

Chapter 16: Mortuary Evidence

by

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[Ed. For additional bibliographic references, see p. 120.]

§ 16.1 Catalogue of graves and tombs (E.B., E.P.)

Note:- KM numbers in [] are possible grave goods, usually found in fills of graves. "Fills: none" means no separate unit number given to fill, not that there is no fill. Volume: only given where the majority of the dimensions of the type are present; rarely do grave tops survive hence the figures are minima. Condition: partial remains only, and/or severely disarticulated (D). Age group: identification in brackets () based on field observation or size of facility. Orientation of burial: head position given first. For condition of finds, whole or frag, see Appendix B. For references to discussion and illustration of graves, see *LAP* II.1A, Index to buildings and graves. Position: F = Flexed, C = Crouched, D = Dorsal, E = Extended.

Catalogue

Grave 501

Reference: *Preliminary* 6, 58
Period: 4?

Description of unit

Location: 20.24.2
Type: 5
Features: None
Status: D
Stratigraphy: Cut beside B 1
Fills: Unit 501
Volume: 0.016 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 369
Condition: D
Position: F
Orientation: W-E
Posture: On right side facing S
Age Group: (child)
Sex: ?
Type of Interment: Single

Grave Equipment

KM 370 - Picrolite pendant by (missing) skull

Position of in situ grave equipment

Grave: 502

Reference: *Preliminary* 6, 58; 7, 36
Period: 4?

Description of unit

Location: 21.24.1
Type: 5
Features: None
Status: D
Stratigraphy: Over B 206
Fills: 153
Volume: ?

Burial programme

Number of Burials: 1
Burial Numbers: KM 560
Condition: D
Position: ?
Orientation: ?
Posture: Upright skull only
Age Group: Child
Sex: M
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 503

Reference: *Preliminary* 6, 53, 58, Fig. 2; Peltenburg 1992, 32, Pl. 3.3
Period: 3B

Description of unit

Location: 22.24.2
Type: 2
Features: Capstone 1.04 x 0.60 cm, limestone
Status: D
Stratigraphy: Cut into B 2
Fills: Unit 125 (survive on ledge only)
Volume: 1.778 m³

Burial programme

Number of Burials: None

Grave equipment

KM 477.01 - Chalk bowl, 477.02 - RWL flask, 477.03 - RWL flask, [490] - Pounder

Position of in situ grave equipment

Three containers on northern ledge of upper pit base

Grave: 504

Reference: *Preliminary* 6, 58, Pl. IIIA; 7, 36
Period: 5?

Description of unit

Location: 21.23.4
Type: 4
Features: None
Status: D
Stratigraphy: Over B 206, cuts 132 (surface), under 65? (General)
Fills: None
Volume: ?

Burial programme

Number of Burials: 1
Burial Numbers: KM 559.01
Condition: D
Position: C
Orientation: W-E
Posture: On left side facing SSE
Age Group: Child
Sex: M
Type of Interment: Single pithos burial

Grave equipment

KM 559.02 - CPW burial pithos

Position of in situ grave equipment

§ 16 Mortuary Evidence

Grave: 505

Reference: *Preliminary* 6, 58-61, Fig. 3, Pls. IIB, IIIB, IIIC; 7, 36;
Prehistory 7, 30
Period: 4

Description of unit

Location: 20.24.1
Type: 3
Features: Double chamber with triangular ledge at base of shaft
Status: OK;
Stratigraphy: Part of Mortuary Enclosure 375, with wall 888 dividing chambers
Fills: None
Volume: 2.06 m³

Burial programme

Number of Burials: 4
Burial Numbers: KM 553.10, 553.11, 553.12, 553.13
Condition: 553.12 - D; others intact
Position: 553.10 - F, 553.11 - F, 553.13 - F
Orientation: 553.10 - NW-SE, 553.11 - W-E, 553.13 - N-S
Age Group: 553.10 - Adolescent, 553.11 - adult, 553.12 - child, 553.13 - adult
Posture: 553.10 on left side facing NE, hands before chest; 553.11 on right side facing S; 553.12 disarticulated; 553.13 on right side facing W
Sex: 553.10 - M; 553.11 - F; 553.12 - F
Type of Interment: Multiple, 553.12 - Partial

Grave equipment

KM [553.01] - Pottery disc, [553.02] - Cupped stone, [553.03] - Basalt chisel, 554.04 - Dentalium bead, [553.05] - grinding block, 553.06 - RB/B spouted flask, 553.07 - RB/B spouted flask, 553.08 - RB/B bowl, [553.09] - Chalk bowl frag., [595.02] - Sandstone lid

Position of in situ grave equipment

KM 553.06 at head of 553.10, 553.07 at feet of 553.11, 553.08 at entry to chamber 2

Grave: 506

Reference: *Preliminary* 6, 61, Pl. IIB; 7, 36
Period: 4

Description of unit

Location: 20.24.1
Type: 3
Features: None
Status: OK
Stratigraphy: Part of Mortuary Enclosure 375
Fills: 110
Volume: 1.24 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 571
Condition: Intact
Position: F
Orientation: NE-SW
Posture: On right side facing NW, hands to face
Age Group: adult
Sex: F
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 507

Reference: *Preliminary* 7, 32, Pl. VI. 1; 7, 36, Pl. VI.1
Period: 4

Description of unit

Location: 20.24.1
Type: 2
Features: None
Status: OK
Stratigraphy: Part of Mortuary Enclosure 375
Fills: None

Volume: 1.481 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 766
Condition: Intact
Position: C
Orientation: NE-SW
Posture?: On right side facing NW, hands towards hafted adze
Age Group: Child
Sex: F
Type of Interment: Single

Grave equipment

KM 765 - Jasper adze, 847 - Antler haft, [578] - Limestone figurine, [581-2] - Conical stones, [583] Pottery disc, [676] - Rubber

Position of in situ grave equipment

Hafted adze upright against pit wall, near hands

Grave: 508

Reference: *Preliminary* 7, 35-36
Period: 4

Description of unit

Location: 18.24.2
Type: 5
Features: None
Status: D
Stratigraphy: Cut into wall of B 200
Fills: Stony hard, pisé wash
Volume: ?

Burial programme

Number of Burials: 1
Burial Numbers: KM 662
Condition: D
Position: ?
Orientation: ?
Posture: ?
Age Group: Adult
Sex: M
Type of Interment: Single, secondary?

Grave equipment

None

Position of in situ grave equipment

Grave: 509

Reference: *Preliminary* 7, 35-36
Period: 4?

Description of unit

Location: 22.24.4
Type: 5
Features: None
Status: D
Stratigraphy: Cut into B 2
Fills: 239
Volume: 0.006 m³

Burial programme

Number of Burials: 2
Burial Numbers: KM 663.01, 663.02
Condition: D
Position: ?
Orientation: ?
Posture: ?
Age Group: 663.01 - child, 663.02 - child
Sex: ?
Type of Interment: Multiple

Grave equipment

None

Position of in situ grave equipment

§ 16 Mortuary Evidence

Grave: 510

Reference: *Preliminary 7*, 35-36
Period: 4

Description of unit

Location: 19.24.4
Type: 1/5
Features: None
Status: D
Stratigraphy: Over Gr. 525, beside B 493
Fills: Unit 285
Volume: 0.056 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 624
Condition: D
Position: F
Orientation: E-W
Posture: On right side facing NW
Age Group: Child
Sex: F
Type of Interment: Single

Grave equipment

KM 629 - Dentalium bead, [1657] - Bone point

Position of in situ grave equipment

Grave: 511

Reference: *Preliminary 7*, 32
Period: 4

Description of unit

Location: 20.24.1
Type: 2/3
Features: None, but irregular shape
Status: OK
Stratigraphy: Below 98 (building), part of Mortuary Enclosure 375
Fills: 309
Volume: ?

Burial programme

Number of Burials: Min. one: parts of cranium
Burial Numbers: None
Condition: D
Position: -
Orientation: -
Posture: ?
Age Group: (child)
Sex: -
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 512

Reference: *Preliminary 7*, 35
Period: 4?

Description of unit

Location: 22.24.2
Type: 2
Features: Capstones (3), KM 709, 710
Status: D
Stratigraphy: 359, cuts 33 (general) and B 2
Fills: Upper fill 341, lower fill 358
Volume: 0.260 m³

Burial programme

Number of Burials: None
Burial Numbers: None
Condition: -
Position: -
Orientation: -
Posture: ?
Age Group: (child)

Sex: -

Type of Interment: -

Grave equipment

KM 709-710 - Rubbers

Position of in situ grave equipment

Rubbers inverted as capstones

Grave: 513

Reference: *Preliminary 7*, 35
Period: 4

Description of unit

Location: 20.24.4
Type: 5
Features: None
Status: D
Stratigraphy: Above general 437 ? in pit 446
Fills: None
Volume: ?

Burial programme

Number of Burials: 1
Burial Numbers: KM 767
Condition: D
Position: F
Posture: On right side facing S
Orientation: SW-NE
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 514

Reference: *Preliminary 7*, 35-36
Period: 4

Description of unit

Location: 21.25.3
Type: 1/3
Features: None
Status: D
Stratigraphy: Over B 994, beside B 1
Fills: 452
Volume: 0.586 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 875
Position: ?
Posture: ?
Orientation: ?
Age Group: Adolescent
Sex: M
Type of Interment: Single

Grave equipment

KM [720] - Stone disc

Position of in situ grave equipment

Grave: 515

Reference: *Preliminary 7*, 35-36
Period: 4

Description of unit

Location: 20.24.4
Type: 3
Features: Two basal steps
Status: D
Stratigraphy: Cuts B 736, beside B 1044, disturbed an earlier burial (see Supplementary list below, Unit 2060)
Fills: 423, 450
Volume: 1.38 m³

§ 16 Mortuary Evidence

Burial programme

Number of Burials: 2
Burial Numbers: KM 769, 770
Condition: Both slightly D
Position: 769 - F, 770 - F
Orientation: 769 - W-E, 770 - NW-SE
Posture: 769 on left side facing N; 770 on right side facing WSW
Age Group: 769, 770- adults; plus child noted in field?
Sex: 769 - M, 770 - F
Type of Interment: Double successive

Grave equipment

KM 910 - Chalk bowl frag., 1169 - Worked pig's tusk, [796, 834] - Pestles, [797-8] - Pounder/rubbing stones, [833] - Pounder, [1029, 1651] - Bone points, [5082] - Shell scoop

Position of in situ grave equipment

Grave: 516

Reference: *Preliminary* 7, 35
Period: 4

Description of unit

Location: 22.23.3
Type: 1/5
Features: None
Status: OK
Stratigraphy: Pre-B 204 (building), post-B 3
Fills: Loose, fine crumbly silt
Volume: 0.040 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 768
Condition: Intact
Position: C
Orientation: N-S
Posture: On right side facing W, head tilted up
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 517

Reference: *Preliminary* 7, 35-36
Period: 4

Description of unit

Location: 22.24.4
Type: 5
Features: KM 874 - Rubber, a possible grave marker or capstone
Status: D
Stratigraphy: In quarry 654
Fills: 642?
Volume: 0.037 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 855
Condition: D
Position: ?
Posture: ?
Orientation: ?
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

KM 874 - Rubber

Position of in situ grave equipment

Grave: 518

Reference: *Preliminary* 9, 5-6
Period: 4

Description of unit

Location: 22.23.2
Type: 5
Features: Possible grave markers, dislodged capstones?
Status: D
Stratigraphy: Pre-B 3, cuts quarry 654
Fills: Grey silt of variable composition containing pipe nodules
Volume: 0.019 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 981
Condition: D
Position: ?
Posture: ?
Orientation: ?
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 519

Reference: *Preliminary* 9, 5-6
Period: 4

Description of unit

Location: 22.23.3
Type: 5
Features: None
Status: D
Stratigraphy: 767, pre-B 204
Fills: Loose, grey-brown ashy silt with pebble particles

Burial programme

Number of Burials: 2
Burial Numbers: KM 1065.01, 1065.02
Condition: D
Position: ?
Orientation: ?
Posture: ?
Age Group: 1065.01 - Child, 1065.02 - Child
Sex: ?
Type of Interment: Double successive

Grave equipment

KM [1382] - Pottery figurine, [1502] - Burnisher

Position of in situ grave equipment

Grave: 520

Reference: *Preliminary* 9, 5-6
Period: 4

Description of unit

Location: 22.23.3
Type: 5
Features: None
Status: D
Stratigraphy: 766, in foundation scoop for B 3?
Fills: Loose, grey ashy silt with stone, cobble and shell particles
Volume: ?

Burial programme

Number of Burials: 1
Burial Numbers: KM 1066
Condition: Partly excavated?
Position: ?
Orientation: ?
Posture: ?
Age Group: Adult
Sex: F
Type of Interment: Single, secondary?

Grave equipment

None

Position of in situ grave equipment

§ 16 Mortuary Evidence

Grave: 521

Reference: *Preliminary* 9, 5
Period: 4

Description of unit

Location: 19.24.4
Type: 5
Features: None
Status: D
Stratigraphy: Beside B 1165, Pre-B 493
Fills: -
Volume: ?

Burial programme

Number of Burials: 2
Burial Numbers: KM 1044.01, 1044.02
Condition: D
Position: ?
Orientation: 1044.01 - NE-SW
Posture: 1044.01 on right side facing W
Age Group: 1044.01 - Child, 1044.02 - Child
Sex: 1044.01 F?
Type of Interment: Double successive, secondary?

Grave equipment

None

Position of in situ grave equipment

Grave: 522

Reference: *Preliminary* 9, 5
Period: 4

Description of unit

Location: 18.25.1
Type: 2
Features: capstone? in section
Status: OK
Stratigraphy: Cut from 0 above B 494; mostly beyond limit of excavation
Fills: 628
Volume: ?

Burial programme

Number of Burials: 1 (partly excavated)
Burial Numbers: KM 1045
Condition: Intact?
Position: F
Orientation: NW-SE
Posture: On right side, hands to face, facing SW
Age Group: Child
Sex: F
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 523

Reference: *Preliminary* 9, 5
Period: 4

Description of unit

Location: 21.23.2
Type: 3
Features: None
Status: D
Stratigraphy: 780. Cuts B 206, extending under its floor
Fills: 780, loose grey ashy silt
Volume: 1.01 m³

Burial programme

Number of Burials: None
Burial Numbers: None
Condition: -
Position: -
Orientation: -
Posture: ?

Age Group: -

Sex: -

Type of Interment: -

Grave equipment

KM 988 - Dentalium bead, [996] - pounder

Position of in situ grave equipment

Grave: 524

Reference: *Preliminary* 9, 5
Period: 4

Description of unit

Location: 19.24.4
Type: 5?
Features: None
Status: OK
Stratigraphy: -
Fills: -
Volume: 0.162 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 922
Condition: D
Position: C
Orientation: N-S
Posture: On right side facing W
Age Group: Child
Sex: ?
Type of Interment: Single, secondary?

Grave equipment

None

Position of in situ grave equipment

Grave: 525

Reference: *Preliminary* 9, 5
Period: 3B

Description of unit

Location: 19.24.4
Type: 2
Features: None
Status: D
Stratigraphy: 837. Below Gr. 510, beside B 855
Fills: Crumbly, brown soil with plaster frags
Volume: 0.472 m³

Burial programme

Number of Burials: 3
Burial Numbers: KM 923.01, 923.02, 923.03
Condition: D
Position: Bones throughout fill, concentration on W shelf; foetal bones adjacent to grave (HB. 99)
Orientation: ?
Posture: ?
Age Group: 923.01 - Child, 923.02 - Child, 923.03 - Child
Sex: ?
Type of Interment: Multiple, 923.01 - secondary, 923.02 and 923.03 - partial burials

Grave equipment

KM [959] - Bone needle, [960] - Dentalium bead

Position of in situ grave equipment

Grave: 526

Reference: *Preliminary* 9, 5, Pl. II, 1; 10, 235
Period: 4

Description of unit

Location: 21.23.4
Type: 3
Features: None
Status: OK
Stratigraphy: 884. Cuts B 206, near B 834, under surface 562

§ 16 Mortuary Evidence

Fills: 884. Loose, crumbly brown silt with stone particles
Volume: 0.772 m³

Burial programme

Number of Burials: 2
Burial Numbers: KM 1175.01, 1175.02
Condition: Intact
Position: 1175.01 - F, 1175.02 - F
Orientation: 1175.01 - W-E, 1175.02 - W-E
Posture: Dorsal, right hands on chests, left extended to pelvis; 01 faces S, 02 S
Age Group: 1175.01 - Adult, 1175.02 - Adult
Sex: both F
Type of Interment: Double contemporary

Grave equipment

KM 1308.01 - Conical stone, 1308.02 - Grinder (pebble), 1258 - SW bowl, 1328.01-05 - Chalk beads, [1155] - Conical stone, [1156] - Cupped stone, [1174] - Pottery disc, [1181] - Calcarenite bowl frag., [5091] - Shell pendant

Position of in situ grave equipment

KM 1308.01-02 and 1258 in front of face of KM 1175.1; 1328.01-05 contiguously at base of neck

Grave: 527

Reference: *Preliminary 9*, 5?
Period: 4

Description of unit

Location: 21.24.2
Type: 1/2
Features: None
Status: D
Stratigraphy: 898
Fills: Brown-yellow, silty cloddy soil with organic particles
Volume: 0.045 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 1218
Condition: Intact
Position: C
Orientation: NW-SE
Posture: On right side facing SW, arm possibly extending to head
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 528

Reference: *Preliminary 9*, 5
Period: 4

Description of unit

Location: 21.25.1
Type: 5
Features: None
Status: D
Stratigraphy: -
Fills: 912
Volume: ?

Burial programme

Number of Burials: 1
Burial Numbers: KM 1219
Condition: D
Position: Skull only
Orientation: ?
Posture: ?
Age Group: Adult
Sex: F
Type of Interment: Single, secondary?

Grave equipment

None

Position of in situ grave equipment

Grave: 529

Reference: *Preliminary 10*, 235, Fig. 3; *Prehistory 7*, 31
Period: 4/5

Description of unit

Location: 20.23.1
Type: ? Trace of pit below ploughsoil
Features: None
Status: D
Stratigraphy: Above wall 910. 902
Fills: 902
Volume: ?

Burial programme

Number of Burials: 1
Burial Numbers: KM 1292
Condition: D
Position: C
Orientation: N-S
Posture: Dorsal, probably facing SW
Age Group: Child
Sex: M
Type of Interment: Single

Grave equipment

KM 1182 - Metal hairring, 1273 - Shell pendant, 3383.01-17, 5115.01-02 - 19 Dentalium beads

Position of in situ grave equipment

Beads scattered in area of pelvis, hairring near position of feet

Grave: 530

Reference: *Preliminary 10*, 235
Period: 5

Description of unit

Location: 23.23.1
Type: 4
Features: None
Status: D
Stratigraphy: 920. Below 886 (general)
Fills: 920
Volume: ?

Burial programme

Number of Burials: Frags of single skull
Burial Numbers: None
Condition: D
Position: On base of pithos
Orientation: -
Posture: ?
Age Group: (Child)
Sex: -
Type of Interment: Single

Grave equipment

KM 1788 - RB/B burial jar

Position of in situ grave equipment

Grave: 532

Reference: *Preliminary 13*, 33-4
Period: 4

Description of unit

Location: 21.24.2
Type: 5?
Features: None
Status: OK
Stratigraphy: Near base of pit 913
Fills: 984
Volume: ?

Burial programme

Number of Burials: 1

§ 16 Mortuary Evidence

Burial Numbers: KM 1391
Condition: Intact
Position: C
Orientation: NW-SE
Posture: On left side facing NE, hand to face
Age Group: Adolescent
Sex: F
Type of Interment: Single

Grave equipment

KM [1511.01] - Chert blade, [1511.02] - Chert flake, [1511.03] - Chert flake

Position of in situ grave equipment
some sherds placed on body?

