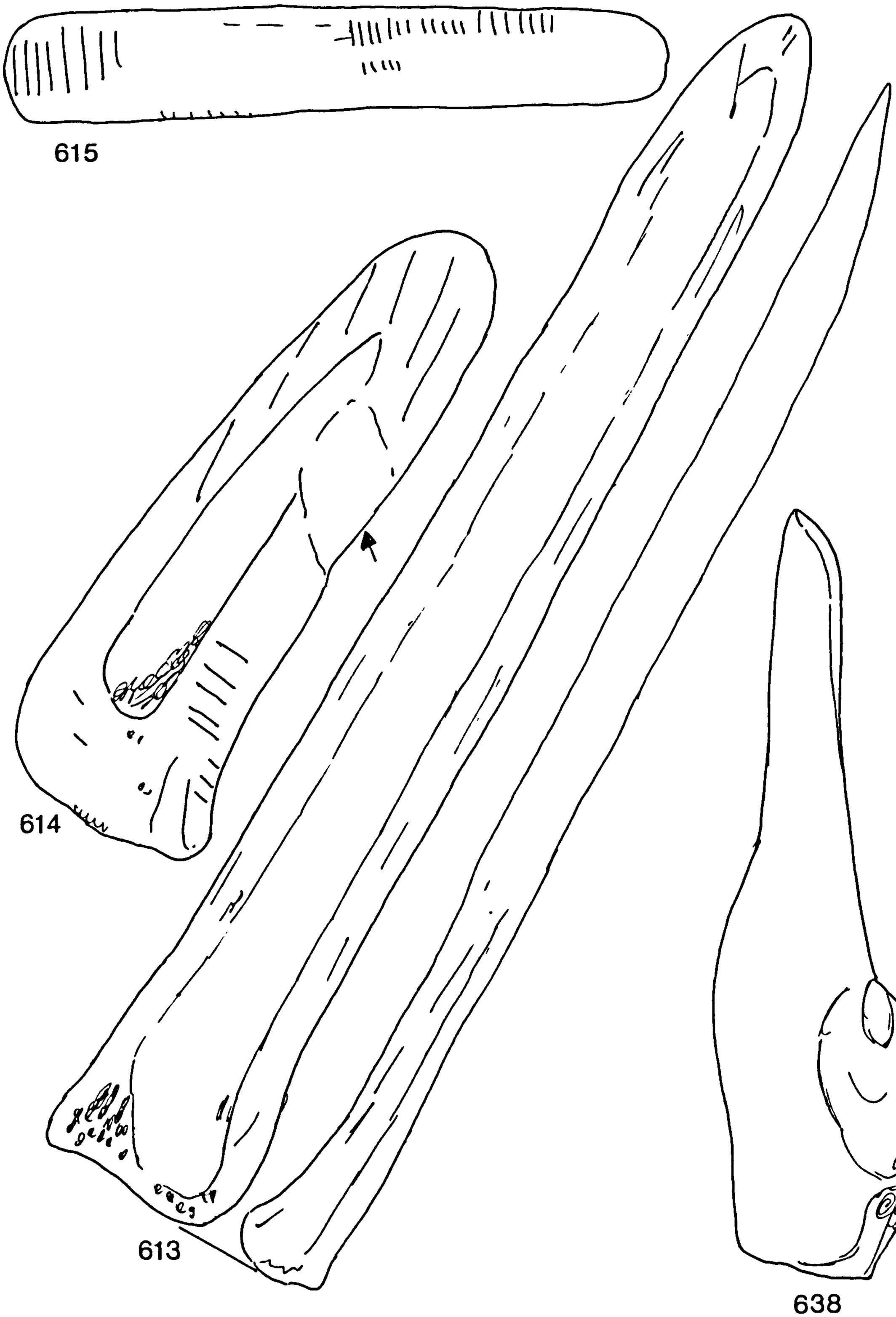
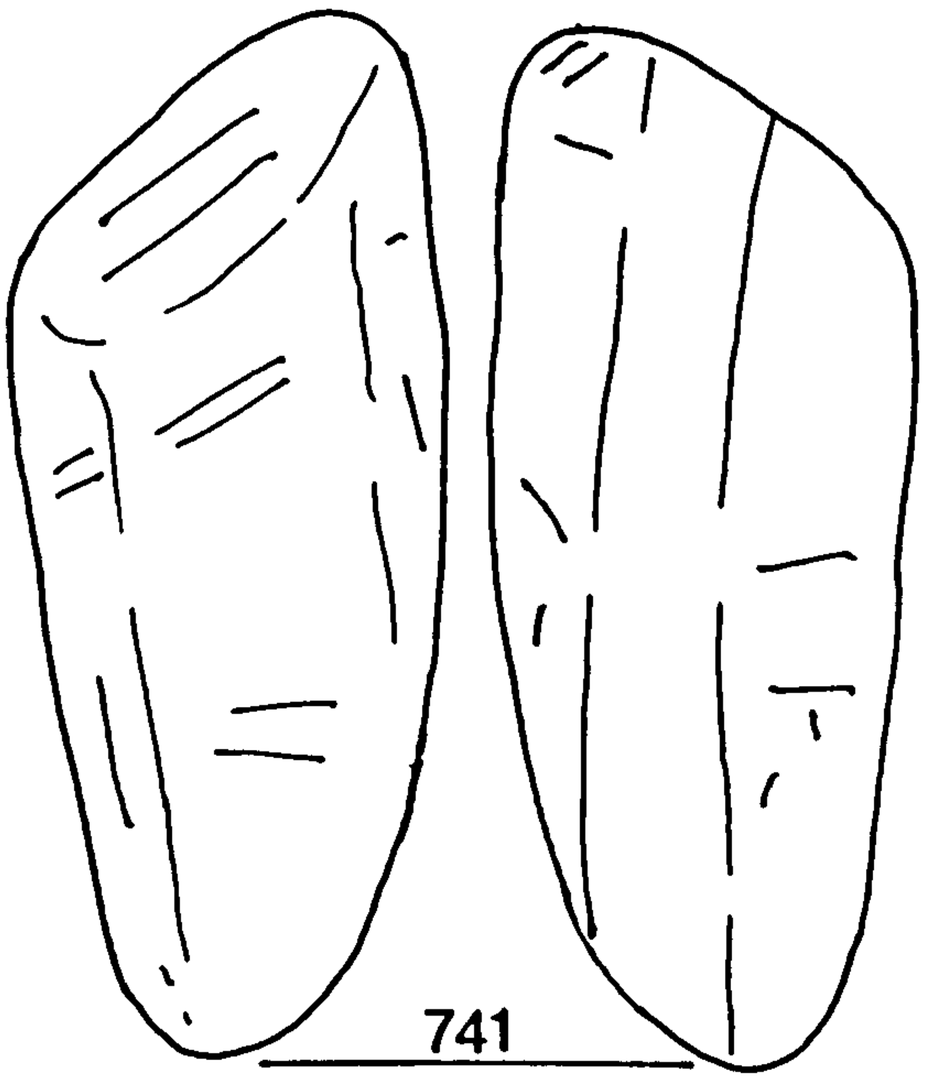
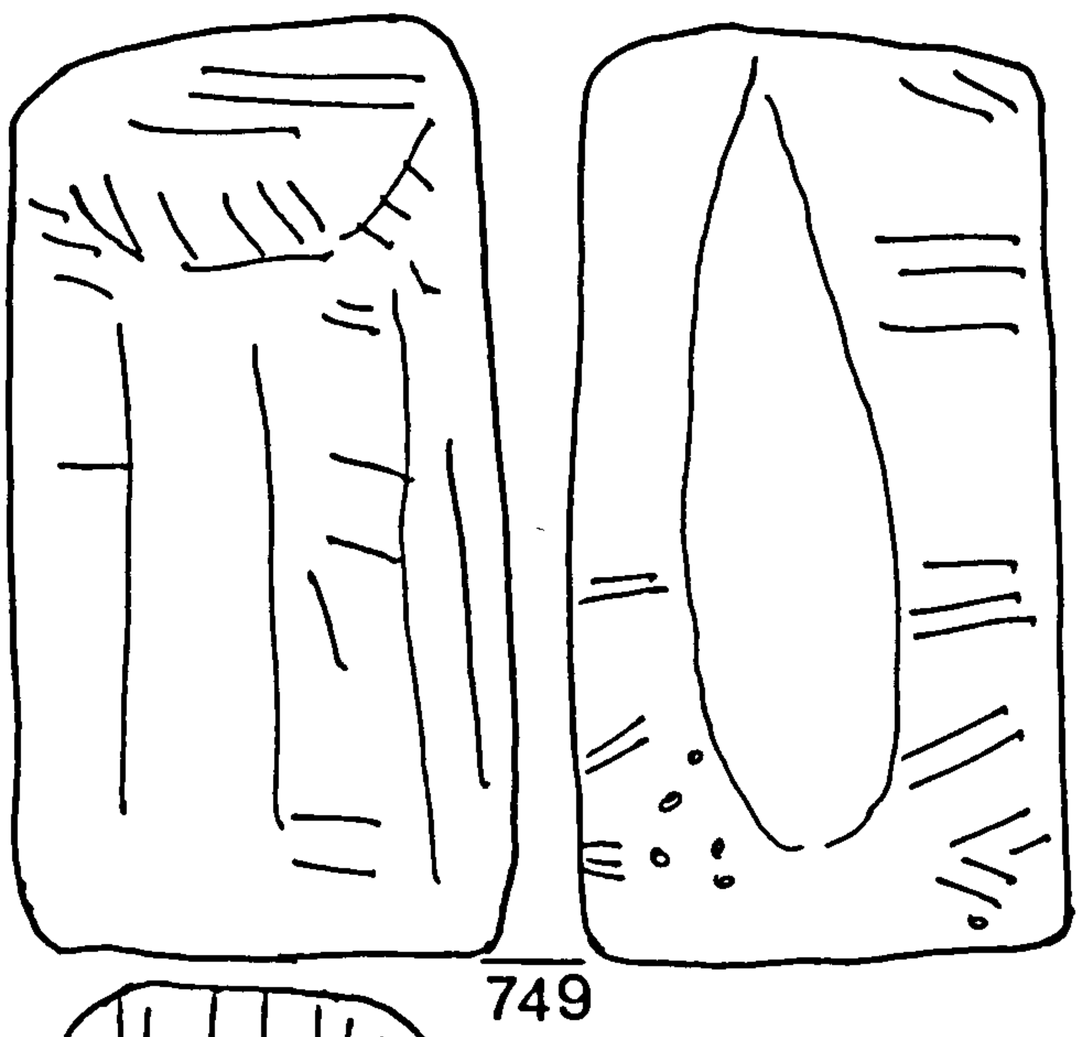
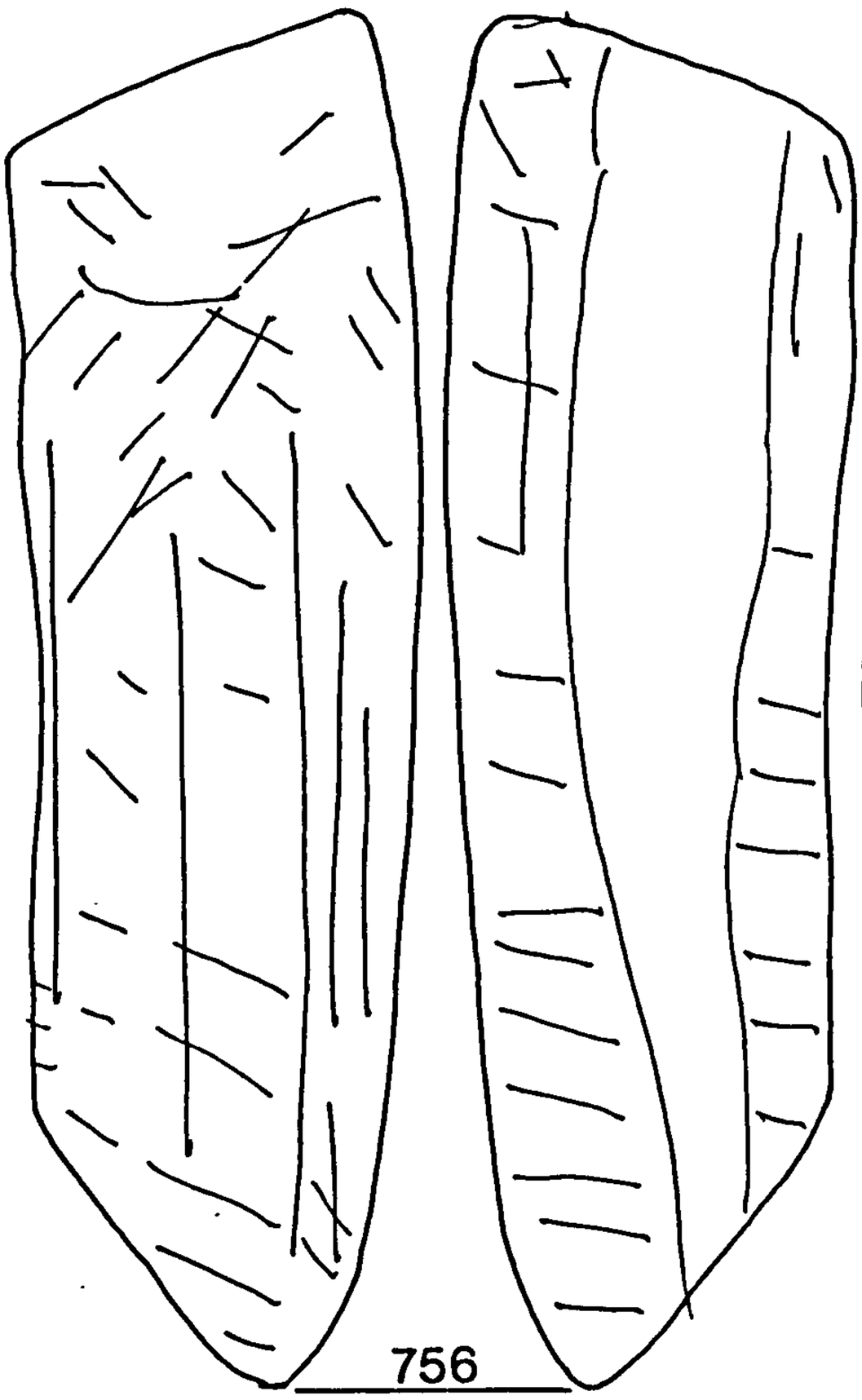


Fig 6.8 Skara Brae: spatulae SB 613, 614, 615; mandible blunt SB 638. Scale 1:1

Fig 6.9 Skara Brae: mandible blunt SB 676; long bone blunts SB 704, 708; slices SB 733, 740. Scale 1:1







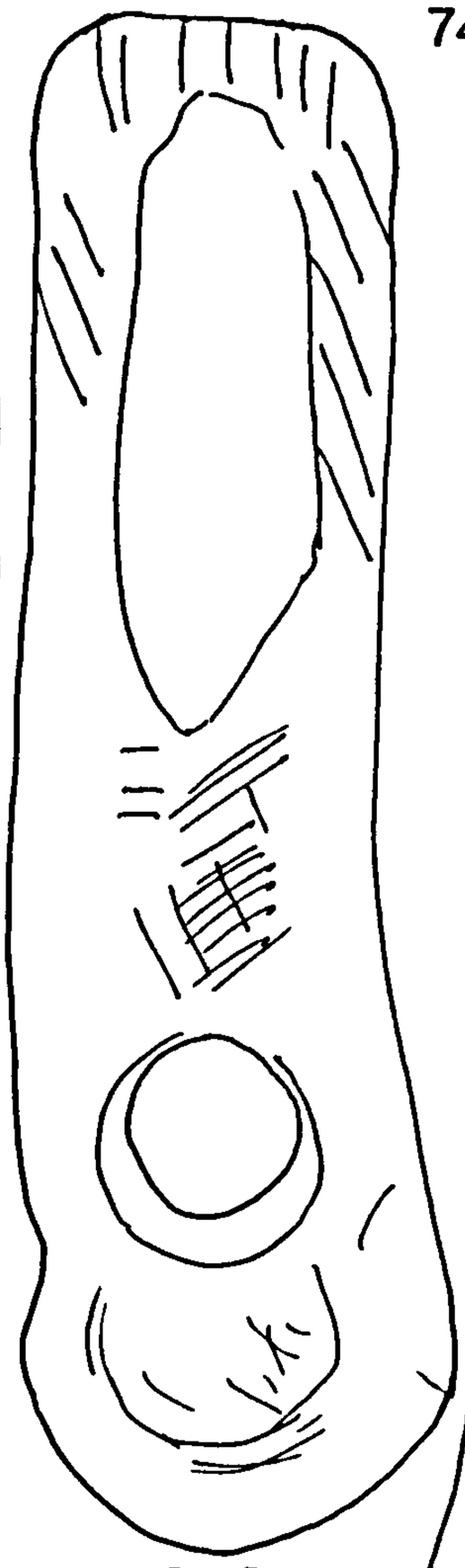


Fig 6.10 Skara Brae: slices SB 741, 749, 756; metapodial mattocks SB 778, 780. Scale 1:1

