

Supplementary table 1: Additional human bone in graves

The (de)parted: The fragmentation and redeposition of human bone in Viking Age graves

ID	Site	Grave	Region/country	Type	Condition of additional bone	Context within the grave	Associated material	Interpretation	Source
1.1	Machrins	Machrins	Colonsay, Scotland	I	Cremated and unburnt	Disarticulated unburnt bone in the dune, and a cremated long bone		Possibly intentional deposit above the grave	Becket et al. 2014:303–305
1.2	Westness	Grave 2	Rousay, Scotland	I	Unburnt	Disarticulated bone underneath stone slab above complete burial		Intentional deposit above the grave	Kaland 1973:95–96; Sellevold 1999:27
1.3	Claughton Hall	Claughton Hall	Lancashire, England	I	Unburnt	Molar inside a pair of oval brooches used as a box	Inside a pair of oval brooches, alongside 2 beads and a repurposed mount	Intentional deposit within the grave	Edwards 1998:15
1.4	Balladoole	Balladoole	Isle of Man	I	Unburnt	Disarticulated remains spread out below the boat burial		Remains from older graves intentionally redeposited below the grave	Bersu & Wilson 1966:12–13
1.5	Peel Castle	Grave 420	Isle of Man	I	Unburnt	Disarticulated bones deliberately arranged over and around the corpse		Intentionally arranged around the body	Freke 2002:70
1.6	Islandbridge	Islandbridge 1860	Dublin, Ireland	I	Unburnt	Child skull fragment discovered among adult remains	Animal bone	Unclear, could be a double burial	Harrison & Ó Floinn 2014:421–425
1.7	Ytri-Garðshorn	Grave 1	Eyjafjarðarsýsla, Iceland	I	Unburnt	Additional bones from second individual within the grave		Intentional deposit from reopened grave?	Eldjárn & Friðriksson 2016:154–156
1.8	Skeiet	Grave 10	Trøndelag, Norway	I	Cremated	Fragment of skull presumably placed by head of the deceased		Intentional deposit within the grave	Bryn et al. 2023:127; Sauvage & Lorentzen 2024; Kjellström et al. 2024:223
1.9	Kaupang	K/V	Vestfold, Norway	I	Unburnt	Disarticulated and partial remains inside the grave		Remains of earlier grave	Blindheim & Heyerdahl-Larsen 1995:26–27, 127

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1.10	Kaupang	K/XII	Vestfold, Norway	I	Cremated	Burnt layer with cremated bone human and animal covering boat burial	Animal bone	Intentional use in charcoal layer covering the grave	Blindheim & Heyerdahl-Larsen 1995:36–38
1.11	Gulli	S1006	Vestfold, Norway	I	Cremated	Spread in a concentrated area in the fill		Intentional deposit above the grave	Gjerpe 2005:49
1.12	Birka	Bj 39	Uppland, Sweden	C	Unburnt	In the fill close to mound surface		Possibly intentional deposit above the grave	Arbman 1943:14
1.13	Birka	Bj 45	Uppland, Sweden	C	Unburnt	In the fill		Possibly intentional deposit above the grave	Arbman 1943:16–17
1.14	Birka	Bj 49	Uppland, Sweden	C	Unburnt	Human and animal bone in the centre of the mound between two cremations	Animal bones	Possibly intentional deposit	Arbman 1943:18
1.15	Birka	Bj 52	Uppland, Sweden	C	Unburnt	Unburnt human toe bone in cremation layer		Possibly intentional deposit within the grave	Arbman 1943:19
1.16	Birka	Bj 58	Uppland, Sweden	I	Unburnt	In the fill		Possibly a later grave	Arbman 1943:22
1.17	Birka	Bj 69	Uppland, Sweden	C	Unburnt	Human jaw fragment in the cremation layer, presumably unburnt	Unburnt animal bone	Possibly intentional deposit within the grave	Arbman 1943:28
1.18	Birka	Bj 77	Uppland, Sweden	C and I	Cremated and unburnt	Cremation and inhumation grave with an area of mixed cremated and unburnt bone not belonging to either grave		Possibly intentional deposit	Arbman 1943:32
1.19	Birka	Bj 362	Uppland, Sweden	C	Unburnt	In the fill	Animal bone and whetstone fragment	Possibly intentional deposit, or destroyed grave	Arbman 1943:102–103
1.20	Birka	Bj 489A	Uppland, Sweden	I	Unburnt	Double consecutive inhumation (?) with teeth of third individual		Remains of earlier grave?	Arbman 1943:140–141
1.21	Birka	Bj 512	Uppland, Sweden	I	Unburnt	Inhumation with teeth of second individual		Unclear	Arbman 1943:151–152
1.22	Birka	Bj 542	Uppland, Sweden	I	Unburnt	Remains of human jaw in the chamber grave	Ringed pin	Remains of earlier/later grave?	Arbman 1943:167–168