Grave: 533

Reference: -
Period: 4

Description of unit

Location: 20.24.3
Type: ?
Features: None
Status: D
Stratigraphy: At 0/150 (surface-general), in fill of B 1044, beside B 1046
Fills: -
Volume: ?

Burial programme

Number of Burials: 1
Burial Numbers: KM 1541
Condition: D
Position: ? Skull and leg frags only
Orientation: ?
Posture: ?
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 534

Reference:-
Period: 4

Description of unit

Location: 21.25.2
Type: 5
Features: None
Status: D
Stratigraphy: In fill of pit 911
Fills: 934
Volume: ?

Burial programme

Number of Burials: 1
Burial Numbers: KM 1516
Condition: D
Position: Disarticulated skull, other frags scattered
Orientation: -
Posture: ?
Age Group: ?
Sex: ?
Type of Interment: Single, secondary?

Grave equipment

None

Position of in situ grave equipment

Grave: 535

Reference: Preliminary 13, 34
Period: 3A?

Description of unit

Location: 23.31.3
Type: 2
Features: Capstones (2)
Status: OK
Stratigraphy: Cut from 0
Fills: Upper fill 1510
Volume: 0.28 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 2048
Condition: Intact
Position: F
Orientation: SE-NW
Posture: On right side facing NE, hands in front of face
Age Group: Adolescent
Sex: F
Type of Interment: Single

Grave equipment

KM 3064- Dentalium bead, [1878] - Pottery disc, [2015] - Pestle, [2016] - Pecking stone, [2043] - Rubber, [3063, 5187] - Bone needle frags

Position of in situ grave equipment

Grave: 536

Reference: -
Period: 4?

Description of unit

Location: 22.23.4
Type: 3
Features: Niche 23 x 25 x 13 cm in chamber wall
Status: D
Stratigraphy: 749. Cuts B 206, extending under its floor
Fills: Soft, ashy grey silt
Volume: 0.552 m³

Burial programme

Number of Burials: 1 (2 phalanges)
Burial Numbers: None
Condition: D
Position: -
Orientation: -
Posture: ?
Age Group: -
Sex: -
Type of Interment: Single

Grave equipment

KM [2794] - Dentalium bead, [3377] - Pottery disc

Position of in situ grave equipment

Grave: 537

Reference: -
Period: 4/5

Description of unit

Location: 19.23.4
Type: ?
Features: None
Status: C
Stratigraphy: Beside B 866
Fills: Grey, pisé wash material
Volume: ?

Burial programme

Number of Burials: 1
Burial Numbers: KM 1618
Condition: D
Position: ? Bones swept into furrows e.g. skull frag HB. 104
Orientation: ?
Posture: ?
Age Group: Child
Sex: ?

Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 538

Reference: -

Period: 4

Description of unit

Location: 20.24.3

Type: 1

Features: None

Status: OK

Stratigraphy: Cut into B 1044, beside B 1046 . Cut from 150? (general)

Fills: Brown, gritty, medium-coarse soil

Volume: 0.14 m³

Burial programme

Number of Burials: 1

Burial Numbers: KM 1709

Condition: Intact

Position: F

Orientation: E-W

Posture: On right side facing N, one humerus displaced behind head

Age Group: Child

Sex: ?

Type of Interment: Single

Grave equipment

KM 1712 - RB/B bowl, 1715 - Picrolite bead, 1716 - Faience bead, 1801-2 - Picrolite beads, 3141 - Picrolite? bead

Position of in situ grave equipment

KM 1712 in front of face, 1715-6 at neck

Grave: 539

Reference: *Preliminary* 13, 34, *Prehistory* 7, 30, Fig. 10

Period: 4

Description of unit

Location: 21.25.1

Type: 3

Features: Slight threshold at chamber entry

Status: OK

Stratigraphy: Cut from east side of pit 913, under ledge of *havarra*

Fills: 912

Volume: 0.476 m³

Burial programme

Number of Burials: 2

Burial Numbers: KM 1753, 1754

Condition: Intact

Position: 1753 - F, 1754 - F

Orientation: 1753 - W-E, 1754 - W-E

Posture: Both on right side facing S. 1753 left humerus tucked over abdomen and chest, other under body, 1754 right humerus extended out and up to head, left flexed at pelvis

Age Group: 1753 - Adult, 1754 - Adult

Sex: Both M

Type of Interment: Double contemporary

Grave equipment

KM [1744] - Bone needle frag., [1898] - Pottery disc

Position of in situ grave equipment

Grave: 540

Reference: -

Period: 3/4

Description of unit

Location: 22.25.3

Type: 2

Features: Capstones (2)

Status: D

Stratigraphy: Beside B 1000. 1089

Fills: Loose, ashy, crumbly pise wash

Volume: 0.168 m³

Burial programme

Number of Burials: 1

Burial Numbers: KM 1757

Condition: D

Position: ? Skull and ribs scattered over base

Orientation: S-N

Posture: ?

Age Group: Child

Sex: ?

Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 541

Reference: -

Period: 4

Description of unit

Location: 21.24.2

Type: 3

Features: Sealed by clay blocking?; plastered threshold

Status: D

Stratigraphy: Chamber cut from lower wall of pit 913. 1086

Fills: 1038, 1073

Volume: 0.54 m³

Burial programme

Number of Burials: None; tooth (HB. 125) from fill 984 of pit 913 and HB. 100 belong?

Burial Numbers: None

Condition: -

Position: -

Orientation: -

Posture: ?

Age Group: -

Sex: -

Type of Interment: -

Grave equipment

KM 1784-5, 2357-8 - Faience beads, 3006 - Dentalium bead, [1746] - Hammerstone, [2494] - Stone cup plus other [] - see Table 4.1

Position of in situ grave equipment

Grave: 542

Reference: -

Period: 4

Description of unit

Location: 20.23.4

Type: 1

Features: Capstones (1): KM 1726 - Quern, forms contiguous work surface with feature 1137 in B 1052

Status: OK

Stratigraphy: Between floors 1 and 2 in B 1052. 1137

Fills: -

Volume: 0.075 m³

Burial programme

Number of Burials: 1

Burial Numbers: KM 1858

Condition: Intact

Position: C

Orientation: W-E

Posture: On right side facing S. Right humerus in front f face

Age Group: Child

Sex: F

Type of Interment: Single

Grave equipment

KM 1726 - Quern, 1853, 1871 - Rubbers, [1910] - Axe- shaped grinder.

Position of in situ grave equipment

KM 1726 as capstone

§ 16 Mortuary Evidence

Grave: 543

Reference: -
Period: 4/5

Description of unit

Location: 20.24.3
Type: 1/3
Features: None
Status: OK
Stratigraphy: Cut from 150? into B 1044, beside B 1046
Fills: Soft, grey-brown silt
Volume: 0.015 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 1859
Condition: Intact
Position: C
Orientation: NW-SE
Posture: ?
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 544

Reference: -
Period: 4

Description of unit

Location: 20.23.4
Type: 1
Features:
Status: D
Stratigraphy: Cuts floor 2 in B 1052
Fills: Loose, fine ashy soil
Volume: 0.021 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 3239
Condition: D
Position: F
Orientation: W-E
Posture: Some teeth, femur and ribs *in situ*, the rest loose
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

KM [1990] - Conical stone

Position of in situ grave equipment

Grave: 545

Reference: -
Period: 4

Description of unit

Location: 23.23.4
Type: 3
Features: None
Status: D
Stratigraphy: Cuts track 35, extending below paving, beside B 3. Alt 1212
Fills: Soft, grey-brown, ashy soil; stones, backfill from track 35
Volume: ?

Burial programme

Number of Burials: 2; 2827 partly recovered
Burial Numbers: KM 2827, 2830
Condition: D
Position: 2827 - F, 2830 - F
Orientation: 2827 - NW-SE, 2830 - NE-SW
Posture: 2830 disturbed on upper shelf, on right side; 2827 on right side

facing S, hands to head, on lower shelf, partly excavated
Age Group: 2827 - Adult, 2830 - Adult
Sex: Both F
Type of Interment: Double contemporary

Grave equipment

KM [3270] - Conical stone, [5109] - Bone needle

Position of in situ grave equipment

Grave: 546

Reference: -
Period: 4

Description of unit

Location: 23.23.2
Type: 2/3
Features: None
Status: D
Stratigraphy: Cuts B 1161 wall. 1238, 1291.
Fills: Soft brown soil
Volume: 0.288 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 1912
Condition: D
Position: ? Top plough disturbed, bones spread in upper pit; body located high in lower pit
Orientation: ?
Posture: ?
Age Group: Adult
Sex: M
Type of Interment: Single

Grave equipment

KM 2054-2061 - Faience beads

Position of in situ grave equipment

Grave: 547

Reference: -
Period: 3/5

Description of unit

Location: 23.23.2
Type: 1
Features: Capstones (3)
Status: D
Stratigraphy: Cuts B 1295 fill. 1263
Fills: Soft brown soil
Volume: 0.096 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 1922
Condition: D
Position: ? Only a few phalanges and splintered shafts; humerus? from adjacent 1207 (HB. 107)
Orientation: ?
Posture: ?
Age Group: (Child)
Sex: ?
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 548

Reference: *Preliminary* 13, 31
Period: 3/4

Description of unit

Location: 18.24.1
Type: 1
Features: None
Status: OK
Stratigraphy: Cuts B 855. 1256 Cut by pit 1297 on south
Fills: Loose brown silt

Volume: 0.056 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 1991
Condition: D
Position: C
Orientation: NW-SE
Posture: On right facing SW, hands towards face (holding axe?)
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

KM 1770 - Stone axe frag., 1781 - Picrolite pendant

Position of in situ grave equipment

Both objects below mandible

Grave: 549

Reference: -
Period: 3A?

Description of unit

Location: 23.31.1
Type: 1/5
Features: None
Status: OK
Stratigraphy: Cut into 1505?, disturbed by stones
Fills: Loose, grey-brown silt
Volume: 0.018 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 2011
Condition: Intact
Position: C
Orientation: SE-NW
Posture: On right side facing NE
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 550

Reference: -
Period: 4

Description of unit

Location: 23.23.1
Type: 4
Features: Two basal steps, body on lowest
Status: OK
Stratigraphy: Cut from above oven 1486 beside, and extending under B 1161. 1281
Fills: Soft, black, sandy soil
Volume: 0.395 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 2005
Condition: Intact
Position: F
Orientation: N-S
Posture: On right side facing W
Age Group: Adult
Sex: F
Type of Interment: Single

Grave equipment

KM 2832 - Mineral frag

Position of in situ grave equipment

KM 2832-placed by shoulder in front of face

Grave: 551

Reference: -
Period: 3A?

Description of unit

Location: 24.30.1
Type: 2
Features: Plough-scarred capstones (2)
Status: OK
Stratigraphy: Beside and cuts external wallface of B 1016
Fills: Loose, soft, brown silt
Volume: 0.165 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 2470
Condition: Intact
Position: F
Orientation: SE-NW
Posture: On right side facing NE, right hand under right temple, left humerus along body; head vertical
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

KM 2914.01-02 - Dentalium beads

Position of in situ grave equipment

Grave: 552

Reference: -
Period: 3A?

Description of unit

Location: 23.31.3
Type: 1
Features: None
Status: D
Stratigraphy: Truncated?
Fills: -
Volume: ?

Burial programme

Number of Burials: 1
Burial Numbers: KM 2053
Condition: D
Position: ?
Orientation: ?
Posture: ?
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 553

Reference: -
Period: 3A?

Description of unit

Location: 24.29.4
Type: 1
Features: None
Status: D
Stratigraphy: Upper part lost in ploughsoil
Fills: Loose, soft brown silt
Volume:

Burial programme

Number of Burials: None
Burial Numbers: None
Condition: -
Position: -
Orientation: -
Posture: ?

§ 16 Mortuary Evidence

Age Group: (Child)
Sex: -
Type of Interment: -

Grave equipment
None

Position of in situ grave equipment

Grave: 554
Reference: *Preliminary* 13, 29-30, 34-5, Pl. III.1, 2; 14, 155; *Prehistory* 7, 21, Fig. 3
Period: 3A?

Description of unit
Location: 23.31.3
Type: 2
Features: Capstone (2); KM 2108 - Anthropomorphic slab aligned with body, 0.17 m above it inside lower pit
Status: D
Stratigraphy: Cut by later pits
Fills: Upper 1525, middle 1526
Volume: 0.121 m³

Burial programme
Number of Burials: 1
Burial Numbers: KM 2269
Condition: D
Position: ?
Orientation: S-N
Posture: On right side
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment
KM 2108 - Anthropomorphic slab, 2109 - Toilet shell

Position of in situ grave equipment
KM 2108-position as described above, 2109 below pelvis

Grave: 555
Reference: -
Period: 4

Description of unit
Location: 19.25.3
Type: ?
Features: None
Status: D
Stratigraphy: In section just below ploughsoil
Fills: -
Volume: ?

Burial programme
Number of Burials: 1
Burial Numbers: KM 2384
Condition: D
Position: ?
Orientation: NE-SW
Posture: On left side facing ?
Age Group: Adolescent
Sex: F
Type of Interment: Single

Grave equipment
KM [2265] - Bone needle frag.

Position of in situ grave equipment

Grave: 556
Reference: -
Period: 4

Description of unit
Location: 20.24.4
Type: 1
Features: None
Status: D

Stratigraphy: Cut into lee of B 763, wall 438
Fills: Soft, grey-brown, ashy soil
Volume: 0.01 m³

Burial programme
Number of Burials: 1
Burial Numbers: KM 2303
Condition: D
Position: ?
Orientation: ?
Posture: ?
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment
None

Position of in situ grave equipment

Grave: 557
Reference: -
Period: 4

Description of unit
Location: 19.24.1
Type: ?
Features: None
Status: D
Stratigraphy: Beside B 1044 and 1046.
Fills: -
Volume: ?

Burial programme
Number of Burials: 1
Burial Numbers: KM 2455
Condition: D
Position: C
Orientation: SW-NE
Posture: On right side facing NW
Age Group: Adult
Sex: M
Type of Interment: Single

Grave equipment
KM [2390] - Conical stone, [5188] - Bone needle

Position of in situ grave equipment

Grave: 558
Reference: -
Period: 4

Description of unit
Location: 23.23.2
Type: 3
Features: None
Status: D
Stratigraphy: Cuts B 1295, 1318, 1355
Fills: 2095; upper 1318 stony, backfilled wall of B 1295
Volume: 1.162 m³

Burial programme
Number of Burials: Unidentified human bone (HB. 55, 78)
Burial Numbers: None
Condition: D
Position: -
Orientation: -
Posture: ?
Age Group: -
Sex: -
Type of Interment: -

Grave equipment
KM 2268 - Stone bead, 2440 - Dentalium bead, [2439] - Stone lid, [2446] - Pounder, [2447] - Stone bowl frag., [2203] - Cupped stone, [2190] - Hammerstone/grinder, [2191] - Hammerstone, [2192, 2197] - Conical stones, [2204] - Picrolite bead, [5213] - bone needle, [2742] - Misc.

Position of in situ grave equipment

Grave: 560

Reference: -
Period: 3B

Description of unit

Location: 20.23.2
Type: 1
Features: None
Status: D
Stratigraphy: Beside wall 1401
Fills: Loose, soft silt with small stones
Volume: 0.015 m³

Burial programme

Number of Burials: 1; adolescent or adult tooth is stray since pit is too small for such a burial
Burial Numbers: KM 2400
Condition: D
Position: C
Orientation: E-W
Posture: Mandible on chest
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

KM 2401 - Dentalium bead, 2402 - Bone pendant, 2403 - Picrolite pendant, 3019 - Worked pig tusk, 3061 - Obsidian frag.

Position of in situ grave equipment

All except obsidian in a clutch at neck

Grave: 561

Reference: -
Period: 4

Description of unit

Location: 20.24.3
Type: 3
Features: Roof collapsed
Status: OK
Stratigraphy: Beside B 1052
Fills: Upper 1394?

Burial programme

Number of Burials: 1
Burial Numbers: KM 2338
Condition: Intact
Position: F
Orientation: N-S
Posture: On right side facing W, one hand to face, one over top of head
Age Group: Adult
Sex: F
Type of Interment: Single

Grave equipment

KM 2337 - RB/B Holemouth jar, 2336 - Conical stone, 2310 - Conical stone, 2319 - Chalk bead, [2321] - Cupped stone frag., [3293] - RWL hemibowl, [5131] - Worked bone

Position of in situ grave equipment

KM 2336-7 at feet

Grave: 562

Reference: -
Period: 3/4

Description of unit

Location: 20.24.1
Type: 1
Features: None
Status: Cut by Gr. 505 and 507
Stratigraphy: 2033
Fills: Brown, cloddy pisé wash
Volume: ?

Burial programme

Number of Burials: 1

Burial Numbers: KM 2636

Condition: Intact
Position: F
Orientation: NE-SW
Posture: On right facing NW
Age Group: Adult
Sex: F
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Several stones on top of body

Grave: 563

Reference: *Preliminary* 15, 209-10, Fig. 1; Peltenburg 1992
Period: 3B

Description of unit

Location: 18.24.1
Type: 2
Features: Capstones (2)
Status: OK
Stratigraphy: Below B 1165, beside B 855
Fills: 2042, 2045, 2046, 2047, 2057
Volume: 0.816 m³

Burial programme

Number of Burials: 4
Burial Numbers: KM 2718.01-2, 2719.01-2
Condition: D
Position: 2718.01 - C, 2719.01 - C, others disturbed
Orientation: 2718.01 - E-W, 2719.01 - E-W
Posture: 2718.01 and 2719.01 on right side facing N, 2718.01 arms before face
Age Group: 2718.01-2, 2719.01-2 - Children
Sex: ?
Type of Interment: 2718.01 and 2719.01 double contemporary; others partly removed

Grave equipment

KM [2619] - Picrolite pendant, 2717 - Picrolite figurine, [2720] - Picrolite pendant, [2721] - Picrolite pendant, [2663-4, 2666-8, 2670-75, 2685, 2687-9, 2716] - Dentalium beads, 2722, 2751-2767 - Dentalium beads, [2665] - Axe-grinder frag., [2684] - Diabase hammerstone, [2729] - Diabase adze frag.

Position of in situ grave equipment

KM 2722 on sternum of KM 2718.1, 2717 and 2751-67 below mandible of KM 2719.1

Grave: 564

Reference: -
Period: ?

Description of unit

Location: 19.24.1
Type: ?
Features: None
Status: D
Stratigraphy: Lying in superficial ploughsoil
Fills: -
Volume: ?

Burial programme

Number of Burials: 2
Burial Numbers: KM 2886
Condition: D
Position: F
Orientation: -
Posture: ?
Age Group: 2886 and unnumbered - Children
Sex: ?
Type of Interment: Double

Grave equipment

KM 3007 - Dentalium bead

§ 16 Mortuary Evidence

Position of in situ grave equipment

Grave: 565

Reference: -
Period: 4

Description of unit

Location: 19.25.3
Type: ?
Features: None
Status: D
Stratigraphy: In section below ploughsoil
Fills: -
Volume: ?

Burial programme

Number of Burials: 1
Burial Numbers: KM 2887
Condition: D
Position: Extended
Orientation: NE-SW
Posture: ?
Age Group: Adult
Sex: M
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 566

Reference: -
Period: 4?

Description of unit

Location: 20.24.3
Type: 3
Features: None
Status: OK
Stratigraphy: Cuts B 736, beside B 1044 and 1046
Fills: Loose, dark grey-brown silt
Volume: 0.149 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 2693
Condition: D
Position: C
Orientation: N-S
Posture: On right side facing W, arms missing
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 567

Reference: -
Period: 3A?