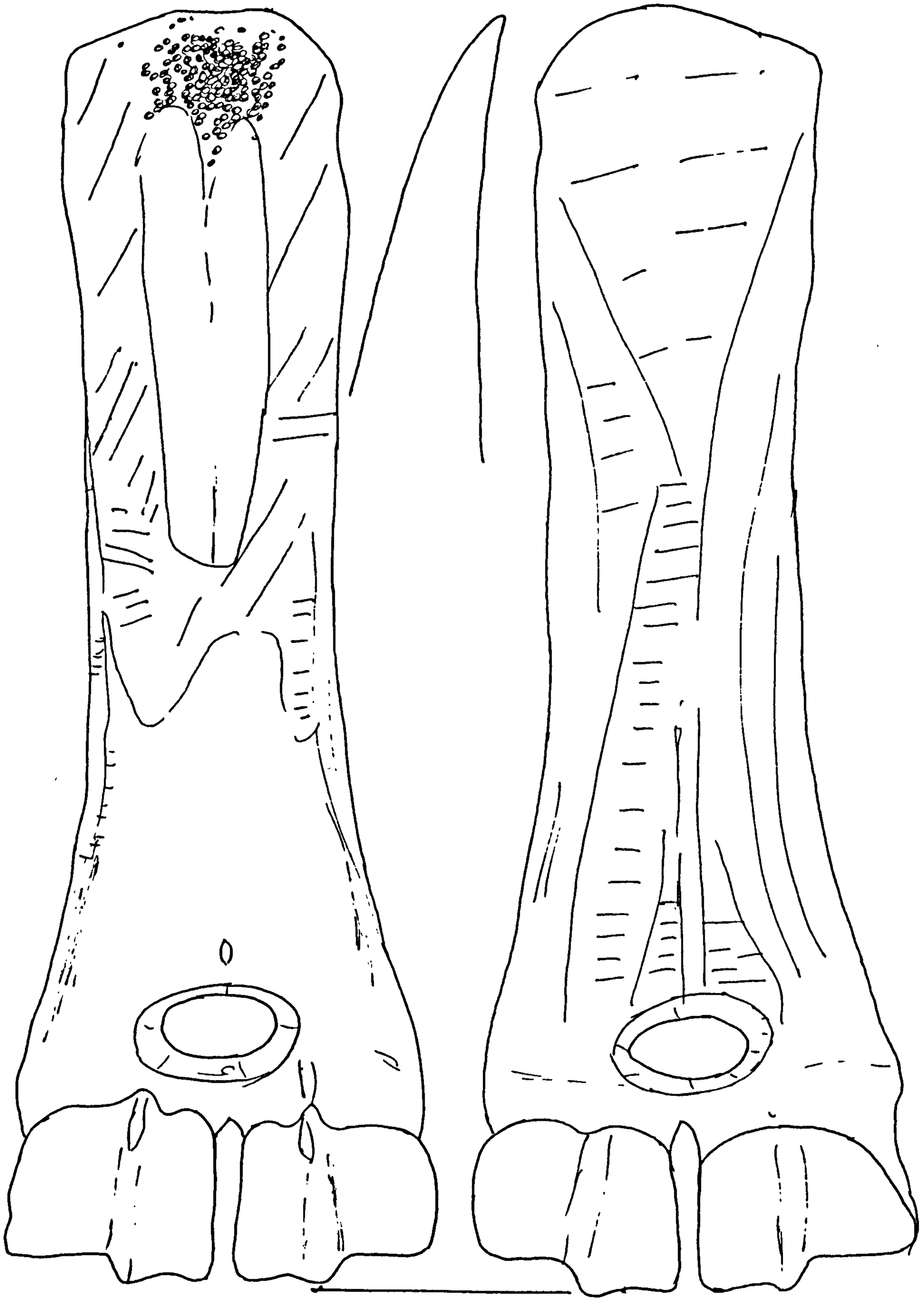


Fig 6.11 Skara Brae: metapodial mattock SB 789. Scale 1:1

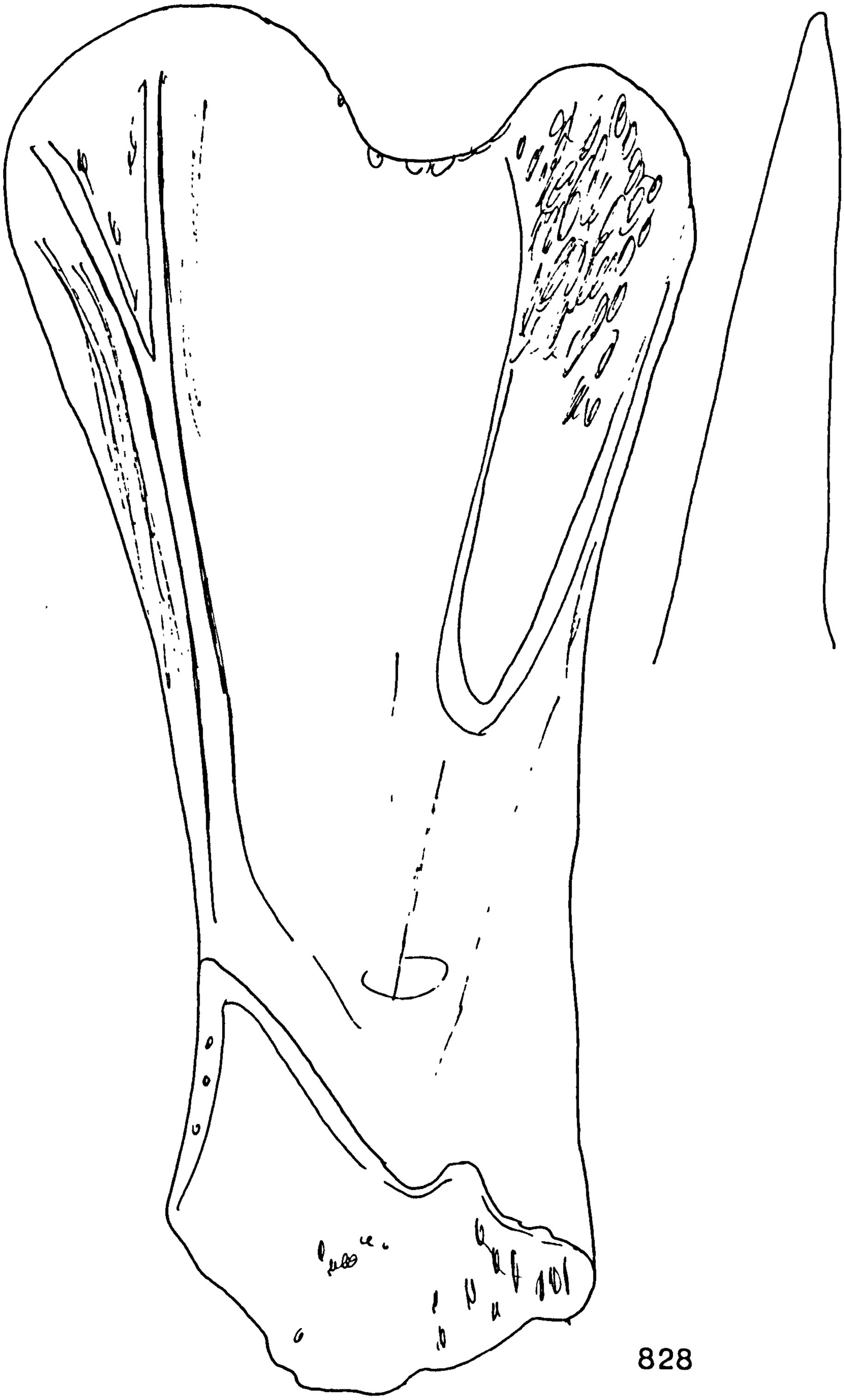


Fig 6.12 Skara Brae: scapula shovel SB 828. Scale 1:1

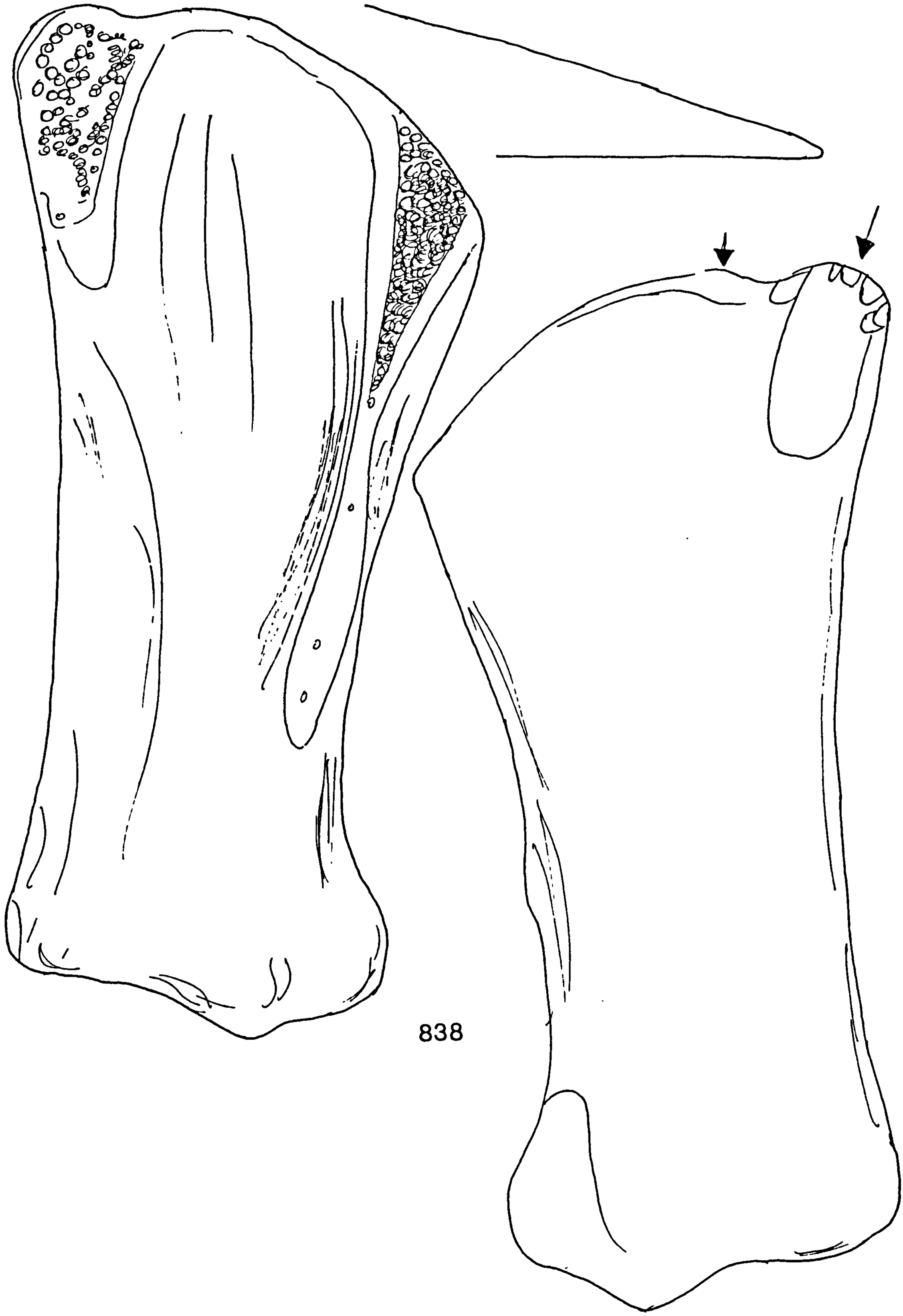


Fig 6.13 Skara Brae: scapula shovel SB 838. Scale 1:1

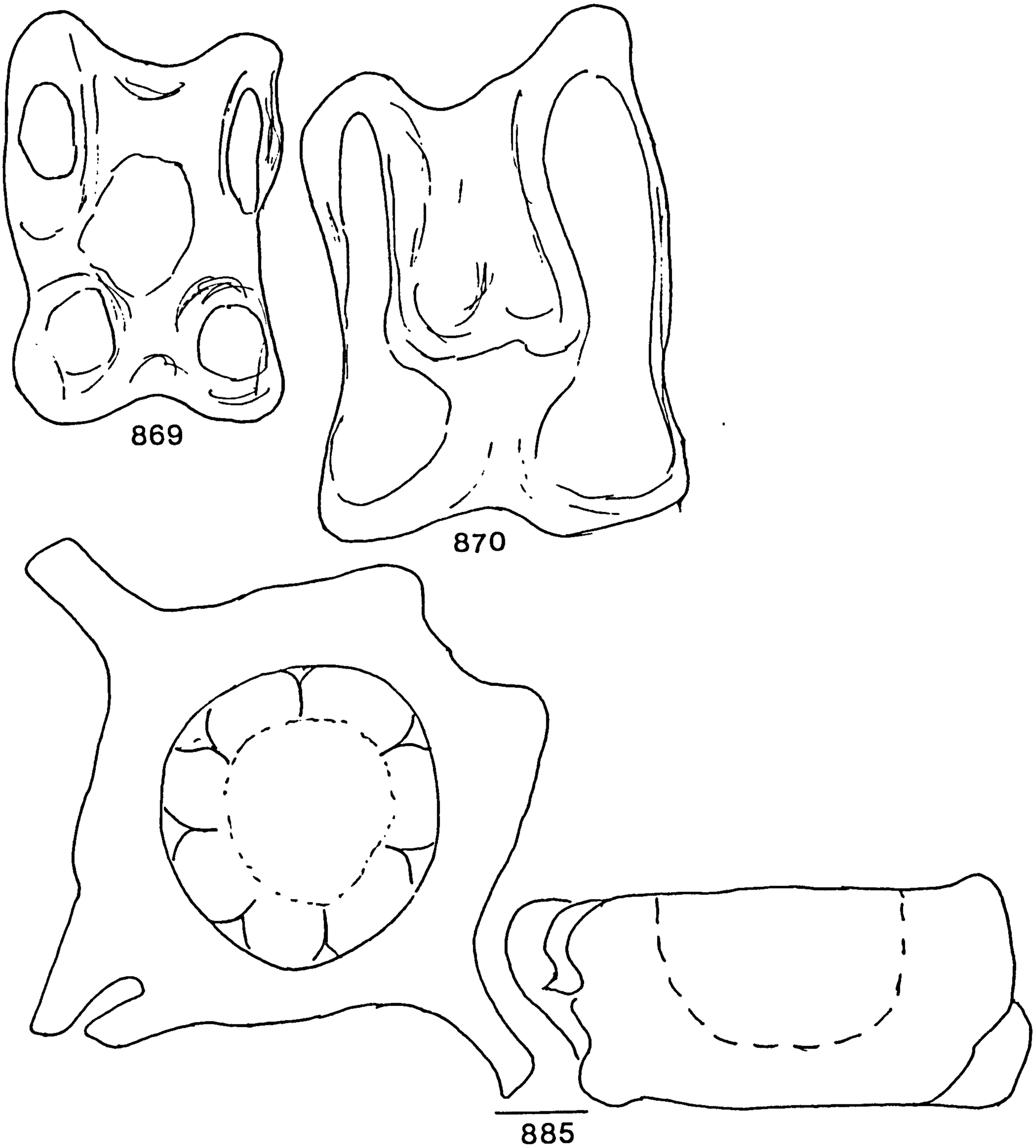
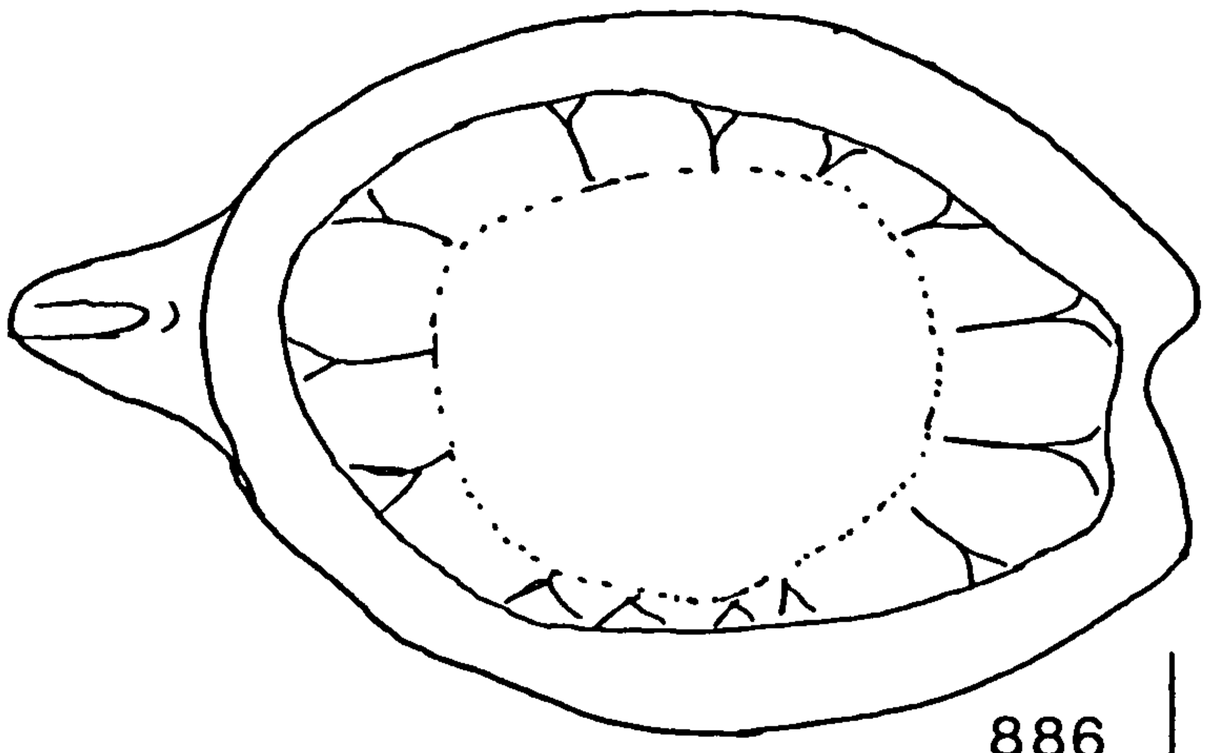
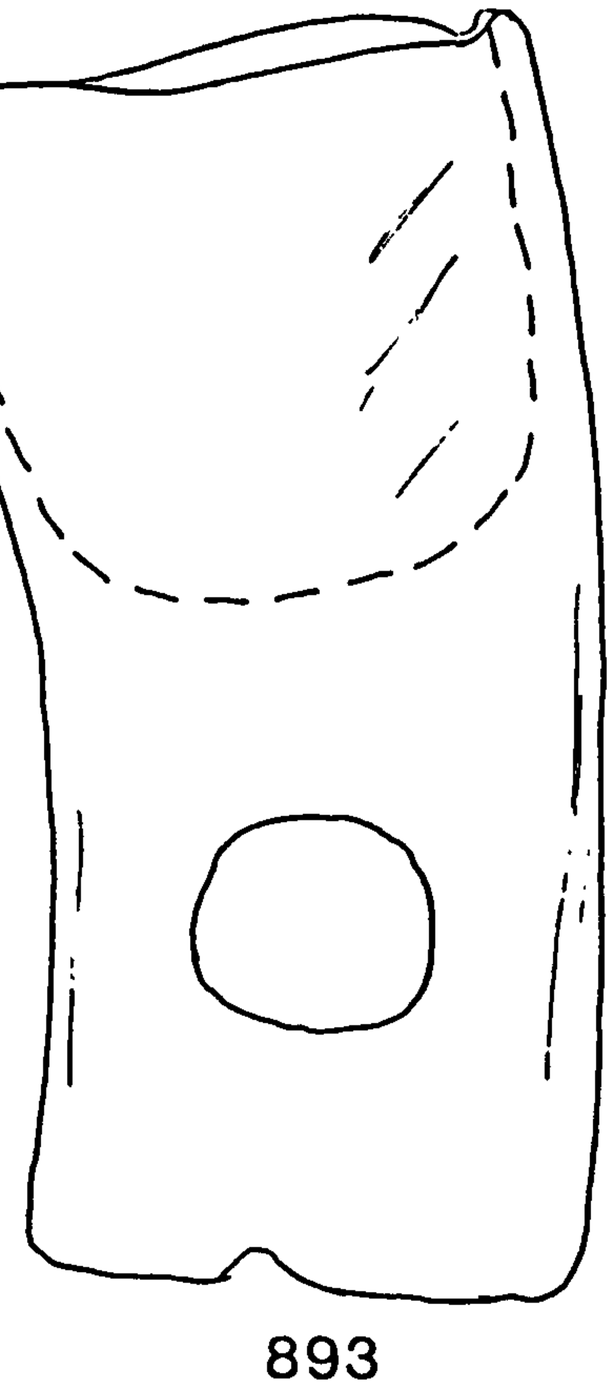


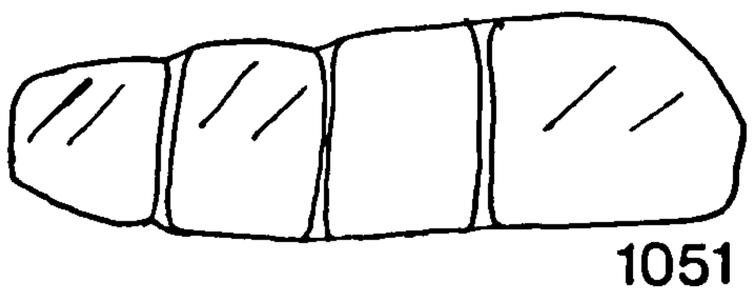
Fig 6.14 Skara Brae: astragalus polishers SB 869, 870; vessel SB 885. Scale 1:1



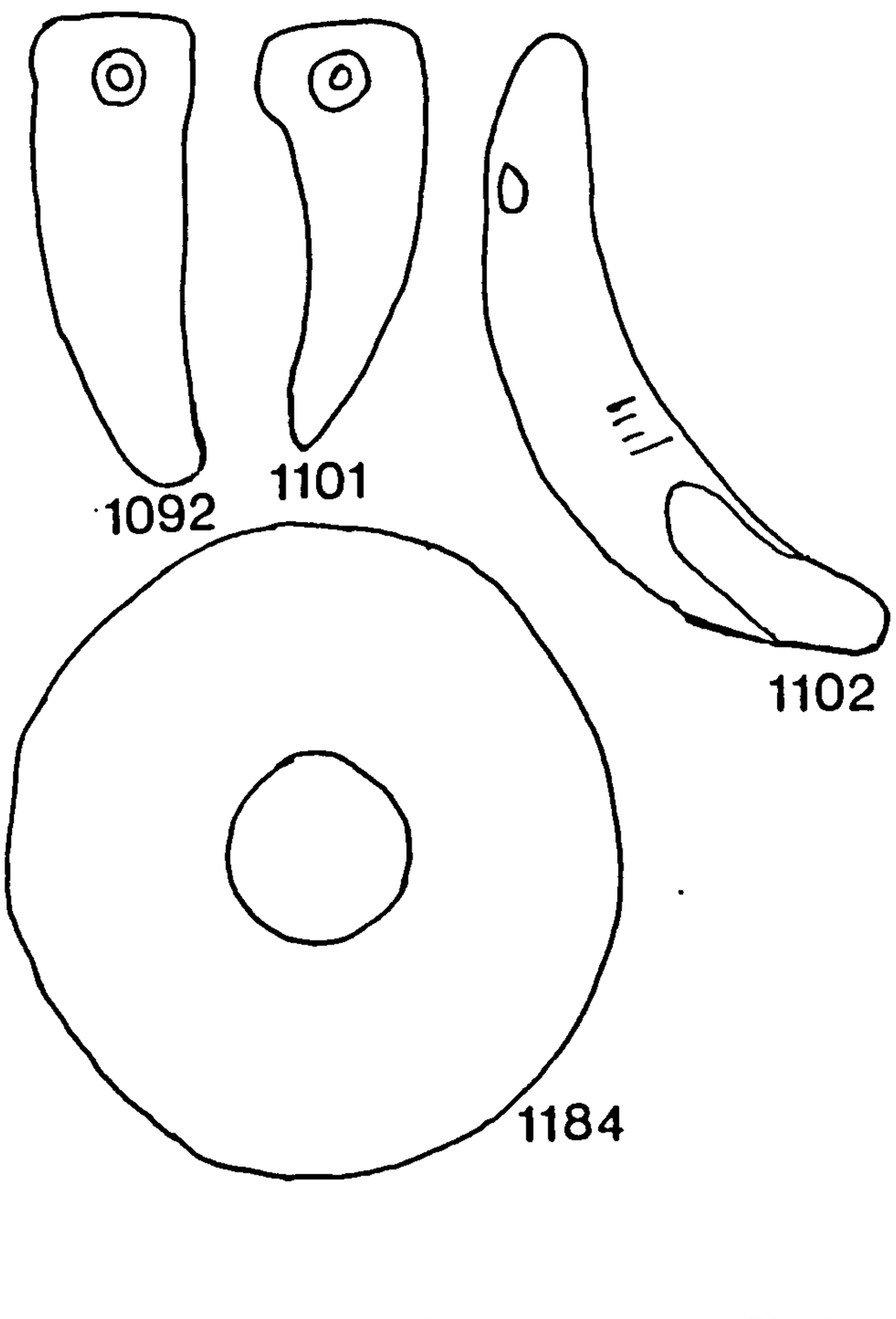
886



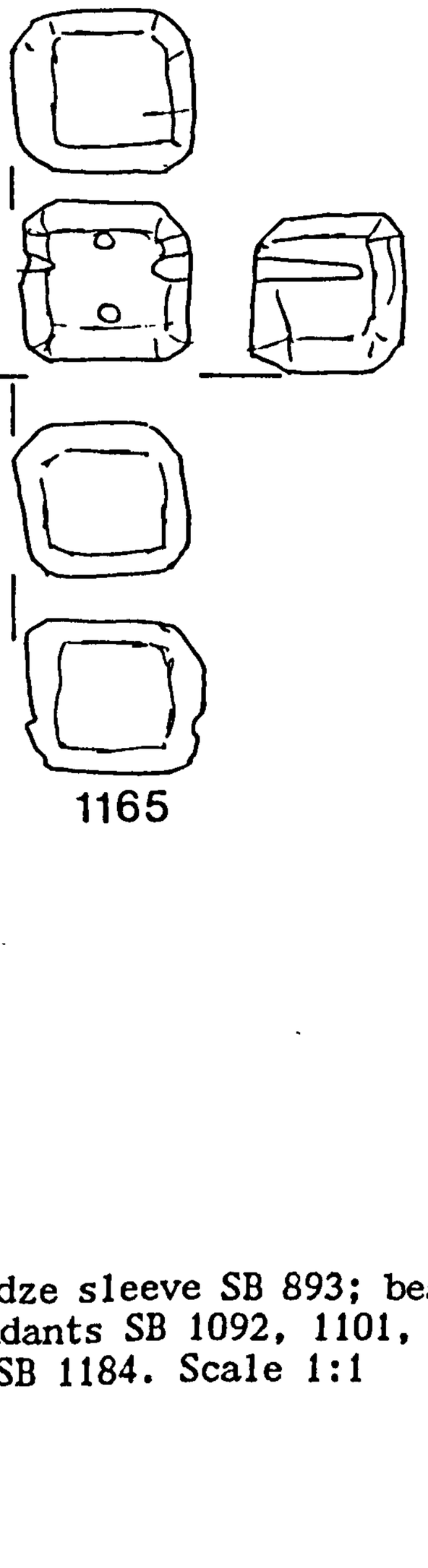
893



1051



1092 1101 1102



1165

1184

Fig 6.15 Skara Brae: vessel SB 886; antler adze sleeve SB 893; beads in process of manufacture SB 1051; pendants SB 1092, 1101, 1102; cube SB 1165, perforated plate SB 1184. Scale 1:1

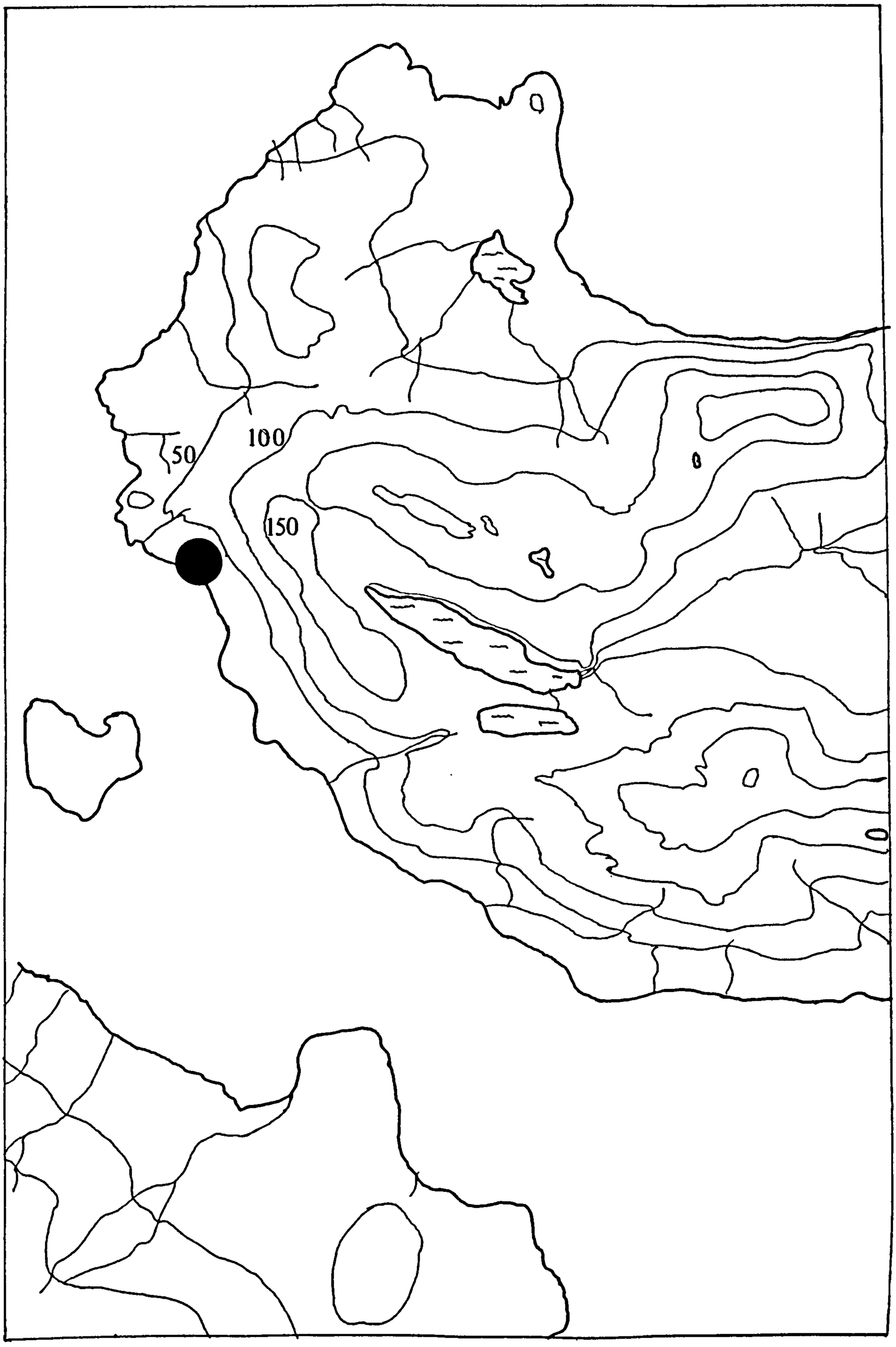


Fig 7.1 Location of Midhowe. Scale 1:50 000
Contours in 50 metre intervals

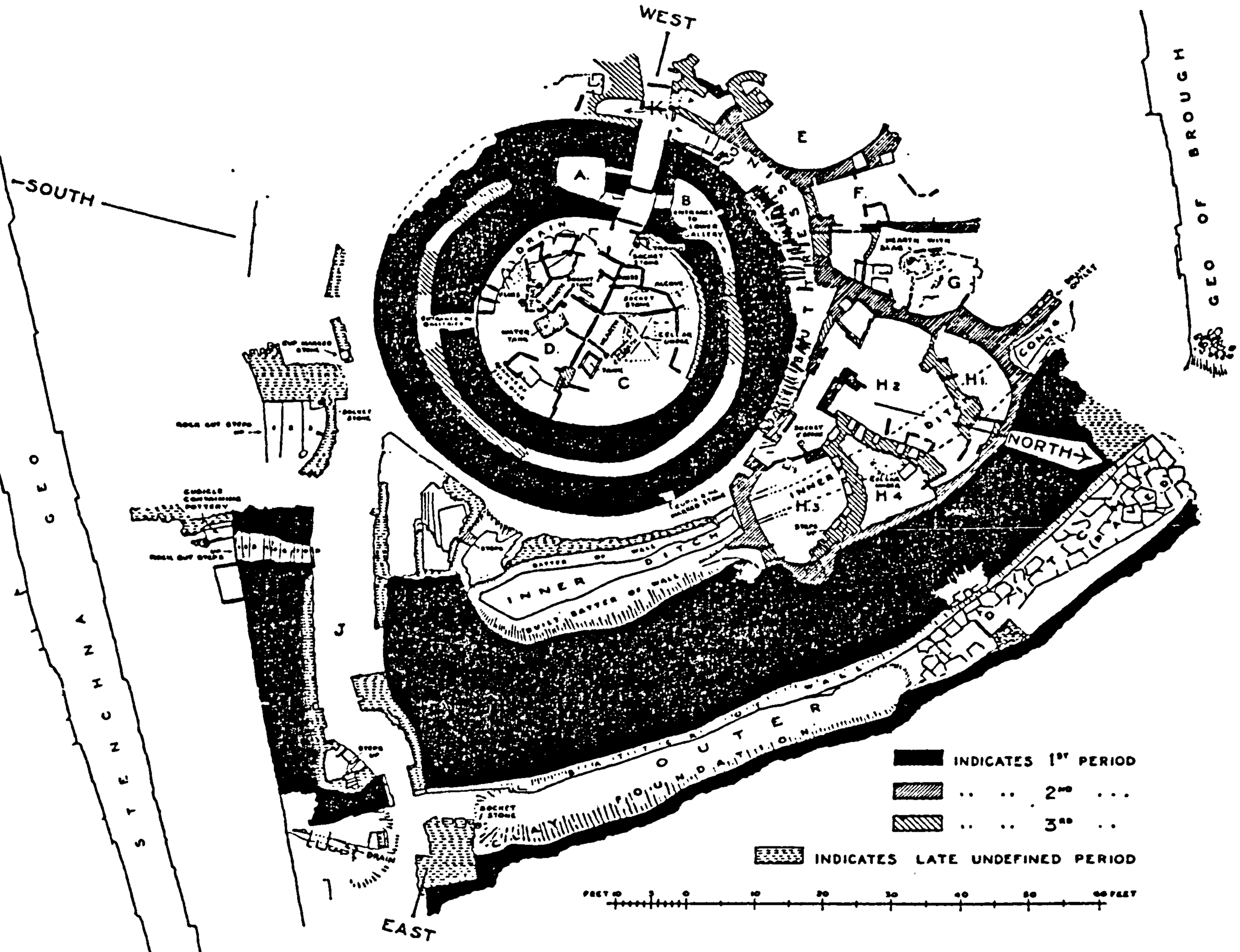


Fig 7.2 Midhowe, plan of the site

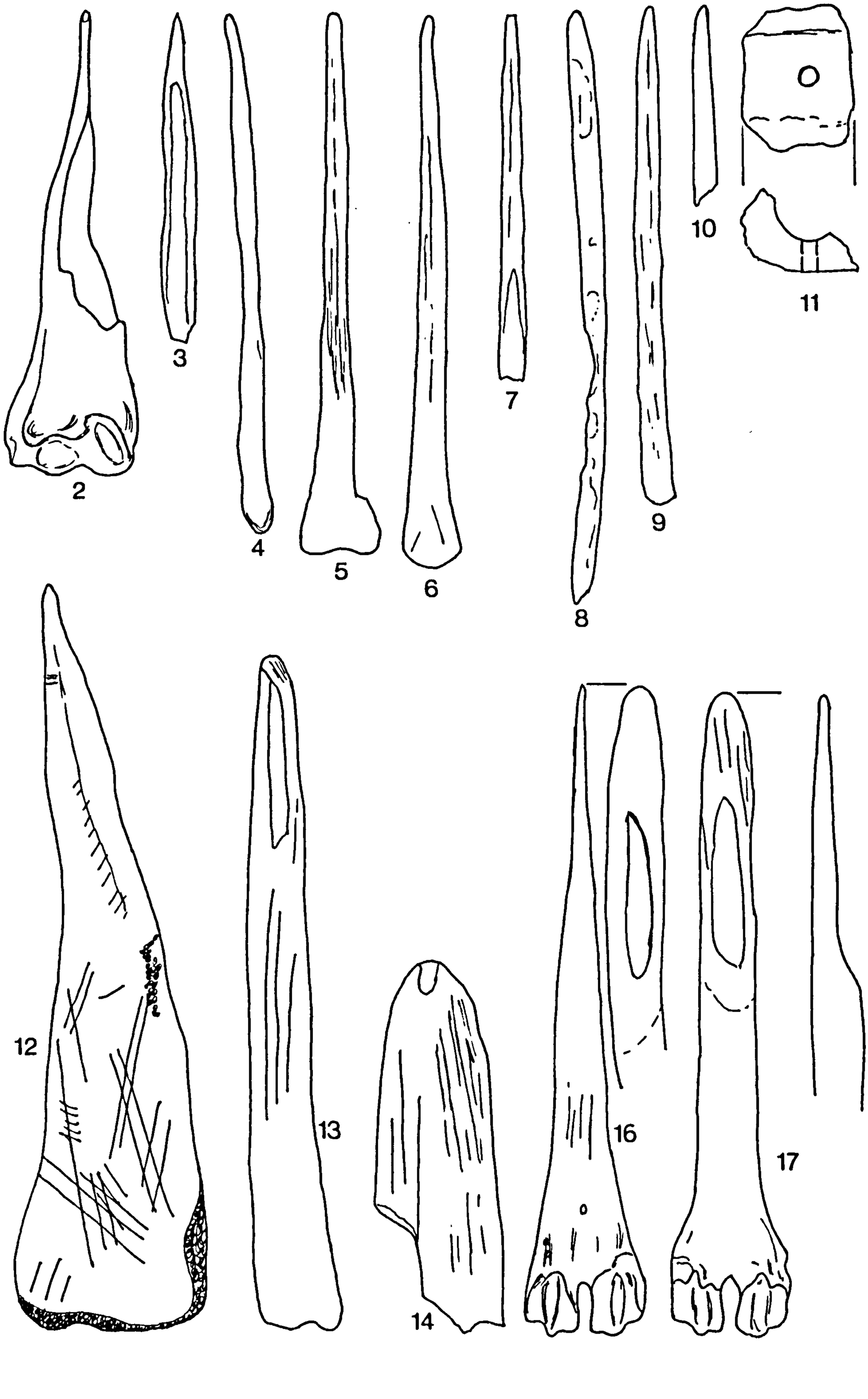


Fig 7.3 Midhowe: points M 2-4; points/pins M 5-7; pins M 8-10; pinhead M 11; blunts M 12-14, spatulae M 16-17. Scale 1:1

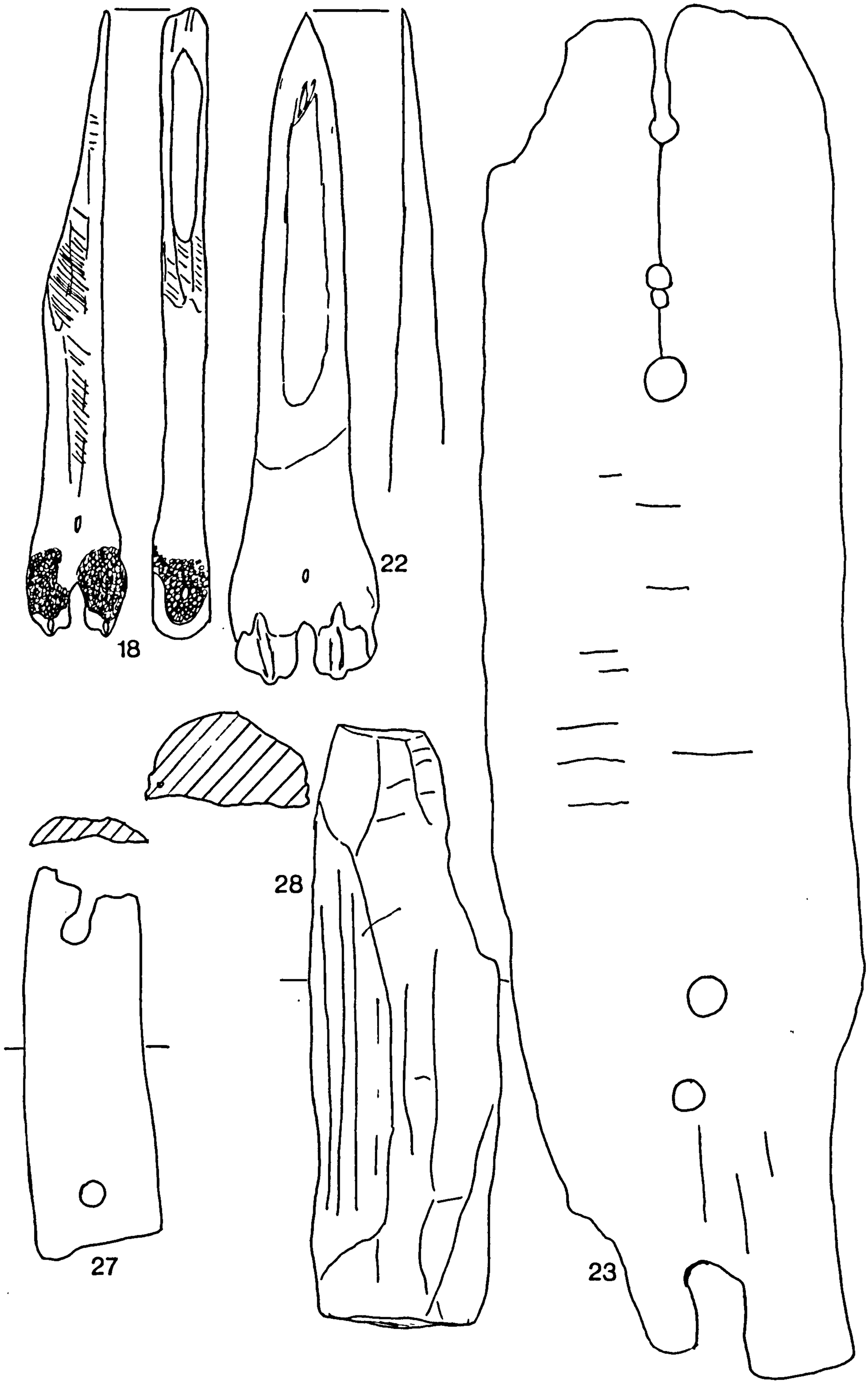


Fig 7.4 Midhowe: spatulae M 18, 22; pegged plate, large M 23; pegged plates, small M 27-28. Scale 1:1