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1.23	Birka	Bj 573	Uppland, Sweden	I	Unburnt	Double inhumation grave with skull, femurs and other bones of a third individual buried at the side of the chamber		Belonging to a different grave?	Arbman 1943:186–187
1.24	Birka	Bj 585	Uppland, Sweden	I	Unburnt	Human tooth and artefacts in/on box at foot end of chamber grave	Chest or box, and probably inside it, scissors, knife, needle case, silver thread	Intentional deposit of human tooth with grave goods	Arbman 1943:191–192
1.25	Birka	Bj 627	Uppland, Sweden	I	Unburnt	Bones piled in one part of the grave	Animal bones	Remains from earlier grave?	Arbman 1943:207–208
1.26	Birka	Bj 660	Uppland, Sweden	I	Unburnt	Human skull in the fill	Arrowhead	Possibly intentional deposit, or destroyed grave	Arbman 1943:231–233
1.27	Birka	Bj 703	Uppland, Sweden	I	Unburnt	In the fill	Awl, miniature spearhead, animal bone	Remains from earlier grave?	Arbman 1943:239–240
1.28	Birka	Bj 737A	Uppland, Sweden	I	Unburnt	Tibia in the fill above the feet of child burial	Bone comb and mount	Remains from earlier grave?	Arbman 1943:261–262
1.29	Birka	Bj 737B	Uppland, Sweden	I	Unburnt	Bone sticking out from the wall of the grave		Remains from earlier grave?	Arbman 1943:262
1.30	Birka	Bj 823	Uppland, Sweden	I	Unburnt	Skull in one end of the chamber	Sword, knife, shield buckle	Remains from earlier grave?	Arbman 1943:296–297
1.31	Birka	Bj 860	Uppland, Sweden	I	Unburnt	Double inhumation with third skull in the wall of the pit		Remains from earlier grave?	Arbman 1943:335–337
1.32	Birka	Bj 877	Uppland, Sweden	I	Unburnt	In the fill		Remains from earlier grave?	Arbman 1943:341–342
1.33	Birka	Bj 919	Uppland, Sweden	I	Cremated	Burnt area with cremated bone near one corner of the coffin		Possibly intentional deposit within the grave	Arbman 1943:358–359
1.34	Birka	Bj 954	Uppland, Sweden	I	Unburnt	Skull in the fill		Possibly intentional deposit, or destroyed grave	Arbman 1943:377–379
1.35	Birka	Bj 1081	Uppland, Sweden	I	Unburnt	Skull and femur in the fill	Ring brooch	Remains from earlier burial?	Arbman 1943:450–451
1.36	Birka	Bj 1098	Uppland, Sweden	I	Cremated	In the fill		Remains from earlier burial?	Arbman 1943:458

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1.37	Birka	Several graves	Uppland, Sweden	I	Cremated	In the fill		Probably secondary cremations	Arbman 1943
1.38	Lilla Ullevi	Several graves	Uppland, Sweden	I	Cremated	Cremated bone in the fill of inhumation graves	Cremated animal bone	Accidental	Hed Jakobsson & Lindblom 2011
1.39	Lilla Ullevi	Grave 56	Uppland, Sweden	C	Cremated and unburnt	Unburnt tooth in cremation layer and cremated skull fragments on a burnt plank covering the cremation layer		Intentional deposit within and above the grave	Hed Jakobsson & Lindblom 2011:48
1.40	Spånga	Several graves	Uppland, Sweden	C	Unburnt	In the fill	Animal bone	Intentional deposit in the fill	Fahlander 2024:112–113
1.41	Lilla Smedby	Grave 20	Öland, Sweden	I	Unburnt	Cist grave containing thigh bone of additional individual		Probably intentional deposit within the grave	SHM 1948:6
1.42	Ljungbacka	Bronsdolken 7:1	Skåne, Sweden	I	Unburnt	Primary adult burial with child teeth		Uncertain (possible double burial)	Samuelsson 1989:23
1.43	Ljungbacka	Ljungbacka 1976:21	Skåne, Sweden	I	Unburnt	Fragmentary remains of two individuals		Intentional deposit within the grave	Winge 1977
1.44	Ljungbacka	Lockarp 8:6	Skåne, Sweden	I	Cremated and unburnt	Fragmentary remains of second individual within grave, and unarticulated cremated and unburnt remains above	Animal bone	Intentional deposit within and above the grave	Winge 1977; Samuelsson 1998:16, 61
1.45	Ljungbacka	Lockarp 8:4	Skåne, Sweden	I	Unburnt	Above primary grave, presumed complete burial of a second individual, with tooth belonging to a different person. Tertiary deposit with unarticulated bones belonging to at least two individuals		Intentional deposit above the grave	Winge 1977; Samuelsson 1998:14–15; Wilhelmson & Magnusson in Mühlemann et al. 2020:18–22
1.46	Ljungbacka	Lockarp 8:2	Skåne, Sweden	I	Cremated and unburnt	Cremated bone and disarticulated unburnt human and possibly animal bones deposited above the grave	Animal bone	Intentional deposit above the grave	Winge 1977; Samuelsson 1998:14, 60