Description of unit

Location: 24.29.2
Type: 2
Features: Capstones (3), one subsided into void of lower pit
Status: OK
Stratigraphy: Sealed by 1571 and 1538, the former partly the collapse of B 1547
Fills: Loose, grey-brown soil, slightly compact
Volume: 0.693 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 2835
Condition: Intact
Position: F

Orientation: S-N
Posture: On right facing E
Age Group: Child
Sex: F
Type of Interment: Single

Grave equipment

KM [3057] - Pottery lid, [3323] - Worked picrolite

Position of in situ grave equipment

Grave: 568

Reference: -
Period: 3B

Description of unit

Location: 21.25.1/3
Type: 2
Features: Capstones (2-3?), dislodged and thrown into fill together with stone tools
Status: D
Stratigraphy: Below B 994, beside B 4
Fills: 2085, 2093, 2109
Volume: 0.285 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 2888
Condition: -
Position: ?
Orientation: ?
Posture: ?
Age Group: (Child)
Sex: ?
Type of Interment: Single secondary?

Grave equipment

KM [2868, 2901-2] - Pigment, [2899, 2792] - Rubbing stones frags., [2744, 2900] - Hammerstone/grinder, [2746] - Axe

Grave: 569

Reference: -
Period: 3B

Description of unit

Location: 18.24.1
Type: 1
Features: None
Status: D
Stratigraphy: From or below B 855
Fills: Loose, brown silt
Volume: 0.016 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 2948
Condition: D
Position: ?
Orientation: SW-NE
Posture: ?
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

None

Position of in situ grave equipment

Grave: 570

Reference: -
Period: 3A?

Description of unit

Location: 25.30.3
Type: 1
Features: Capstones (2)
Status: D
Stratigraphy: Beside B 1016 and 1547
Fills: Soft, grey-brown silt

Volume: 0.056 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 2979
Condition: D
Position: C
Orientation: SE-NW
Posture: On right side facing NE, left hand close to head
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

KM [2982] - Stone disc, [5189] - Bone needle

Position of in situ grave equipment

Grave: 571

Reference: -
Period: 3A?

Description of unit

Location: 24.29.2
Type: 2
Features: Capstones (3) - KM 3070-1, 3078 - All Querns
Status: D
Stratigraphy: Beside B 1016, cuts B 1547.
Fills: Soft, brown silt with roots
Volume: 0.45 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 3079
Condition: Intact
Position: Dorsal
Orientation: N-S
Posture: Head propped up, arms extended along sides, right knee upright against pit edge, left fallen to elbow
Age Group: Adult
Sex: F
Type of Interment: Single

Grave equipment

KM 3083 - Dentalium bead, 3084 - Chalk pendant frag., 3070-1, 3078 - Querns, [3315] - Pot disc frag. [5123] - Bone point, [5190] - Bone needle

Position of in situ grave equipment

Inverted querns as capstones

Grave: 572

Reference: -
Period: 3A?

Description of unit

Location: 25.29.2
Type: 2
Features: Capstones (2)
Status: D
Stratigraphy: Beside B 1565. 1618.
Fills: Loose to more compact grey-brown silt
Volume: 0.167 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 3465
Condition: D
Position: C
Orientation: S-N
Posture: On right side facing E, hand in front of face
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

KM 3460 - Dentalium bead, [3419] - Stone bowl frag.

Position of in situ grave equipment

Grave: 573

Reference: -
Period: 3A?

Description of unit

Location: 25.29.2
Type: 2
Features: Capstones (5)
Status: OK
Stratigraphy: Cut into B 1565
Fills: Upper 1560
Volume: 0.374 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 3476
Condition: Intact
Position: C
Posture: On right side facing E, hands in front of propped up head
Orientation: SE-NW
Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment

KM [3463] - Pottery disc, [3466] - Worked bone

Position of in situ grave equipment

Grave: 574

Reference: -
Period: 3A?

Description of unit

Location: 25.29.2
Type: 2
Features: Capstones (2) immediately over feet
Status: D
Stratigraphy:
Fills: Mixed silty and ashy fill
Volume: 1.001 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 3478
Condition: Intact
Position: F
Orientation: SE-NW
Posture: On right side facing E, hand in front of face
Age Group: Adult
Sex: M
Type of Interment: Single

Grave equipment

KM [3396] - Cupped stone, [3468] - Rubber frag., [3480] - Rubbing stone/pestle frag., [3574] - Stone frag. with red pigment

Position of in situ grave equipment

Grave: 575

Reference: -
Period: 3A?

Description of unit

Location: 24.29.4
Type: 2
Features: Capstones (4)
Status: OK
Stratigraphy: Beside B 1638 (building).
Fills: 1626, 1650; 0.10 m void below capstones
Volume: 0.169 m³

Burial programme

Number of Burials: 1
Burial Numbers: KM 3521
Condition: Intact
Position: F
Orientation: S-N
Posture: On right side facing E, arms across body

Age Group: Child
Sex: ?
Type of Interment: Single

Grave equipment : KM [3550] - Pounder, [3513] - Cupped stone, [3629] - Pottery disc

Position of in situ grave equipment

Supplementary List: Probable graves

In addition to the above, there are at least 15 possible disturbed graves. The most likely ones are shown together with graves and tombs listed above on Figs. 14.3, 14.5 and 14.8. Human remains also occurred in general habitation deposits and a child was trapped in the destruction of the Pithos House, Unit 2138. (HB. refers to the Archival record Human Bone. For many quoted here, see § 16.2.

Grave 531, a deleted unit since remains of a grave here were stolen between seasons. Located north of B 3 and B 86 in levels likely to be contemporary with B 86.

Unit 307, a small oval pit cut into B4 (Fig. 33), contained a fragmentary scapula and other bones, as well as KM 763, a rubbing stone. Only a foetus or infant could have fitted into the space provided. The probable grave belongs to Period 4, presumably prior to the construction of B 1.

Unit 619/620 yielded several picrolites and beads, typical funerary provisions. It had a lime plug, like a capstone. Although no human bone was recovered from this and adjacent pits in the west side of B 3/706 (pits 471 and 631), they could be related to mortuary activity. See B 706 in § 3.5 and 15.2.

Unit 863/971 is a large pit containing fragments of an adult's skull and other bones (HB. 84-5). Other skull frags (HB. 1082) in adjacent 1082 may belong. It was cut through B 834 soon after its collapse and prior to the foundation of superimposed floor 922 (Fig. 48). Either the pit fill accidentally included remains of a burial from elsewhere, or it functioned as a disturbed Period 4 grave for the child. Amongst the many utilitarian objects in the pit was pendant KM 1356.

Unit 873 is a small pit truncated by Gr. 526 (Fig. 54). This Period 4 pit contained the tooth of a child 1-4 years old (HB. 44). Only undisturbed adults were recorded in 526, so unless an earlier child had been removed to become incorporated in 873 fill, 873 probably constituted a distinct child burial. There are no objects from this pit.

Unit 911 (Fig. 51) contained the remains of two burials, an adult female (528) and another single inhumation (534). There are so many other human bone fragments (HB. 47, 80-82, 88, 91, 101) that further bodies may be represented in this Period 4 feature.

Unit 999 was a grave-like shaft sunk through the larger pit 997/1012 in the Upper Terrace. Its sides were difficult to follow. Near its base, but c. 10 cm beyond the traced wall of the pit, in 997/1012, was considerable human bone (HB. 4, 83, 111). Pit 997/1012 and re-cut 999 contained many objects, including dentalia and pendants, probably all Period 3A.

Unit 1035 is a general Period 4 deposit below B 204 and 376. Skull fragments were found and since neighbouring Gr. 516, 519 and 520 possessed skulls, another burial may have existed here, or the skull was redeposited in general habitation levels.

Unit 1081 is an amorphous Period 4 pit cut through the west wall of B 1044 (Fig. 49). Its fill included remains of a juvenile skull and long bones (HB. 105). With these were pendant KM 1682 and bone point KM 1685. These are the remnants of a likely disturbed grave, perhaps from adjacent grave-like pit 1112 situated against the wall of B 1046 and beside similarly situated Gr. 563.

Unit 1083 is an irregular, small pit cutting through house deposits in B 1052 (Fig. 48). In its very loose fill was an adze and infant's vertebra HB. 106. Since it is later than relatively undisturbed internal Gr. 542, 544, 1083 is a disturbed Period 4 grave, or backfill containing human remains.

Unit 1142 is a chamber leading off the base of Period 4 pit 913 (Fig. 51). Its size and shape are consonant with tomb chambers. Like these, it had a void between fill and roof. Even though no bones or finds typical of burials were found here, this remains its most likely function.

Unit 1297 is a small stony pit cut into the south end of Gr. 548. It contained scraps of very young human remains, possibly the disturbed lower body of KM 1991, though a separate Period 3/4 burial of a younger individual cannot be excluded.

Unit 1358 is part of a pit complex which was cut below the hearth of B 855. The presence of an incisor of a young child (HB. 113) confirmed suspicions, gained from the pit profile and grave-like slab found below many large stones on the bottom of the pit, that this was the remains of a severely disturbed Period 3B grave. It may have been cut, or more likely re-cut, from just above the floor of B 855 where there was a disturbance at 1080 (Fig. 35). The disturbance, a shaft-like pit, may have cut through an earlier pit or chamber slightly to the south, 1113. The full, chamber-like extension of this was not fully investigated since this would have undermined the hearth and floor of B 855. Unit 1080/1113/1358, therefore, comprises a robbed, rock-filled Period 3B grave with robber pit or shaft min 0.60 m deep and 0.50 m wide leading to a grave pit or chamber extending c. 1.15 m. below B 855 hearth. A dentarium, KM 3372, suggests there may have been a necklace associated with the burial.

Unit 2060 is an extensive Period 3B ditch fill north of B 855 (Figs. 22, 31). At the interface between it and Gr. 515 were the remains of a child (skull frags) and the crossed upper legs of an older person. In this area were also an infant vertebra, a mature proximal radius and an adult mandible. The latter (HB. 142) belonged to a young, possibly male, adult, 20-25 years. These could not be ascribed to the chamber of Gr. 515, nor could the outlines of a separate grave pit be delineated satisfactorily. What seems to have been a collective burial existed here prior to Gr. 515, either belonging to Period 3B or 4.

Unit 2121, an unexcavated subcircular pit slighting NE arc of B 2 wall (Fig. 32). Position, size and shape strongly suggest a child burial.

§16.2 Archive report on the human dentitions (D.A.L. and M.E.W.)

The skeletal material from Kissonerga was generally in a brittle and fragile condition, and the bones of the jaw did not survive intact. In some cases, the teeth were in an excellent state of preservation, with little evidence of *post mortem* degradation. In these specimens, the surface of the enamel was smooth and glossy, still retaining its natural *in vivo* appearance. Some teeth with glossy enamel showed evidence of *post mortem* destruction of dentine and cementum, of the type attributed to breakdown of collagen in these tissues due to soil action (Beeley and Lunt 1980). However, in other specimens there was evidence of *post mortem* destruction of enamel, resulting in a chalky appearance of the enamel, and in more advanced cases, a loss of surface enamel which varied in severity from a slight pitting of the surface to severe erosion in which loss was sufficient to remove minor morphological features and render measurements of the tooth inaccurate. The Kissonerga specimens were much less frequently affected by surface erosion of the enamel than were the specimens from Lemba-Lakkous, in which it was very often found.

The teeth and jaw fragments were carefully cleaned and the teeth were identified. At this stage it was sometimes possible to recognise additional teeth which did not form part of the main dentition or dentitions of the individual(s) buried in the grave. Such additional teeth may indicate either an additional burial in the grave or stray material from disturbed burials. Some human teeth were also recovered from non-funerary

contexts.

An estimate of age at death was made from each dentition or fragment of a dentition, using the methods detailed below. Notes were also made of morphological features of the teeth, extent of attrition and any dental pathological conditions of the teeth or jaw-bones.

Age estimation

The dental age of each person represented by a dentition or part of a dentition was estimated. In the juveniles, age was assessed from the stage of development of the teeth. Once the teeth were fully formed, the degree of wear ("attrition") of the teeth was used to give an indication of age in the adults.

A rough approximation of age in juveniles may be obtained using the eruption status, but a more reliable estimate is gained from the stage of development of individual teeth, and this technique can also be used when the bone of the jaw has not survived and only a handful of teeth is present. When the jaw bone remains intact, it may be necessary to use radiographs to visualise teeth developing within the alveolar bone.

There are several methods for the assessment of age in juveniles from the stage of development of the dentition, and none is entirely satisfactory. A discussion of the problems associated with these techniques will be found elsewhere (Lunt 1995; Lunt and Watt 1997).

Since no single method seemed entirely satisfactory in use, several different techniques were used in the present study. A general impression of the most likely age of the individual was gained by selecting the most relevant diagram from the drawings of Schour and Massler (1941): though the Ubelaker (1989) drawings were recommended by Ferembach *et al.* (1980), they were originally intended for use with Amerindian and other non-white populations and were possibly not suited for application to a Caucasoid population. Ages of individual teeth were assessed from the detailed charts of tooth development published by Moorrees *et al.* (1963). In the case of third molars, the tables and radiographs published by Johanson (1971) were also used. When the appropriate teeth were present, age was calculated using the method of Demirjian *et al.* (1973, 1976). In most instances, it was then possible to establish a median value which was used as the most likely age at death, within an appropriate range of variation.

After the work on the Kissonerga material had been completed, a review paper was published by Smith (1991), in which the methods of assessing age from dental development were discussed in detail. Following previous authors, Smith considered the data of Moorrees *et al.* (1963) to contain the most accurate information concerning the chronology of tooth development, and included tables of values for age prediction based upon the Moorrees data, though these tables were themselves incomplete since not all stages of development of permanent teeth could be shown, and decid-

uous tooth development was not included.

The ages of the Kissonerga juveniles were re-assessed using the Smith table. In 17 individuals, the age as assessed by the Smith table fell within the age range already assigned, and in four further cases there was a discrepancy of no more than a month between the limit of the age range assigned and the estimate calculated from the Smith table. In four individuals, the value for age calculated from the Smith table was higher than the upper limit of the assigned age range by not more than six months, and in four cases the age calculated from the Smith table was lower than the lower limit of the assigned age range by not more than six months. There was no difference in age estimates greater than six months. In nine of the young children, no age could be calculated using the Smith table as the few teeth present in the specimen did not appear in the table.

It was also observed that most cases where the age calculated from the Smith table was higher than that of the original estimate occurred in very young children, while the cases where the age calculated from the Smith table was lower than the original estimate all occurred in children aged *c.* 5 years or more. The ages assigned to the Kissonerga juveniles are the best estimates of age which could be made, given the fragmentary nature of the material and the difficulties inherent in the age estimation procedures. The reliability of the absolute ages assigned to the specimens should not be over-estimated. In very few cases were the age estimates obtained from different teeth completely identical throughout the dentition, and in some cases the age estimates provided by different teeth varied by two or even three years. In such cases, it is impossible to know whether some teeth were retarded, or whether other teeth were advanced in their development, or whether some teeth were retarded and others advanced in the same dentition. In making the estimates using the Smith table, the same problems are inherent in summing the values indicated by various teeth and taking an average, and the unreliability of this procedure must also be increased when only a small part of the dentition is present.

In using all the techniques described, it is also assumed that the tables of chronology of tooth development constructed from modern American White children are appropriate to the development of the dentition in Chalcolithic Cyprus, and that the juveniles examined were not only normal but also average in the timing of tooth development. These assumptions may or may not be correct. It is, however, true to say that the Kissonerga juveniles could be ranked by order of age, that the ages assigned are probably reasonably accurate within a year or so, and that the age estimates for the Kissonerga juveniles are exactly comparable to those for the juveniles from Lemba-Lakkous.

Age in the adults may be estimated from the degree

of attrition exhibited by the permanent teeth and particularly by the permanent molars. Since the latter teeth emerge into function at roughly six-year intervals, they show a gradient in attrition which persists throughout life. By relating the earliest stages of attrition to the later stages of tooth development, and extrapolating the results forward into the adult period, Miles (1963) was able to construct a table in which the degree of attrition of the molars in a population of Anglo-Saxons was related to chronological age. In applying this method to other populations, a similar table should be constructed, based on tooth development in the juveniles. This procedure could not be carried out with the Kissonerga material as there were insufficient juveniles in the older age groups. It was considered doubtful whether the very precise scale constructed by Miles for the Anglo-Saxons would be applicable to Chalcolithic Cyprus, and a more general table published by Brothwell (1972) and found to be appropriate for prehistoric and early mediaeval populations in Britain was employed. Using this table, most of the Kissonerga adults were assigned to the broad categories 20-25, 25-35 and 35-45 years. Three specimens, in which the condition of the dentition did not allow of a closer estimate, were assigned to a very broad category 25-45.

The reliability of the age assessments in adults is probably much lower than that for juveniles, and the age categories assigned may bear little relation to the real ages of the individuals. However, the age estimations allow the specimens to be grouped into sets of roughly comparable age, and permit these sets to be arranged in order of ascending age.

Tooth Morphology

The human dentition shows considerable variability in the detailed morphology of individual teeth. The variations are not random but fall into recognisable patterns, which can to some extent be related to racial or kinship groups.

A very large number of morphological variations has been described in the literature. Thirty-seven morphological traits of permanent teeth are recommended for study in a recent paper by Turner *et al.* (1991). A smaller number of morphological traits in the deciduous dentition was studied by Hanihara (1963).

In dealing with the Kissonerga dentitions, it was not possible to gather data on all of these morphological traits. Many of the dentitions were incomplete. A high proportion of the specimens comprised very young children in whom the permanent teeth were not sufficiently developed. Minor morphological features of the teeth in adults were often affected by attrition or by *post mortem* erosion, and the latter condition sometimes affected the developed permanent teeth in the older children.

A study was however made of some of the major morphological traits in the permanent dentition, including

the cusp of Carabelli and mandibular first molar groove patterns, which were considered to be the most reliable population discriminators by Sofaer *et al.* (1972). The large number of juveniles allowed assessment of morphological traits in the deciduous dentition.

Morphological traits of the permanent teeth were assessed by reference to the standard plaques of the Arizona State University Dental Anthropology System (Turner *et al.* 1991) or to the classification of Dahlberg (1963). The classification of Hanihara (1963) was used for most traits in deciduous teeth. In all instances, though observations were made on all teeth present, a single score was used for each trait in a dentition. When there was asymmetry in the scores between left and right sides, the antimere exhibiting the greater degree of trait expression was used to score the individual, as recommended by Scott (1980).

The intention was to make comparisons between periods on the site if possible, and to compare the data from Kissonerga with data from the nearby Chalcolithic site of Lemba-Lakkous, and with data published for other sites of comparable periods. There were difficulties in carrying out some of these comparisons. The quantity of data from Period 3 at Kissonerga was so small that some comparisons may be unreliable. For some teeth there was less data on morphology from Lemba-Lakkous than from Kissonerga: not only was there a high proportion of very young children at Lemba-Lakkous, but most of the adults were relatively elderly or had experienced severe dental disease, and many of the dentitions had suffered severely from *post mortem* erosion of the enamel. Very little comparable data for Neolithic, Chalcolithic or Bronze Age populations from Europe or the Near East has been published, and in some cases different methods of grading the morphological traits have been used. Only some data from French Neolithic and Chalcolithic (Megalithic) sites (Brabant 1969) and the data from the Chalcolithic levels of the site at Mehrgarh in Baluchistan (Lukacs and Hemphill 1991) could be employed in comparisons.

Shovel-shaped incisors

The term 'shovel-shaped' is used to denote a variant of the incisor in which marginal ridges are developed on the lingual surface. In some extreme cases, marginal ridges also develop on the labial surfaces, and this variant is known as 'double-shovel'. The more pronounced expressions of the shovel incisor trait are generally to be found in groups with Mongoloid affinities, but the lesser degrees of the trait may occur in Caucasoids (Carbonell 1963).

Shovel-shaped permanent incisors

The Kissonerga maxillary permanent incisors produced no examples of double-shovel or of the more pronounced variants of shovel-shape, but minor degrees of shovelling were observed in Kissonerga maxillary per-

manent incisors (Table 16.1). Few dentitions from Period 3 had maxillary permanent incisors in which shovel-shape could be assessed, but the scanty data may suggest that shovelling was more prevalent in Period 3 than Period 4.