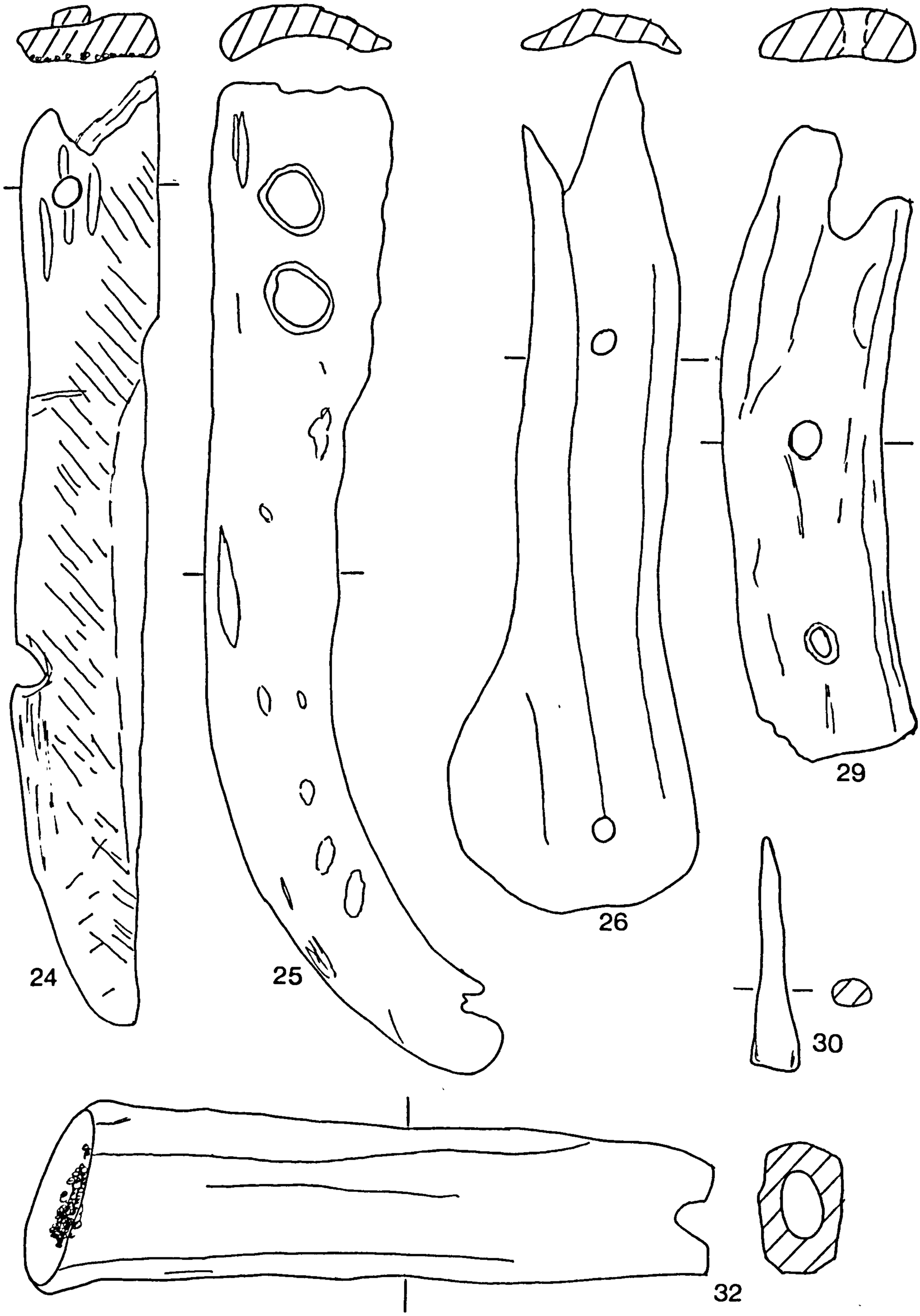


Fig 7.5 Midhowe: pegged plates, small M 24-26, 29-30; handle M 32.
Scale 1:1

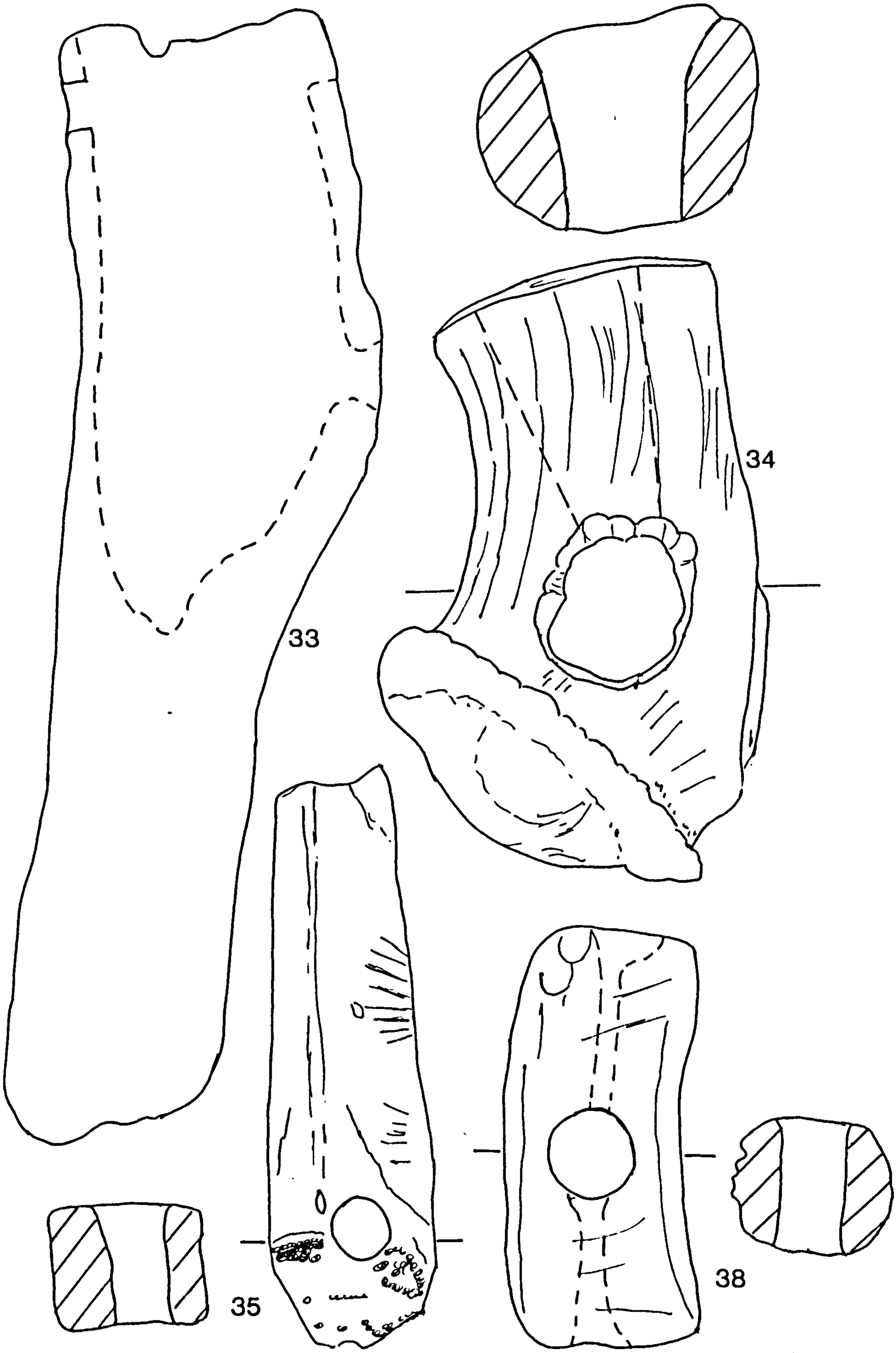


Fig 7.6 Midhowe: handle M 33; socket M 34; ?socket M 35; cross-piece? M 38. Scale 1:1

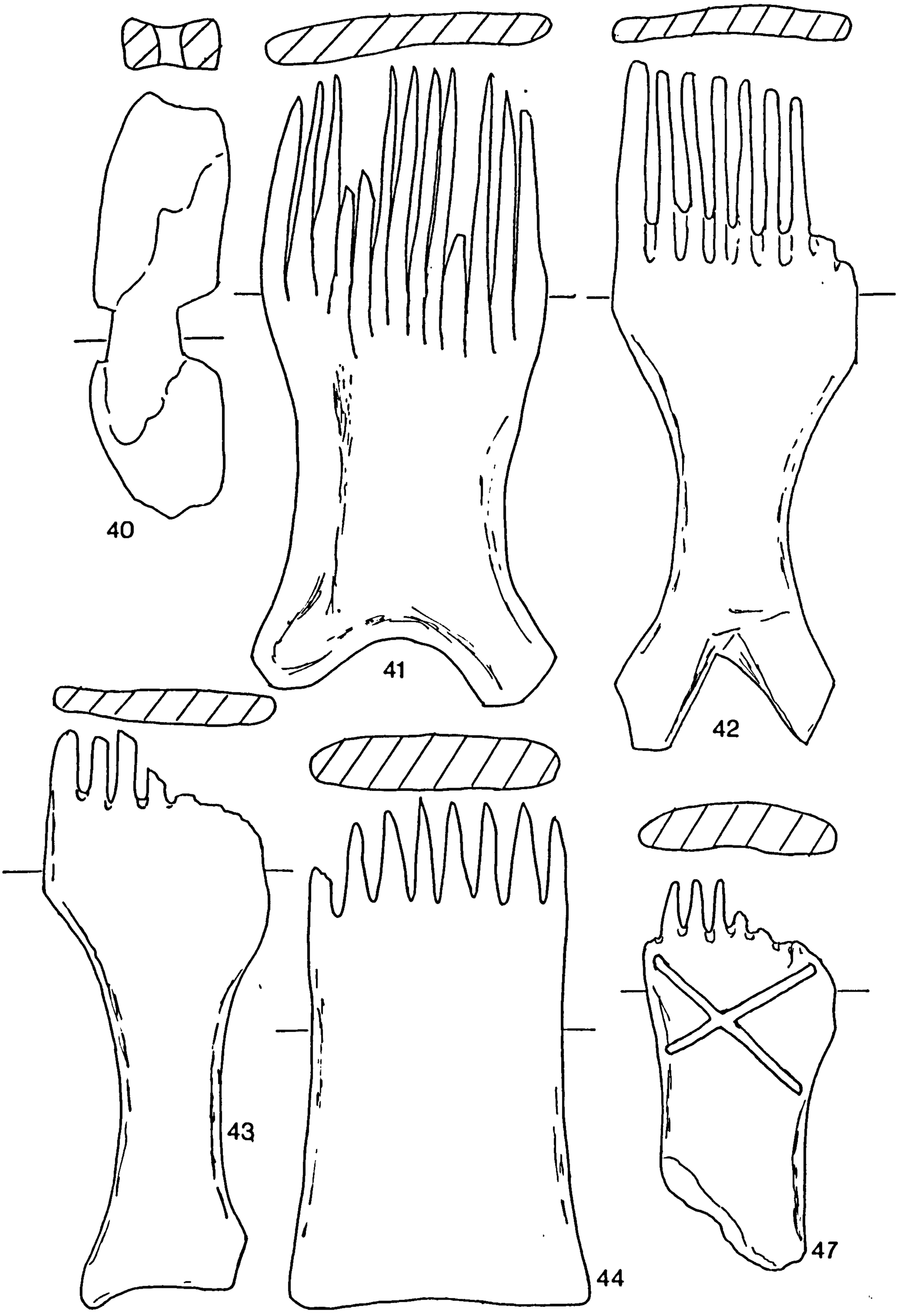


Fig 7.7 Midhowe: cross-piece? M 40; combs, long-handled M 41-43, 47-48. Scale 1:1

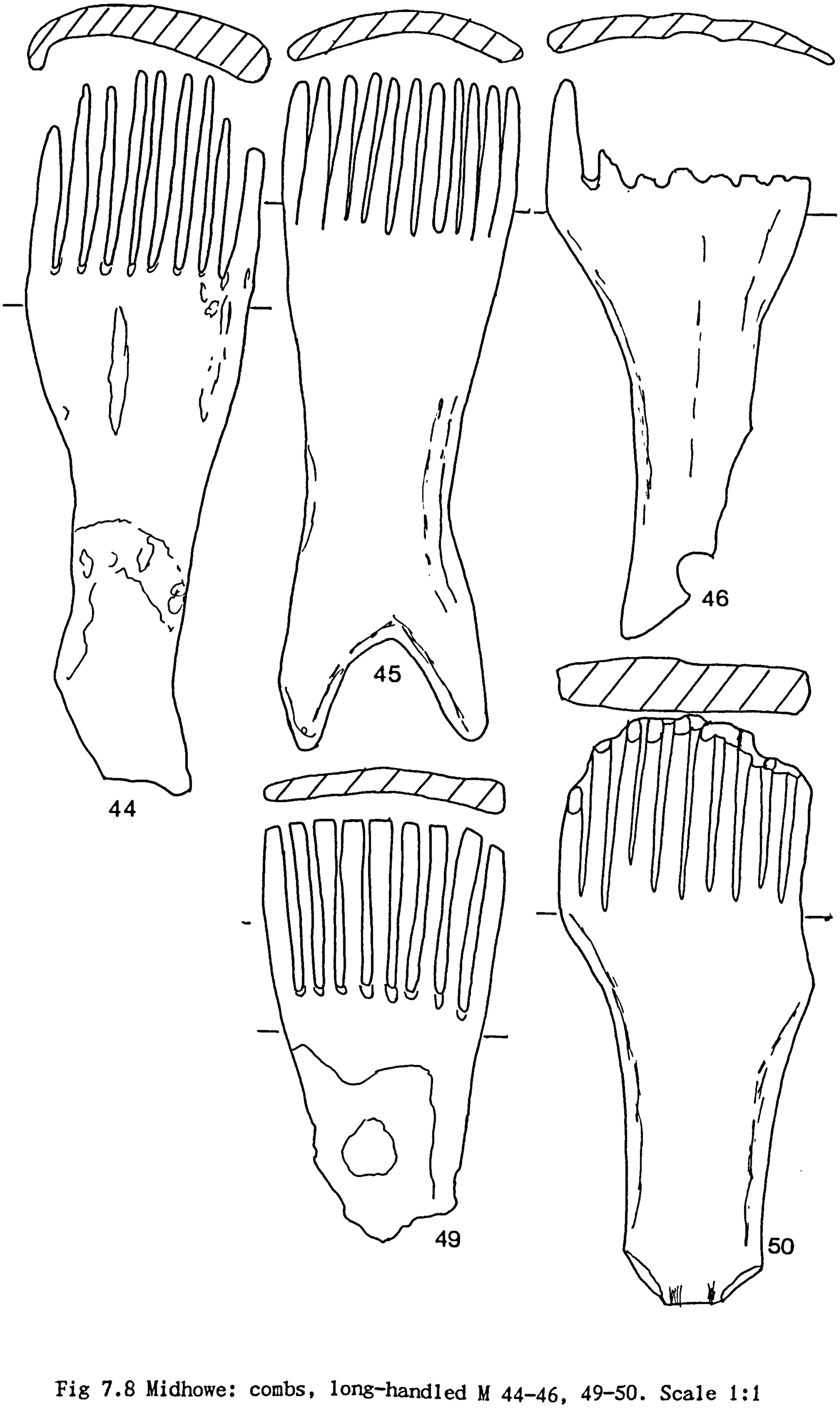


Fig 7.8 Midhowe: combs, long-handled M 44-46, 49-50. Scale 1:1

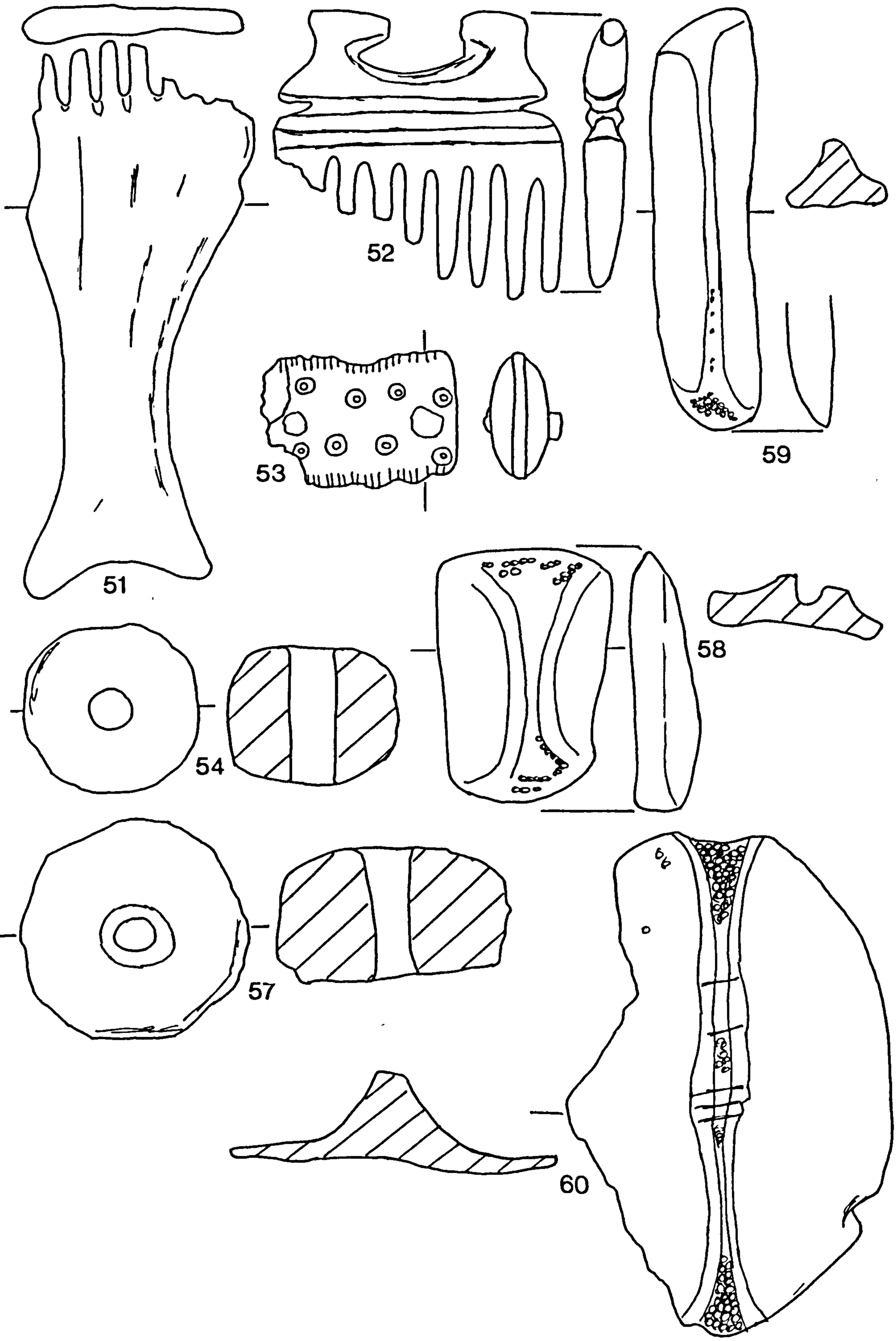


Fig 7.9 Midhowe: comb, long-handled M 51; comb, single-sided M 52; comb, composite, double-sided M 53; whorls M 54, 57; scapula segment tools M 58, 59, 60. Scale 1:1

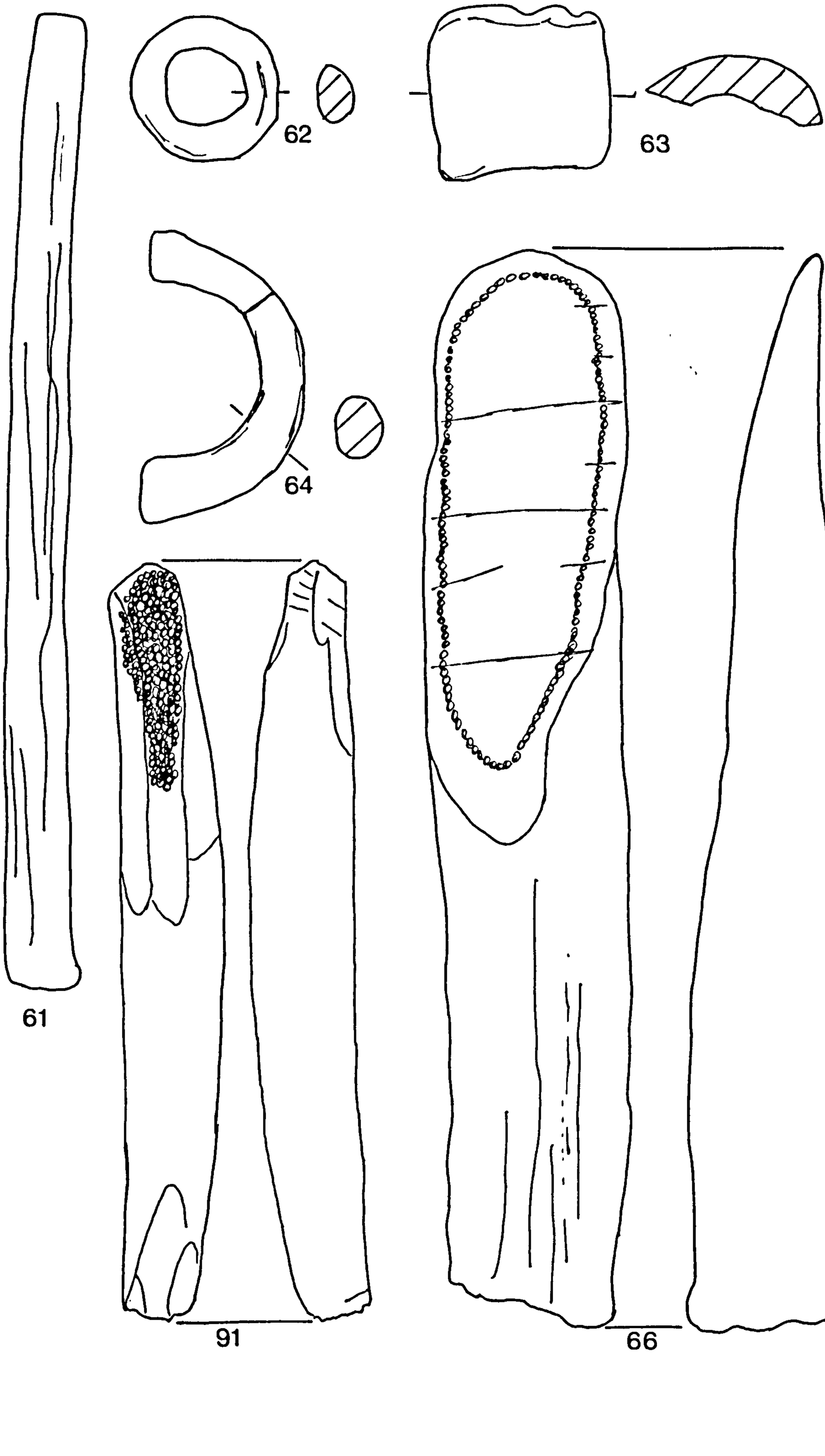
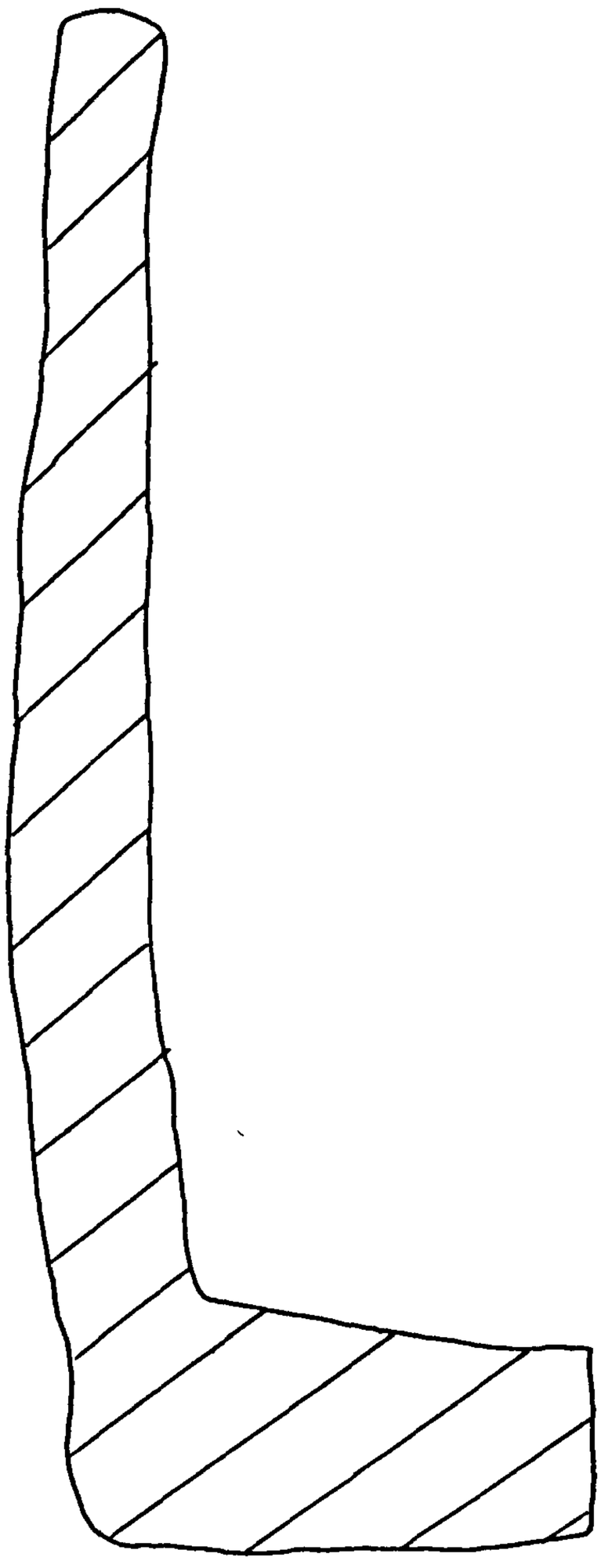
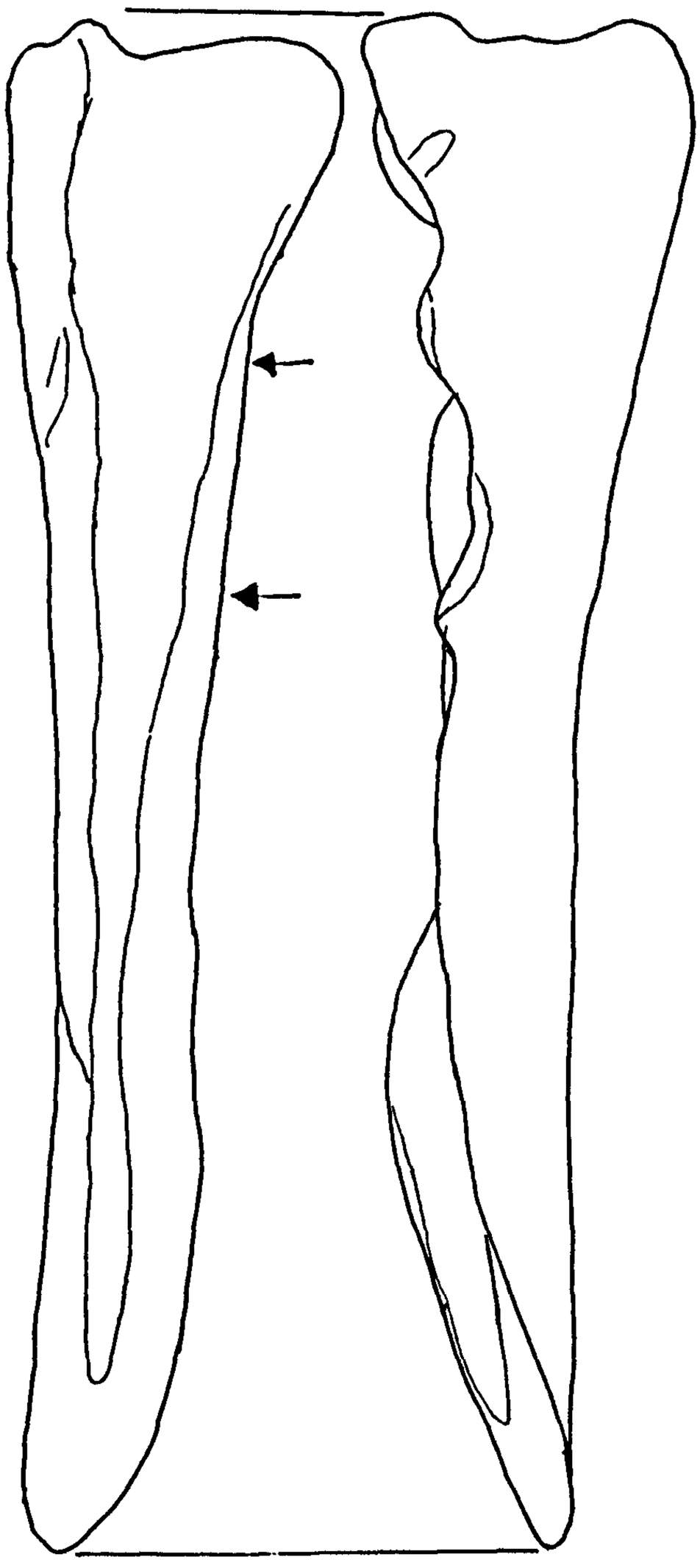