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1.47	Ljungbacka	Lockarp 8:1	Skåne, Sweden	I	Cremated	Unclear	Cremated animal bone, unburnt animal tooth also discovered in the grave	Probably intentional deposit	Winge 1977; Samuelsson 1998:60
1.48	Råga	Grave 5	Skåne, Sweden	I	Cremated and unburnt	Human tooth and 25 pieces of burnt bone, probably human, in fill	Cattle tooth, ceramic pieces, burnt clay, flint	Possibly intentional deposit above the grave	Strömberg 1968:9
1.49	Råga	Grave 10	Skåne, Sweden	I	Cremated	Fragment of cremated bone, probably human, in the fill	Ceramic pieces and flint debris	Possibly intentional deposit above the grave	Strömberg 1968:13
1.50	Råga	Grave 11	Skåne, Sweden	I	Cremated	Patch of soot with burnt human bone under a stone above the grave	Ceramic and flint in the fill, not directly associated	Intentional deposit above the grave	Strömberg 1968:15
1.51	Råga	Grave 2	Skåne, Sweden	I	Unburnt	In the fill	Burnt clay and flint	Remains of earlier grave?	Strömberg 1968:6
1.52	Råga	Grave 3	Skåne, Sweden	I	Unburnt	Human lower jaw in the fill	Ceramics, burnt clay, cattle and horse teeth also in the fill	Remains of earlier grave?	Strömberg 1968:6–7
1.53	Råga	Grave 4	Skåne, Sweden	I	Cremated	In the fill		Uncertain	Strömberg 1968:7–9
1.54	Råga	Grave 6	Skåne, Sweden	I	Unburnt	Fragment of human skull in the fill near the skeleton	Dog skeleton in the grave, ceramic pieces in the fill, not directly associated	Remains of earlier grave?	Strömberg 1968:10–12
1.55	Råga	Grave 12	Skåne, Sweden	I	Unburnt	Tooth remains in the fill	Unburnt animal bone, ceramic pieces, burnt clay, flint debris	Remains of earlier grave?	Strömberg 1968:16–17
1.56	Råga	Grave 15	Skåne, Sweden	I	Unburnt	In the fill	Cattle tooth, ceramic pieces, burnt clay, flint, flint axe	Remains of earlier grave?	Strömberg 1968:19–20