Table 16.1. Prevalence of shovel-shaped permanent maxillary incisors in Cypriot Chalcolithic dentitions

| Grade | I ¹ | | | LL | I ² | | | LL |
|--------------|----------------|----------|--------|------|----------------|----------|--------|-------|
| | Period 3 | Period 4 | KM All | | Period 3 | Period 4 | KM All | |
| 0 | 1 | 6 | 8 | 5 | 0 | 3 | 4 | 3 |
| 1 | 3 | 6 | 10 | 9 | 3 | 8 | 11 | 5 |
| 2 | 0 | 1 | 1 | 3 | 0 | 2 | 2 | 3 |
| <i>Total</i> | 4 | 13 | 19 | 17 | 3 | 13 | 17 | 11 |
| Grade | % | % | % | % | % | % | % | % |
| 0 | 25.0 | 46.2 | 42.1 | 29.4 | 0.0 | 23.1 | 23.5 | 27.3 |
| 1 | 75.0 | 46.2 | 52.6 | 52.9 | 100.0 | 61.5 | 64.7 | 45.5 |
| 2 | 0.0 | 7.7 | 5.3 | 17.6 | 0.0 | 15.4 | 11.8 | 27.3 |
| <i>Total</i> | 100.0 | 100.1 | 100.0 | 99.9 | 100.0 | 100.0 | 100.0 | 100.1 |

The distribution of the grades of shovel-shape in Kissonerga dentitions of all periods is shown in Table 16.1, together with the distribution of the trait in the Lemba-Lakkous dentitions. Maxillary permanent first incisors in the Lemba dentitions showed a higher prevalence of shovelling than did those from the Kissonerga dentitions. The prevalence of shovelling in the maxillary second incisors was similar in Kissonerga and Lemba, but the expressivity of the trait in both teeth was slightly higher in the Lemba dentitions.

Shovelling of maxillary incisors appears to have been commoner in the Cypriot Chalcolithic populations than in the European Megalithic dentitions studied by Brabant (1969), in which 58.0% of first incisors and 43.3% of second incisors showed no evidence of the trait. Incidence of shovelling was higher in the Mehrgarh Chalcolithic people (16.0% of first incisors and 12.5% of second incisors showed no evidence of the trait), but the people from this site were considered to have Mongoloid affinities (Lukacs and Hemphill 1991).

Shovelling of mandibular permanent incisors is rare, and was not observed in the Kissonerga material. The mandibular second incisors in two Lemba dentitions showed the minimal degree of shovelling.

The second permanent maxillary incisors in the Cypriot Chalcolithic dentitions showed a greater degree of shovelling than did the first incisors. This was also the case in the European Megalithic dentitions, where 58% of maxillary first incisors and 43% of maxillary second incisors showed no evidence of shovelling. However, the prevalence of shovel-shaped second incisors in the French Megalithic dentitions was noticeably lower than that in the Cypriot Chalcolithic dentitions.

In a study of the dentition in patients suffering from beta thalassaemia major and in a control group of unaffected siblings, Tas *et al.* (1976) found that the thalassaemics had a markedly higher prevalence of trace shovelling of second incisors (73%) than the normal controls (38%) and concluded that a high prevalence of shovelling of the second incisor was a dental characteristic of beta thalassaemia major. There is no control group for the Cypriot Chalcolithic dentitions on which second incisor shovelling and the other dental features characteristic of the condition could be tested. It may perhaps be suggested that the high prevalence of second incisor shovelling at the Cypriot Chalcolithic sites (Kissonerga 76.5%, Lemba 72.7%) could, but need not, be related to beta thalassaemia major.

Shovel-shaped deciduous incisors

Table 16.2. Prevalence of shovel-shaped deciduous maxillary incisors in Cypriot Chalcolithic dentitions

| Grade | di ¹ | | | LL | di ² | | | LL |
|--------------|-----------------|----------|--------|-------|-----------------|----------|--------|-------|
| | Period 3 | Period 4 | KM All | | Period 3 | Period 4 | KM All | |
| 0 | 4 | 4 | 8 | 3 | 3 | 2 | 5 | 1 |
| 1 | 3 | 2 | 6 | 8 | 6 | 6 | 12 | 6 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| <i>Total</i> | 7 | 6 | 14 | 11 | 9 | 8 | 18 | 7 |
| Grade | % | % | % | % | % | % | % | % |
| 0 | 57.1 | 66.7 | 57.1 | 27.3 | 33.3 | 25.0 | 27.8 | 14.3 |
| 1 | 42.9 | 33.3 | 42.9 | 72.7 | 66.7 | 75.0 | 66.7 | 85.7 |
| 2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.6 | 0.0 |
| <i>Total</i> | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.1 | 100.0 |

The extent of shovelling of deciduous maxillary incisors is shown in Table 16.2. The dentitions from Kissonerga 3 showed slightly more shovelling of the deciduous first incisors and slightly less shovelling of the deciduous second incisors than the dentitions from Kissonerga 4. When Kissonerga dentitions of all periods were compared with Lemba dentitions, the latter showed a markedly higher prevalence of shovelling in both first and second maxillary incisors.

Taking both permanent and deciduous dentitions into account, there appears to be a slightly greater tendency to shovelling of the incisors in Kissonerga 3 than in Kissonerga 4, and a definite tendency to increased prevalence of shovelling in the Lemba dentitions compared with the Kissonerga dentitions

Mandibular molar cusp numbers

Permanent mandibular molar cusp numbers

Human permanent mandibular molars show considerable variation in the number of cusps on the occlusal surface. By reference to lower primates, the basic or primitive number of cusps is five, but this may be re-

duced to four or even three, and may occasionally be increased to six or rarely to seven cusps. In Caucasoid populations, the first permanent molar often but not always retains five cusps, the second permanent molar is usually reduced to four cusps but occasionally retains the five-cusped form, and the third molar may have either five or four cusps, or one of the rarer variants.

Table 16.3 shows a comparison of molar cusp numbers in Kissonerga Periods 3 and 4. The proportions of six- and four-cusped first molars appeared to be slightly higher in Period 3 than in Period 4, but this was largely due to small numbers in Period 3. The numbers of second and third molars available for study from Period 3 were too small for comparisons to be meaningful.

For mandibular first permanent molars, the distribution of molar cusp numbers was fairly similar in the Kissonerga and Lemba-Lakkous groups. The second molars appeared to show less cusp reduction and the third molars to show more reduction in the Lemba group, but the latter result may well have been due to the small number of Lemba third molars available for study (Table 16.3).

The proportions of unreduced mandibular first permanent molars (Kissonerga 90.3%, Lemba 83.9%) were close to the figures for Mehrgarh Chalcolithic (86.9%), European Neolithic (97.6%) and French Megalithic sites (85.6-97.3%). The proportion of unreduced second molars varied from 2.2% in a French Megalithic group to 8.4% in Mehrgarh Chalcolithic: the figure for Kissonerga was close to the latter, but the figure of 25% unreduced second molars for Lemba was considerably higher than for any other group. The third molars of Kissonerga individuals showed a higher proportion of the unreduced type (75%) than was found in other population groups, where values ranged from 58.8% in Mehrgarh Chalcolithic to 15% in European Neolithic.

Deciduous mandibular molar cusp numbers

The mandibular second deciduous molar is similar in morphology to the mandibular first permanent molar and generally has five cusps though additional cusps may occasionally be found. The mandibular first deciduous molar is quite unlike any of the permanent molars in morphology and usually has four cusps, though a variant with five cusps was observed in the Cypriot Chalcolithic material.

The proportions of five- and six-cusped second deciduous molars were similar in Period 3 and Period 4 of the Kissonerga material and were repeated in the total Kissonerga dentitions and in Lemba dentitions (Table 16.4). The proportion of five-cusped first deciduous molars was higher in Kissonerga Period 3 than in Kissonerga 4. The figures for the total Kissonerga group were similar to those of the Lemba group.

Permanent mandibular molar groove patterns

As well as variation in cusp numbers, there is also variation in the arrangement of the occlusal groove pattern of human permanent mandibular molars. The basic or primitive pattern is known as the Dryopithecus pattern, named after a fossil primate. It is characterised by a Y-formation in the central area of the occlusal pattern. Reduced patterns are known as + and X patterns. All three patterns are identified by observing the relationships of specific cusps in the central occlusal basin. The reduced + and X patterns are frequently observed in Caucasoids.

The second deciduous molars may show the Dryopithecus pattern, but these teeth often present additional ridges and grooves and the occlusal pattern may be difficult to read.

The Y pattern was observed in all first permanent molars from Kissonerga 3, while a small number of teeth from Kissonerga 4 showed the + pattern. The numbers of second and third molars from Kissonerga 3

Table 16.3. Permanent mandibular molar cusp numbers in Cypriot Chalcolithic dentitions

| Tooth No. of cusps | M ₁ | | | | M ₂ | | | | M ₃ | | | |
|--------------------|----------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|
| | Period 3 | Period 4 | KM All | LL | Period 3 | Period 4 | KM All | LL | Period 3 | Period 4 | KM All | LL |
| 6 | 1 | 1 | 3 | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| 5 | 4 | 17 | 25 | 24 | 0 | 2 | 2 | 4 | 2 | 5 | 8 | 3 |
| 4 | 1 | 2 | 3 | 5 | 3 | 16 | 22 | 12 | 0 | 3 | 3 | 3 |
| Total | 6 | 20 | 31 | 31 | 3 | 19 | 25 | 16 | 2 | 9 | 12 | 6 |
| No. of cusps | % | % | % | % | % | % | % | % | % | % | % | % |
| 6 | 16.7 | 5.0 | 9.7 | 6.5 | 0.0 | 5.3 | 4.0 | 0.0 | 0.0 | 11.1 | 8.3 | 0.0 |
| 5 | 66.7 | 85.0 | 80.6 | 77.4 | 0.0 | 10.5 | 8.0 | 25.0 | 100.0 | 55.6 | 66.7 | 50.0 |
| 4 | 16.7 | 10.0 | 9.7 | 16.1 | 100.0 | 84.2 | 88.0 | 75.0 | 0.0 | 33.3 | 25.0 | 50.0 |
| Total | 100.1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Table 16.4. Deciduous mandibular molar cusp numbers in Cypriot Chalcolithic dentitions

| No. of cusps | Period 3 | | Period 4 | | KMall | | LL | |
|--------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | dm ₁ | dm ₂ | dm ₁ | dm ₂ | dm ₁ | dm ₂ | dm ₁ | dm ₂ |
| 6 | - | 3 | - | 4 | - | 9 | - | 7 |
| 5 | 4 | 5 | 0 | 6 | 4 | 13 | 3 | 10 |
| 4 | 6 | - | 9 | - | 18 | - | 12 | - |
| Total | 10 | 8 | 9 | 10 | 22 | 22 | 15 | 17 |
| No. of cusps | % | % | % | % | % | % | % | % |
| 6 | 0.0 | 37.5 | 0.0 | 40.0 | 0.0 | 40.9 | 0.0 | 41.2 |
| 5 | 40.0 | 62.5 | 0.0 | 60.0 | 18.2 | 59.1 | 20.0 | 58.8 |
| 4 | 60.0 | 0.0 | 100.0 | 0.0 | 81.8 | 0.0 | 80.0 | 0.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

was too small for comparisons to be meaningful (Table 16.5).

The first and second mandibular molars from Lemba-Lakkous appeared to show greater reduction of the primitive Y pattern than did the corresponding molars from Kissonerga. On the other hand, two Lemba dentitions showed Y pattern in the third molars, while there were no Kissonerga third molars with the Y pattern. The small number of Lemba third molars should be borne in mind (Table 16.5).

Groove patterns in the Cypriot Chalcolithic material could be compared only with the Chalcolithic material from Mehrgarh. There was no consistent relationship between the groups: the proportion of Mehrgarh first molars with the primitive Y pattern (71.4%) fell between those for Kissonerga and Lemba, while the Y pattern was found in a high proportion (27.3%) of Mehrgarh second molars but only a few (6.2%) Mehrgarh third molars.

Table 16.5. Permanent mandibular molar groove patterns in Cypriot Chalcolithic dentitions

| Tooth Groove Pattern | M ₁ | | | | M ₂ | | | | M ₃ | | | |
|----------------------|----------------|----------|--------|-------|----------------|----------|--------|-------|----------------|----------|--------|-------|
| | Period 3 | Period 4 | KM All | LL | Period 3 | Period 4 | KM All | LL | Period 3 | Period 4 | KM All | LL |
| Y | 6 | 16 | 27 | 19 | 0 | 3 | 3 | 1 | 0 | 0 | 0 | 2 |
| + | 0 | 4 | 5 | 11 | 2 | 13 | 16 | 8 | 1 | 4 | 5 | 3 |
| x | 0 | 0 | 0 | 0 | 1 | 3 | 6 | 6 | 1 | 5 | 7 | 1 |
| Total | 6 | 20 | 32 | 30 | 3 | 19 | 25 | 15 | 2 | 9 | 12 | 6 |
| Groove Pattern | % | % | % | % | % | % | % | % | % | % | % | % |
| Y | 100.0 | 80.0 | 84.4 | 63.3 | 0.0 | 15.8 | 12.0 | 6.7 | 0.0 | 0.0 | 0.0 | 33.3 |
| + | 0.0 | 20.0 | 15.6 | 36.7 | 66.7 | 68.4 | 64.0 | 53.3 | 50.0 | 44.4 | 41.7 | 50.0 |
| x | 0.0 | 0.0 | 0.0 | 0.0 | 33.3 | 15.8 | 24.0 | 40.0 | 50.0 | 55.6 | 58.3 | 16.7 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Table 16.6. Maxillary molar cusp numbers in Cypriot Chalcolithic dentitions

| Tooth Cusp No. | M ¹ | | | | M ² | | | | M ³ | | | | dm ² | | | |
|----------------|----------------|----------|--------|-------|----------------|----------|--------|-------|----------------|----------|--------|-------|-----------------|----------|--------|-------|
| | Period 3 | Period 4 | KM All | LL | Period 3 | Period 4 | KM All | LL | Period 3 | Period 4 | KM All | LL | Period 3 | Period 4 | KM All | LL |
| 4 | 7 | 17 | 28 | 26 | 1 | 4 | 6 | 6 | 1 | 0 | 1 | 2 | 8 | 8 | 20 | 18 |
| 4- | 0 | 0 | 0 | 0 | 2 | 3 | 5 | 6 | 0 | 2 | 2 | 3 | 0 | 0 | 0 | 0 |
| 3+ | 0 | 0 | 0 | 0 | 0 | 6 | 7 | 5 | 1 | 3 | 4 | 1 | 0 | 1 | 1 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 |
| Total | 7 | 17 | 28 | 26 | 3 | 16 | 21 | 17 | 2 | 7 | 9 | 7 | 8 | 9 | 21 | 18 |
| Cusp No. | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| 4 | 100.0 | 100.0 | 100.0 | 100.0 | 33.3 | 25.0 | 28.6 | 35.3 | 50.0 | 0.0 | 11.1 | 28.6 | 100.0 | 88.9 | 95.2 | 100.0 |
| 4- | 0.0 | 0.0 | 0.0 | 0.0 | 66.7 | 18.7 | 23.8 | 35.3 | 0.0 | 28.6 | 22.2 | 42.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3+ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 37.5 | 33.3 | 29.4 | 50.0 | 42.9 | 44.4 | 14.3 | 0.0 | 11.1 | 4.8 | 0.0 |
| 3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.7 | 14.3 | 0.0 | 0.0 | 28.6 | 22.2 | 14.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.9 | 100.0 | 100.0 | 100.0 | 100.1 | 99.9 | 100.1 | 100.0 | 100.0 | 100.0 | 100.0 |

Maxillary molar cusp numbers

Human maxillary permanent molars show variation from the basic four-cusped tooth, but the variation operates differently from that observed in mandibular molars. Maxillary molars show a gradual reduction of the distolingual cusp or hypocone to produce 4-, 3+ and 3-cusped variants. The first molar almost invariably retains the full 4-cusped form, while second and third molars may show a progressive reduction of the hypocone, the third molar virtually always showing greater cusp reduction than the second molar.

Permanent maxillary molar cusp numbers

All maxillary first permanent molars from Kissonerga 3 and Kissonerga 4 were of the unreduced four-cusped type. The numbers of second and third molars in Period 3 were too small for comparisons to be meaningful (Table 16.6).

The maxillary first permanent molars from Lemba-Lakkous were all of the unreduced type. The proportion of unreduced second maxillary molars was slightly higher in Lemba than in Kissonerga, and the reduced molars showed lesser degrees of reduction in the Lemba group. The third molars from Lemba also showed a lesser degree of cusp reduction (Table 16.6).

The second molars of the Mehrgarh Chalcolithic group showed a higher proportion of the unreduced 4-cusped type (55.6%) than either Kissonerga or Lemba, while the proportion of unreduced third molars (16.7%) lay between the figures for Lemba and Kissonerga.

Deciduous maxillary molar cusp numbers

The maxillary second deciduous molar is similar in morphology to the maxillary first permanent molar, and usually retains the unreduced 4-cusped form. The maxillary first deciduous molar is unlike any of the permanent maxillary molars and may have from two to four cusps.

Since maxillary second deciduous molars share the same system of cusp grading as permanent maxillary molars, they have been included with the permanent molars in Table 16.6. Most of the Kissonerga and Lemba second deciduous molars showed the unreduced 4-cusped form. In one dentition from Kissonerga 4, a reduced form of second deciduous molar was observed.

The distribution of cusp numbers in the maxillary first deciduous molars is shown in Table 16.7. The proportions of the different cusp types appeared similar in Kissonerga 3 and Kissonerga 4. There was a higher proportion of molars with additional development of cusps in the Lemba group than in the Kissonerga group.

Table 16.7. Deciduous maxillary first molar cusp numbers in Cypriot Chalcolithic dentitions

| Cusp No. | Period 3 | Period 4 | KMall | LL |
|--------------|----------|----------|-------|----|
| 4 | 0 | 0 | 0 | 2 |
| 3H2 | 0 | 0 | 0 | 0 |
| 3H1 | 0 | 0 | 1 | 0 |
| 3M2 | 2 | 3 | 6 | 6 |
| 3M1 | 5 | 4 | 10 | 7 |
| 2 | 2 | 2 | 4 | 1 |
| <i>Total</i> | 9 | 9 | 21 | 16 |

| Cusp No. | % | % | % | % |
|--------------|-------|-------|-------|-------|
| 4 | 0.0 | 0.0 | 0.0 | 12.5 |
| 3H2 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3H1 | 0.0 | 0.0 | 4.8 | 0.0 |
| 3M2 | 22.2 | 33.3 | 28.6 | 37.5 |
| 3M1 | 55.6 | 44.4 | 47.6 | 43.7 |
| 2 | 22.2 | 22.2 | 19.0 | 6.2 |
| <i>Total</i> | 100.0 | 100.0 | 100.0 | 100.0 |

Cusp of Carabelli

The cusp or tubercle of Carabelli is an accessory cusp found on the lingual surface of the mesiolingual cusp of maxillary molars, and largely confined to deciduous second and permanent first molars. Certain other traits in the form of pits and grooves in the same position as the cusp are considered to be part of the same complex feature and are graded with it on an eight-point scale.