Fig 7.10 Midhowe: tube M 61; rings M 62-64; mattock M 66; antler debris M 91. Scale 1:1



69



102

Fig 7.11 Midhowe: cetacean vertebra cup, part, M 69; worked bone M 102. Scale 1:1

Fig 8.1 The Uists, location of fig 8.2

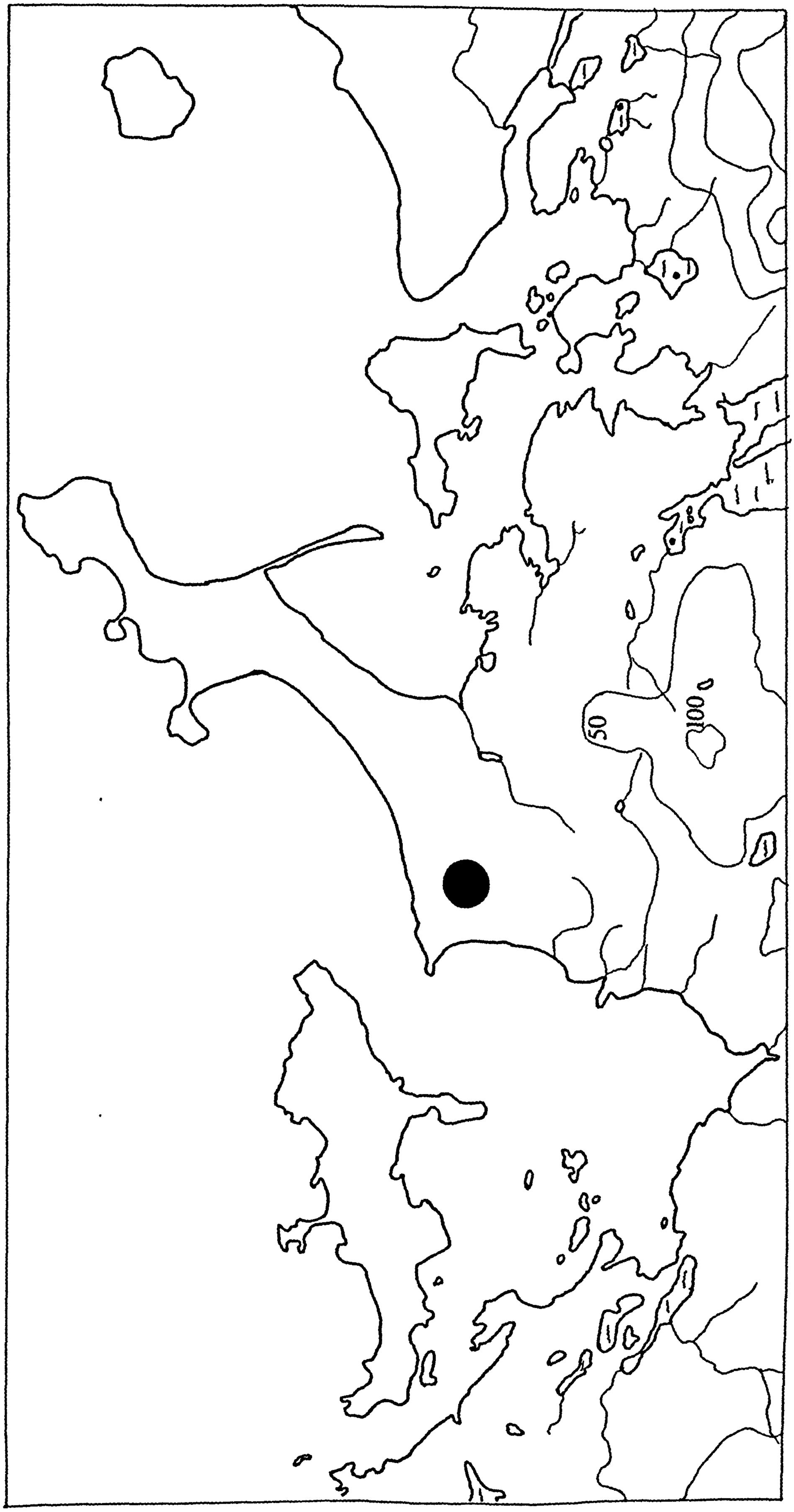


Fig 8.2 Location of Cnoc Sligeach, Sollas. Scale 1:50 000
Contours in 50 metre intervals

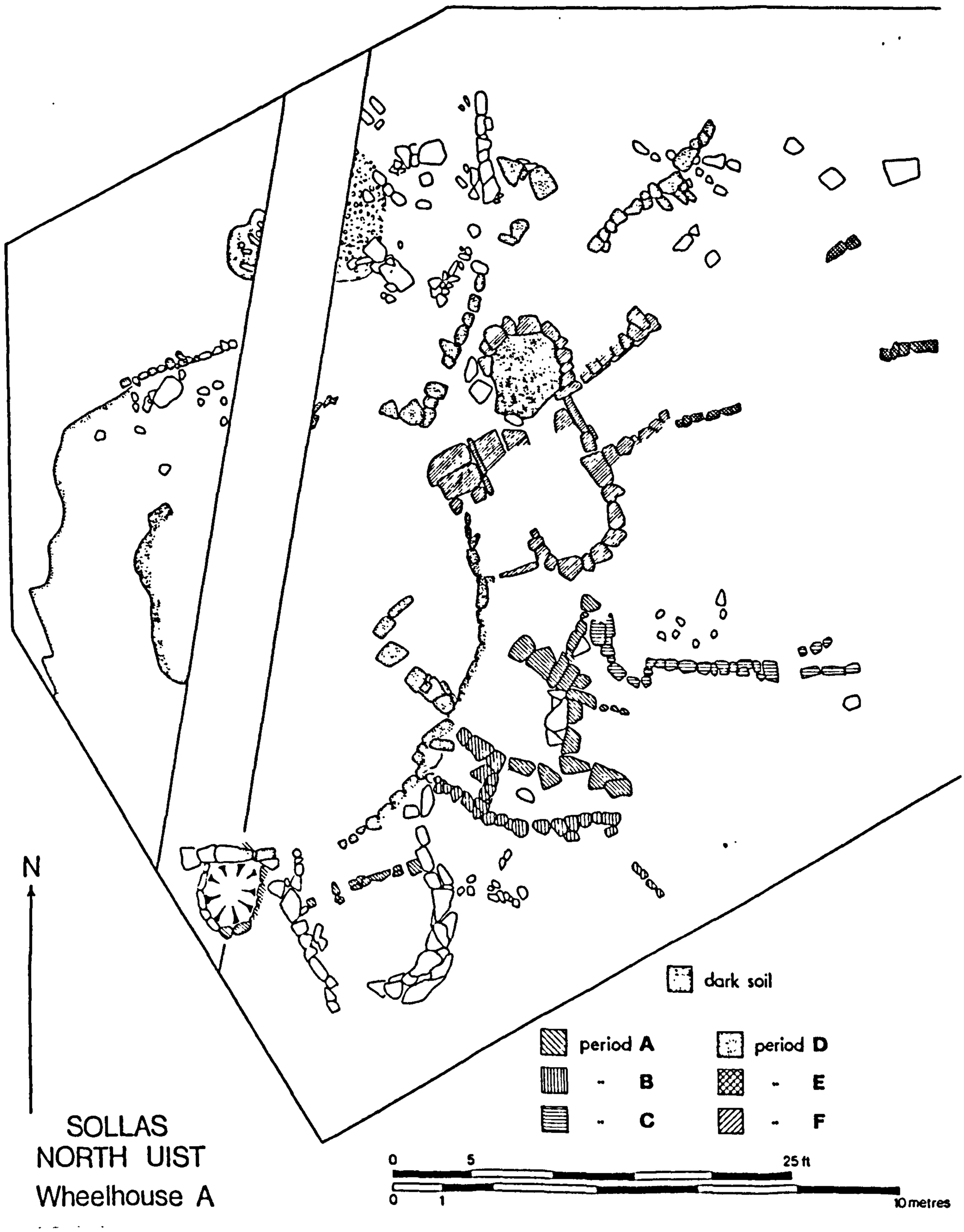


Fig 8.3 Plan of wheelhouse A

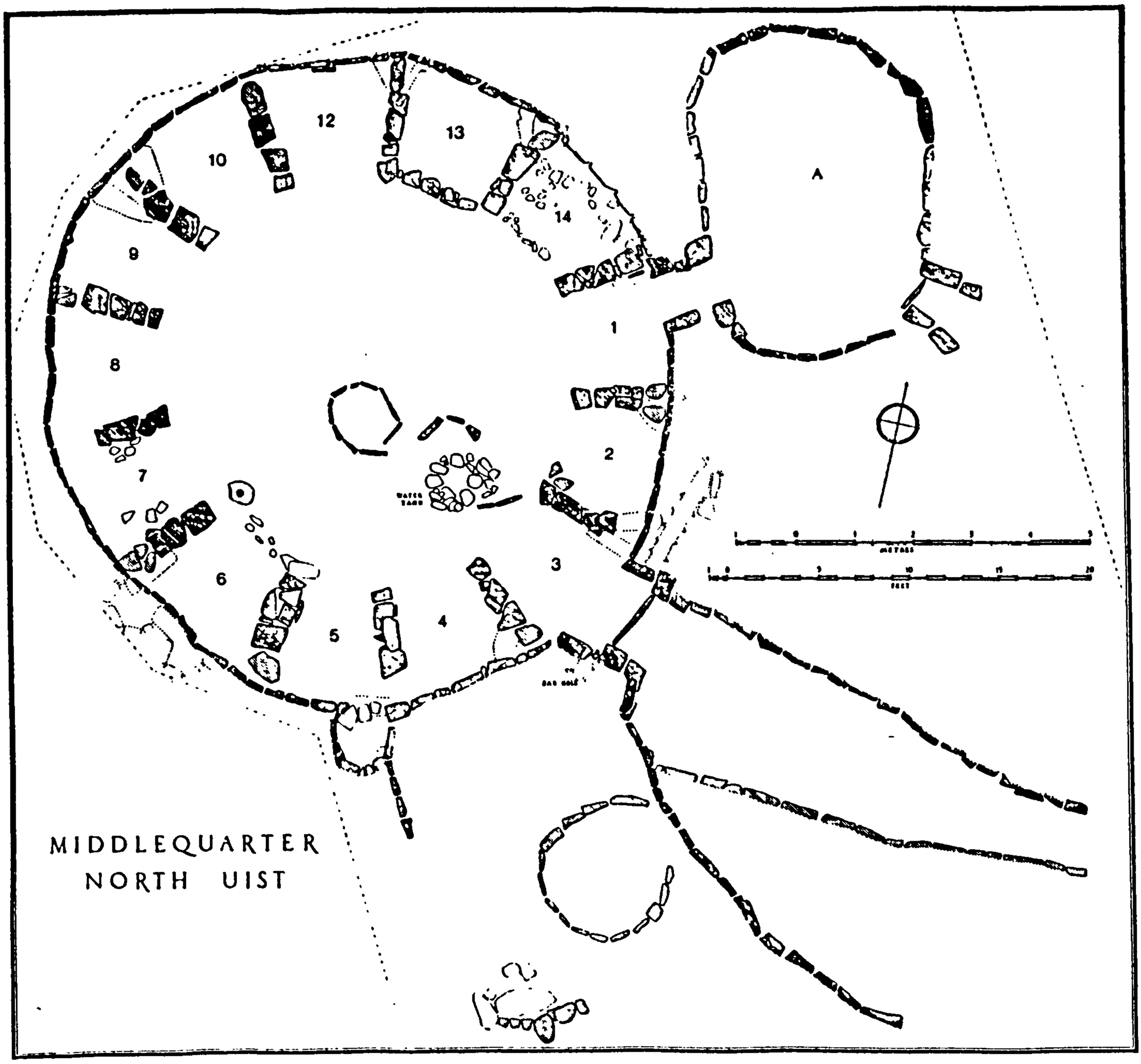


Fig 8.4 Plan of wheelhouse B

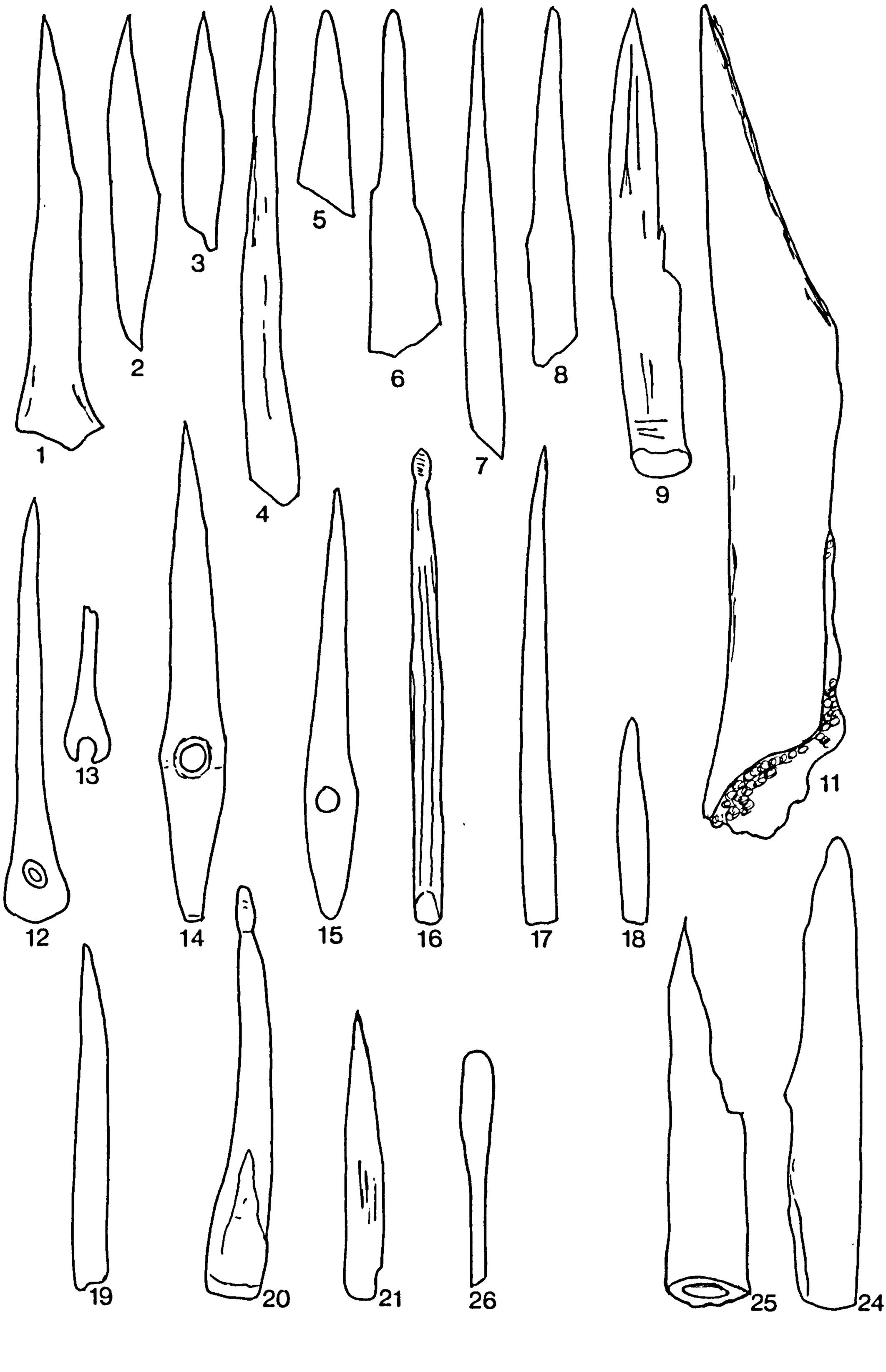


Fig 8.5 Sollas: points SS 1-9; large point SS 11; perforated points SS 12-15; points/pins SS 16-18; pegs SS 19-21; blunts SS 24-25; spatula SS 26. Scale 1:1

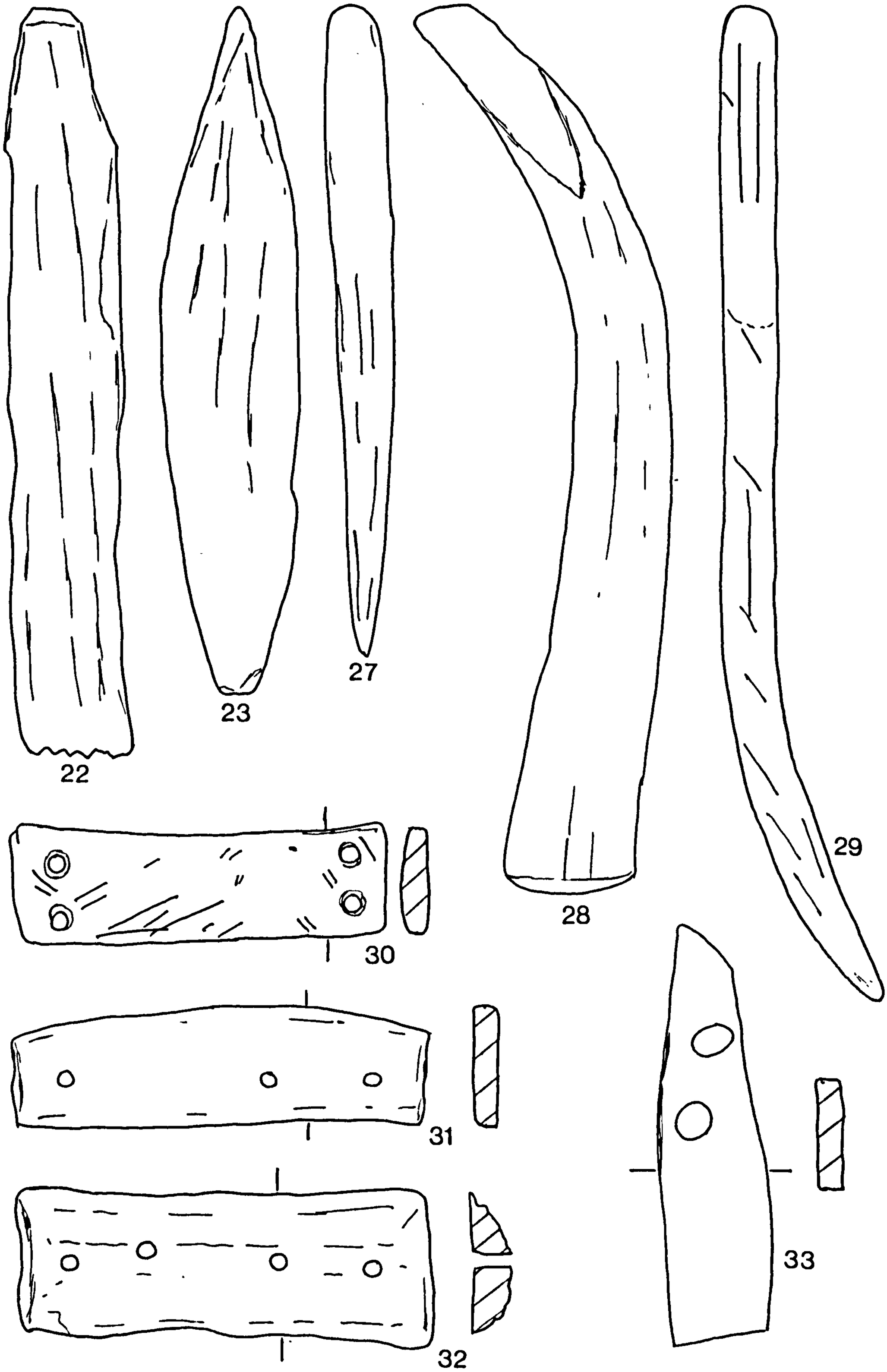


Fig 8.6 Sollas: blunts SS 22–23; spatula SS 27; spatulate ?potting tools SS 28–29; pegged plates SS 30–33. Scale 1:1

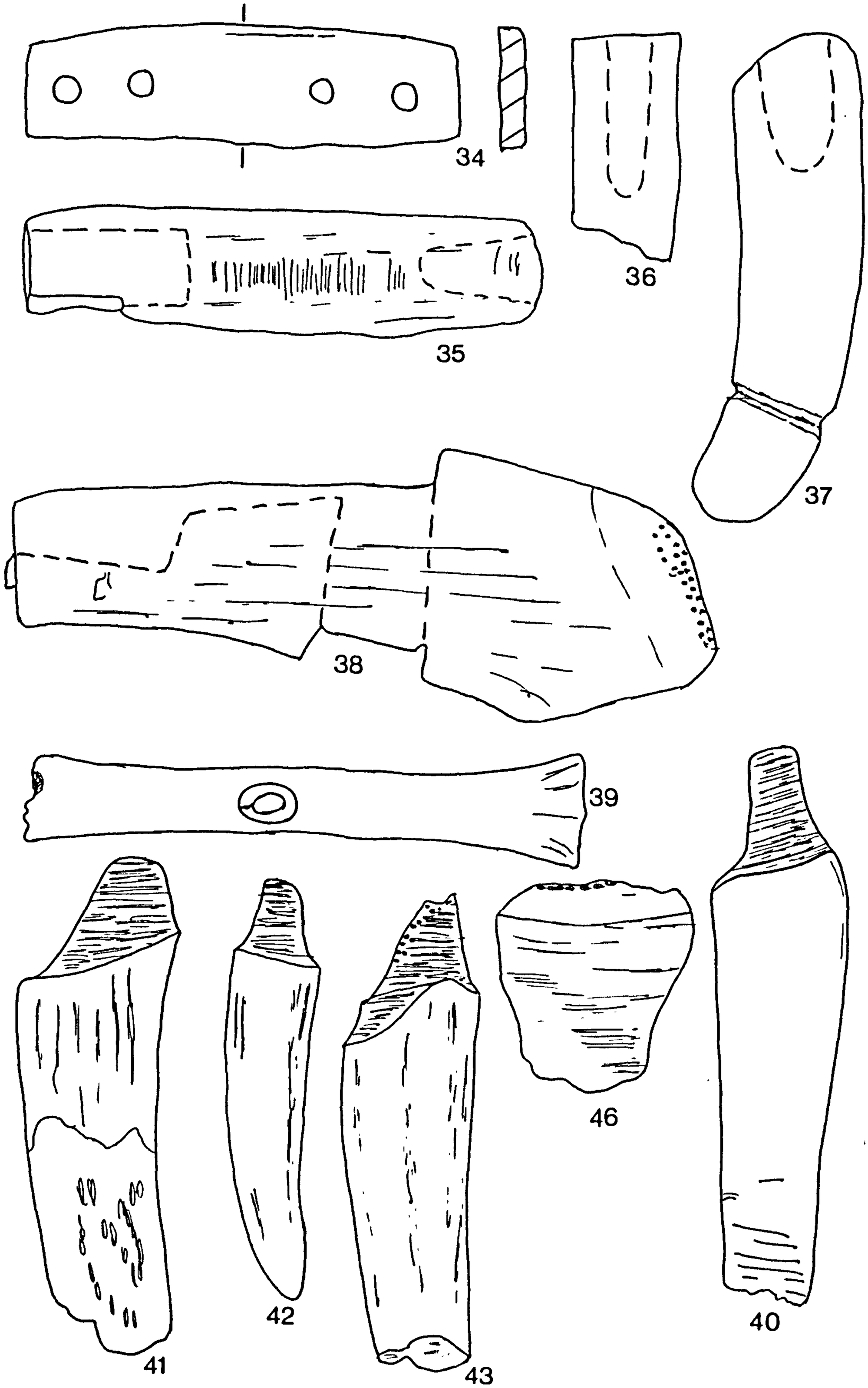


Fig 8.7 Sollas: pegged plate SS 34; handles SS 35–37; socket SS 38; perforated bone SS 39; turned objects SS 40–43, 46. Scale 1:1

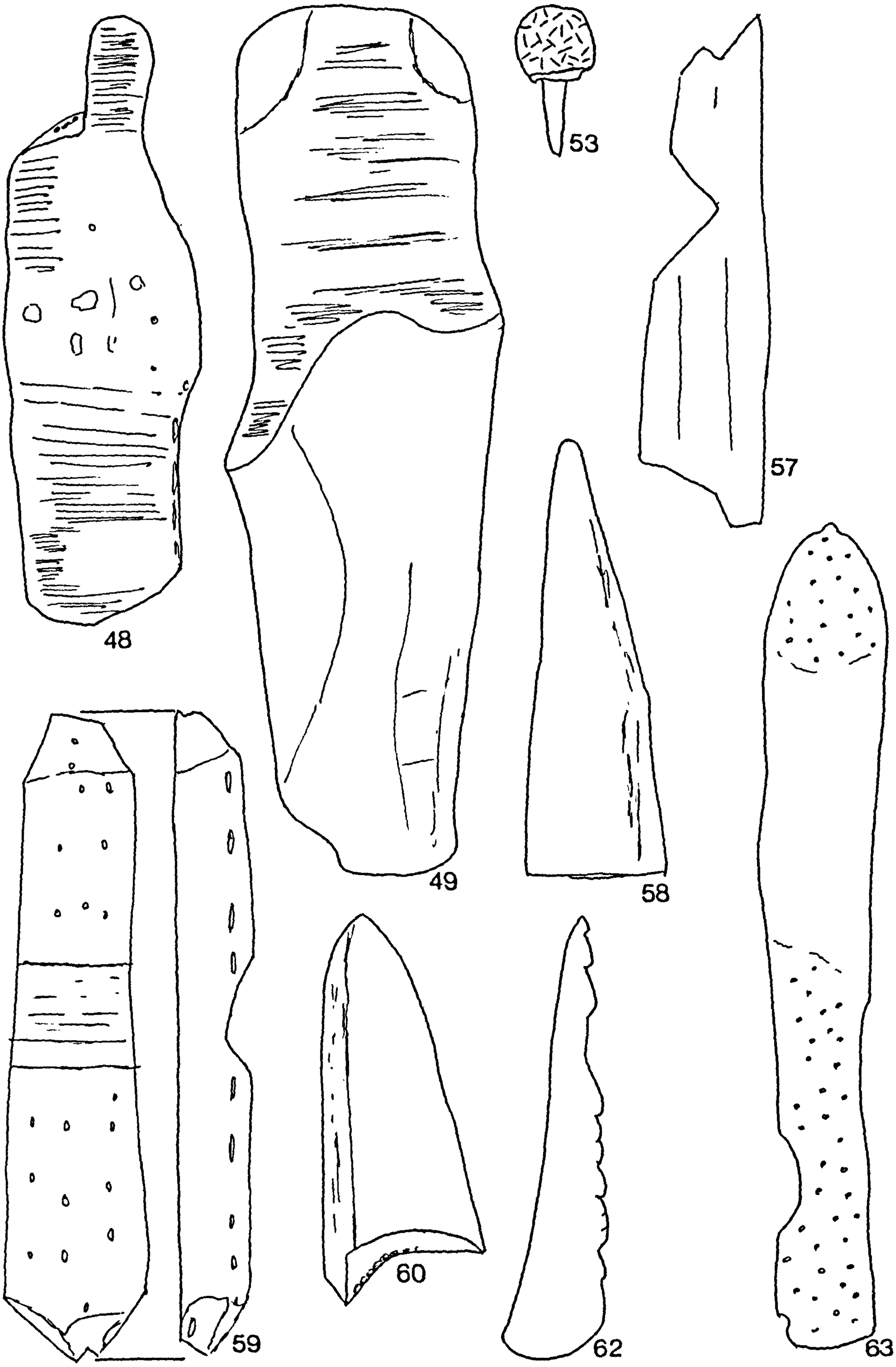


Fig 8.8 Sollas: turned objects SS 48-49; gaming piece/peg SS 53, cetacean bone ?blanks SS 57-59; ?polisher SS 60; toothed object SS 62; rib spatulate SS 63. Scale 1:1