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1.57	Råga	Grave 16	Skåne, Sweden	I	Cremated	In the fill	Ceramics, burnt clay and flint	Uncertain	Strömberg 1968:20
1.58	Råga	Grave 18	Skåne, Sweden	I	Unburnt	In the fill	Animal bone, ceramics, flint	Remains of earlier grave?	Strömberg 1968:20
1.59	Stävie	Grave 63	Skåne, Sweden	I	Unburnt	Additional skull fragment		Remains of earlier grave?	Nagmér 1979:37
1.60	Stävie	Grave 66	Skåne, Sweden	I	Unburnt	Two skulls in the SW end of the grave, traces of other remains		Remains of earlier grave?	Nagmér 1979:39
1.61	Stävie	Grave 80	Skåne, Sweden	I	Unburnt	Additional skull by the knees		Remains of earlier grave?	Nagmér 1979:49
1.62	Stävie	Grave 85	Skåne, Sweden	I	Unburnt	Three skulls in the grave, unclear how they are related		Remains of earlier graves?	Nagmér 1979:52–55
1.63	Stävie	Grave 90	Skåne, Sweden	I	Unburnt	Head and lower extremities present from earlier grave		Remains of earlier grave	Nagmér 1979:57–59
1.64	Trelleborg	A2	Skåne, Sweden	I	Unburnt	Disarticulated remains in the fill		Possibly remains of earlier grave, but only one grave cut discovered	Hansson 1993:4–5
1.65	Kirke Hyllinge Kirkebakke	A569	Sjælland, Denmark	I	Unburnt	Remains of adult and child in the fill	Animal bones	Probably intentional deposit above the grave	Ulriksen 2011:205
1.66	Kirke Hyllinge Kirkebakke	A575	Sjælland, Denmark	I	Unburnt	Remains of three individuals	Burnt bone, unknown species	Triple grave/deposit?	Ulriksen 2011:205–206
1.67	Kirke Hyllinge Kirkebakke	A583	Sjælland, Denmark	I	Unburnt	Parts of body in secondary fill above original burial	Animal bones, burnt bones	Intentional deposit above the grave	Ulriksen 2011:207
1.68	Kirke Hyllinge Kirkebakke	A590	Sjælland, Denmark	I	Unburnt	Parts of three individuals in the fill	Artefacts, animal teeth	Potentially burials of complete bodies, or intentional deposits above the grave	Ulriksen 2011:208–209
1.69	Kirke Hyllinge Kirkebakke	A594	Sjælland, Denmark	I	Cremated	Tooth in the fill	Animal bones	Intentional deposit above the grave	Ulriksen 2011:211
1.70	Lejre	Grave 92	Sjælland, Denmark	I	Unburnt	In the fill	Animal bone	Remains from earlier grave	Andersen 1995:15

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1.71	Lejre	Grave 142	Sjælland, Denmark	I	Unburnt	Double burial with possible remains of third individual		Unclear	Andersen 1995:16
1.72	Lejre	Grave 287	Sjælland, Denmark	I	Unburnt	Skull higher in the fill		Double burial? Remains from earlier gravel?	Andersen 1995:17
1.73	Lejre	Grave 927	Sjælland, Denmark	I	Cremated	In the fill	Piece of iron	Possibly intentional deposit above the grave	Andersen 1995:47
1.74	Lejre	Grave 943	Sjælland, Denmark	I	Cremated	In the fill	Ceramic pieces, charcoal	Possibly intentional deposit above the grave	Andersen 1995:55
1.75	Lejre	Grave 1001	Sjælland, Denmark	I	Cremated	In the fill	Ceramic pieces, charcoal	Possibly intentional deposit above the grave	Andersen 1995:56–57
1.76	Ottestrup	Several graves	Sjælland, Denmark	I	Cremated	In the fill		Intentional deposit above the grave	Eriksen 1992
1.77	Trekroner-Grydehøj	A292	Sjælland, Denmark	I	Unburnt	Double burial with 22 teeth of a third individual		Intentional deposit above the grave	Ulriksen 2011:215–216
1.78	Trekroner-Grydehøj	A505	Sjælland, Denmark	I	Unburnt	Remains of two individuals among stones covering burial	Animal bones	Potentially complete bodies, intentional deposits above the grave	Ulriksen 2011:216–218
1.79	Trekroner-Grydehøj	A2034	Sjælland, Denmark	I	Unburnt	Double burial with remains of third individual		Intentional deposit within the grave	Ulriksen 2011:220–221
1.80	Trekroner-Grydehøj	A2035	Sjælland, Denmark	I	Unburnt	Triple burial with potentially extra teeth		Unclear	Ulriksen 2011:221–222
1.81	Trekroner-Grydehøj	A2036	Sjælland, Denmark	I	Cremated	In the fill		Intentional deposit above the grave	Ulriksen 2011:222
1.82	Trekroner-Grydehøj	A2047	Sjælland, Denmark	I	Cremated	In the fill		Intentional deposit above the grave	Ulriksen 2011:223
1.83	Trekroner-Grydehøj	A2059	Sjælland, Denmark	I	Cremated	In the fill	Ceramic pieces	Intentional deposit above the grave	Ulriksen 2011:224–225
1.84	Køstrup	ACP	Fyn, Denmark	I	Unburnt	Additional foot deposited near crania		Intentional deposit within the grave	Lindblom 1993:148
1.85	Køstrup	ACZ	Fyn, Denmark	I	Cremated	In the fill		Intentional deposit above the grave	Lindblom 1993:147

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