Table 16.8. Cusp of Carabelli in permanent maxillary first molars in Cypriot Chalcolithic dentitions

| Grade | Period 3 | | Period 4 | | KMall | | LL | |
|--------------|----------|-------|----------|-------|-------|-------|----|-------|
| | n | % | n | % | n | % | n | % |
| a | 1 | 14.3 | 8 | 47.1 | 10 | 35.7 | 5 | 21.7 |
| b+c | 1 | 14.3 | 7 | 41.2 | 9 | 32.1 | 5 | 21.7 |
| d+e | 5 | 71.4 | 2 | 11.8 | 9 | 32.1 | 8 | 34.8 |
| f-h | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 21.7 |
| <i>Total</i> | 7 | 100.0 | 17 | 100.0 | 28 | 100.0 | 23 | 100.0 |

The prevalence of the Carabelli trait in maxillary permanent first molars is shown in Table 16.8. Since the number of first permanent molars from Kissonerga 3 was small, some categories of the trait were combined in order to facilitate a comparison with Kissonerga 4: a = no expression of the trait; b+c = pit or groove; d+e = low elevation; f-h = full development of the cusp. On this basis there appeared to be a higher prevalence of the Carabelli trait in Period 3 than Period 4. The Lemba group also appeared to show a distinctly higher frequency of the cusp of Carabelli than the Kissonerga group, with a considerably greater percentage of full development of the Carabelli cusp. One dentition from Kissonerga 3 showed a minor degree of the Carabelli trait in a second molar, while in the Lemba group one individual showed greater expression of the trait in

both the second and third maxillary molars.

The Chalcolithic population from Mehrgarh showed less evidence of the Carabelli trait than the Cypriot Chalcolithic groups, the trait being absent in 38.9% of Mehrgarh first permanent molars.

Table 16.9. Cusp of Carabelli in deciduous maxillary second molars in Cypriot Chalcolithic dentitions

| Grade | Period 3 | | Period 4 | | KMall | | LL | |
|--------------|----------|--------------|----------|--------------|-----------|--------------|-----------|--------------|
| | n | % | n | % | n | % | n | % |
| 0 | 1 | 14.3 | 2 | 25.0 | 3 | 15.8 | 2 | 11.1 |
| 1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 5.6 |
| 2 | 2 | 28.6 | 4 | 50.0 | 8 | 42.1 | 7 | 38.9 |
| 3-7 | 4 | 57.1 | 2 | 25.0 | 8 | 42.1 | 8 | 44.4 |
| Total | 7 | 100.0 | 8 | 100.0 | 19 | 100.0 | 18 | 100.0 |

Table 16.9 shows the prevalence of the Carabelli trait in deciduous second molars in the Cypriot Chalcolithic material. Again there appeared to be a higher prevalence of the trait in Kissonerga 3 than in Kissonerga 4. There was no apparent difference between Kissonerga and Lemba groups in the prevalence of the Carabelli trait in maxillary deciduous second molars.

Additional traits, mandibular molars

Mention has already been made of the fact that while the basic number of occlusal cusps of the mandibular permanent molars and the mandibular second deciduous molar is five, in a small proportion of dentitions additional cusps may be found. These additional cusps are not all found in the same position, but may arise either in the distal part of the occlusal surface (C6) or between the lingual cusps (C7). In addition there is a feature known as the deflecting wrinkle, in which the central ridge of the mesiolingual cusp is enlarged. The cusp of Carabelli is a well-known additional cusp found elsewhere than the occlusal surface, but other cusps are occasionally encountered, such as the protostylid on the buccal surface of the mesiobuccal cusp of lower molars or the parastyle on the buccal surface of the mesiobuccal cusp of upper molars.

In the Cypriot dentitions, these traits appeared more frequently in the deciduous than in the permanent dentition. Table 16.10 shows the prevalence of C6, C7 and the deflecting wrinkle in deciduous second molars. C6 was observed in Kissonerga 4 but not in Period 3, while C7 was more frequently observed in Kissonerga 3 than in Period 4. There was not a great difference between the Kissonerga and Lemba groups in the prevalence of C6 and C7, but the traits were more fully expressed in the Lemba population. The deflecting wrinkle appeared in a markedly higher proportion of Lemba second deciduous molars.

Since C6, C7 and the deflecting wrinkle were observed in very few permanent first molars and did not exceed grade 2, they are shown in Table 16.11 as the

percentage of molars showing any degree of the trait. The proportion of first permanent molars showing evidence of C6 was exactly the same in Kissonerga as in Lemba. C7 was observed in a slightly higher proportion of Kissonerga first permanent molars, while there was a considerably higher prevalence of the deflecting wrinkle in Lemba first permanent molars. The overall prevalence of the traits in second deciduous molars has been included in the table to show the higher prevalence of all traits in the deciduous dentition.

Table 16.10. Additional traits of mandibular second deciduous molars in Cypriot Chalcolithic dentitions

| Trait | Grade | Period 3 | | Period 4 | | KMall | | LL | |
|---------------------------|-------|----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|
| | | n | % | n | % | n | % | n | % |
| C6 | 0 | 7 | 100.0 | 8 | 80.0 | 20 | 90.9 | 15 | 88.2 |
| | 1 | 0 | 0.0 | 2 | 20.0 | 2 | 9.1 | 0 | 0.0 |
| | 2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 5.9 |
| | 3 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 5.9 |
| Total | | 7 | 100.0 | 10 | 100.0 | 22 | 100.0 | 17 | 100.0 |
| C7 | 0 | 4 | 57.1 | 8 | 80.0 | 15 | 68.2 | 12 | 70.6 |
| | 1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| | 1A | 2 | 28.6 | 1 | 10.0 | 5 | 22.7 | 3 | 17.6 |
| | 2 | 1 | 14.3 | 1 | 10.0 | 2 | 9.1 | 1 | 5.9 |
| | 3 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 5.9 |
| Total | | 7 | 100.0 | 10 | 100.0 | 22 | 100.0 | 17 | 100.0 |
| <i>Deflecting Wrinkle</i> | | | | | | | | | |
| absent | | 4 | 50.0 | 5 | 50.0 | 12 | 54.5 | 4 | 23.5 |
| present | | 4 | 50.0 | 5 | 50.0 | 10 | 45.5 | 13 | 76.5 |
| Total | | 8 | 100.0 | 10 | 100.0 | 22 | 100.0 | 17 | 100.0 |

Table 16.11. C6, C7 and deflecting wrinkle in mandibular permanent first and deciduous second molars in Cypriot Chalcolithic dentitions

| Trait | dm ₂ | | LL | | M ₁ | | LL | |
|--------------------|-----------------|------|-----------|------|----------------|-----|-----------|------|
| | KMall | n % | n % | n % | n % | n % | n % | |
| C6 | 2 | 9.1 | 2 | 11.8 | 1 | 3.2 | 1 | 3.2 |
| C7 | 7 | 31.8 | 5 | 29.4 | 2 | 6.5 | 1 | 3.2 |
| Deflecting Wrinkle | 10 | 45.5 | 13 | 76.5 | 2 | 6.5 | 5 | 16.1 |
| Total teeth | 22 | | 17 | | 31 | | 31 | |

In addition to the specimens indicated in the tables, examples of C6 were observed in two further Kissonerga dentitions, once in the second molar and once in the third molar. No examples of C6 were seen in Lemba second or third molars, nor was C7 observed in second or third molars in either population.

No protostylids were found in the Kissonerga dentitions, but the protostylid was twice observed in Lemba dentitions, once in the second permanent molar and once in the third permanent molar. Protostylid cusps were not seen in the deciduous molars of either population.

tion. One example of a parastyle was encountered, in the maxillary first deciduous molar of a Lemba dentition.

Statistical analysis and significance of traits

There appear to be some differences in the prevalence of morphological traits when comparisons are made between the Kissonerga and Lemba-Lakkous populations, and differences may even be discerned between Period 3 and Period 4 at Kissonerga, though the relatively small number of individuals in Period 3 must be borne in mind.

In order to assess the significance of these observed differences, a statistical analysis was carried out using a transformation of the observed frequencies of traits as suggested by Berry and Berry (1967), with the Freeman and Tukey (1950) modification to improve stabilisation of the variance with small sample sizes as recommended by Green and Suchey (1976). However, when the standard deviation and variance were calculated using the formulae suggested by Sjøvold (1973), the mean measure of divergence was not large enough for the differences between the population groups to be considered statistically significant. The most widely separated groups were Kissonerga 4 and Lemba-Lakkous.

Catalogue 1: dentitions from burials

Grave 502: burial KM 560

None of the jaw bone seems to have survived. There are three fragmentary and badly eroded deciduous tooth crowns, the maxillary left canine, first molar and second molar.

The crown of the first molar seems slightly worn, but the crown of the second molar still has quite sharply pointed cusps. This suggests that the tooth had not been in function for very long, and indicates that the child is unlikely to have been older than 3 or 4 years, though it was probably older than 2 years.

Both deciduous molars may have had carious cavities, though the enamel surface is so severely pitted and eroded that it is difficult to be certain whether these are genuine lesions. But it looks as though the first molar has had a very large lesion affecting mesial and occlusal surfaces, and extending inwards to involve the pulp. The second molar has a doubtful small lesion in the mesial fissure and an even more dubious lesion in the distal fissure.

Grave 504: burial KM 559.01

The chin and part of the left body of the mandible are present. No part of the maxillary bone has survived.

The mandibular fragment carries four erupted deciduous teeth, the left second incisor, canine, first molar and second molar. Both permanent first incisors, the right second incisor and canine and the left second premolar can be seen developing in crypts deep in the bone. X-rays show the presence of the left second incisor, canine and first premolar.

There are in addition loose maxillary teeth, comprising the right first deciduous molar, both second deciduous molars, and the developing permanent left first molar and right first and second premolars.

The first deciduous molars show a moderate degree of wear, while the second deciduous molars are only slightly worn. The stage of development of the maxillary first permanent molar, which clearly had not erupted and was not even quite ready to erupt, suggests an age of 4-5 years. The developing crowns of the maxillary second premolar and mandibular canine are a little advanced for this age. The most likely age at death, however, seems to be 4½ years ± 9 months.

There is no evidence of dental disease.

Tomb 505

There is evidence for four individuals from this grave.

Tomb 505.01: burial KM 553.10 (= Skeleton A)

It has proved possible to reunite three teeth and a tooth fragment from the unassigned loose teeth, with the assemblage already labelled Skeleton A.

Two fragments of the left side of the mandible are present, the left body carrying 9 permanent teeth, and part of the left ramus with a damaged left condyle. The mandible is of moderately heavy build. There is also a small fragment of the left maxilla carrying three permanent teeth. In addition to the 12 teeth *in situ*, there are a further 11 recognisable teeth or tooth fragments, and 6 unidentifiable root fragments. The teeth are large.

The third molars have erupted into full function, and the apices of the maxillary right third molar are completely formed. The apices of the mandibular right third molar are still slightly open. This would suggest an age of 18 years ± 1 year. The very slight degree of attrition of the other teeth accords with this estimate.

There is no evidence of dental caries. The degree of *post mortem* surface erosion of the bone precludes an assessment of periodontal bone condition.

The maxillary right third molar has been somewhat malformed: it shows a deep depression on the mesial surface, and the tooth substance beside this is slightly folded. There is vertical folding of the distal surface. The crown is compressed mesiodistally, and the normal cusp pattern of the occlusal surface is distorted.

Tomb 505.01: burial KM 553.11 (= Skeleton B)

The entire right maxillary alveolus is present, and fragments of the left maxillary alveolus. The mandible is represented only by some fragments of outer cortical plate.

Fourteen maxillary teeth are *in situ*, and there are a further 5 loose teeth and one unidentifiable root fragment. From the degree of attrition of the teeth, an age of c. 20-25 years may be suggested.

There is no evidence of dental caries. The bone of the right maxilla is in excellent condition, and there is no evidence of periodontal disease.

The maxillary left canine does not appear in its normal position, and X-rays show that it is deeply embedded in the bone of the palate.

The maxillary right third molar is of a strongly compressed form, and it is *just* possible that this may reflect some genetic similarities between skeleton A and skeleton B.

Tomb 505.01: burial KM 553.12 (= Skeleton D)

There is a group of six loose teeth, which all seem to be from the same dentition. Another two teeth from a box labelled "Chamber 1" also belong to the same individual.

The assemblage consists entirely of mandibular permanent teeth: the right canine, the second premolars, first molars and second molars from both sides, and the left third molar. All but two of these teeth are fragmentary.

The root apices of the left first molar have just closed, an event which should occur at 9-10 years. The root of the canine is only partially formed, and shows a stage of development appropriate to c. 10-11 years. The crown of the third molar is developing and has reached a stage appropriate to 10-12 years. The most probable age of this child was 10 years ± 9 months.

There is no evidence of dental disease.

Tomb 505.02: burial KM 553.13 (= Skeleton C)

Small areas of maxillary alveolus are present, carrying the permanent incisors, canines and premolars. There are also some small fragments of mandibular alveolus associated with the left second and third molars. Three further tooth crowns are present, and part of another which may be the left first mandibular molar.

The degree of attrition suggests an age of c. 20-25 years. The attrition of the anterior teeth is noticeably irregular, suggesting some anomalies of occlusion.

There is no evidence of dental caries. *Post mortem* erosion of the bone is too severe to allow assessment of periodontal bone condition. There appears to be a large abscess or cyst cavity associated with the maxillary right second incisor, but no obvious cause for an inflammatory lesion is discernible in the standing teeth. An X-ray shows the radiolucent area, and confirms that it is not directly associated with the teeth. It is probably a nasopalatine cyst, a developmental defect of the maxilla.

Tomb 506: burial KM 571

The left maxilla is fairly well preserved, and the right maxilla as far as the second permanent molar. Most of the body of the mandible is present, in three separate fragments. Thirty teeth are *in situ*, and the remaining two are also present, so the whole permanent dentition is intact.

All the third molars have erupted into function and their root apices are fully formed, so the individual was probably over 20. Attrition is relatively slight, suggesting an age of c. 20-25.

There is no evidence of dental caries. In the largest fragment of mandible, bone preservation is good and the alveolar margins can be seen to be in good condition, with no sign of periodontal disease.

Grave 507: burial KM 766

There is a small piece of the left body of the mandible, and two tiny fragments of the left maxillary alveolus. Five erupted deciduous teeth and two erupted permanent teeth are *in situ* in these fragments, and two further permanent teeth can be seen developing in their crypts. Another two developing permanent teeth can be demonstrated by X-rays.

A further four deciduous teeth, one erupted permanent incisor and two developing premolars were recovered later in the material from this grave. Comparison with the existing dentition from Gr. 507 showed that these teeth belonged to the same individual.

In this child, the replacement of deciduous by permanent dentition is just starting. The permanent first incisors appear to have reached their functional positions, and although the crown of the left first permanent maxillary molar seems only half emerged from the alveolar bone, it must have been in occlusion with the mandibular left first molar since the latter shows very clearly an early wear facet on the distobuccal cusp. Judging from the position of the mandibular left second permanent incisor and the degree of resorption of the root of the maxillary left second deciduous incisor, the permanent second incisors might shortly be erupting, though only a small amount of the maxillary permanent second incisor roots has yet formed. The crowns of the permanent canines and first premolars have just been completed, and the crowns of the second premolars and second molars are not yet fully formed.

The stage of development of the dentition suggests an age at death of 6½ years ± 9 months.

There is no evidence of dental disease.

Grave 508: burial KM 662

A small portion of left maxilla carries five permanent teeth: both incisors, canine, first premolar and first molar. The second premolar has been lost *post mortem*. The maxillary left second molar was found in the mass of soil still present below the cranium. Three loose mandibular permanent molars - left first, second and third - may have belonged to the same individual.

The degree of attrition suggests an age in the range 20-25 years.

There is no evidence of dental disease, but the specimen is in rather poor condition and it is difficult to be positive about this.

Grave 509

None of the jaw bone has survived, and the material consists of a small group of 14 developing deciduous teeth. Within this assemblage, however, there is evidence of two different individuals, as the maxillary left second deciduous molar is duplicated.

Grave 509: burial KM 663.01 (= Skeleton A)

Thirteen of the developing deciduous teeth belong to one individual aged 4 months ± 2 months. The teeth which are most advanced in development are the incisors: their roots are beginning to develop but they were probably not yet erupting. The crowns of the deciduous first molars are not yet complete, the canine crowns are half formed, and the separate cusps of the second deciduous molars are not quite fully united to form the occlusal surfaces.

Grave 509: burial KM 663.02 (= Skeleton B)

A single maxillary left deciduous second molar is at a later stage of development: the crown is almost completely formed but the roots have not yet started to form. This tooth came from an individual probably aged c. 9 months. It has a very strongly developed accessory tubercle of the type known as the tubercle of Carabelli.

Grave 510: burial KM 624

The chin region, left body and left ramus of the mandible are virtually intact, and there is a fragment of the right body of the mandible. None of

the maxilla survives.

The full deciduous dentition has erupted, and all the deciduous teeth are *in situ* in the mandible. There are four loose deciduous teeth from the maxilla.

The permanent first and second molars can be seen developing in their crypts in the mandible, and X-rays show a further 11 developing permanent teeth. There are seven loose developing permanent maxillary teeth.

A further four deciduous teeth and five developing permanent teeth were recovered later in the material from this grave. Comparisons with the existing dentition from Gr. 510 showed that these teeth belonged to the same individual.

The roots of the permanent first molars have started to develop, but the teeth are not yet ready to erupt. The stage of development of these and other teeth suggests an age of 5 years ± 9 months.

There is no evidence of dental disease.

Grave 513: burial KM 767

Part of the right maxilla is present, and most of the right mandible, together with part of the left body of the mandible.

Twelve deciduous teeth are still *in situ* and a further seven are loose. There are four partially formed crowns of permanent teeth, and seven others embedded within the jaw fragments can be seen on X-rays.

The teeth are in good condition and most of the roots have survived. The root apices of the deciduous first incisors have closed, while those of the second incisors and first molars are just closing. The roots of the deciduous canines are three-quarters formed. The roots of the deciduous second molars are only half formed, but these teeth have erupted into their functional positions, though the absence of wear facets suggests that they had only just reached these positions.

The crowns of the first permanent molars are almost complete. About three-quarters of the crowns of the permanent first incisors have formed, and half of the second incisor and canine crowns.

The developmental stage of the dentition suggests an age of 2½ years ± 6 months.

There is no evidence of dental disease.

Tomb 515: burials KM 769 and 770

The material with this number is in very poor condition. Many of the teeth have lost their roots, some have lost parts of the crown, and/or are affected by severe *post mortem* erosion. All these factors make some of the teeth difficult to identify.

There are clearly two dentitions represented. Both seem to be from relatively elderly individuals and this, together with the poor state of preservation of the material, makes it difficult to separate the teeth precisely into two sets. The problem is further complicated by the fact that several teeth are carious and, as far as it is possible to ascertain, both individuals seem to have been affected by this condition.

The specimens were found under two small-finds numbers, 769 and 770. Only one tooth was present with the latter number: the package was labelled "eastern skeleton". All the remaining material was found in 769. This assemblage included the badly shattered right side of a mandible with seven teeth *in situ*. A further 23 teeth have been associated with this specimen and the whole labelled "Skeleton A". The remaining 18 teeth have been ascribed to "Skeleton B". The single tooth from 770 seems to belong to skeleton B.

A mandibular incisor, which was recovered later in the material from this grave, appeared to belong to skeleton A.

Both skeletons seem to have been of mature or even elderly adults, but in view of the poor state of preservation no closer estimate of age can be made.

Skeleton A has a maxillary second molar with a large carious cavity opening into the pulp chamber.

Skeleton B has three carious teeth. The cavities in an upper molar and a mandibular first molar open into the pulp chambers. The cavity in a mandibular second molar is also very deep but does not have an obvious opening into the pulp.

Periodontal bone condition cannot be assessed.

Grave 516: burial KM 768

The left body and part of the left ascending ramus of the mandible have survived, together with a large fragment of the right body of the mandible and two small fragments of maxillary alveolus. Ten deciduous teeth are *in situ* in the jaw fragments and a further five are loose. There are two functional permanent teeth *in situ* and two loose. Four developing

permanent teeth can be seen in crypts, eight are loose and a further eight can be demonstrated in X-rays of the jaw fragments.