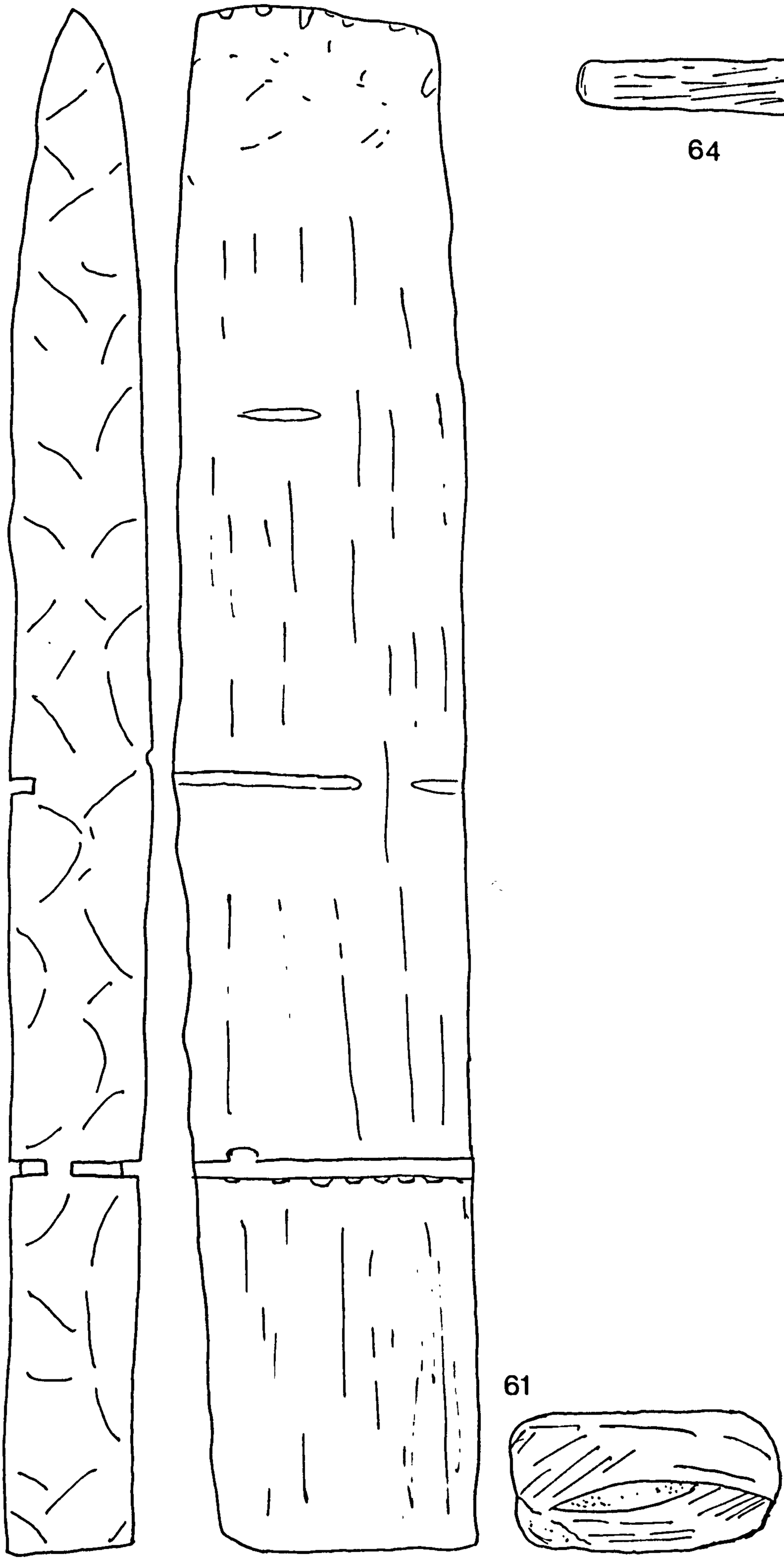


Fig 8.10 Sollas: ?stake SS 65. Scale 1:1

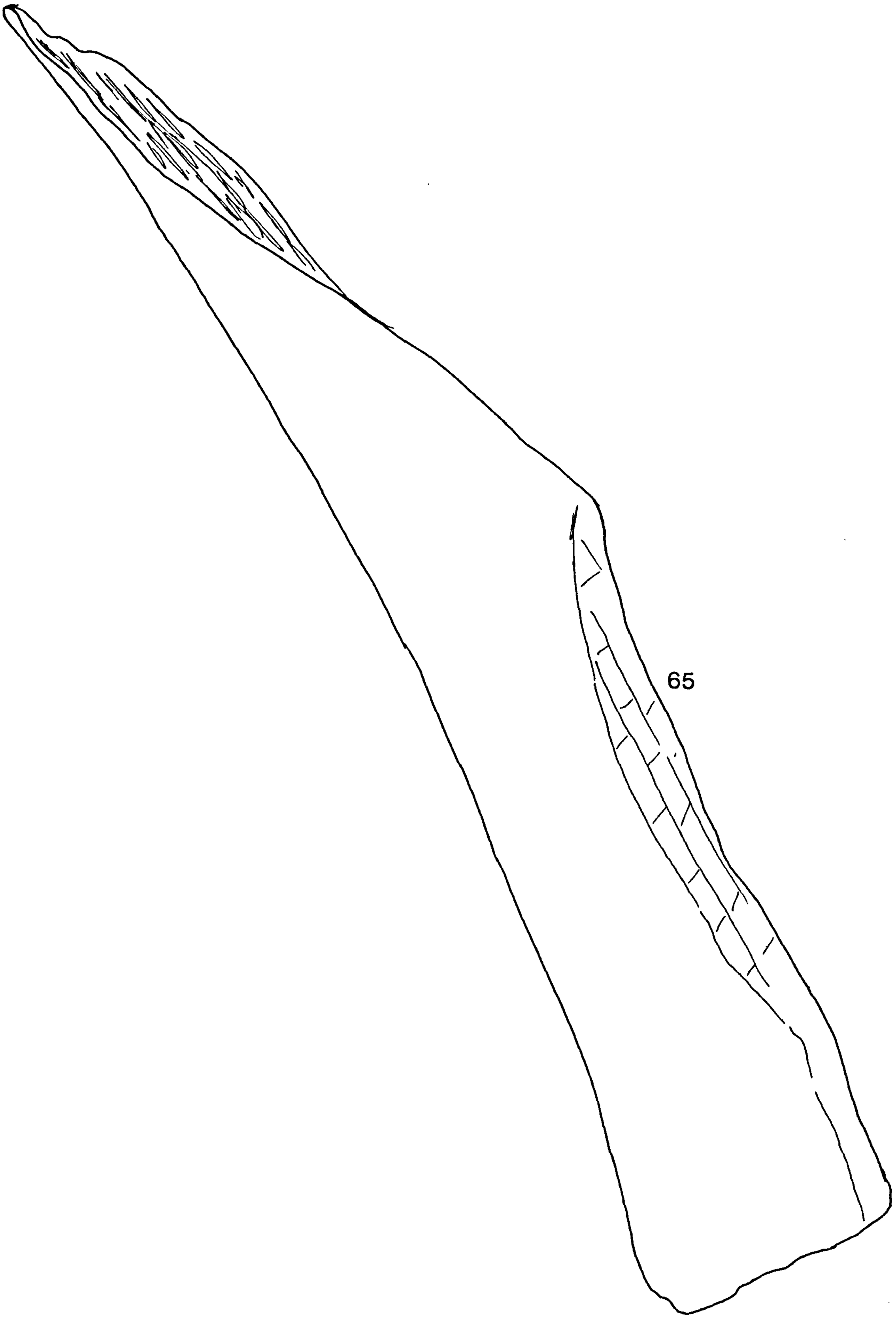
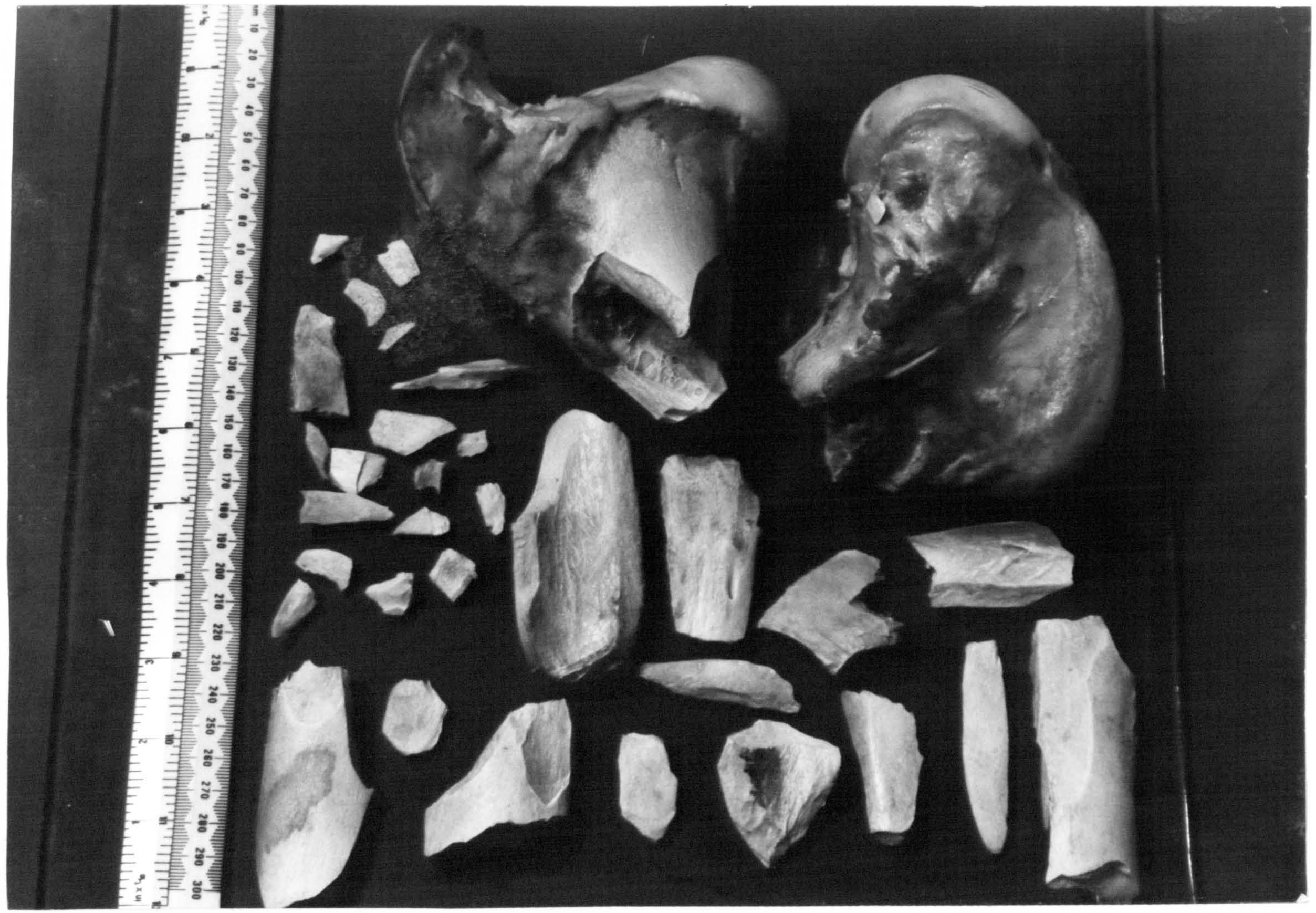
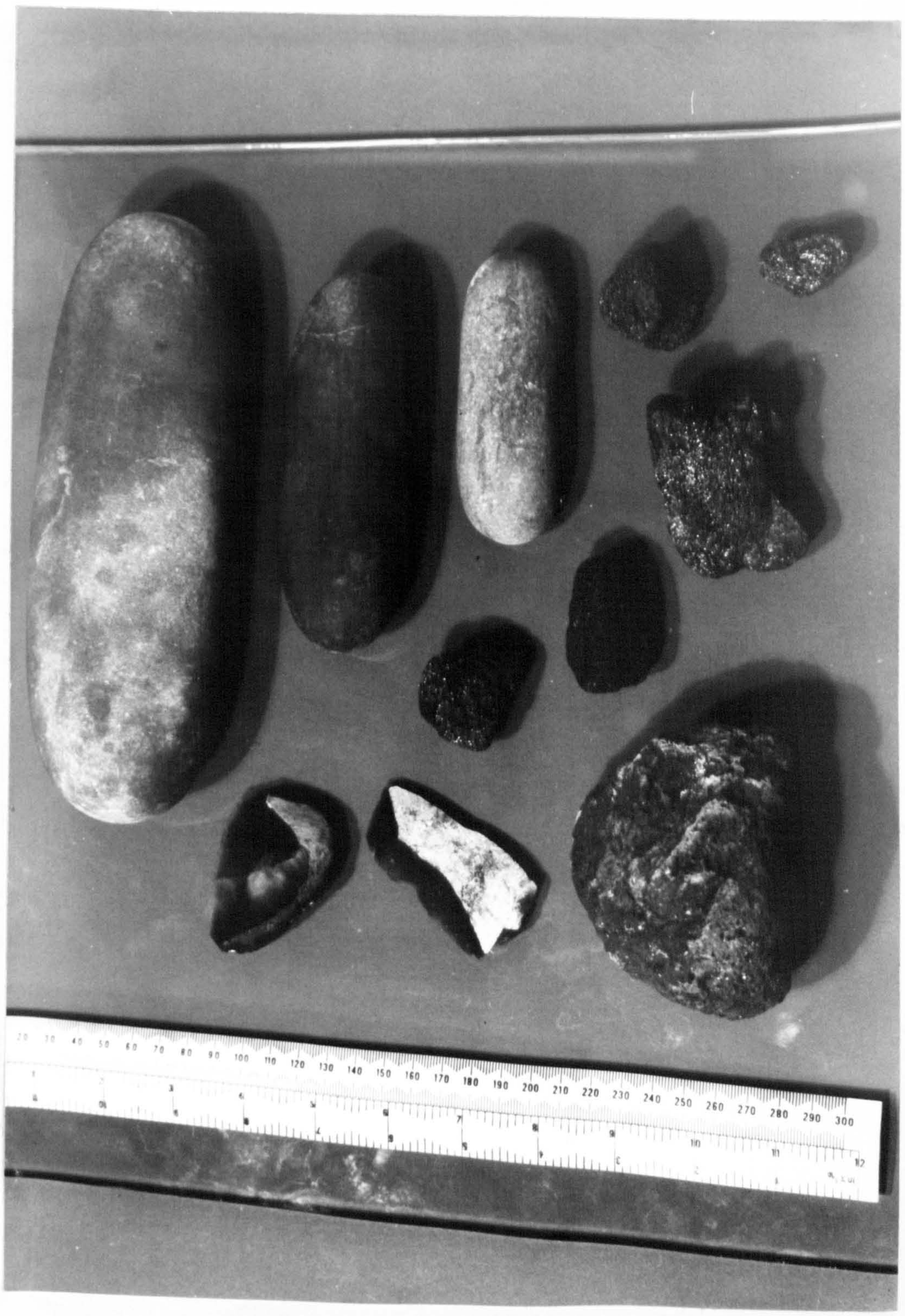


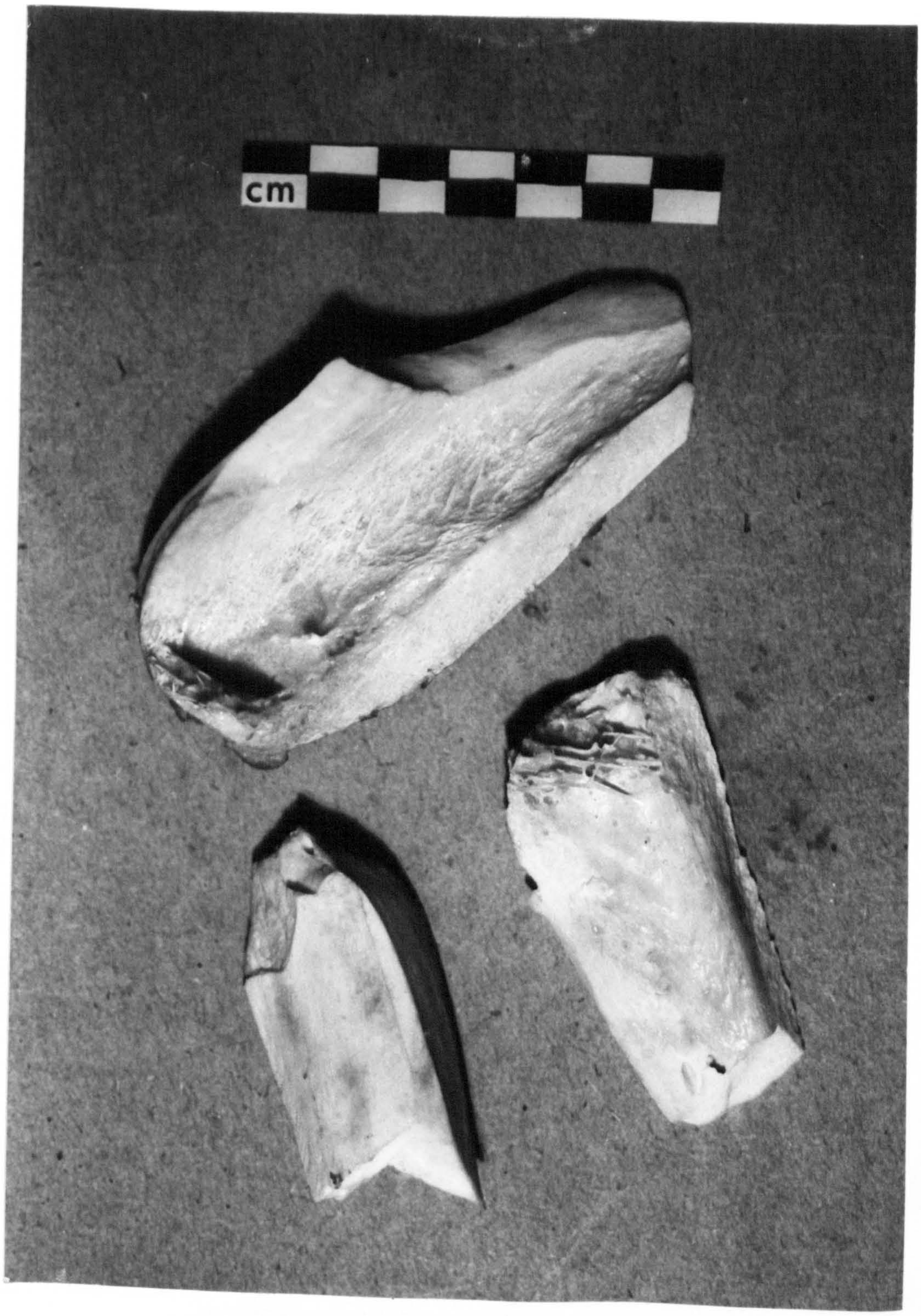
Fig 8.10 Sollas: ?stake SS 65. Scale 1:1



Pl 5.1 Cattle femur split by fracture



P1 5.2 Hammerstones, pumice and flint used in bone working



Pl 5.3 Fractured segments of cattle femur

Pl 5.4 Cattle femur segment with flake struck from it

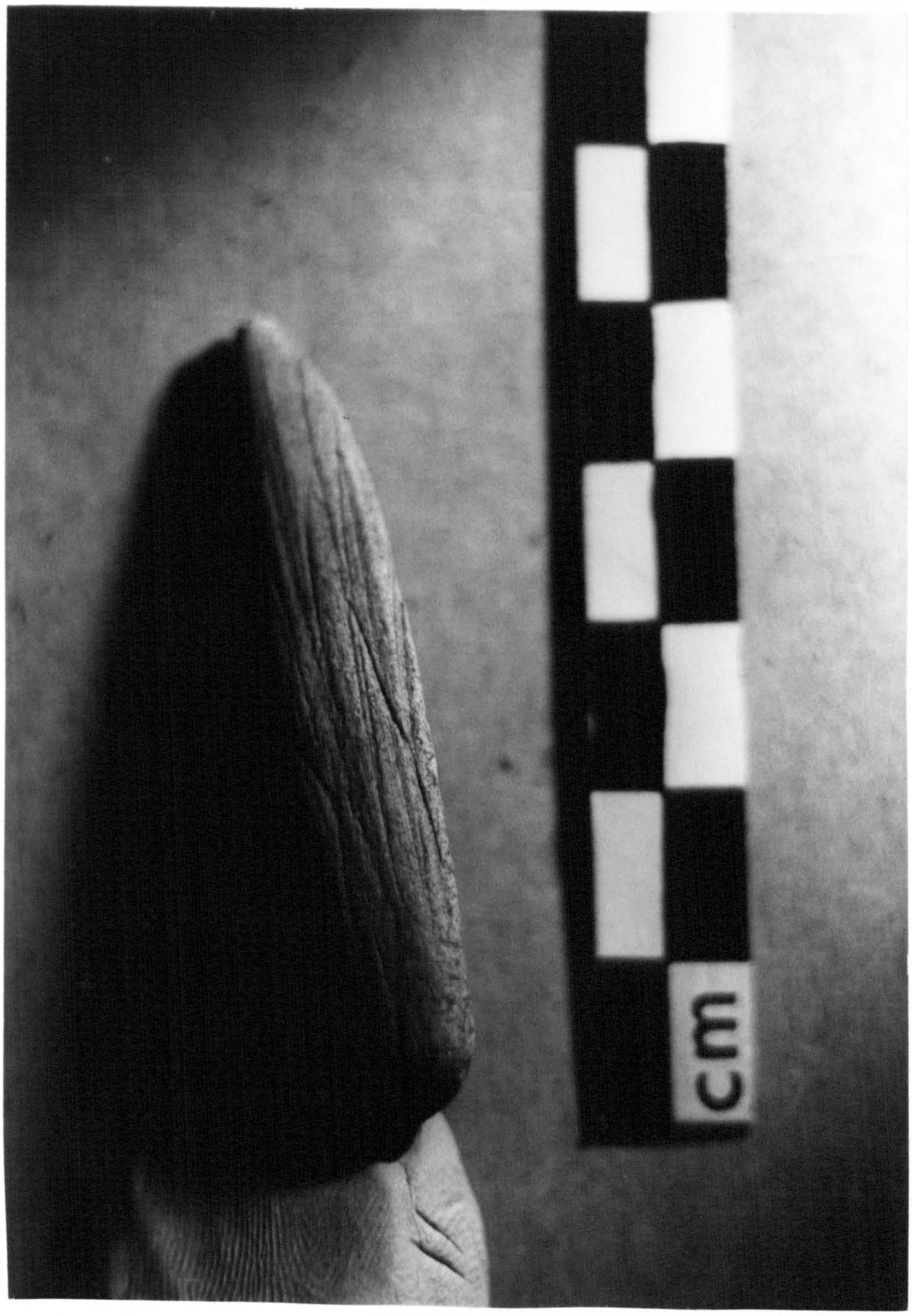
Pl 5.5 Risga: bevel-ended tool R 45, showing lithic trimming