The whole deciduous dentition has been in function, and the first permanent molars have also erupted and have been functional for long enough for early wear facets to develop. The mandibular permanent first incisors can be seen in their crypts. The deciduous first incisors are not present and it is impossible to know whether they had been shed, were about to be shed or still required some further resorption before the permanent teeth could erupt. A deciduous maxillary first incisor is present and shows much less root resorption than would be expected, given that the first permanent molars are already well into function. Are the permanent molars advanced in development, or are the incisors retarded? On the basis of all the teeth, an age of $5\frac{1}{2}$ years \pm 9 months may be suggested. This implies early eruption of the permanent first molars.

There is no evidence of dental disease.

Grave 517: burial KM 855

No recognisable fragments of the jaw bones have survived. There are eleven deciduous teeth and one partially developed mandibular permanent incisor.

Post mortem damage makes it difficult to assess the true state of the deciduous teeth. Most of the crowns have been severely affected by erosion, and any attrition facets have been destroyed. The only crown which is relatively little affected is that of the mandibular left second molar, and this crown appears to be completely unworn. The deciduous roots have also suffered more or less severely from *post mortem* damage, so the stage of development of the root apices cannot be established in most cases. The apices of the maxillary and mandibular left first incisors, however, appear to be complete.

A considerable amount of the roots of the mandibular left second deciduous molar seems to have been formed, but the unworn crown suggests that the tooth was unerupted or had very recently erupted. On the whole, the state of the deciduous dentition would suggest an age of 2 years \pm 6 months. The degree of development of the mandibular first permanent incisor would also accord with an age of *c.* 2 years.

There is no evidence of dental disease.

Grave 518: burial KM 981

The only fragment of the jaw which has survived is part of the crypt of the mandibular right second deciduous molar.

There are eight developing deciduous teeth, and the partially formed crowns of the mandibular first permanent molars.

From the stage of development of the teeth, it seems likely that the mandibular first deciduous incisors were just erupting or had just erupted. This suggests an age of *c.* 6-9 months, which is corroborated by the stage of development of the second deciduous molars. The other deciduous teeth seem to be relatively delayed in development, and the permanent first molars somewhat advanced.

The most probable age at death was 8 months \pm 2 months.

Grave 519: burial KM 1065

No parts of the jaw bones have survived. There are what appear to be three developing permanent tooth crowns, another recognisable fragment of a tooth crown and two small fragments which cannot be precisely identified.

The assemblage is rather puzzling. The recognisable specimens appear to be a maxillary right second premolar, a maxillary right first permanent molar, the lingual wall of a maxillary right first or second permanent molar, and a mandibular right second permanent molar. All the crowns seem to be only partially developed: they are dark in colour, matt in surface texture, and imbibe water very quickly, which suggests that they are porous because the enamel is immature, i.e. not fully mineralised. The mandibular second molar crown is clearly only a little more than half formed.

If this interpretation is correct, then two persons must be represented here. If the fragmentary maxillary right molar is a first molar, then we have two specimens of the same tooth. If it is a second molar, which seems more likely, there must still be a second individual, as the first molar cannot be at the same stage of development as the second molars and second premolar.

It seems most probable that the fragment of maxillary second molar, the maxillary second premolar and the mandibular second molar are all from an individual aged *c.* 6 years (burial KM 1065.01). If the first permanent molar is still developing, as it appears to be, then it is from an individual aged *c.* 3 years (burial KM 1065.02).

The only alternative is that the first molar has suffered from the fairly common type of *post mortem* erosion which removes the cementum and dentine, and has also undergone some *post mortem* change in the enamel which has destroyed the normal white glossy surface and has left it quite smooth but porous. *Post mortem* erosion of enamel has been observed in the Cypriot Chalcolithic material, but this involves a marked pitting of the surface which is not evident in specimen 519.

The best explanation still seems to be that two individuals are represented.

Grave 520: burial KM 1066

No part of the jaw bones seems to have survived. There are six loose permanent teeth, most of which are very heavily worn. The mandibular left first, second and third molars can easily be identified. Another tooth is probably the maxillary right second incisor, and a heavily worn premolar may be the maxillary right second premolar. The remaining tooth may be the mandibular right canine.

Not only is attrition very severe, but it is also extremely irregular. The mesial half of the mandibular first molar has been worn right down to the root, thereby exposing the pulp (and probably causing an abscess to form in the jaw) while the distal half stands quite high. The opposite is true of the second molar, where the distal half is heavily worn and the mesial half much less worn. These irregularities may suggest *in vivo* loss of opposing teeth. They also make the estimation of age highly problematical. An age in the range 35-45 is tentatively suggested.

There is no evidence of dental caries in the teeth present.

Grave 521: burial KM 1044.01-02

The main body of material consists of the left side of a mandible and a small fragment of the right side of the mandible. Both contain deciduous teeth and developing permanent teeth, and a further twenty loose teeth belong to the same dentition.

In a separate bag were found two fitting fragments of the posterior part of the left body and left ascending ramus of a second mandible, together with a maxillary permanent central incisor which clearly belongs to the main assemblage. The latter has been labelled Skeleton A (KM 1044.01) and the smaller mandible fragments, Skeleton B (KM 1044.02).

Grave 521: burial KM 1044.01 (= Skeleton A)

The deciduous canines and molars have been in function. The first permanent molars have erupted into full function but their roots are not yet quite complete. It is difficult to establish the precise functional state of the incisors, since the incisor alveolus has been lost in both jaws. The only incisor still *in situ* is the mandibular left second permanent incisor, and it is still lying in its crypt. It seems probable, however, that the first incisors had erupted. Permanent canines, premolars and second molars are present in various stages of development, three of them visible only on X-rays. In general, the stage of development of the dentition suggests an age of 8 years \pm 9 months. The mandibular left second incisor appears to be considerably delayed in development in comparison to some of the other teeth.

There is no evidence of dental disease.

A fairly rare anomaly is present, in the shape of a conical supplementary tooth of the type known as mesiodens, which is found in the midline of the maxilla.

Grave 521: burial KM 1044.02 (= Skeleton B)

The mandibular left second deciduous molar is in function, and both first and second permanent molars can be seen developing in their crypts. The root of the first molar is just starting to form, while only half of the crown of the second molar has as yet developed. The most probable age of this individual was 4 years \pm 9 months.

There is no dental disease associated with the second deciduous molar.

Grave 522: burial KM 1045

There is a small fragment of the left body and ascending ramus of the mandible, and an even smaller fragment of the maxilla. The first permanent molars are in functional positions in both jaw fragments, and the second permanent molars are lying within crypts in both jaws. The third molar can also be seen in its crypt in the mandible. Two slightly worn deciduous teeth are present and show early signs of resorption of the roots, and there are four additional loose developing permanent teeth.

The stage of development of all the permanent teeth would suggest an age of 10 years \pm 9 months, though the deciduous teeth show rather

less resorption than might be expected by that age.

There is no evidence of dental disease.

Grave 524: burial KM 922

Part of the left maxilla is present, together with the body and left ramus of the mandible, in two fragments. Twelve deciduous teeth are *in situ* in the jaw fragments, and the remaining eight deciduous teeth are loose: i.e. the whole deciduous dentition is present and in a particularly good state of preservation. Five developing permanent teeth can be seen in the jaws, five more can be demonstrated by X-rays, and there are a further three loose permanent developing teeth.

All the deciduous teeth have erupted into function. Only the mandibular first incisors have fully formed roots. The root apices of the maxillary first incisors and all the second incisors are still slightly open, while the roots of the canines are three-quarters formed and the roots of the second molars only half developed.

The crowns of the permanent first molars are not quite fully formed, and half of the crowns of the maxillary first and mandibular second incisors are formed.

The stage of development of all the teeth is consistent with an age at death of 2 years ± 6 months.

There is no evidence of dental disease.

Grave 525: burials KM 923.01-03

All the teeth and jaw fragments were found in the assemblage from the lower pit.

Most of the right side and part of the left side of a mandible are present, in two fragments which carry five erupted deciduous teeth. The root of the right first incisor is completely formed, while the apices of the first deciduous molars are not yet quite complete and the roots of the second deciduous molars are only three-quarters formed. The crowns of the first permanent molars can be seen developing in their crypts, and a further six developing permanent teeth are shown by X-rays. The stage of development of these teeth suggests an age of 2 years ± 6 months. A broken developing maxillary right first permanent molar and a partially developed permanent maxillary first incisor probably belonged to the same individual (KM 923.01). There is no evidence of dental disease.

There are five further developing permanent teeth which must come from at least two further individuals.

A broken maxillary left first permanent molar is at a slightly later stage of development than that of the 2 year old. Age is difficult to assess, but may be c. 4-5 years (KM 923.02).

Maxillary left canine, second premolar and second molar, and a mandibular second molar, all from the left side, could all be from the same individual, with an age of 6 years ± 9 months. (KM 923. 03).

Tomb 526: burials KM 1175.01-02

Tomb 526: burial KM 1175.01 (= Skeleton A)

The greater part of the body of the mandible is present, together with part of the left ramus. Part of the right maxilla is fairly well preserved, and a small part of the left molar region. Twenty four permanent teeth are *in situ* in the jaws and a further five are loose.

All the permanent teeth have been in function and the roots of the third molars are completely formed. The degree of attrition is relatively slight, suggesting that the individual may have been in the age group 20-25.

There is one tooth which has been affected by dental caries: a medium-sized cavity is present on the mesial surface of the maxillary right canine. Where *post mortem* erosion has not been so severe as to preclude assessment, the alveolar bone seems to be in good condition with no evidence of periodontal disease.

There is one minor hypoplasia line on the mandibular canine crowns, but as no other teeth seem to be affected, this can hardly represent a major metabolic upset. The age at which the hypoplasia line was produced would be c. 6 years.

Tomb 526: burial KM 1175.02 (= Skeleton B)

Part of the left maxilla and palate is present, and in it the premaxillary-maxillary suture can still be seen. This suture usually disappears during childhood. There are two fragments of the mandible, one comprising the chin region with incisors and canines *in situ*, the other consisting of the left ascending ramus with the alveoli of the second and third molars. There are fifteen permanent teeth *in situ* and a further eleven loose permanent teeth.

The third molars are still lying in their crypts with incompletely formed roots. All the remaining permanent teeth have been in function and the roots of the second premolars and second molars are completely formed, so the individual was probably over 14 years. The stage of development of the third molars suggests an age of 16 years ± 1 year. With the variability of development of third molars, a wider range of 15-19 years might be given, but the open sphenoccipital synchondrosis suggests that the age should be towards the younger part of the range.

There is no evidence of dental caries. The bone of the left maxilla is well preserved and is in excellent healthy condition with no trace of periodontal disease.

Grave 527: burial KM 1218

Parts of both maxillae are present, and the greater part of the mandible, in three fragments. Sixteen deciduous teeth are *in situ* and another two are loose. Two developing permanent incisors are loose, a further five developing permanent crowns are visible in the jaws, and seven can be demonstrated by X-rays.

The roots of all the deciduous incisors are complete, and the canine roots are almost fully formed though the apices are still open. The crowns of the first permanent molars are almost complete. Roughly three-quarters of the crowns of the permanent incisors have been formed, and about half of the permanent canines. The tip of the crown of a mandibular first premolar has been calcified. The probable age of the child was 2 years ± 6 months.

There is no evidence of dental disease.

Grave 528: burial KM 1219

No parts of the jaw bones seem to have survived. There are three loose maxillary permanent molars, the first from the left side, and the second and third from the right side.

The left first molar is heavily worn, but the second and third molars show much less wear than would be expected. There may have been some anomaly of occlusion which could account for the discrepancy. On the basis of first molar wear, an age in the range 25-35 may be suggested.

None of the teeth has been affected by dental caries.

Grave 529: burial KM 1292

There are two fragments of the left mandible, covering the area from the midline to the base of the ascending ramus. The second deciduous molar has been *in situ* and the first permanent molar has also erupted into full functional position. Although it shows very little wear, X-rays demonstrate that root development is well advanced. The crown of the second premolar can be seen in its crypt and seems to be completely formed. X-rays show three more developing permanent teeth. A deciduous canine, an erupted maxillary first permanent molar and four developing permanent teeth recovered by flotation may be from the same dentition.

The stage of development of the teeth suggests an age of 7 years ± 9 months.

There is no evidence of dental disease.

Grave 532: burial KM 1391

The left maxilla is almost complete, there are fragments of the right maxilla, and a good deal of the mandible is also present though in many fragments. It has proved possible to reconstruct the mandible and part of the maxilla so that 31 permanent teeth are now *in situ* in their sockets or crypts, and the remaining tooth is present loose.

The permanent dentition has erupted up to and including the second permanent molars, but the root apices of the latter teeth are not quite complete. The third molars are lying in crypts in the jaws: their crowns are complete and the roots are starting to develop. The most probable age of the individual was 14 years ± 9 months.

The mandible is fairly strongly built with a prominent chin. The teeth are rather small. They are in perfect condition with no sign of dental caries. Where the alveolar bone is reasonably well preserved, there is no evidence of periodontal disease.

There are some very slight hypoplasia lines at the junction of cervical and middle thirds of the crowns of the maxillary permanent first incisors, and at the necks of the permanent canines, which could indicate upsets in metabolism at 3 and 6 years respectively.

Grave 533: burial KM 1541

No teeth or fragments of jaw bone were found.

Grave 535: burial KM 2048

Most of the mandible is present, broken into three fragments. The left maxilla is well preserved and there is a fragment of the right maxilla.

Twenty-four erupted permanent teeth are *in situ* and three more are present loose, together with the developing maxillary right third molar. Both mandibular third molars are buried deep in their crypts.

The roots of the second molars are virtually complete and this, together with the stage of development of the third molars, suggests an age of 14 years \pm 9 months.

The teeth are well formed and there is no evidence of dental disease. The maxillary left third molar is congenitally absent.

Grave 537: burial KM 1618

No teeth or fragments of jaw bone were found.

Grave 538: burial KM 1709

The dentition of this individual is represented by a deciduous maxillary incisor and a deciduous maxillary canine, which have both been in function and whose roots were fully formed, the crown of a developing maxillary permanent molar, and small fragments of other developing permanent teeth (more teeth may be present in the soil masses surrounding the main cranial vault fragments, which have not been disturbed).

The teeth present some inconsistencies which make estimation of age difficult. The deciduous canine shows appreciable wear at the tip of the cusp, but surprisingly the deciduous lateral incisor is very little worn. Neither tooth shows any evidence of resorption of the root. On grounds of size and morphology, the developing permanent molar must be the second molar, which should reach the stage of development seen here between 6 and 8 years. But by 5 years there should be some evidence of resorption of the root of the deciduous lateral incisor, and the lack of wear of this tooth would suggest an individual not more than 3-4 years old.

Perhaps there may have been unusually slow wear of the deciduous teeth and somewhat precocious development of the second permanent molar, and the age may have been approximately 5 years.

Tomb 539: burials KM 1753-4

Tomb 539: burial KM 1753. N skeleton

The left maxilla is still attached to the skull, though the alveolar process has been badly damaged. The right maxilla, though detached, is better preserved. Half a dozen fragments of the mandible are present, mostly from the left side, but the bone has been badly damaged *post mortem* and the tooth sockets have mostly been destroyed.

Six erupted permanent teeth are *in situ* in the right maxilla and four in the left maxilla. A further three permanent teeth are present loose. One molar and a broken premolar were recovered by flotation.

The roots of the third molars have been completely formed, so the individual was probably over 20. However, the relatively slight degree of attrition suggests a young adult, in the range 20-25.

There is no evidence of dental disease. Damage to the left body of the mandible in the region of the first and second molars allows a view of a cyst cavity in the centre of the bone. This is not merely a hole within the bone, but is lined by the thin layer of smooth compact bone characteristic of bone cysts. The *post mortem* loss of teeth and alveolar bone means that the cause of the lesion cannot be ascertained.

The mastoid processes of the skull are very large, which suggests a male.

Tomb 539: burial KM 1754. S skeleton

The maxilla is well preserved and still attached to the skull. The mandible is incomplete, and fractured into three fragments.

Seventeen erupted permanent teeth are *in situ* in the jaw fragments, and two more are loose. The roots of the third molars are fully formed but there is only slight attrition, and this suggests a young adult, perhaps in the range 20-25.

There is no evidence of dental disease, but one maxillary premolar seems to have suffered some traumatic damage, perhaps during life.

The mastoid processes are large, the bone in the area of glabella is well developed, and the bony attachment of the left masseter muscle is also well developed, all features which would suggest a male. The teeth however are small. The skull possesses an exceptionally long styloid process.

Thirteen permanent teeth were recovered later in the material from this grave. Comparisons with the original dentitions from the grave

showed that eight derived from the S. skeleton and five from the N. skeleton.

Possible relationship between N and S skeletons

Both skeletons appear to be those of young adult males. The jaws and teeth do not show any marked similarities: the arch shape in N is rectangular, with the posterior teeth set in very straight lines, whereas S has a V-shaped arch with a slight bowing in the lines of diverging posterior teeth. The teeth of S are much smaller than those of N, and the molars show several differences in morphology. Such differences could occur in members of the same family, but would be unlikely in monozygotic twins. The maxillary lateral incisors in both jaws are of similar type, though it is quite a common variant of this tooth.

There is nothing in the jaws to suggest a particularly close relationship between these skeletons.

Grave 540: burial KM 1757

No jaw fragments are present. Four developing deciduous teeth, one developing permanent tooth and a cusp tip from another were found at excavation. A further 12 developing deciduous teeth and one developing permanent tooth were recovered by flotation.

From the stage of development of the teeth, the most probable age at death is 9 months \pm 2 months.

There is no evidence of dental disease.

Grave 542: burial KM 1858

Most of the mandible is present, in three fragments. Only two very small fragments of maxillary alveolus are present.

The deciduous canines, first molars and second molars were still in function, and 8 are still *in situ*, the remaining 4 teeth being loose. The permanent first molars and first incisors were functional and the permanent second incisors just completing eruption: 7 of these teeth are still *in situ* and the rest loose. Sixteen further developing permanent teeth are present loose or in their crypts, some demonstrable only by X-ray. The stage of development of the dentition suggests an age at death of 8 years \pm 9 months. The dentition is complete for this age.

The teeth are well developed and there is no evidence of dental disease.

Grave 543: burial KM 1859

In the excavated material there are four fragments of a tiny mandible, two with developing deciduous teeth embedded in bony crypts. Parts of nine further developing deciduous teeth were recovered by flotation. Altogether 14 developing deciduous teeth are present.

This was clearly a very young infant. The stage of development of some teeth suggests that it died about the time of birth, and there is evidence to suggest that it had at least reached term. A few teeth suggest that the infant may have survived for a short time after birth, but it is extremely unlikely that it was more than 3 months old. The age may be stated as 1 month \pm 1 month.

Grave 544: burial KM 3239

Neither jaw bones nor teeth were found at excavation, but nine developing deciduous teeth were recovered by flotation.

The stage of development of these teeth suggests that the most probable age at death is 5 months \pm 2 months.

Tomb 545: burials KM 2827, 2830

Tomb 545: burial KM 2827

The left half of the mandible is virtually intact, though broken into three pieces. There is a tiny fragment of left maxilla, carrying the premolars. Six teeth and a root fragment are *in situ* in the mandible. There are 13 loose teeth and 11 broken fragments of root apices.

The degree of attrition of the teeth suggests an age in the range 25-35, though there are some irregularities in the pattern of attrition.

There appears to be a carious lesion in a maxillary molar, though the picture is complicated by *post mortem* erosion. The mandibular left first molar has been lost *in vivo*: the cause cannot be ascertained.

Tomb 545: burial KM 2830

Two areas of the jaws survive. One is a small fragment of the left maxilla, carrying first and second premolars. Both teeth show a considerable degree of exposure of the root. The second premolar is little worn and in a normal position. The first premolar is tilted slightly in a palatal direction and shows an abnormal attrition facet on the mesial aspect, exposing

dentine on the mesial marginal ridge. Mesial to the first premolar is the root stump of the canine, which appears to have been grossly carious. Distal to the second premolar, there is no sign of the first molar, and the appearance of the bone suggests the presence of an abscess.