Pl 5.6 Risga: bevel-ended tools R 87, 90, 63, double-ended

Pl 5.7 Risga: bevel-ended tool R 63, blunt tip

Pl 5.8 Risga: bevel-ended tool R 87, weathering crack edge

Pl 5.9 Risga: bevel-ended tools R 99, 98, 100, 101, lithic trimmed and pointed

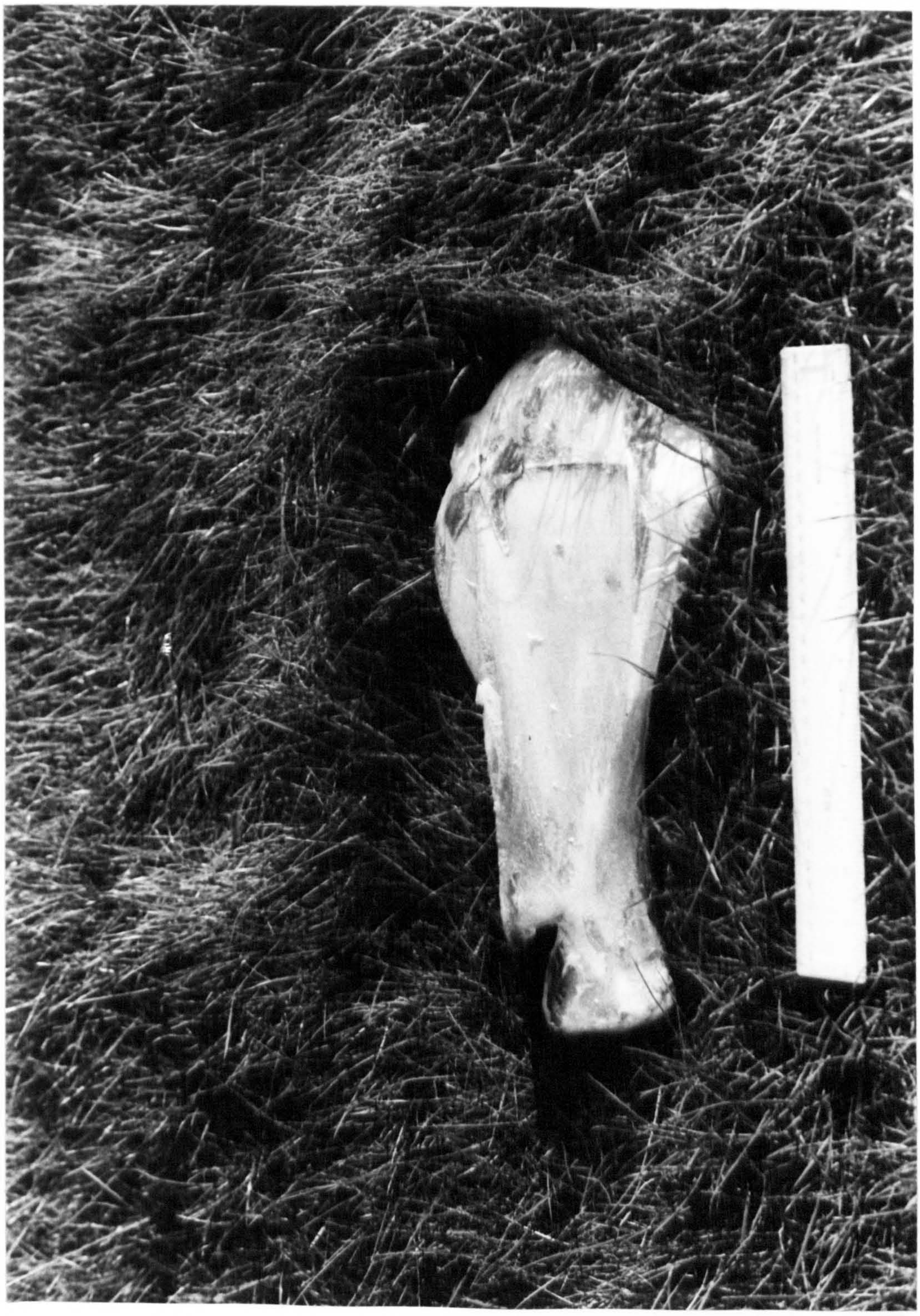


Pl 5.10 Risga: bevel-ended tool R 100, lithic trimmed

Pl 5.11 Risga: bevel-ended tools R 136, 107, 112, 129, 138, antler

Pl 5.12 Risga: bevel-ended tool R 193, made on a single flake

Pl 5.13 Risga: bevel-ended tools, R 199, flaked before bevelling, 467, 468, 562

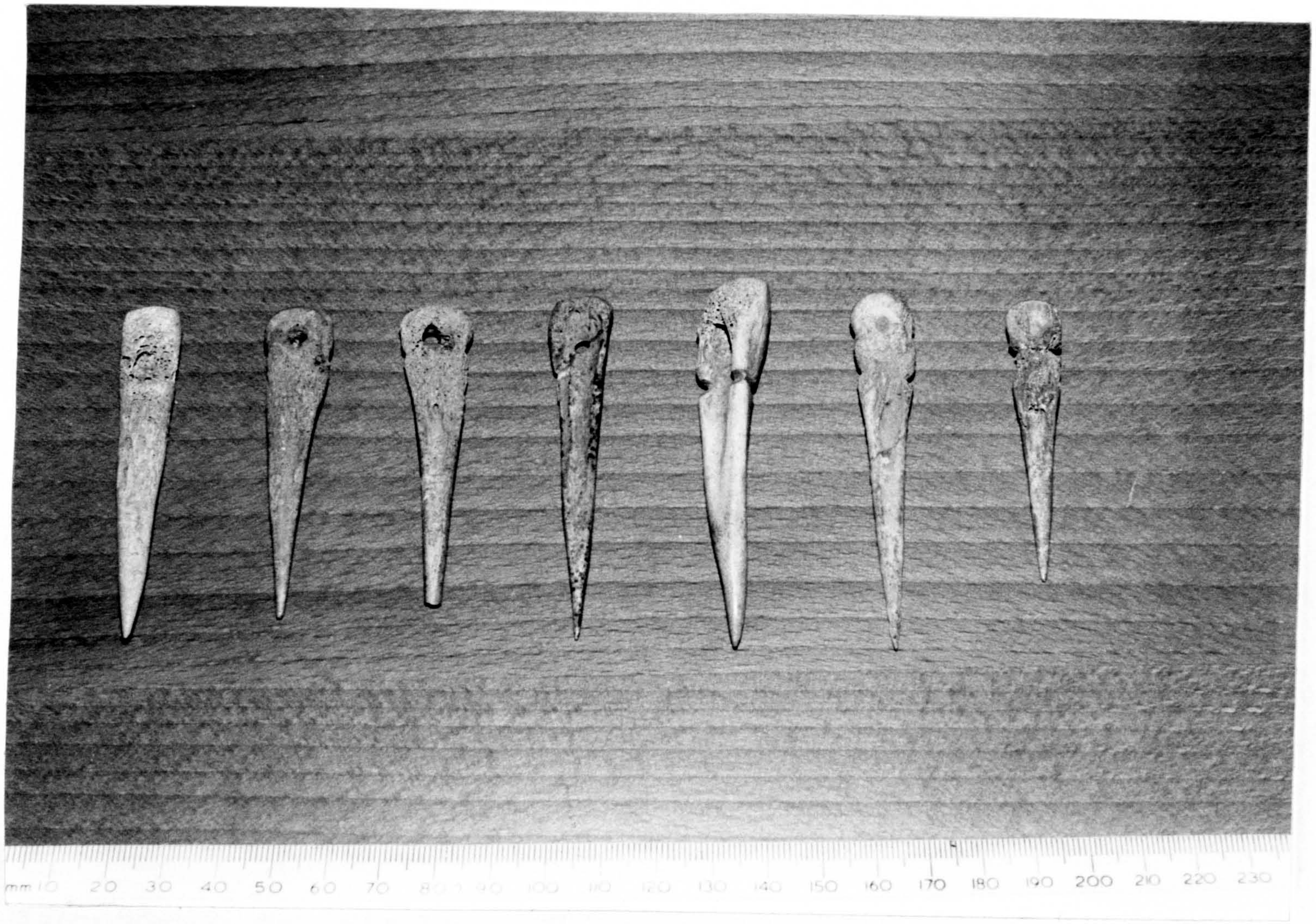


Pl 6.1 Fresh cattle scapula with a broad cartilaginous band

Plate 6.2 Fresh cattle hoof containing metatarsal

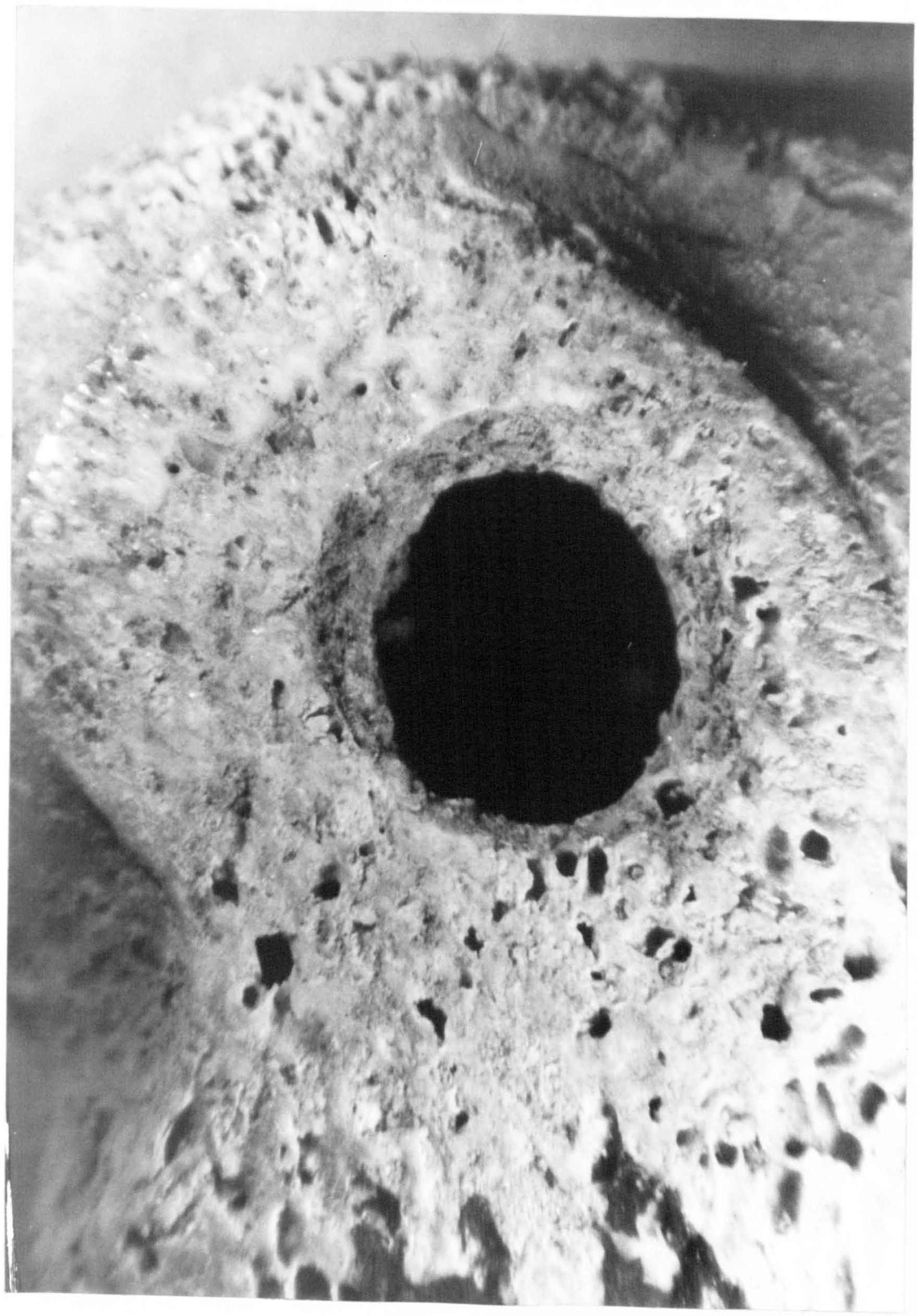
Pl 6.3 Fresh cattle hooves containing metatarsal and metacarpal

Pl 6.4 Fresh cattle mandible and teeth

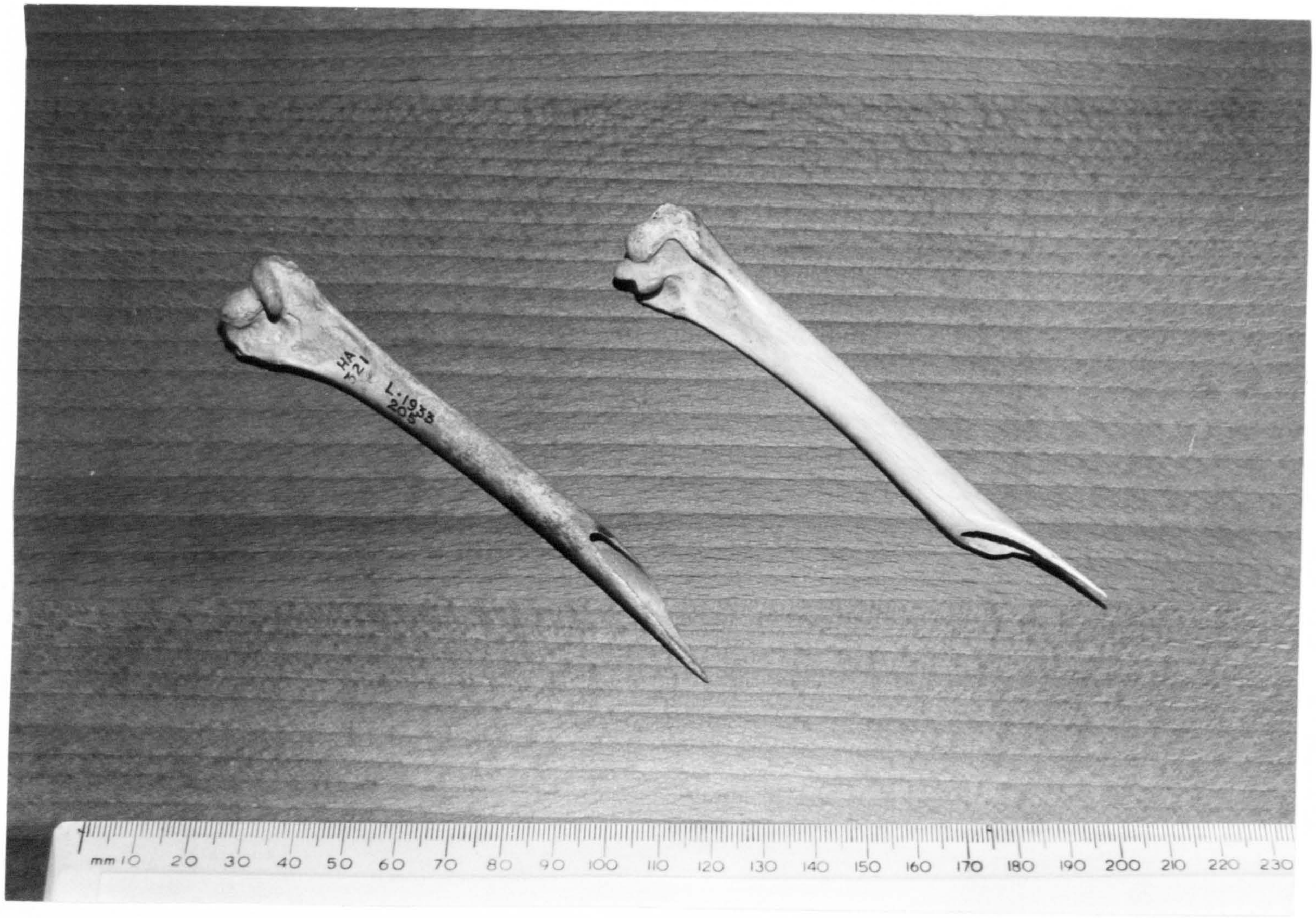


Pl 6.5 Skara Brae: point SB 361; perforated points SB 436-37, 434;
grooved points SB 440, 441, 438

Pl 6.6 Skara Brae: large points SB 428, 430, 429, 406; point/pin SB 539; large points 404, 432, 389

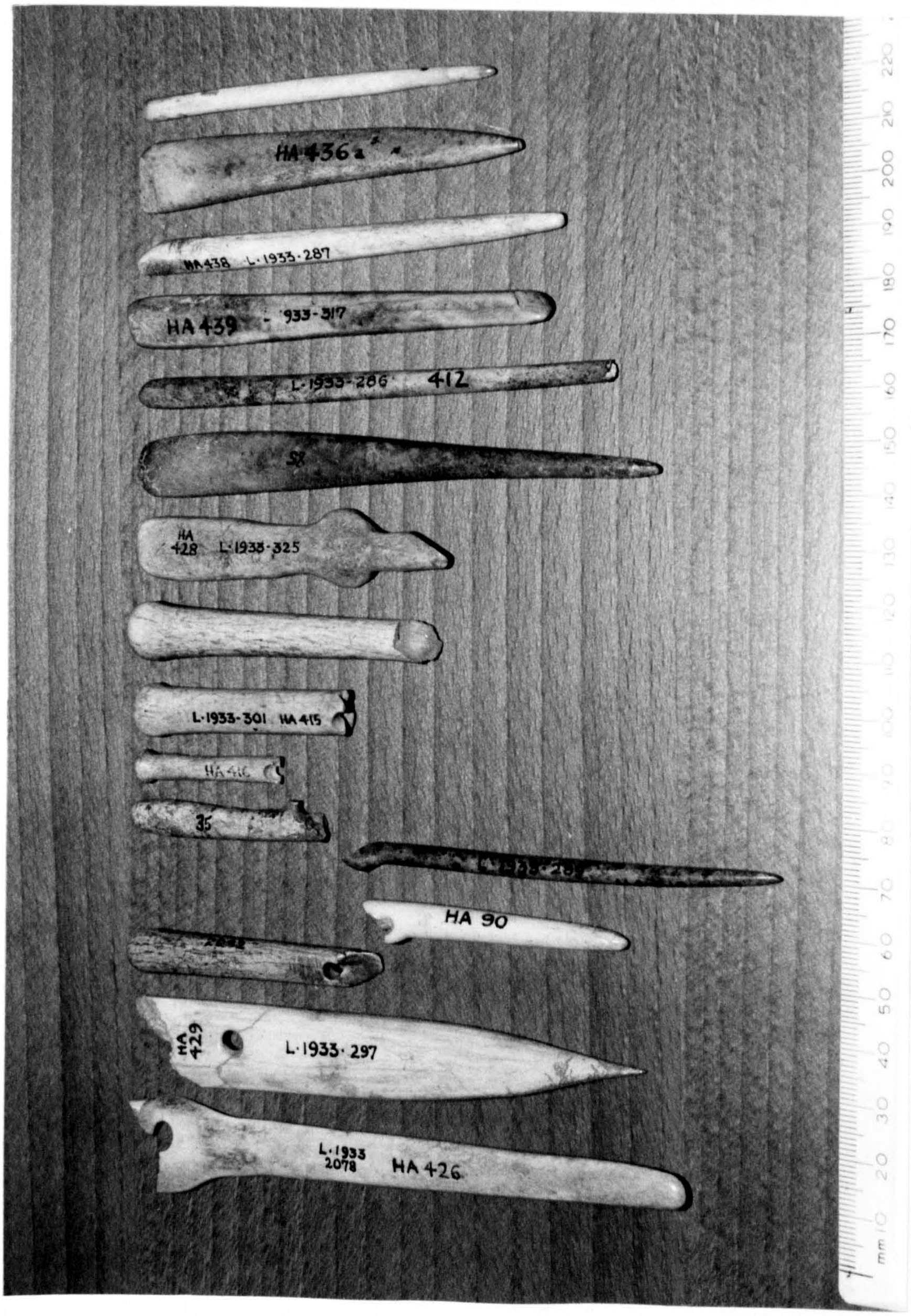


Pl 6.7 Skara Brae: perforated point SB 437, detail of perforation



Pl 6.8 Skara Brae: bird bone points SB 495, 486

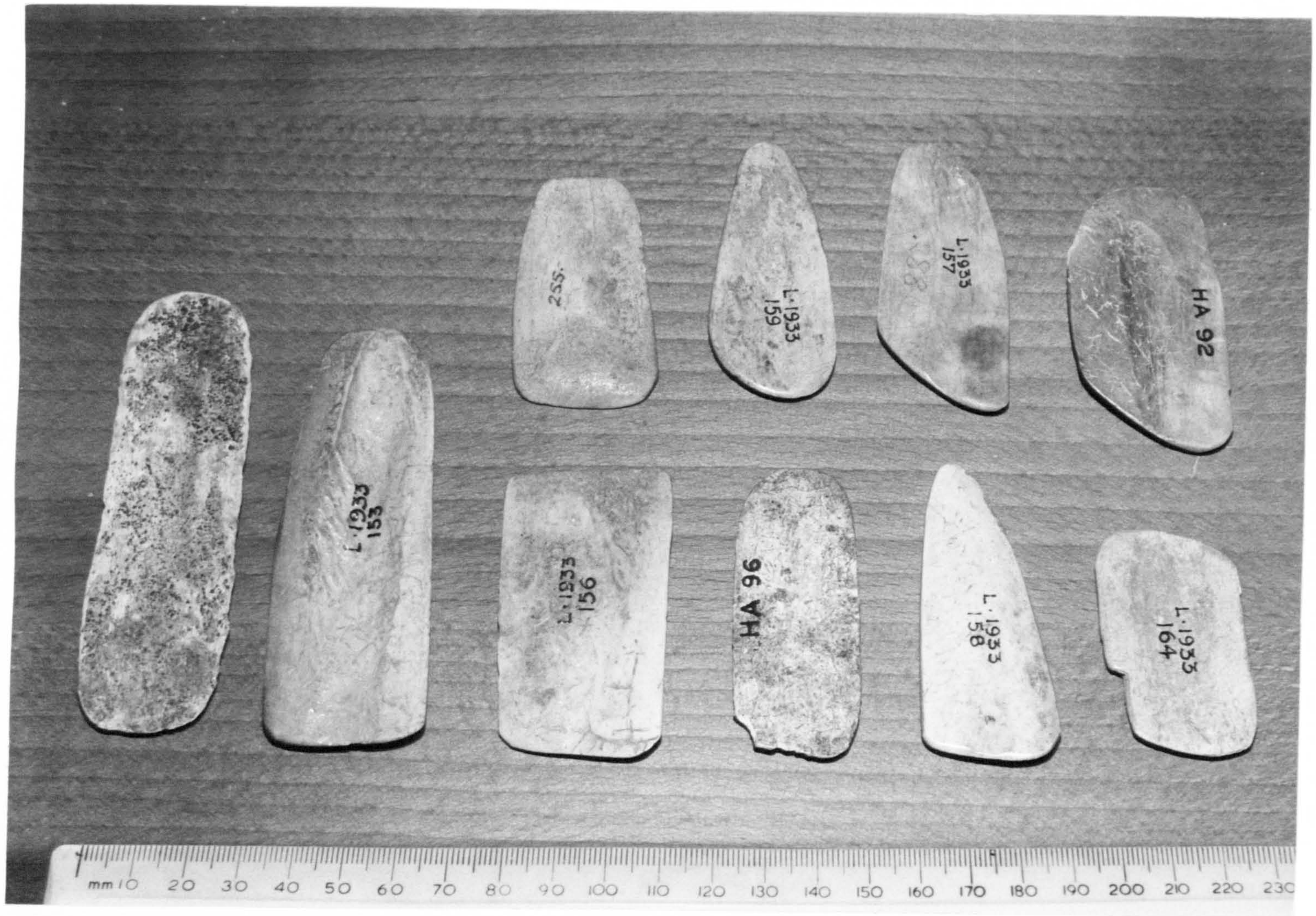
Pl 6.9 Skara Brae: point/pin SB 534, detail of grinding on shaft



Pl 6.10 Skara Brae: pins SB 574, 580, 570, 568, 596, 576, 595, 587, 594, 589, 579, 585, 603, 575, 602, 604

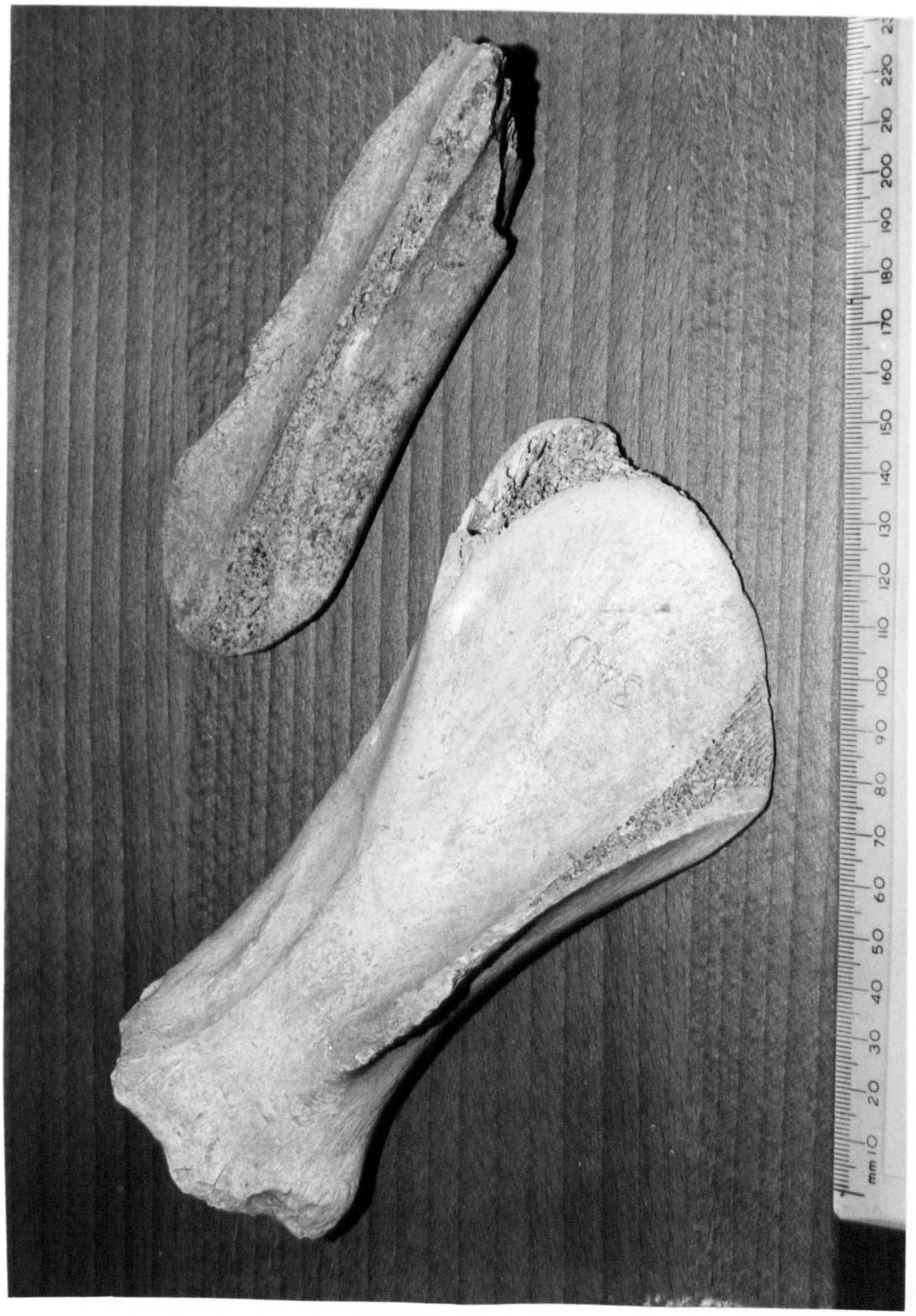
Pl 6.11 Skara Brae: pin SB 576, detail of perforation

Pl 6.12 Skara Brae: pin SB 587, detail of polished head

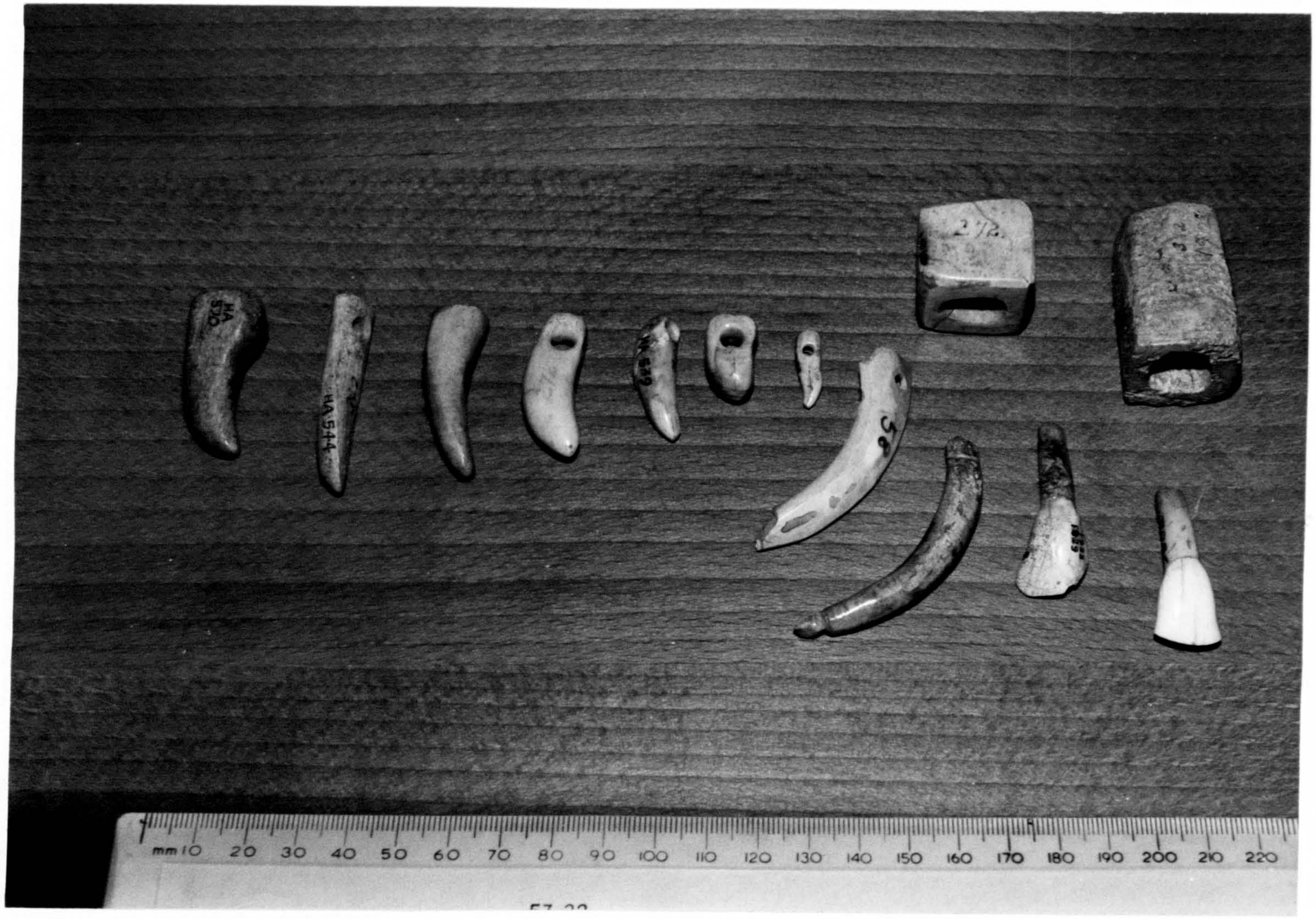


Pl 6.13 Skara Brae: slices SB 754, 728, 749, 726, 733, 740, 748, 727, 741, 723

Pl 6.14 Skara Brae: metapodial mattocks SB 795, 799

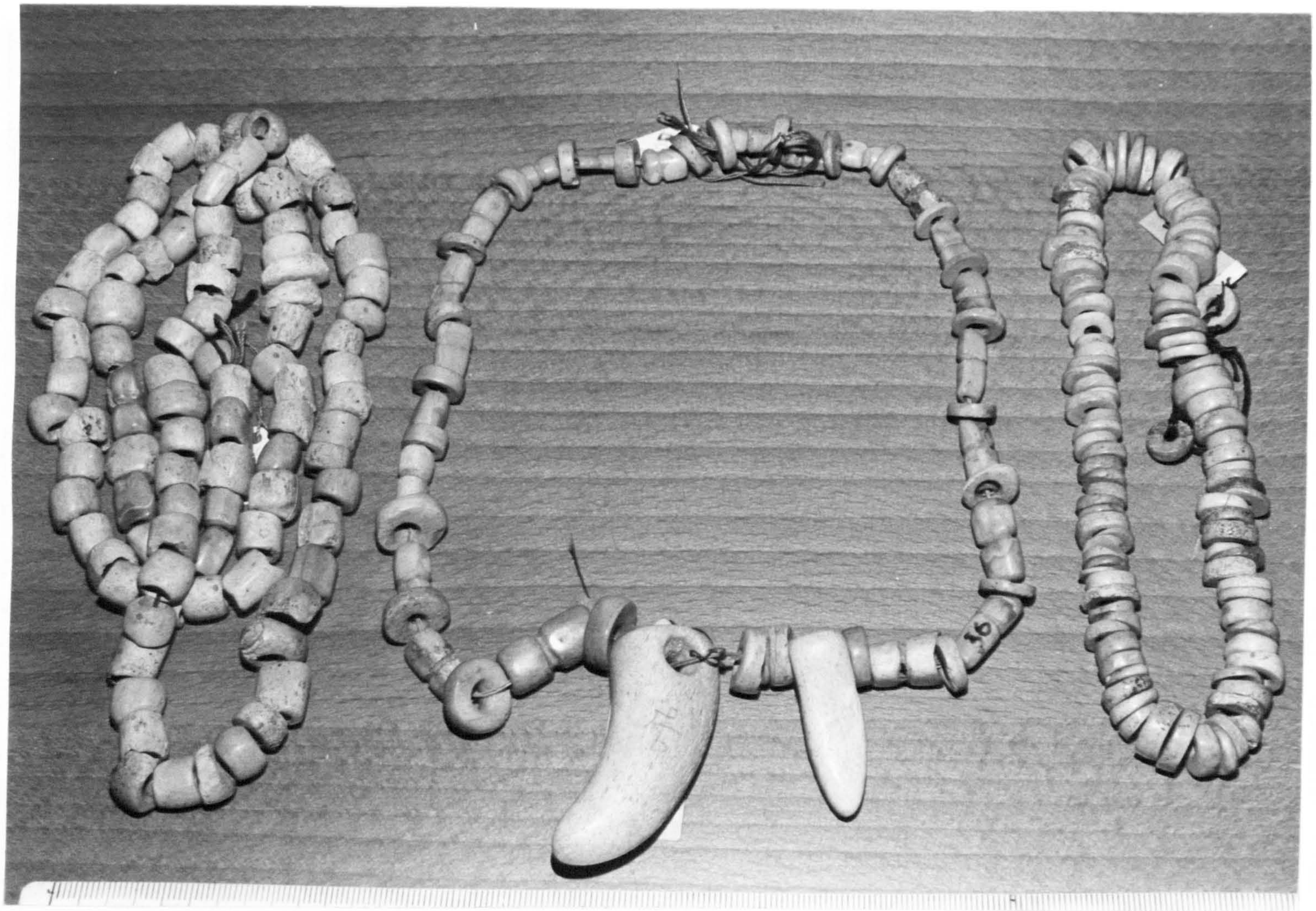


Pl 6.15 Skara Brae: scapula shovels SB 838, 851



Pl 6.16 Skara Brae: pendants SB 1098, 1112, 1127, 1109, 1119, 1141, 1140, 1100; beads in process of manufacture SB 1056, 1057; beads SB 930, 935; boar's tusk SB 1152