The second specimen is a fragment of the mandible, including the chin and part of the left body. All four mandibular incisors and the left canine are *in situ*. Behind the canine, there is no evidence of any tooth sockets and it seems likely that the teeth from the first premolar, perhaps as far back as the second molar, have been lost *in vivo*. The bone seems to have healed well, leaving a knife-edge at the crest of the alveolar ridge. A loose mandibular left molar is probably the third molar. The mandibular right canine, both premolars and first molar are present loose.

With the exception of the left third molar, all the mandibular teeth are heavily worn, indicating a mature adult, perhaps in the age range 35-45.

The slight degree of attrition of the maxillary premolars is due to the *in vivo* loss of the opposing teeth in the mandible, and this is also the cause of the over-eruption of the maxillary premolars, leaving an excessive amount of root exposed in the mouth. The slight degree of attrition of the maxillary premolars also suggests that the *in vivo* loss of mandibular teeth occurred relatively early in adult life.

The *in vivo* loss of several mandibular teeth, the abscess in the left maxillary first molar area, and the probable gross carious lesion of the maxillary left canine, all indicate extensive dental disease. Whether this was mainly dental caries, or whether periodontal disease also played a part in the *in vivo* loss of teeth, is impossible to discover.

Grave 546: burial KM 1912

The whole tooth-bearing area of a gracile mandible is present, but both ascending rami are missing. There is a small fragment of right maxilla. Two maxillary and four mandibular permanent teeth are still *in situ*, while 13 have been lost *post mortem* or broken at the neck. Four teeth show severe attrition, which suggests an age at death in the range 35-45. The mandibular right first permanent molar has been so heavily worn that the pulp chamber has been exposed. Infection has tracked from the pulp to the apex of the root and has produced a chronic apical abscess or dental cyst which is pointing through the buccal plate of the mandible opposite the bifurcation of the roots.

Both mandibular third molars are congenitally absent.

Grave 547: burial KM 1922

No teeth or fragments of jaw bone were found.

Grave 548: burial KM 1991

Two small fragments of left mandible are present in the excavated material. There is also a large fragment of left maxilla and a small fragment of right maxilla. These bone fragments carry five erupted deciduous teeth and contain 14 developing permanent teeth, some visible only on X-ray. A further seven deciduous teeth and two developing permanent teeth are present loose. The flotation sample has added five deciduous teeth and two developing permanent teeth to the total.

The entire deciduous dentition has been in function and the roots of the deciduous teeth are almost complete. None of the permanent teeth has yet erupted, or is close to erupting. From the stage of tooth development, the most probable age at death is 3 years \pm 6 months.

There is no evidence of dental disease.

Grave 549: burial KM 2011

A fragment of the right body and ramus of the mandible is present, carrying the erupted first deciduous molar and containing the unerupted second deciduous molar and first permanent molar in their crypts. Other small fragments of mandibular and maxillary alveolus include part of the crypt of the left mandibular first permanent molar. The remaining seven erupted and 11 unerupted deciduous teeth are present loose, also the other three developing first permanent molars. Ten crown tips from the developing permanent incisors and canines were found at excavation, and the remaining two were recovered by flotation.

This dentition is complete for its stage of development, a remarkable feat of excavation, considering the small size of some developing crowns.

From the stage of development of the dentition, the most probable age at death is 1 year \pm 3 months.

There is no evidence of dental disease.

Tomb 550: burial KM 2005

Most of the left half of the mandible was embedded in a large mass of soil. The buccal face of the bone could be seen, and some of the mandibular teeth were apparently *in situ*, but a large crack had appeared between bone and teeth. Some of the left maxillary teeth were in occlusion with the mandibular teeth, though no maxillary bone was visible.

Excavation of the soil mass confirmed that the thin alveolar bone supporting the teeth had been destroyed, leaving only the most robust parts of the outer plates of the mandible. None of the bone of the maxilla had survived. Many of the teeth had remained *in situ*, but some had slipped down behind the body of the mandible. Only two right mandibular molars were found, though it is possible that more teeth from the right side may be embedded in the mass of soil surrounding the cranial vault: this has not been disturbed.

The entire complement of left maxillary and left mandibular teeth is present. All have suffered fairly severe *post mortem* surface erosion. The permanent teeth had all erupted and the individual was clearly adult. The degree of attrition suggests an age in the range 25-35.

The maxillary left first and second molars display carious lesions of moderate size at the amelocemental junction on adjacent tooth surfaces.

Among the loose soil was found a specimen of a *dilated odontome*, a rare developmental anomaly in which the tissues of the crown form an irregular mass quite unlike any normal tooth crown, and the root tissues form a crumpled mass with no attempt at normal root development. This anomalous tooth mass has probably been formed by invagination of the cells of a molar tooth germ, which could have been either the mandibular right third molar or any of the maxillary right molars. A slight wear facet on the mass shows that, though normal eruption would be impossible, one corner of the odontome must have projected through the soft tissues. This could have led to infection of the deeper tissues surrounding the odontome.

Grave 551: burial KM 2470

In the excavated material, fragments of the left mandible and right maxilla are present. These carry four deciduous molars and two developing permanent teeth *in situ*. There are also 11 loose deciduous teeth and six loose developing permanent teeth. By flotation, a further four deciduous teeth and two developing permanent teeth have been recovered.

From the stage of development of the teeth, the most probable age at death is 1 year \pm 3 months.

There is no evidence of dental disease.

Grave 552: burial KM 2053

No teeth or fragments of jaw bone were found.

Grave 554: burial KM 2269

Two fragments of the right mandible are present, comprising the greater part of the ascending ramus and body of an infant bone. The right first deciduous molar is *in situ* in its crypt. Eleven developing deciduous teeth have been recovered by flotation. These consist of five incisors, one canine and five molars. None of the deciduous teeth had yet erupted.

From the stage of development of the teeth, the age of the infant was probably between birth and 3 months post-natal. The age may be stated as 1 month \pm 1 month.

Grave 555: burial KM 2384

Part of the left body of a robust mandible is present, but there is no sign of the maxilla. The mandible fragment carries five erupted permanent teeth and the developing and unerupted third molar. A maxillary right incisor and mandibular right premolar are present loose.

The root apices of the mandibular second premolars are not quite complete and this, together with the stage of development of the third molar, suggests an age at death of 13 years \pm 9 months.

The teeth are large and well-formed, and there is no evidence of dental disease.

Grave 556: burial KM 2303

No teeth or fragments of jaw bone were found.

Grave 557: burial KM 2455

A fairly large part of the skull was embedded in a hard mass of concreted soil. The frontal and nasal bones could be seen, and a small portion of the right side of the mandible. Initial cleaning revealed a few maxillary and mandibular molars. The soil was softened and cleared until the portion of right mandible and a section of right maxillary alveolus ca r-

rying all three molars could be detached from the mass. The remainder of the soil mass was not disturbed.

Altogether there are two fragments of right mandible and two fragments of right maxilla, carrying a total of ten erupted permanent teeth. Three permanent teeth are loose.

The degree of attrition suggests an age in the range 25-35.

There is no evidence of dental caries, though it is impossible to clear the hard concreted earth completely from the embrasures between the teeth, and early lesions could be concealed here.

In view of the moderate to severe attrition of all the other teeth, the presence of a completely unworn maxillary right canine is surprising. It is possible that this tooth either had failed to erupt and was embedded in the bone, or had erupted in a non-functional position. In the absence of this area of alveolar bone, a precise diagnosis cannot be made.

Grave 560: burial KM 2400

Excavation has produced 12 loose developing deciduous teeth. The flotation process has recovered a small fragment of the left mandible carrying three deciduous teeth developing within their crypts, a tiny fragment of maxillary alveolus with a developing left first deciduous molar, four loose developing deciduous teeth, the incisal edges of two developing permanent incisors, and parts of permanent first molars in the form of cusps which are not yet fully united.

The deciduous incisors appear to have been in the process of erupting, or just to have erupted, while the deciduous canines and molars are still buried in their crypts. From the stage of development of the teeth, the most probable age at death is 6 months \pm 2 months. There is no evidence of dental disease.

A stray mandibular premolar from an adolescent or young adult is included with the material from this burial.

Tomb 561: burial KM 2338

Almost the whole of the right half, and a great deal of the left side of the mandible are intact. The alveolar part of the left maxilla is well preserved, and there is a fragment of the right maxilla. The body of the mandible is well-built and the chin is quite deep, but the right ascending ramus is particularly broad in proportion to its height. The attachment areas of the right masseter and right medial pterygoid muscles are very strongly marked, indicating that the individual possessed well developed muscles of mastication and considerable masticatory force.

The full complement of 16 erupted permanent teeth is present in the mandible. Thirteen of the maxillary teeth are *in situ* and the remaining three molars are present loose. The dentition is thus complete. The degree of attrition suggests an age in the range 25-35.

Two areas of early periodontal disease may be observed on the left side, between upper first and second molars and between lower first and second molars. In the latter case, a small carious lesion is developing on the distal side of the first molar.

Grave 562: burial KM 2636

Two mandibular fragments make up the greater part of the right body of the bone. A third fragment comprises the left ascending ramus and a small area of left body. There are two very tiny fragments of maxillary alveolus.

Six erupted permanent teeth are *in situ* and five more are loose. All the teeth have been fully formed. The very slight degree of attrition suggests a young adult, perhaps in the range 20-25.

The teeth are well formed and there is no sign of dental disease.

The mandibular right third molar is congenitally absent, and other third molars may also have failed to develop.

Grave 563: burials KM 2718.01, 2719.01

Grave 563: burial KM 2718.01 (= Skeleton A)

The chin and right side of the mandible are virtually intact and there is a small fragment of the left body which fits the end of the larger fragment of the right side. A small fragment of right maxilla is present.

Ten deciduous teeth are *in situ* in the jaw fragments. Nine deciduous teeth and 12 developing permanent teeth are present loose, and a further 15 developing permanent teeth are still lying in their crypts in the bone, some visible only by X-ray.

The stage of development of the dentition suggests that the most probable age at death is 3 years 6 months \pm 6 months.

The teeth are well formed and there is no evidence of dental disease.

Grave 563: burial KM 2719.01 (= Skeleton B)

Two mandibular fragments fit together to form the chin, right body and right ramus of the bone. There is also a small fragment of the right maxillary alveolus.

One deciduous molar is *in situ* in the jaw fragments. The remaining 19 deciduous teeth are present loose. There are nine loose developing permanent teeth, and four developing permanent teeth are present in crypts in the jaw fragments. The stage of development of the dentition suggests that the most probable age at death is 1 year 6 months \pm 3 months.

The teeth are well formed and there is no evidence of dental disease.

Grave 563: burials KM 2718, 2719. Additional teeth

1) Together with the teeth of skeleton A there is an additional maxillary right deciduous central incisor. Both right and left incisors are already present in this dentition. The additional tooth is whiter and is also slightly more worn, suggesting a slightly older child than skeleton A, possibly aged 4-5 years (KM 2718.02).

2) In a bag labelled "not clearly associated with either skeleton" is a developing mandibular left deciduous canine. All canines are already present in skeletons A and B, so this represents an additional child. The root is slightly more developed than that of the corresponding tooth in skeleton B, but less developed than that of skeleton A, and the child may have been about 2 years old (KM 2719.02).

3) In flotation specimen C.412 is a developing maxillary left deciduous canine which matches specimen 2) above for colour and stage of development, and could have come from the same 2 year old child.

Grave 564: burial KM 2886

No teeth or fragments of jaw bone were found.

Grave 565: burial KM 2887

The left angle of the mandible is present, but the bone is broken immediately behind the position for the third molar, so neither teeth nor sockets are included in the specimen, and there are no loose teeth.

Tomb 566: burial KM 2693

The left ramus and most of the left body of the mandible are intact, and there are fragments of right and left maxilla in the incisor to premolar areas.

These jaw fragments carry six erupted deciduous teeth and three erupted permanent teeth. A further two erupted deciduous and nine erupted permanent teeth are present loose, and there are seven loose developing permanent teeth. An additional nine developing permanent teeth are still present in crypts within the jaw fragments, some visible only on X-rays. From the stage of development of the teeth, the most probable age at death is 8 years 6 months \pm 9 months.

The teeth are large and well formed and there is no evidence of dental disease.

Grave 567: burial KM 2835

The maxilla is still attached to the skull, though there is some damage to the right side. Three erupted permanent teeth are *in situ*, and a further seven erupted maxillary teeth are loose: four of these teeth are broken in such a way as to suggest that they may have been fractured in antiquity. The crown of a developing maxillary third molar is also present. The mandible is intact apart from damage to both condyles and the incisor alveolus. It carries nine erupted or erupting permanent teeth and two deciduous molars, while three permanent teeth have been lost *post mortem*.

This dentition is in the final stages of replacement of the deciduous dentition by the permanent teeth. There are some slightly unusual features, in that the mandibular left second permanent molar has erupted almost to the occlusal plane while the canines and first premolars, which should reach occlusion a year or two before the second molar, have not yet done so. The maxillary second premolars have erupted into occlusion, while the mandibular second deciduous molars have not yet been shed. X-rays show that one of the mandibular second premolars is still embedded deep in the jaw, with only half of its root formed, while the other second premolar is congenitally absent, and the mandibular third molars are also congenitally absent.

Taking the slight irregularities of eruption into account, the most probable age at death is 11 years 6 months \pm 9 months.

There is no evidence of dental disease.

Grave 568: burial KM 2888

No teeth or fragments of jaw bone were found.

Grave 569: burial KM 2948

One fragment of a tiny mandible is present. There are also 17 developing deciduous teeth and three developing first permanent molars. It seems probable that the deciduous first incisors in both jaws had just erupted or were in process of erupting, but that neither the lateral incisors nor the first deciduous molars had yet appeared in the mouth.

From the stage of development of the dentition, the most probable age at death appears to be 7 months \pm 2 months.

Grave 570: burial KM 2979

There are three small fragments of a tiny infant mandible and one fragment of paper-thin maxilla. All four fragments contain crypts for developing deciduous teeth, seven of which are present loose. The crowns of the incisors are nearing completion, those of the first molars are three-quarters formed, and those of the second molars half formed. None of the teeth is yet ready to erupt.

From the stage of development of the dentition, the most probable age at death is 3 months \pm 2 months.

Grave 571: burial KM 3079

The mandible is complete and the bone is in a particularly good state of preservation. There are two fragments of right maxilla which fit together and which have been glued along the fracture line: the right side of the bone is now continuous from midline to tuberosity, though it is not complete. A large fragment of the left maxilla is present, but the tuberosity is missing on this side.

Fifteen erupted permanent teeth were *in situ* or could be returned to their sockets. Another two tooth roots and three root fragments could not be relocated.

The dentition was in an extremely unhealthy state. The maxillary right second premolar and all the maxillary right molars had been lost well before the death of the individual. Both premolars and probably all the molars on the left side had also been lost *in vivo*. Thus all chewing capability had been lost in the posterior regions of the maxilla. The mandibular molars had not yet been lost but, due to a combination of periodontal disease and over-eruption resulting from lack of opponents, they had lost a great deal of their bony support and were held in place only by the tips of their roots.

Because of the loss of maxillary molars, the mandibular molars show a good deal of variation in their degree of attrition. The mandibular left molars show attrition appropriate to an age in the range 20-25, while the attrition of the right first molars would suggest an age in the range 25-35. It can be suggested that the maxillary left molars were lost when the individual was in the early twenties (which is unusually young) and that the maxillary right molars were lost perhaps 5-10 years later.

With the loss of chewing capability in the posterior part of the dentition, all the load of mastication has fallen on the anterior teeth, which have become extremely heavily worn. Of eight incisors and canines which are *in situ*, six have been worn down so far that the pulp is exposed, and of these, four have been completely worn down so that only a root stump is left. The mandibular left first premolar has also been worn down to a root stump. Pulp exposure or near-exposure has led to infection of the pulps and subsequently of the tissue round the apices of the roots, with formation of seven chronic dental abscesses or dental cysts. Further abscesses can be seen in four canine and premolar sockets where the teeth have been lost *post mortem*. Where teeth have been lost *in vivo*, there are areas of residual bone infection.

Though there is a great deal of dental disease, including extensive periodontal disease, severe attrition, tooth loss *in vivo*, abscesses or cysts and bone infection, there is no evidence of dental caries.

With such extensive pathology, the assessment of age becomes very difficult. The individual must have been a mature adult, at least in the thirties, and possibly older, but a closer estimate cannot be made.

It seems probable that the mandibular third molars were congenitally absent, and the maxillary third molars may also have failed to develop.

Grave 572: burial KM 3465

The dentition is represented by the developing crown of the maxillary left first permanent molar; a fragment of another developing molar, probably the mandibular left first permanent molar; the incisal third of

the maxillary right first permanent incisor, with very marked amelomelons; and four small unidentifiable fragments, possibly additional pieces of the mandibular left first permanent molar.

The degree of development of the maxillary left first permanent molar and the maxillary right first permanent incisor suggests an age at death of 2 years \pm 6 months.

Grave 573: burial KM 3476

There is a fairly large piece of the left mandible, carrying the erupted deciduous canine and second molar (the deciduous first molar has been broken off at the neck and lost) and the developing left first permanent incisor, as well as the crypt for the developing mandibular left first permanent molar, whose roots are just beginning to form the bifurcation.

Additional tiny fragments of alveolus carry the erupted maxillary left second deciduous molar and developing maxillary left permanent canine, first premolar and second premolar; the erupted maxillary right first deciduous molar and developing maxillary right first premolar; and the developing mandibular right permanent second molar.

A further 10 deciduous teeth and 14 developing permanent teeth are present loose.

The stage of development of the dentition suggests an age at death of 5 years \pm 9 months.

Two hypoplasia lines in the maxillary first permanent incisors suggest upsets to metabolism at the ages of approximately 3 and 4 years. A single line corresponding to the disturbance at 3 years can be seen just above the amelocemental junction of the permanent first molars: the crowns of these teeth would have been completed before the second disturbance occurred.

There is no evidence of acquired dental disease.

Grave 574: burial KM 3478

There are four fragments of a heavily built mandible with a square, angled chin, possibly that of a male. These fragments carry remains of the permanent teeth from canine to third molar on each side, but all the teeth except the right third molar have been broken off at the neck *post mortem*, leaving root stumps level with the openings of the sockets. Crown and root fragments of the mandibular left canine and premolars appear to fit the appropriate stumps. Mandibular left incisors are present, but there are no sockets for these teeth.

A fragment of left maxilla contains the roots of teeth from canine to first molar, also broken off at the neck *post mortem*. Two further fragments of maxilla, badly abraded, are not precisely recognisable. The crowns of the maxillary permanent left incisors are present loose. Seven fragments of root are not recognisable.

Such tooth crowns as are present show relatively little wear, suggesting an age at the lower end of the range 25-35.

An additional small mandibular right third molar, slightly worn, is a stray from another individual.

Grave 575: burial KM 3521

Almost the whole of an infant mandible is present, broken into three pieces which fit well together. All the mandibular deciduous teeth can be seen developing in their crypts. There is also part of the left maxilla, with developing second incisor, canine and both molars in their crypts.

None of the deciduous teeth is yet close to eruption. Their stage of development suggests an age of 3 months \pm 2 months.

The crypts for the mandibular first permanent molars are present, but the teeth would have been present in the form of separate cusps, not yet united, and these tiny fragments have not survived.

Catalogue 2: dentition from non-funerary contexts

HB. 1 and 49. Misc. 2138

Limb bones and some fragments of a thin infant skull were recovered at excavation. Sieving of the soil surrounding the skeleton produced a few more fragments of cranial vault, but neither jaw fragments nor teeth.

HB. 4. Pit 1012

Human mandibular left central deciduous incisor, worn; fragment of deciduous molar which is not identifiable.

HB. 5. Fill 1147

Broken human mandibular second deciduous molar.