Pl 6.17 Skara Brae: bead SB 947, detail of notching



Pl 6.18 Skara Brae: beads SB 1020, 950, 1007; pendants SB 1135, 1136

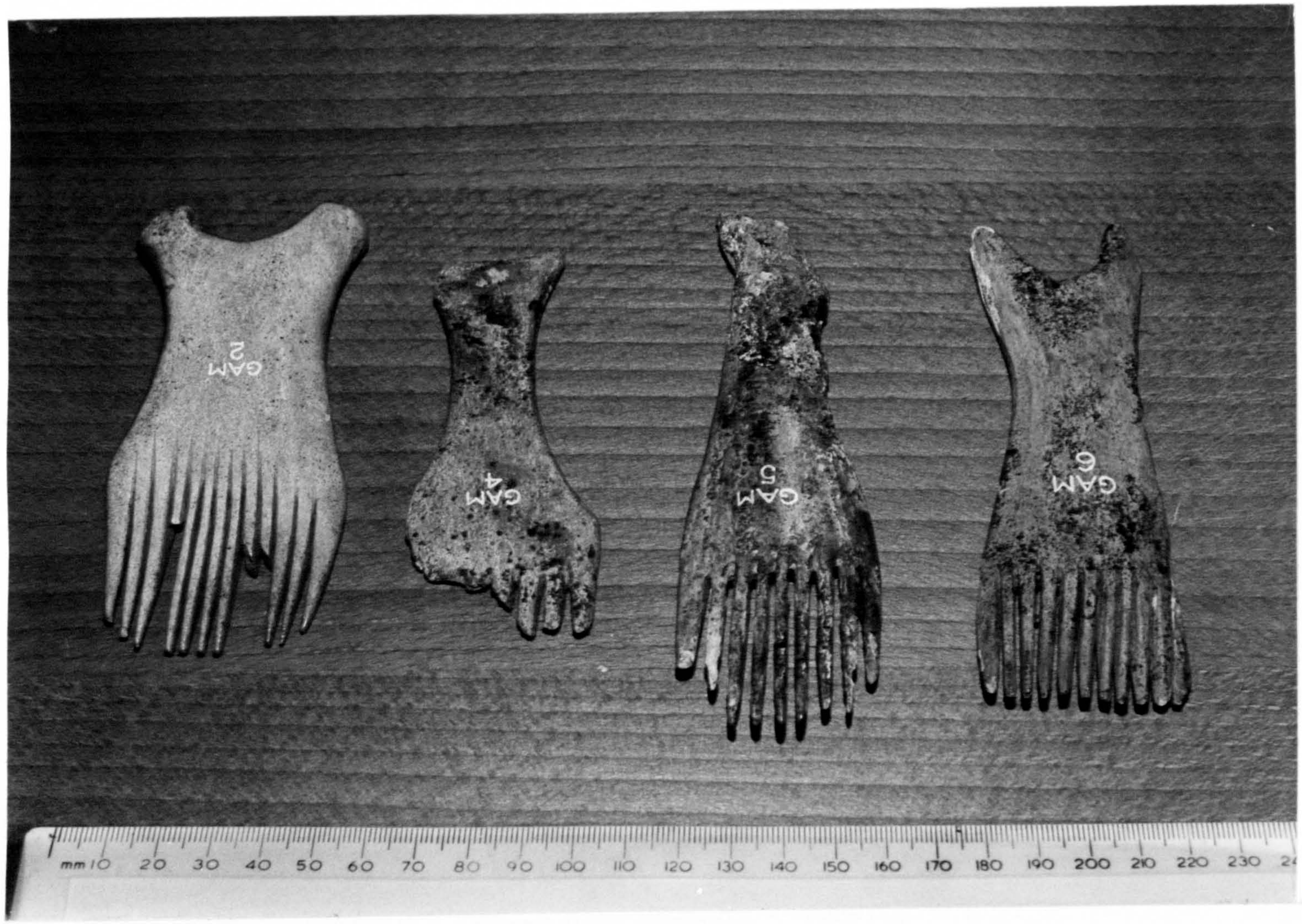
Pl 6.19 Skara Brae: beads SB 1042, 1021, 1039

Pl 7.1 Midhowe: pin M 9, detail of shaft

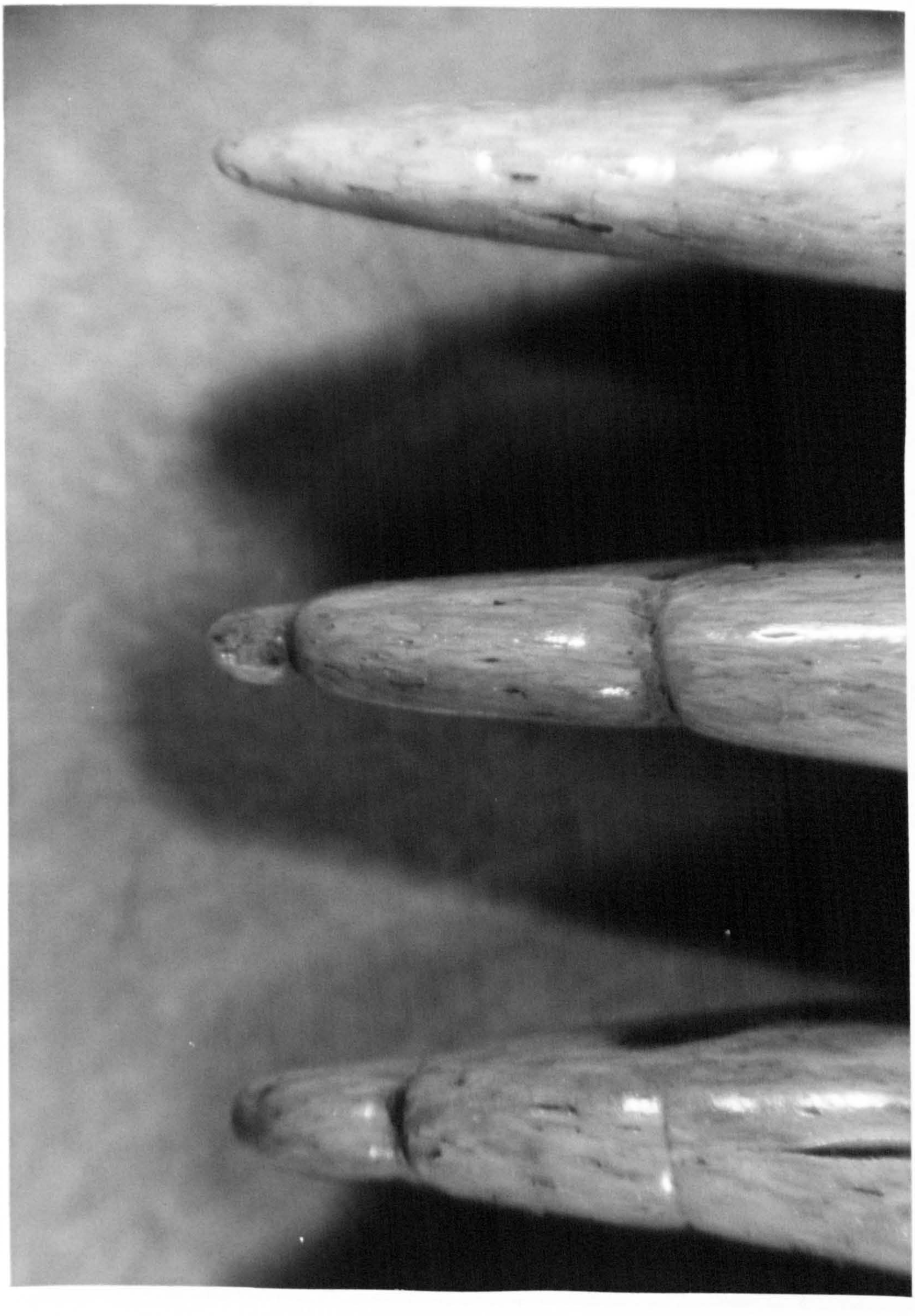
Pl 7.2 Midhowe: spatula M 18, detail of tip

Pl 7.3 Midhowe: handle M 32, detail of chatter marks

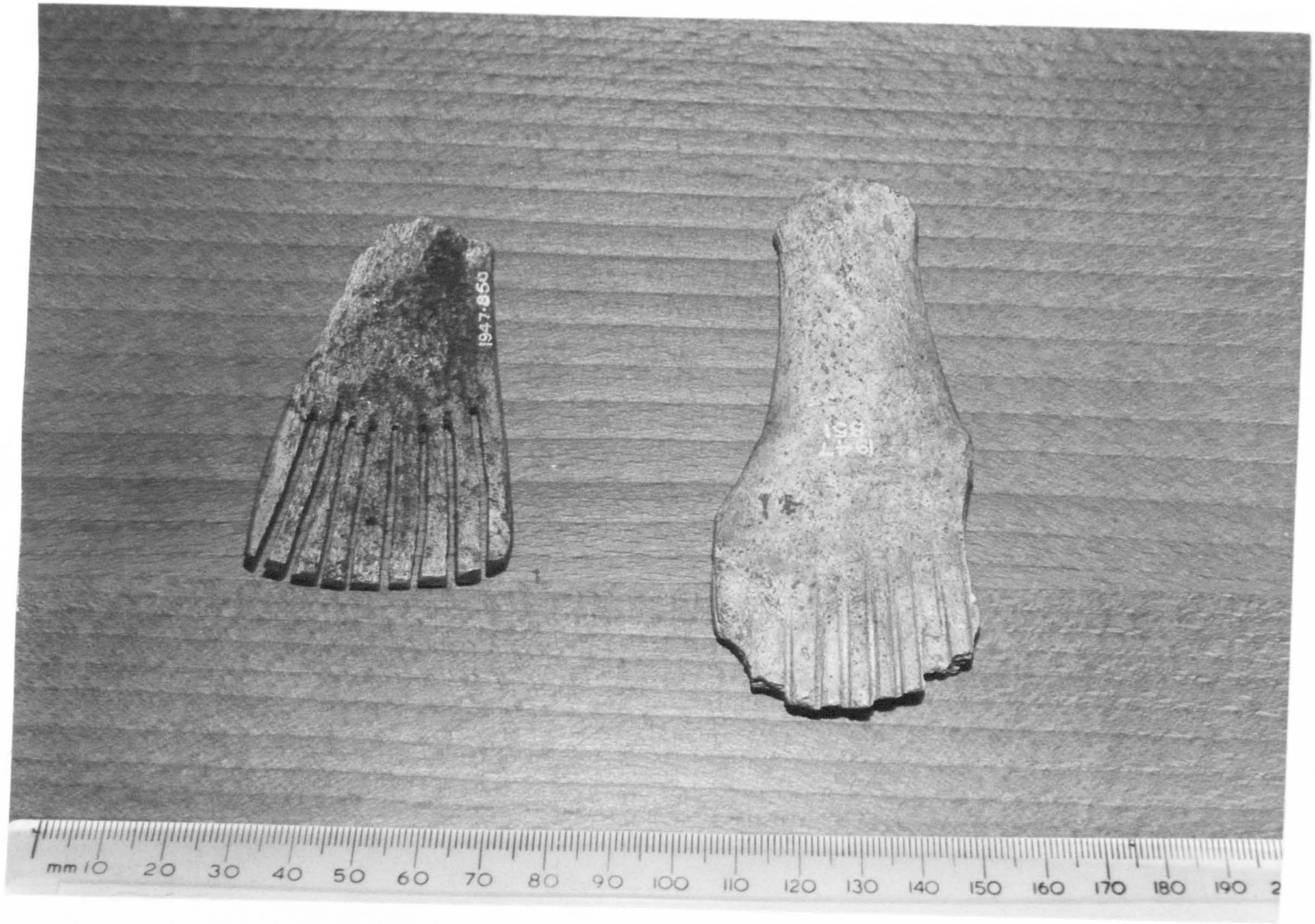
Pl 7.4 Midhowe: handle M 32, antler debris M 91; pegged plate, small M 28



Pl 7.5 Midhowe: long-handled combs, M 41, 43, 44, 45



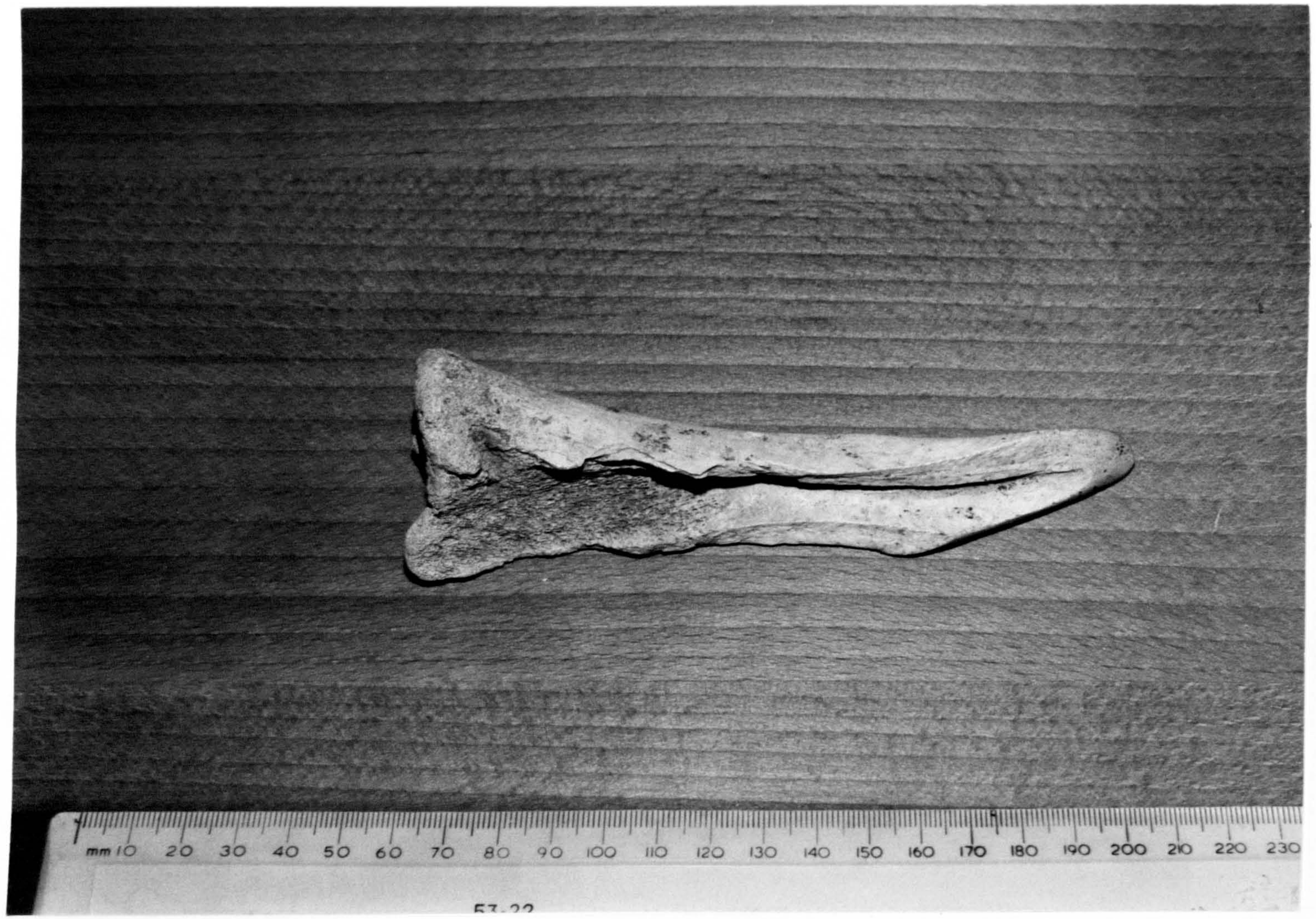
Pl 7.6 Midhowe: long-handled comb M 48, detail of teeth



Pl 7.7 Midhowe: long-handled combs in process of manufacture M 49-50

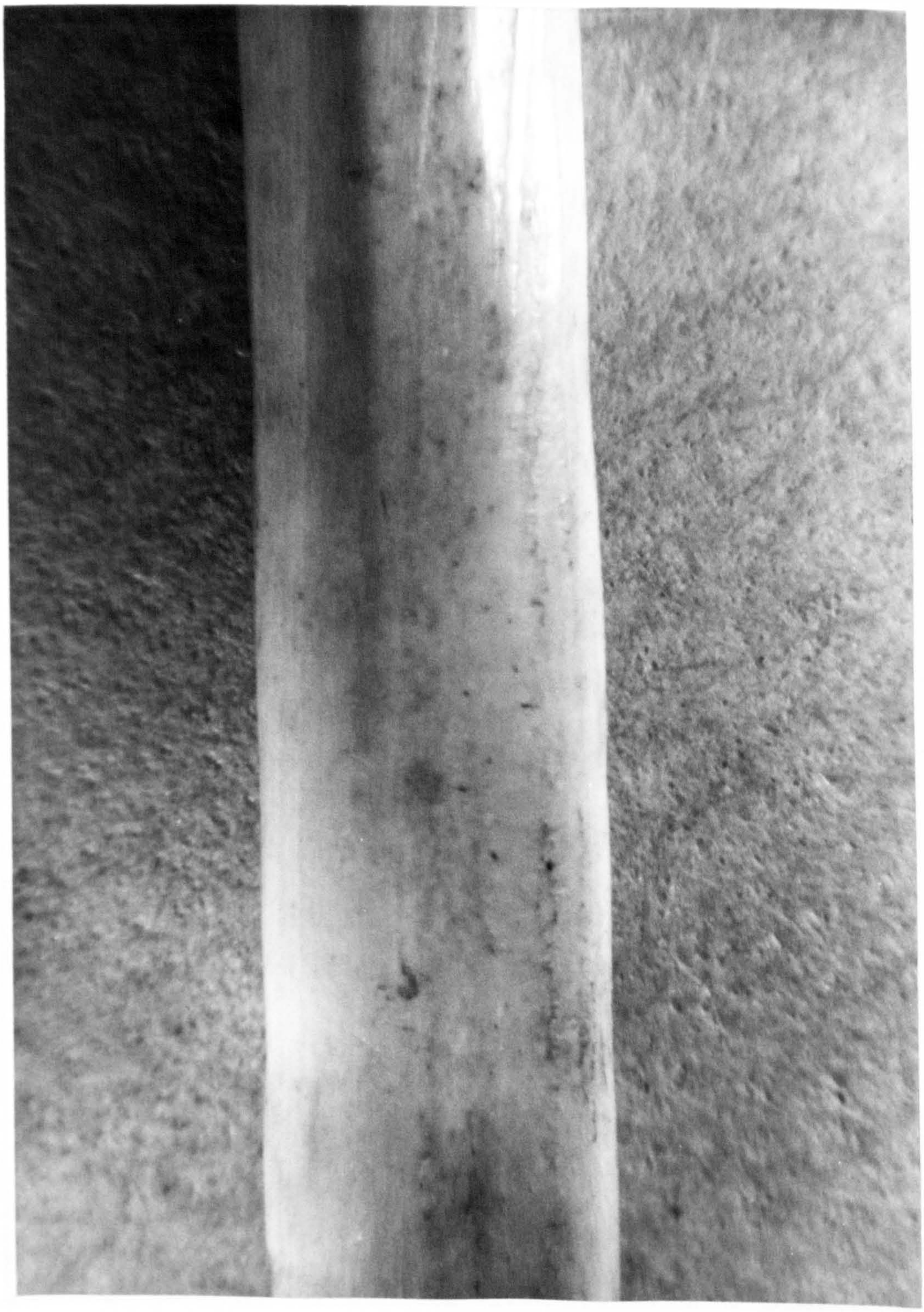
Pl 7.8 Midhowe: long-handled comb in process of manufacture M 49, detail of sawing between teeth

Pl 7.9 Midhowe: antler-working debris M 91, detail of chop mark on surface and long facets

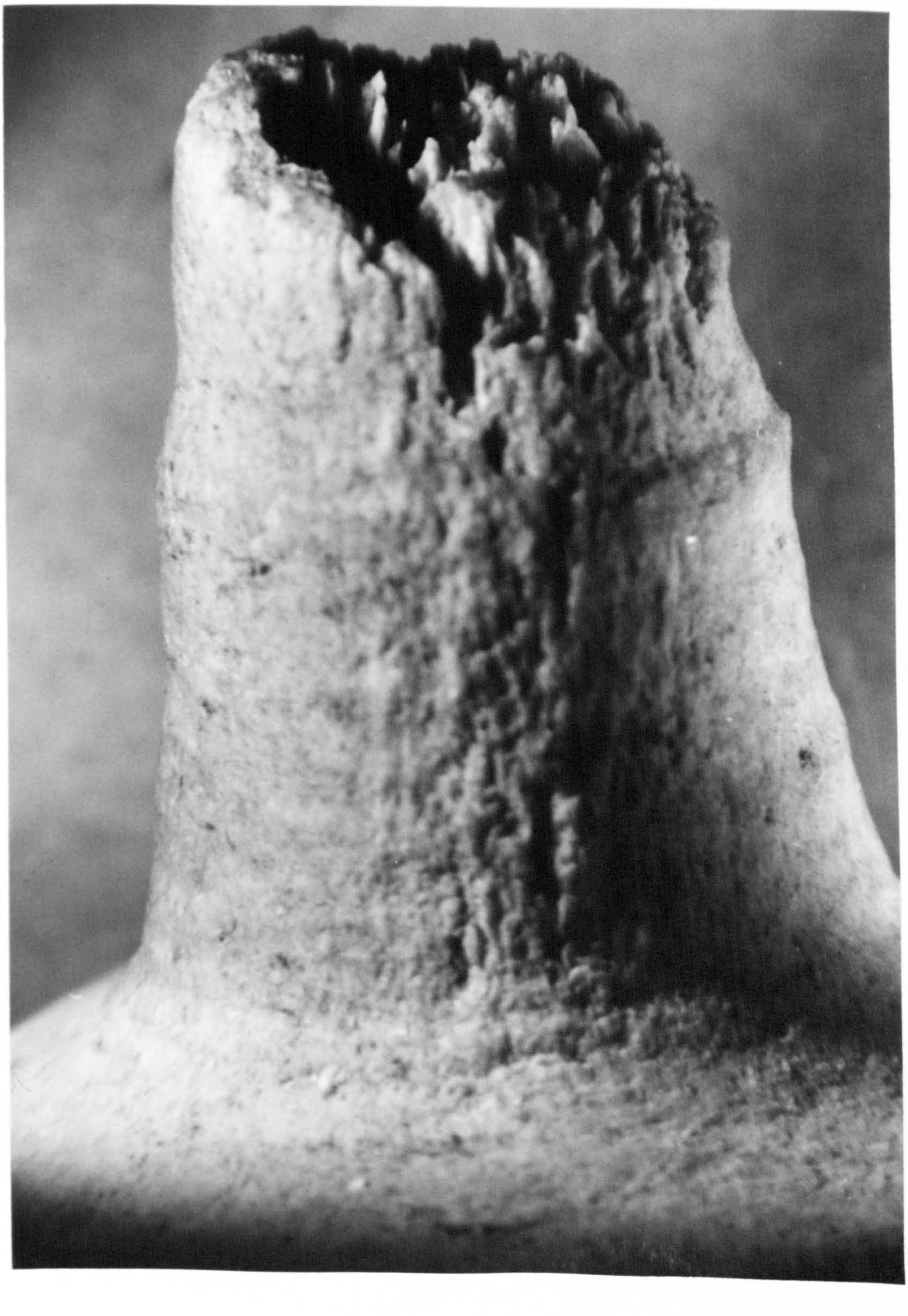


Pl 7.10 Midhowe: bone working debris, SB M 102, impact points

Pl 8.1 Sollas: point/pin SS 16, detail of shaft



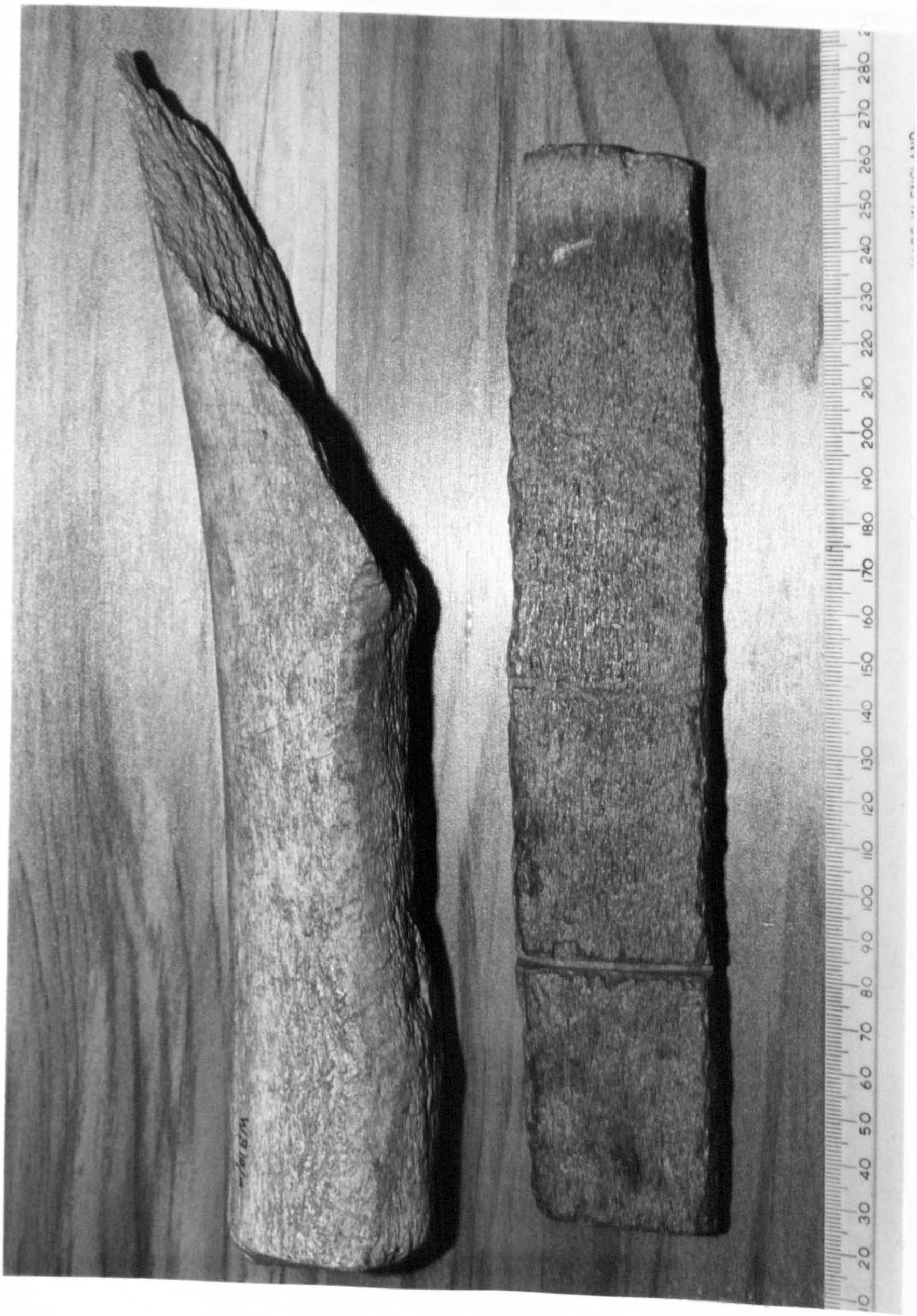
Pl 8.2 Sollas: spatula SS 27, detail of tip



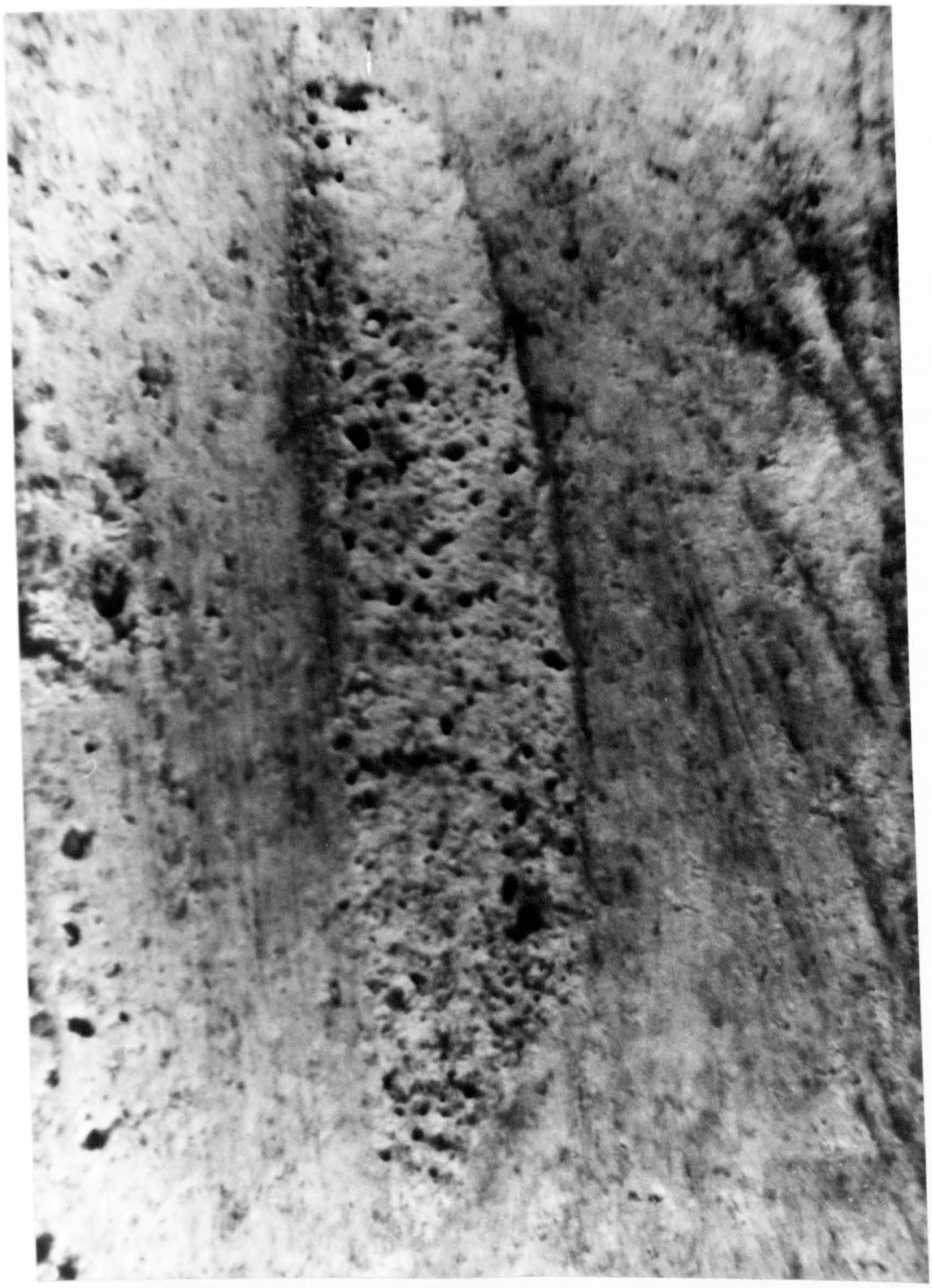
Pl 8.3 Sollas: turned object SS 42, detail of turned part

Pl 8.4 Sollas: turned object SS 49

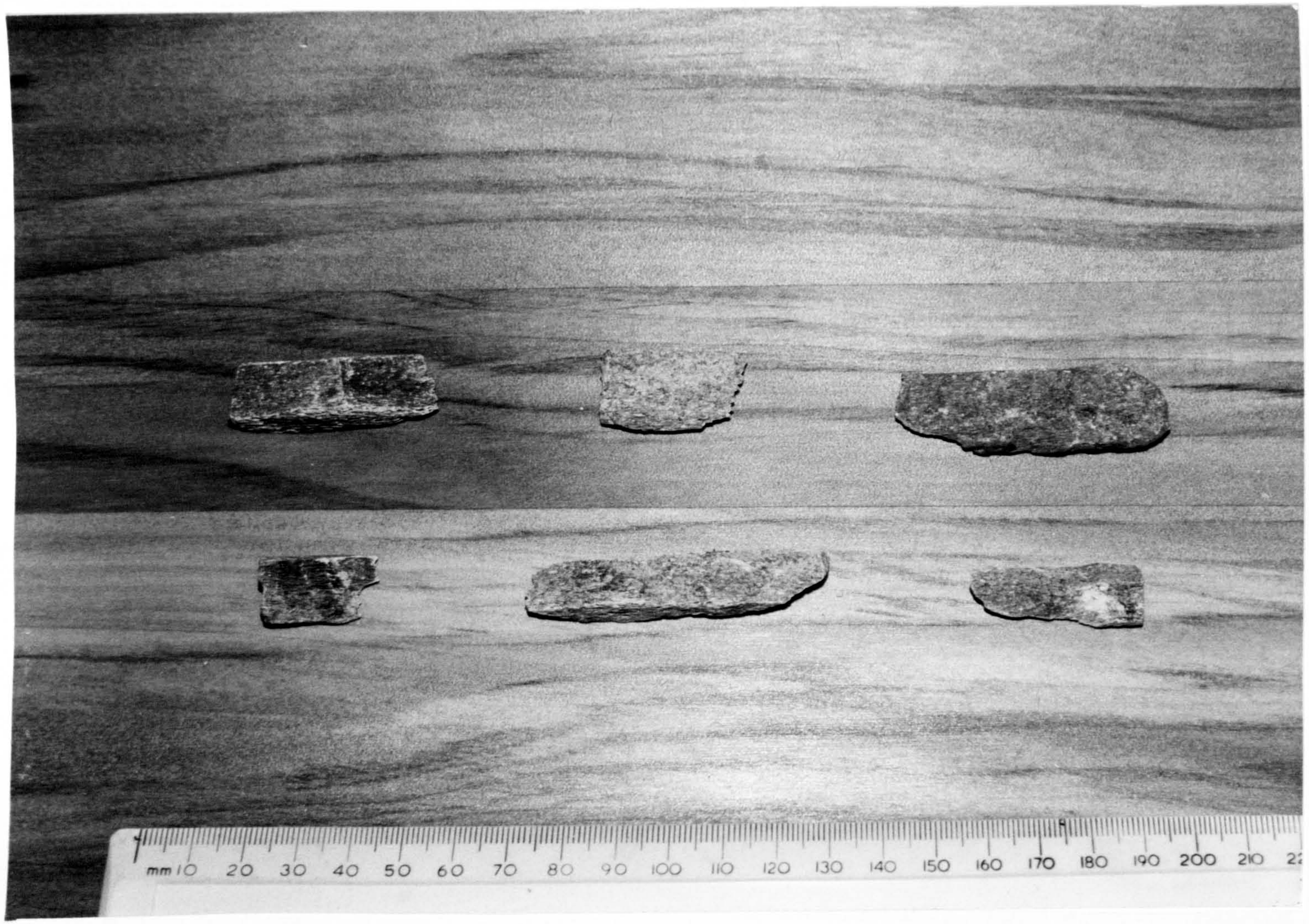
Pl 8.5 Sollas: cetacean bone ?blank SS 56; cetacean bone working debris SS 131, 130, 134



Pl 8.6 Sollas: ?stake SS 65; notched bone SS 61



Pl 8.7 Sollas: cetacean bone working debris SS 128, detail of sawn end with central part split off



Pl 8.8 Sollas: cetacean bone working debris: 'chips' SS 141, 143, 145, 142, 144, 140

Pl 8.9 Sollas: cetacean bone working debris SS 155

BIBLIOGRAPHY

Allain, J, Fritsch, R, Rigaud, A & Trotignon, F 1974 Le débitage du bois de renne dans les niveaux à raclettes du Badegoulien de l'Abri Fritsch et sa signification in ed Camps-Fabrer, 67-71.

Ambrosiani, K 1981 Viking age combs, comb making and comb makers, in the light of finds from Birka and Ribe. (= Stockholm Studies in Archaeology 2). Stockholm.

Anderson, J 1895 Notice of a cave recently discovered at Oban, containing human remains, and a refuse-heap of shells and bones of animals, and stone and bone implements, Proc Soc Antiq Scot, 29 (1894-95), 211-30.

Anderson, J 1898 Notes on the contents of a small cave or rock-shelter at Druimvargie, Oban; and of three shell-mounds in Oronsay, Proc Soc Antiq Scot, 32 (1897-98), 298-313.

Benham, P P & Crawford, R J 1987 Mechanics of engineering materials. Harlow.

Benton, S 1931 The excavation of the Sculptor's Cave, Covesea, Morayshire, Proc Soc Antiq Scot, 65 (1930-31), 177-216.

Beveridge, E 1911 North Uist: its archaeology and topography with notes upon the early history of the Outer Hebrides. Edinburgh.

Beveridge, E & Callander, J G 1931 Excavation of an earth-house at Foshigarry, and a fort, Dun Thomaidh, in North Uist, Proc Soc Antiq Scot, 65 (1930-31), 299-357.

Beveridge, E & Callander, J G 1932 Earth-houses at Garry Iochdrach and Bac Mhic Connain, in North Uist, Proc Soc Antiq Scot, 66 (1931-32), 33-66.

Binford, L R 1981 Bones: ancient men and modern myths. New York.

Binford, L R 1982 Meaning, inference and the material record, in eds Renfrew, C & Shennan, S Ranking, resource and exchange. Cambridge.

Bishop, A H 1914 An Oronsay shell-mound - a Scottish pre-Neolithic site, Proc Soc Antiq Scot, 48 (1913-14), 261-81.

Bonnichsen, R 1979 Pleistocene bone technology in the Beringian Refugium. (= Archaeol Survey Canada, Nat Mus Man, Mercury Ser Paper 89. Ottawa.

Bourne, G H ed 1956 The biochemistry and physiology of bone. New York.

Brain, C K 1980 Some criteria for the recognition of bone-collecting agencies in African caves in eds Behrensmeyer, A K & Hill, A P Fossils in the Making: Vertebrate taphonomy and paleoecology. Chicago.

Breuil, H 1922 Observations on the pre-neolithic industries of Scotland, Proc Soc Antiq Scot, 56 (1921-22), 261-81.

Britnell, W J 1977 The worked bone, tooth and antler from South Cadbury Castle, Somerset and its affinities in South-Western England. Unpublished MA thesis. Department of Archaeology, University College, Cardiff.

Brown, C H 1975 Structural materials in animals. London.

Callander, J G & Grant, W G 1934 The broch of Midhowe, Rousay, Orkney, Proc Soc Antiq Scot, 68 (1933-34), 444-516.

Campana, D V 1982 The manufacture of Natufian and protoneolithic bone tools as revealed by surface-markings. Paper given at the ICAZ Fourth International Conference. London.

Camps-Fabrer, H ed 1974 Premier colloque international sur l'industrie de l'os dans la Préhistoire. Paris.

Camps-Fabrer, H ed 1976 Méthodologie appliquée à l'industrie de l'os préhistorique. Paris.

Camps-Fabrer, H ed 1979 L'industrie en os et bois de cervidé durant le néolithique et l'âge des métaux. Paris.

Camps-Fabrer, H ed 1982 L'industrie en os et bois de cervidé durant le néolithique et l'âge des métaux II. Paris.

Carlström, D & Engström, A 1956 Ultrastructure and distribution of mineral salts in bone tissue in ed Bourne, G H 1956, 168-72.

Chaplin, R nd The antler from Skara Brae. Unpublished report on file in the NMS.

Chapman, D I 1975 Antlers - bones of contention, Mammal Rev, 5 (1975), 121-72.

Childe, V G 1930a Operations at Skara Brae during 1929, Proc Soc Antiq Scot, 64 (1929-30), 158-91.

Childe, V G 1930b The early colonisation of North-eastern Scotland, Proc Royal Soc Edinburgh, 50 (1929-30), 56-78.

Childe, V G 1931a Final report on the operations at Skara Brae, Proc Soc Antiq Scot, 65 (1930-31), 27-77.

Childe, V G 1931b Skara Brae: a Pictish village in Orkney. London.

Childe, V G & Clarke, D V 1983 Skara Brae. Edinburgh.

Childe, V G & Grant, W G 1939 A stone-age settlement at the Braes of Rinyo, Rousay, Orkney (First report), Proc Soc Antiq Scot, 73 (1938-39), 6-31.

Childe, V G & Grant, W G 1947 A stone-age settlement at the Braes of Rinyo, Rousay, Orkney (Second report), Proc Soc Antiq Scot, 81 (1946-47), 16-42.

Childe, V G & Paterson, J W 1929 Provisional report on the excavations at Skara Brae, and on finds from the 1927 and 1928 campaigns, Proc Soc Antiq Scot, 63 (1928-29), 225-80.

Clark, J G D 1954 Excavations at Star Carr. Cambridge.

Clark, J G D 1956 Notes on the Obanian with special reference to antler- and bone-work, Proc Soc Antiq Scot, 89 (1955-56), 91-106.

Clark, J G D 1969 World prehistory: a new outline. 2nd ed. Cambridge.

Clarke, D V 1976a The neolithic village at Skara Brae, Orkney: 1972-73 excavations: an interim report. Edinburgh.

Clarke, D V 1976b Excavations at Skara Brae: a summary account, in eds Burgess, C & Miket, R Settlement and economy in the third and second millennia BC (= British Archaeol Rep 33), 233-50. Oxford.

Clarke, D V 1977 Skara Brae, Discovery and Excavation in Scotland 1977, 24.

Clarke, D V 1980 Excavations at Links of Noltland, Westray, Orkney: 1978-70. A summary account. Privately circulated.

Clarke, D V 1981 Links of Noltland, Discovery and Excavation in Scotland 1981, 25-26.

Clarke, D V & Sharples, N 1985 Settlements and subsistence in the third millennium BC, in ed Renfrew, C The Prehistory of Orkney, 54-82, Edinburgh.

Clarke, D V, Cowie, T G & Foxon, A 1985 Symbols of power at the time of Stonehenge. Edinburgh.

Clarke, D V, Hope, R & Wickham-Jones 1978 The Links of Noltland, Current Archaeol, 6 (1978), 44-46.

Clutton-Brock, J 1979 Report on the mammalian remains other than rodents from Quanterness, in Renfrew, C Investigations in Orkney, 112-34, London.

Coles, J M 1963 New aspects of the mesolithic settlement of South-West Scotland, Trans Dumfriesshire & Galloway Nat Hist Soc, 41 (1962-63), 67-98.

Coles, J M 1971 The early settlement of Scotland: Excavations at Morton, Fife, Proc Prehist Soc, 37 (1971), 284-366.

Coles, J 1979 Experimental archaeology. London.

Crawford, I A 1967-70, 1980, 1981-83 Excavation and research at Coilaegan an Udail, North Uist. Interim reports.

Currey, J D 1970 Animal skeletons. London.

Currey, J D 1980 Mechanical properties of bone tissues with greatly differing functions, J Biomechanics, 12 (1980), 311-19.

Curwen, E & Curwen, E C 1926 The efficiency of the scapula as a shovel, Sussex Archaeol Colls, 67 (1926), 139-45.

Davis, S J M 1987 The archaeology of animals. London.

Department of Agriculture and Fisheries for Scotland 1974 Farming the red deer. Edinburgh.

Eastoe, J E 1956 The organic matrix of bone, in Bourne, G H, 81-105.

Edwards, A J H 1924 Report on the excavation of an earth-house at Galson, Borve, Lewis, Proc Soc Antiq Scot, 58 (1923-24), 185-203.

Ellenberger, W, Baum, H & Diitrich, H 1956 An atlas of animal anatomy for artists. 2nd ed revised by Brown, L S. New York.

Fairhurst, H 1971 The wheelhouse site A Cheardach Bheag on Drimore Machair, South Uist, Glasgow Archaeol J, 2 (1971), 72-106.

Finlay, J I 1984 Faunal evidence for prehistoric economy and settlement in the Outer Hebrides to c. 400 A.D. Unpublished Ph.D. thesis, University of Edinburgh.

Foxon, A D 1982 Artefacts in Society, Scottish Archaeol Rev, 1:2 (1982), 114-20.

Fraser, R D B & Macrae, T P 1980 Molecular structure and mechanical properties of keratins, in Vincent, J F V & Currey, J D 1980, 211-46.

Galloway, P & Newcomer, M 1981 The craft of comb-making: an experimental enquiry, University London Institute Archaeology Bull, 18 (1971), 73-90.

Giddens, A 1976 New rules of sociological method. London.

Giddens, A 1979 Central problems in social theory. London.

Giddens, A 1981 A contemporary critique of historical materialism: Vol 1 Power, property and the state. London.

Giddens, A 1984 The constitution of society. Cambridge.

Gordon, J E 1976 The new science of strong materials. Harmondsworth.

Gordon, J E 1978 Structures. Harmondsworth.

Gordon, J E 1980 Biomechanics: the last stronghold of vitalism, in, eds Vincent, J F V & Currey, J D 1980, 1-10.

Goss, R J 1970 Problems of antlerogenesis, Clinical Orthopaedics Related Research, 69 (1970), 227-38.

Graeme, A S 1914 An account of the excavation of the broch of Ayre, St Mary's Holm, Orkney, Proc Soc Antiq Scot, 48 (1913-14), 31-51.

Granet, I 1980 Modern materials science. Reston, Virginia.

Green, S 1981 Prehistorian: a biography of V. Gordon Childe. Bradford-on-Avon.

Grieve, S 1882 Notice of the discovery of the remains of the great auk or garefowl (alca impennis, L.) on the island of Oronsay, Argyllshire, J Linnean Soc (Zoology), 16 (1881-83), 479-87.

Grieve, S 1885 The great auk or garefowl (Alca impennis, Linn.): Its history, archaeology and remains. London.

Grieve, S 1923 The book of Colonsay and Oronsay. Edinburgh.

Griffin, D R & Novick, A 1970 Animal structure and function. 2nd ed. New York.

Grigson, C 1981 Mammals and man on Oronsay: some preliminary hypotheses concerning mesolithic ecology in the Inner Hebrides, in eds Brothwell, D & Dimbleby, G Environmental aspects of coasts and islands, 163-80, (= Brit Archaeol Rep Internat Ser 94) (=Symposia Assoc Environmental Archaeol 1).

Grigson, C & Mellars, P 1987 The mammalian faunal remains from the middens in Mellars, P A, 243-89.

Halstead, L B 1974 Vertebrate hard tissues. London.

Ham, A W 1969 Histology. 4th ed. Philadelphia.

Hamilton, J R C 1956 Excavations at Jarlshof, Shetland. (= Ministry of Works Archaeol Rep No 1. Edinburgh.

Harris, B 1980 The mechanical behaviour of composite materials, in eds Vincent, J F V & Currey, J D , 37-74.

Hedges, J W 1987 Bu, Gurness and the brochs of Orkney: Part I Bu; Part II Gurness; Part III The brochs of Orkney. = (British Archaeol Rep British Ser 163). Oxford.

Henshall, A S 1964 A dagger-grave and other cist burials at Ashgrove, Methilhill, Fife, Proc Soc Antiq Scot, 97 (1963-64), 166-79.

Henshaw, J 1971 Antlers - the unbrittle bones of contention, Nature, 231 (1971), 469.

Herrmann, G & Liebowitz, H 1972 Mechanics of bone fracture in ed Liebowitz, H Fracture: Volume VII, Fracture of non-metals and composites. New York.

Hillson, S 1986 Teeth. Cambridge.

Hodder, I & Hedges, J W 1977 'Weaving combs' : their typology and distribution with some introductory remarks on date and function, in ed Collis, J The Iron Age in Britain - a review. Sheffield.

Hull, D 1981 An introduction to composite materials. Cambridge.

Hunter, J R 1985 Sanday - Pool, Discovery and Excavation in Scotland 1985, 66.

Hunter, J R 1987 Sanday - Pool, Discovery and Excavation in Scotland 1987, 36.

Johnson, E 1985 Current developments in bone technology in ed Schiffer, M B Advances in Archaeological Method and Theory, 8 (1985), 157-235.

Jones, R M 1975 Mechanics of composite materials. New York.

Jowsey, J 1966 Studies of Haversian systems in man and some animals, J Anatomy, 100 (1966), 857-64.

Katz, J L 1980 The structure and biomechanics of bone, in eds Vincent, J F V & Currey, J D 1980, 137-168.

Kus, S 1982 Matters material and ideal, in ed Hodder, I Symbolic and structural archaeology, 476-62. Cambridge.

Lacaille, A D 1951 A stone industry from Morar, Inverness-shire: Its Obanian (Mesolithic) and later affinities, Archaeologia, 94 (1951), 103-39.

Lacaille, A D 1954 The stone age in Scotland. Oxford.

Lamb, R G 1982 Rousay, Egilsay and Wyre, (with adjacent small islands Orkney Islands Area) = (The Archaeological Sites and Monuments of Scotland, 16). Edinburgh.

Legge, A J 1981 Aspects of animal husbandry, in Mercer, R J Farming practice in British prehistory, 169-81. Edinburgh.

Lethbridge, T C 1952 Excavations at Kilpheder, South Uist, and the problem of brochs and wheel-houses, Proc Soc Antiq Scot, 18 (1952), 176-93.

MacGregor, A 1974 The broch of Burrian, North Ronaldsay, Orkney, Proc Soc Antiq Scot, 105 (1972-74), 63-118.

MacGregor, A 1980 Skeletal materials: their structure, technology and utilisation c A.D. 400-1200. M Phil thesis, University of Durham.

MacGregor, A 1985 Bone, antler, ivory and horn: the technology of skeletal materials since the Roman period. London.

MacGregor, A & Currey, J D 1983 Mechanical properties as conditioning factors in the bone and antler industry of the 3rd to the 13th century AD, J Archaeol Science, 10 (1983), 71-77.

MacGregor, M 1976 Early Celtic art in North Britain. Leicester.

MacKie, E W 1965 The origin and development of the broch and wheelhouse building cultures of the Scottish Iron Age, Proc Prehist Soc, 31 (1965), 93-147.

MacKie, E W 1977 Science and Society in Prehistoric Britain. London.

McLean, F C & Urist, M R 1968 Bone. 3rd ed. Chicago.

Makinson, K R 1954 The elastic anistropy of keratinous solids I, Australian J Biological Sciences, 7 (1954), 336-47.

Makinson, K R 1955 The elastic anistropy of keratinous solids II, Australian J Biological Sciences, 8 (1955), 278-87.

Mann, L M 1922 Ancient sculpturings in Tiree, Proc Soc Antiq Scot, 56 (1921-22), 118-26.

Meat and Livestock Commission 1977 Cutting and preparing lamb and pork. (=Technical Bull 24). Milton Keynes.

Meat and Livestock Commission 1983 Cutting and preparing beef. Milton Keynes.

Meat and Livestock Commission nd The market for animal by-products. (=Technical bull 21). Milton Keynes.

Meat and Livestock Commission & Institute of Meat 1980 Retail meat cuts in Great Britain. Milton Keynes.

Mellars, P A 1976 Settlement patterns and industrial variability in the British mesolithic, in eds Sieveking, G de G, Longworth, I H & Wilson, K E, Problems in economic and social archaeology, 375-99. London.

Mellars, P A 1987 Excavations on Oronsay: prehistoric human ecology on a small island. Edinburgh.

Mercer, E H 1961 Keratin and keratinization. Oxford.

Mercer, J 1968 Stone tools from a washing-limit deposit of the highest post-glacial transgression, Lealt Bay, Isle of Jura, Proc
Soc Antiq Scot, 100 (1967-68), 1-46.

Mercer, J 1971 A regression-time stone-worker's camp, 33ft OD, Lussa River, Isle of Jura, Proc Soc Antiq Scot, 103 (1970-71), 1-32.

Miller, G J 1975 A study of cuts, grooves, and other marks on recent and fossil bone: II: weathering cracks, fractures, splinters and other similar natural phenomena, in, ed Swanson, E Lithic technology. The Hague.

Morlan, R E 1980 Taphonomy & archaeology in the Upper Pleistocene of the Northern Yukon Territory: a glimpse of the peopling of the New World. (= Nat Mus Man Mercury Ser Paper No 94). Ottawa.

Morris, R W B 1968 The cup-and-ring marks and similar sculptures of Scotland: a survey of the southern counties, part II, Proc Soc Antiq Scot, 100 (1967-68), 47-78.

Movius, H L 1942 The Irish stone age. Cambridge.

Murray, C 1979 Les techniques de débitage de métapodes de petits ruminants à Auvernier-Port in Camps-Fabrer, 27-35.

Myers, T P, Voorhies, M R & Corner, R G 1980 Spiral fractures and bone pseudotools at paleontological sites, American Antiquity, 45 (1980), 483-90.

de Nahlik, A J 1974 Deer management. Newton Abbot.

Newcomer, M 1974 Outils en os du Paléolithique supérieur de Ksar Akil (Liban), in, Camps-Fabrer, 59-65.

Newcomer, M 1978 Experiments in Upper Palaeolithic bone work in ed Camps-Fabrer, 293-301.

Noddle, B nd Animal Bones from Skara Brae (larger mammals). Unpublished report on file in the NMS.

Olsen, S J 1979 A study of bone artifacts from Grasshopper Pueblo, AZ P:14:1, The Kiva, 44 (1979), 341-73.

Olsen, S J 1984a Analytical approaches to the manufacture and use of bone artifacts in prehistory. Unpublished Ph.D. thesis, Institute of Archaeology, University of London.

Olsen, S J 1984b On distinguishing natural damage from use wear on prehistoric antler. Paper given at the 1st international conference on bone modification. Nevada.

Petrie, G 1868 Notice of ruins of ancient buildings at Skara, Bay of Skaill, in the parish of Sandwick, Orkney, recently excavated, Proc Soc Antiq Scot, 7 (1866-68), 201-19.

Piekarski, J 1970 Fracture of bone, J Applied Physics, 41 (1970), 215-23.

Piggott, S 1954 The neolithic cultures of the British Isles. Cambridge.

Piggott, S 1982 Scotland before history. Edinburgh.

Potts, R & Shipman, P 1981 Cutmarks made by stone tools on bones from Olduvai Gorge, Tanzania, Nature, 291 (1981), 577-80.

RCAHMS = Royal Commission on the Ancient and Historical Monuments of Scotland 1928 Inventory of monuments and constructions in the Outer Hebrides, Skye and the small isles. Edinburgh.

RCAHMS = Royal Commission on the Ancient and Historical Monuments of Scotland 1946 Inventory of Orkney and Shetland. Edinburgh.

RCAHMS = Royal Commission on the Ancient and Historical Monuments of Scotland 1980 Argyll: an inventory of the monuments. Volume 3. Mull, Tiree, Coll & Northern Argyll. Edinburgh.

Red Deer Commission 1981 Red Deer Management. Edinburgh.

Renfrew, C & Buteux, S 1985 Radiocarbon dates from Orkney, in ed Renfrew, C The prehistory of Orkney, 263-74. Edinburgh.

Reynolds, D M & Ritchie, J N G 1985 Walter Gordon Grant: an archaeological appreciation, Proc Soc Antiq Scot, 115 (1985), 67-73.

Reynolds, T E G 1983 Form, function and technology: a test case of limpet scoops. Unpublished BA dissertation, Department of Archaeology, University of Cambridge.

Richards, C 1986 Barnhouse, Discovery and Excavation in Scotland 1986, 21-22.

Richards, C 1987 Barnhouse, Discovery and Excavation in Scotland 1987, 35.

Ritchie, A 1983 Excavation of a neolithic farmstead at Knap of Howar, Papa Westray, Orkney, Proc Soc Antiq Scot, 113 (1983), 40-121.

Romer, A S & Parsons, T S 1977 The vertebrate body. 5th ed, Philadelphia.

Rouiller, C 1956 Collagen fibers of connective tissue, in ed Bourne 1956, 107-47.

Sadek-Kooros, H 1972 Primitive bone fracturing: a method of research, American Antiquity, 37 (1972), 369-82.

Schiffer, M B 1972 Archaeological context and systemic context, American Antiquity, 37 (1972), 156-65.

Schiffer, M B 1976 Behavioral archaeology. New York.

Schmid, E 1972 Atlas of animal bones. Amsterdam.

Semenov, S A 1964 Prehistoric technology. London.

Shanks, M & Tilley, C 1987 Social theory and archaeology. Cambridge.

Sherratt, A 1981 Plough and pastoralism: aspects of the secondary products revolution in eds Hodder, I, Isaac, G & Hammond, N Pattern of the past: studies in honour of David Clarke, 261-305. Cambridge.

Sherratt, A 1983 The secondary exploitation of animals in the Old World, World Archaeol, 15 (1983), 90-104.

Sissons, J B 1981 British shore platforms and ice-sheets, Nature, 291 (1981), 473-75.

Smith, C 1985 British antler mattocks in ed Bonsall, C The Mesolithic in Europe (=U.I.S.P.P. Mesolithic Commission, III International Symposium, 1985), 272-83. Edinburgh.

Smith, J W & Walmsley, R 1959 Factors affecting the elasticity of bone, J Anatomy, 93 (1959), 503-23.

Stevenson, R D 1978 Risga: the mesolithic industry. Unpublished MA dissertation, Department of Archaeology, University of Glasgow.

Stewart, W B 1914 Notes on a further excavation of ancient dwellings at Skara, in the parish of Sandwick, Orkney made during August 1913. With notes on the remains found by Hon. Professor W Boyd Dawkins, Proc Soc Antiq Scot, 48 (1913-14), 344-55.

Stuchlik, M 1976 Whose knowledge?, in ed Holy, L Knowledge and behaviour, 1-25, (=The Queen's University Papers in Social Anthropology Vol 1

Switsur, V R & Mellars, P A 1987 Radiocarbon dating of the shell-midden sites, in, Mellars 1987, 139-49.

Thompson, D W 1942 On growth and form. Cambridge.

Traill, W 1868 General remarks on the dwellings of pre-historic races in Orkney, with a special notice of the "Pict's house" of Skerrabrae, in the parish of Sandwick, showing the present state of the excavations lately made there, Proc Soc Antiq Scot, 7 (1866-68), 426-39.

Traill, W 1884 Notice of excavations at Stenabreck and Howmae, on North Ronaldsay, Orkney, Proc Soc Antiq Scot, 19 (1883-34), 14-33.

Vaughan, J 1975 The physiology of bone. Oxford.

Vincent, J F V 1982 Structural biomaterials. London.

eds Vincent, J F V & Currey, J D 1980 The mechanical properties of biological materials. (=Symposia of the Society for Experimental Biology 34). Cambridge

van Vlack, L H 1980 Elements of materials science. 4th ed. Reading, Massachusetts.

Wainwright, S A, Biggs, W D, Currey, J D & Gosline, J M 1976 Mechanical design in organisms. London.

Warren, S H, Piggott, S, Clark, J G D, Burkitt, M C, Godwin, H & Godwin, M E 1936 Archaeology of the submerged land-surface of the Essex coast, Proc Prehist Soc, 2 (1936), 178-210.

Waters, N E 1980 Some mechanical and physical properties of teeth, in eds Vincent, J F V & Currey, J D 1980, 99-135.

Watson, K L 1975 Materials in chemical perspective. London.

Whitaker, I 1986 The survival of feral reindeer in northern Scotland, Archives of Natural history, 13 (1986), 11-18.

Wickham-Jones, C R 1977 The flint and chert assemblage from the 1972-73 excavations at Skara Brae, Orkney: a preliminary assessment. Unpublished MA dissertation, Department of Archaeology, University of Edinburgh.

Winterhalder, B 1981 Optimal foraging strategies and hunter-gatherer research in anthropology: theory and models, in eds Winterhalder, B & Smith, E A Hunter-Gatherer foraging strategies: Ethnographic and archaeological analyses. Chicago.

Woodhead-Galloway, J 1980 Collagen: the anatomy of a protein. London.

Young, A & Richardson, K M 1960 A Cheardach Mhor, Drimore, South Uist, Proc Soc Antiq Scot, 93 (1959-60), 135-73.