HB. 6. Pit 393

There is a small fragment of the right body of the mandible, and most of

the right ascending ramus with the condyle. The first and second deciduous molars are *in situ*, and the first permanent molar has erupted into full occlusion: its roots are still not quite complete. The developing crown of the second permanent molar can be seen in its crypt, and the crypts for the premolars can also be seen where the lower border of the mandible has been broken away. Development of the second molar crown is well advanced. The stage of development of the teeth suggests an age at death of 8 years ± 9 months. [Ed. Probably same as KM 892]

There is no evidence of dental disease.

HB. 9. Cadastral plot 157

A small fragment of the L. side of the mandible of a child with severely eroded second deciduous molar and first permanent molar, both in function but the permanent tooth little worn. An X-ray shows the developing permanent canine and both premolars, and from the stage of development of these teeth, the most probable age at death appears to be 9 years ± 9 months.

HB. 19. Fill 220

A maxillary L. deciduous canine, in function but very slightly worn. From a child between 2 and 10 years old, but probably in the lower end of this range.

HB. 26. Fill 613

Unworn maxillary permanent R. lateral incisor. The root is slightly damaged but was obviously in the process of developing. From a child aged 7-9 years.

HB. 44. Pit 873

Deciduous mandibular R. lateral incisor. The root is complete but the crown shows very little wear. From a child aged between 1 and 4 years.

HB. 47. Fill 929

There are two fragments of a child's mandible and a small flake of bone with part of a tooth crypt. One fragment is of the chin region and carries the sockets for the right first and second deciduous incisors. The lower border of the mandible extends further than this, but the sockets and crypts have been damaged *post mortem*. An X-ray reveals the developing permanent first and second incisors. The root of the first incisor is well developed and the tooth appears to be about to erupt. A close examination of the fractured surface of bone shows that the left first incisor was erupting or had already erupted.

The second fragment is of right ascending ramus with damaged condylar and coronoid processes, and a very small part of the right body of the mandible. The most distal socket has been destroyed *post mortem* but behind it is a crypt whose aperture is so small that the tooth cannot be identified. An X-ray shows a permanent molar in the crypt, and this is most likely to be the second permanent molar.

From the stage of development of the permanent teeth in their crypts, the child was probably aged *c.* 6-7 years.

HB. 54. General 650

Damaged and eroded crown of a deciduous molar, probably mandibular R. first. If this is correct, it indicates a child aged between 1 and 9 years. There appears to be a fair amount of wear, so the age is probably towards the upper end of this range.

HB. 61. General 886

Fragment of L. mandible with badly eroded first permanent molar, almost completely destroyed second molar and socket for third molar. From an adult, but it is impossible to estimate age.

HB. 64. General 1412

Maxillary L. first premolar. The root is broken so its exact stage of development cannot be observed, though a good deal has formed. The crown shows virtually no wear so this tooth is most likely to have come from a child over 10 or an adolescent.

HB. 81. Fill 934

This specimen is a maxillary right second deciduous molar. The list of specimens indicates that this tooth was thought to be malformed, but it is in fact perfectly normal. The distobuccal and palatal roots are joined by a "fin": this is a not uncommon variant. The mesiobuccal root has been broken off *post mortem*.

The roots are completely formed, which suggests an age over 3 years. However, the very slight early attrition facets suggest that the tooth had not been in function very long, and the individual may have

been aged between 4 and 7 years, although the tooth would not have been shed until 10 or 11 years.

There is no evidence of dental caries.

HB. 83. Pit 997

Mandibular right permanent second molar, fully developed and in function. It must be a second and not a third molar because it possesses attrition facets on both mesial and distal surfaces.

HB. 113. Pit 1358

The specimen is a mandibular left first deciduous incisor. Slight wear of the incisal edge shows that the tooth had been in function, therefore the child should have been older than 6 months. However, the extent of attrition is slight and the child must have been quite young. The tooth is often quite heavily worn when it is shed at approximately 6 years.

HB. 115. General 1341

This tooth is a maxillary left first permanent molar. The degree of attrition suggests an individual in the age range 25-35. There is no evidence of dental caries.

HB. 117. Fill 652

A tiny fragment of the right mandible carries a developing first deciduous molar lying in a damaged crypt. The crown of the tooth appears to be about half formed, but it is possible that a little may have been lost *post mortem*. The apparent stage of development of the tooth suggests that the infant died in the perinatal period, and is unlikely to have survived birth (if at all) by more than a month or so. If part of the tooth has been lost *post mortem*, the child could have been slightly older, but must still have been aged less than 1 year, and probably less than 6 months.

HB. 142. Ditch 2060, KM 2315

The specimen consists of a large and heavily built mandible, broken in two almost at the midline, and missing a small piece at the left angle, but otherwise complete. At the time of death, the bone carried a full complement of 16 erupted permanent teeth, but all except two molars have been lost *post mortem* or badly damaged.

The apices of the right third molar roots have been fully formed, so the individual would probably have been over 20 years. However, the two surviving molars show very little attrition, and this suggests that this was a young adult, in the range 20-25 years.

The teeth are large and this, with the heavily built mandible, suggests that the individual may have been male.

There is no evidence of dental disease.

§ 16.3 Analytical parameters (E.P.)

§ 16.3.1 Analyses for figures in § 4.4

In general, grave Types 1 and 2 were combined as pit graves for funerary analyses based on facility types, but Types like 1/5 were excluded from calculations.

Data used to construct Fig. 4.2. Occurrence of funerary facility types in Periods 3A - 5

Data from Table 4.1 constitutes the basis for this analysis. The following records were deleted: all "?" and ambivalent Types (e.g. 1/5) except 1/2 which were considered with Type 1 + 2; records with ambivalent periods. Records with "x?" types were attributed to the x type; records with the "x?" period were attributed to that period. As a result, a total of 59 records were used in this analysis.

Data used to construct Fig. 4.4. Age/sex representation in grave and tomb types

Questionable facility types like Type 1? are included as Type 1. The 87 records were reduced by the exclusion of facilities without bodies, facilities of unknown type and facilities of combined types like 1/3, but not 1/2.

This reduced the number of available records to 67. Data was then obtained from the Catalogue in § 16.1 and Table 4.1.

Data used to construct Fig. 4.5. Age representation in the burial population

Table 4.1 was used as the basis for this analysis. Records for which Period was unknown or questionable and for which there were no burials were deleted. Child or adult occupants were attributed to facilities that retained sufficient dimensional information, but not to Gr. 503 which could have contained multiple burials. The result is that a total of 75 records could be used in this analysis.

Data used to construct Fig. 4.6. Position of graves and tombs in relation to building wall by absolute bearing

So concentrated are the structures in the excavated areas that it could be argued the 75 recovered graves would have to occur near buildings. However, the absence of graves in Quadrants 19.24.2 and 21.23.1/3, and in Square 23.24, where there is a scarcity of structures (B 1328 is an exception to which we must return) and clusters elsewhere indicate deliberate choice of burial locale in general proximity to buildings. To demonstrate this, all graves within 2 m of a wall were analysed (Table 16.12). 20 graves were eliminated from the analysis because they were so superficial that their relationship to walls cannot now be recovered. In the first instance, graves were considered with contemporary walls and walls of an earlier period where there was some evidence that such earlier walls projected, so forming a burial focus. At this stage of the analysis there was no attempt to relate the dead to their houses. All 55 graves in the study plotted to within 2 m of walls; this accounts for 73.3% of all recorded graves.

Table 16.12. Orientation of graves with respect to near-neighbour walls

| Grave | B/Wall | C/N/E | I/E | Seg | Abs. | Status | Gr. Period | B/Wall Period |
|-------|--------|-------|-----|-----|------|--------|------------|---------------|
| 501 | 1 | C | E | 1 | SE | D | 4? | 4 |
| 502 | 206 | N | E | 1 | E | D | 4? | 3B |
| 503 | 2 | C | I | 2 | NE | D | 3B | 3B |
| 504 | | E | - | - | - | D | 5? | - |
| 505 | 375 | C | I | - | - | OK | 4 | 4 |
| 506 | 375 | C | I | - | - | OK | 4 | 4 |
| 507 | 375 | C | I | - | - | OK | 4 | 4 |
| 508 | 200 | N | E | 2 | NW | D | 4 | 4 |
| 509 | 2 | N | E | 1 | S | D | 4? | 3B |
| 510 | 493 | C | E | 3 | N | D | 4 | 4 |
| 511 | 375 | C | I | - | - | OK | 4 | 4 |
| 512 | | E | - | - | - | D | 4? | - |
| 513 | 736 | C | E | - | E | D | 4 | 4 |
| 514 | 4 | N | E | 1 | NE | D | 4 | 3B |
| 515 | 1044 | C | E | 3 | NE | D | 4 | 4 |
| 516 | 204 | C | E | 3 | NE | OK | 4 | 4 |
| 517 | 206 | N | E | 2 | NE | D | 4 | 3B |
| 518 | 3 | C | E | 1 | SE | D | 4 | 4 |
| 519 | 624 | C | E | - | W | D | 4 | 4 |

| | | | | | | | | |
|-----|------|----|---|---|----|----|-------|----|
| 520 | 3 | C | E | 1 | S | D | 4 | 4 |
| 521 | 1165 | C | E | 1 | E | D | 4 | 4 |
| 522 | | E | - | - | - | OK | 4 | - |
| 523 | 376 | C | E | - | E | D | 4 | 4 |
| 524 | 1165 | C | E | 1 | E | OK | 4 | 4 |
| 525 | 855 | C | E | 4 | N | D | 3B | 3B |
| 526 | | E | - | - | - | OK | 4 | - |
| 527 | | E | - | - | - | D | 4 | - |
| 528 | | E | - | - | - | D | 4 | - |
| 529 | 910 | N | - | - | NE | D | 5? | 4 |
| 530 | | E | - | - | - | D | 5 | - |
| 531 | | E | - | - | - | ? | ? | - |
| 532 | | E | - | - | - | OK | 4 | - |
| 533 | 1046 | C | I | 4 | N | D | 4 | 4 |
| 534 | | E | - | - | - | D | 4 | - |
| 535 | | E | - | - | - | OK | 3A? | - |
| 536 | 204 | N | E | 1 | S | D | 4? | 3B |
| 537 | 866 | C | E | 3 | NW | C | 4/5 | 4 |
| 538 | 1046 | C | I | 3 | N | OK | 4 | 4 |
| 539 | | E | - | - | - | OK | 4 | - |
| 540 | | E | - | - | - | D | 3/4 | - |
| 541 | | E | - | - | - | D | 4 | - |
| 542 | 1052 | C | I | 3 | NE | OK | 4 | 4 |
| 543 | 1046 | C | I | 3 | N | OK | 4/5 | 4 |
| 544 | 1052 | C | I | 3 | NE | D | 4 | 4 |
| 545 | 3 | C | E | 2 | NE | D | 4 | 4 |
| 546 | 1161 | N | E | 3 | N | D | 4 | 3A |
| 547 | 1295 | C? | I | 4 | E | D | 3/5 | 3A |
| 548 | 1165 | C | E | 1 | S | OK | 3/4 | 4 |
| 549 | | E | E | - | - | OK | 3A? | - |
| 550 | 1161 | N | E | 3 | NW | OK | 4 | 3A |
| 551 | 1016 | C | E | 1 | NE | OK | 3A? | 3A |
| 552 | | E | - | - | - | D | 3A? | - |
| 553 | 1016 | C | E | 4 | S | D | 3A? | 3A |
| 554 | | E | - | - | - | D | 3A? | - |
| 555 | | E | - | - | - | D | 4 | - |
| 556 | 736 | C | E | - | E | D | 4 | 4 |
| 557 | 1046 | C | E | 2 | S | D | 4 | 4 |
| 558 | 1295 | N | E | 4 | SE | D | 4 | 3A |
| 559 | - | - | - | - | - | - | - | - |
| 560 | 1401 | C | E | - | SW | D | 3B | 3B |
| 561 | 1052 | C | E | 2 | SE | OK | 4 | 4 |
| 562 | 375 | C | I | - | - | OK | 3/4 | 4 |
| 563 | 855 | C | E | 4 | NW | OK | 3B | 3B |
| 564 | 866 | N | E | 2 | N | D | ? | 4* |
| 565 | | E | - | - | - | D | 4 | - |
| 566 | 1046 | C | E | 3 | NE | OK | 4 | 4 |
| 567 | 1016 | C | E | 3 | SW | OK | 3A? | 3A |
| 568 | 4 | C | E | - | NE | D | 3A/3B | 3B |
| 569 | 855 | C | E | 1 | E | D | 3B | 3B |
| 570 | 1547 | C | E | 1 | E | D | 3A? | 3A |
| 571 | 1016 | C | E | 3 | NW | OK | 3A? | 3A |
| 572 | 1565 | C | E | - | NE | D | 3A? | 3A |
| 573 | 1016 | C | I | 2 | N | OK | 3/4 | 3A |
| 574 | 1016 | C | I | 2 | N | OK | 3A? | 3A |
| 575 | 1638 | C | E | - | NE | OK | 3A? | 3A |

* see text

Note For further relationships, see Figs. 4.7-9; B/Wall=Building/Wall; C=contemporary; N=not contemporary; E=eliminated; I/E=internal/-external; Seg=segment; Abs=absolute direction.

There was, therefore, a preference for grave construction near walls. Of these, 75% were located outside building perimeters. The remaining 25% were either cut into the shell of abandoned structures (e.g. B 1044, 1565) or they were real intra-mural burials, contemporary with the structure in which they were found (Mortuary Enclosure and B 1052).

Not only was there a desire to place graves outside, yet near, buildings, but there was also a favoured orientation with respect to those buildings. Fig. 4.6 clearly

demonstrates that some 65% were concentrated near the north - east walls of structures, and nearly half of these more particularly in the north-east. Looked at more closely, there seems to have been an ideal situation between grave and wall. This is most clearly seen in Fig. 25 where Gr. 551, 570 and 575 impinge on the actual structure itself. The question of exact contemporaneity naturally arises, but this is very difficult to resolve unequivocally unless the grave has actually cut the whole wall (e.g. Gr. 508, 546, 558), in which case we may refer to post-abandonment burials. The optimal choice, it seems, was to inter the dead as close as possible to the exterior wall face on the north-east of buildings.

Data used to construct Fig. 4.10. Energy expenditure for the construction of pit graves and chamber tombs, expressed as volume of soil displacement

Entries for this line chart were obtained from data in Table 16.13.

Table 16.13. Volume of soil removed to construct interment facilities in volume order

| Facility | Volume cubic m | Facility | Volume cubic m |
|------------------|----------------|---------------------|----------------|
| <i>Pit Grave</i> | | | |
| 569 | 0.02 | 571 | 0.45 |
| 544 | 0.02 | 525 | 0.47 |
| 548 | 0.06 | 567 | 0.69 |
| 570 | 0.06 | 563 | 0.82 |
| 542 | 0.08 | 574 | 1.00 |
| 547 | 0.10 | 507 | 1.48 |
| 554 | 0.12 | 503 | 1.78 |
| 538 | 0.14 | <i>Chamber Tomb</i> | |
| 551 | 0.17 | 550 | 0.39 |
| 572 | 0.17 | 536 | 0.55 |
| 540 | 0.17 | 561 | 0.71 |
| 575 | 0.17 | 526 | 0.77 |
| 512 | 0.26 | 523 | 1.01 |
| 535 | 0.28 | 558 | 1.16 |
| 568 | 0.29 | 506 | 1.24 |
| 573 | 0.37 | 515 | 1.38 |
| | | 505 | 2.06 |

Data used to construct Fig. 4.12. Average occurrence of artefacts per burial in Periods 3A to 5

Records for this analysis were compiled from Table 4.1. After facilities attributed to multiple periods were deleted, a total of 84 individuals could be included. The problem of what grave goods to include is more complicated and not readily resolved for several reasons. For example, some may belong to unphased burials which had been removed, but whose grave goods remained in the pit. Many objects were found above burials in grave pit fills which could have belonged to intact deceased, to other removed individuals or to backfill.

The following procedures were followed in attempting to resolve these issues. First, only the six most popular categories of funerary items were included in

this analysis. Many other types, such as the hafted adze and metal hairring, were perforce excluded. Figurines were counted in with pendants. Second, of the items listed in the “possible grave goods” column in Table 4.1, only those which were known to be associated with individuals in other graves were considered for inclusion here. Discs (11), pounders (7) and cupped stones (7), although recurring relatively frequently in grave fills, were thereby discounted as likely non-funerary derivatives. Needles (13) and conical stones (9) are known to be related with burials, but they are widely distributed, small objects, and so these too are treated as residuals in backfill. Pendants (6) and beads (28), on the other hand, are typical of so many *in situ* associations that, of all the “possible grave goods”, only these are attributed to grave goods for the purposes of this analysis.

Data used to construct Fig. 4.13. Prestige scores of Period 4 burial population

This analysis is derived from Period 4 records in Table 4.1 and the Catalogue, the former for artefacts, the latter for facility size. A total of 27 individuals could be included in this analysis. Units of wealth were ascribed *a priori* on the basis of difficulties in raw material procurement and artefact (object or facility) production (cf. Shennan 1975, 284). The following scale applies:

- 3: pottery container, pig tusk pendant, shell bead, conical stone, burial facility <0.49 cubic metre;
- 5: hafted jasper adze, burial facility >0.49 - <1.00 cubic metre;
- 8: picrolite, burial facility >1.00 cubic metre;
- 10: metal, faience.

§ 16.3.2 Evidence for thalassaemia in Tomb 505

Extract from T. 505 report by M. Domurad (pers comm 3 February 1991)

“The right tibia [of KM 553.10] had substantial bowing (++) and there was an arthritic inflammation and degeneration in both feet. This is not unusual in an individual of this age. It was possible to measure the right femur after extensive repair, and from this to calculate a living height of approximately 154 cm or 5' 1½”.

“Skull fragments [of KM 553.12] were from the frontal and parietal bones. The parietal was 10 mm thick - approximately twice the normal thickness for someone of this age...

“Bowling of bones [KM 553.10] can be the result of a number of diseases, as well as malnutrition. Vitamin D deficiency (not likely in Cyprus) and/or lack of protein or calcium prevent the protein matrix from mineralising and strengthening itself adequately against gravity. The result is a bone which “buckles” under body weight. Not surprisingly leg bones are the ones which

suffer bowing most often. Not enough of each skeleton has been preserved to attempt a differential diagnosis, but it should be noted that there were 2 instances of bowed bones in this tomb: the adult male's tibia [KM 553.10] and the child's femur. That these two individuals were from the same grave and may have been father and child is suggestive.

"The thickening of the child's [KM 553.12] is almost certainly the result of thalassaemia. This is an inherited anemia dependent on a recessive gene(s). It is still endemic in most of the Mediterranean, occurring in 5-50% of various populations in Italy, Greece, Cyprus and the eastern Mediterranean. An individual who inherits it from only one parent (heterozygote) generally has slight or no symptoms. In individuals who inherit it from both parents (homozygotes), however, the complications in prehistoric times were usually lethal in early childhood. The most common manifestations in bone are cribra orbitalia (sieve-like bone in the superior surface of the orbits) and massive hypertrophy of bone marrow with concomitantly thin cortex (especially frequent in the cranium). Individual [KM 553.12] probably died from acute thalassaemia, having inherited it from both parents (homozygote). The adult male [KM 553.10], with evidence of the lesser form (heterozygote) may have been the child's father."

N.B. Domurad's adult age estimates differ significantly from Lunt's which are used in Table 4.1. They are KM 553.10, 45-50 years old; KM 553.11, 37-40 years old.

Additional Bibliographic Reference

Lunt, D. A. 1995 Lemba-Lakkous and Kissonerga-Mosphilia: evidence from the dentition in Chalcolithic Cyprus, pp. 56-61 in S. Campbell and A. Green (eds) *The Archaeology of Death in the Ancient Near East*. Oxford.