

1 Steppe Ancestry in western Eurasia and the spread of the Germanic  
2 Languages  
3 **Archaeological Supplementary Material for Western Eurasia**  
4 **(excluding Northern Europe)**  
5

6 **S1B. Site Descriptions**  
7  
8

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51	Kabardino-Balkaria, Zaragizh	43
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58	Madrid, Estevillas Virgen de la Torre	52
59	Menorca, Monterrey-Estiviel	55
60	UK	57
61	Gloucestershire, Randwick Long Barrow	57
62	UK, Orkney, Mine Howe	58
63	Ukraine	62
64	Crimea, Suvlu-Khaye	62
65	Alexei Voloshinov, Vyacheslav Masyakin	62
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72 **Austria**

73 Austria, Dürrnberg, Hallein

74 Coordinates: 47.66 13.09

75 Karin Wiltschke-Schrotta & Holger Wendling

76

77 Dürrnberg near Hallein, in the northern part of the Austrian Alps, is one of the most important  
78 Iron Age sites in Central Europe (Dobiat et al. 2002; Maier 1974; Stöllner et al. 2003; Zeller  
79 2001, Wendling 2020a; 2020b). The excellent geographical location of the Dürrnberg mountain  
80 zone at the northern exit of the Salzach valley into the Salzburg basin combines trade routes to  
81 the Alpine foothills and the inner Alpine valleys and a vital mineral resource: salt!

82

83 This outstanding economic position forms the basis for the rapid economic growth soon after  
84 the initial occupation c. 600 BC. The archaeological record includes mining sites, settlements  
85 and almost 400 tombs with 950 documented burials of the late Hallstatt and La Tène periods  
86 (Wendling 2020b; 2020c). The finds from the graves contain exceptional precious artefacts  
87 which indicate the prominent position as an economic centre. As such, the Dürrnberg node  
88 linked the Iron Age communities of Central Europe through the valleys and passes of the Inner  
89 Alps with the Mediterranean cultures of northern Italy, the south-eastern Alps and the Balkan  
90 Adriatic (Wendling 2018a: 109–112; 2018b). The graves contained a variety of southern  
91 imports, northern Baltic amber objects, and ornamentation and style from the central West-  
92 Hallstatt communities from both sides of the upper Rhine. These indicate the role of Dürrnberg  
93 as a transfer and relay station on one of the major eastern Alpine communication routes. The  
94 imports have been adapted in processes of cultural appropriation and integrated into local  
95 cultural traditions (Wendling 2020a, 395–401). Against this background, the innovative role of  
96 Dürrnberg is evident. It underlines its transformative role in the emergence of the artistic and  
97 cultural innovation of the La Tène period (cf. Egg et al. 2009, Wendling 2020a).

98

99 Based on the physical human remains, anthropological research addresses the question of how  
100 the Iron Age mining community managed subsistence, workload and physical impact of mining  
101 and living in an alpine region (e.g. Wendling & Wiltschke-Schrotta 2022). Individual and  
102 communal health status is interpreted by collecting data on the distribution of diseases, and  
103 patterns of trauma. Demographic data shows a rather even distribution of male and female  
104 individuals in different age categories. A detailed analysis concerning the different cultural  
105 epochs is still pending until the last two major burial sites will have been investigated.

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1 Hallein Dürrenberg/Austria view from burial site Eislfeld to the valley of the river Salzach in the North.  
© Keltenmuseum Hallein, Dürrenbergforschung



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2 Hallein Dürrenberg/Austria, amber boar brooch, grave good from grave 145. © Keltenmuseum Hallein

Source

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165 Nordrand der Alpen. Hallein, Keltenmuseum Hallein.

166

167

168 Austria, Hallstatt, Gmunden

169 Coordinates: 47.56 13.64

170 Doris Pany-Kucera, Anton Kern(†) & Georg Tiefengraber

171

172 The first evidence of human presence in the Hallstatt High Valley, where the cemetery and the  
173 salt mines are situated, dates to the Neolithic, maybe already c. 7000 years ago. First traces of  
174 systematic salt mining can only be documented for the Bronze Age (Brandner et al. 2022).  
175 However, one of the world’s oldest continuously used industrial and cultural landscape  
176 developed around the Hallstatt salt mines. Salt determined life in this region for a long time and  
177 is still being mined today.

178

179 The world-famous cemetery in the high valley above the Hallstatt lake dates to the Early Iron  
180 Age period in Europe (8th–4th centuries BC), and is name-giving for the “Hallstatt period”.  
181 The graveyard contains inhumations and cremations, only a few of them were urn burials. A  
182 large number of graves was excavated in the 19th century by a team around Bergmeister Johann  
183 Georg Ramsauer, whose documentation of the Hallstatt burial site is exceptional for that time.  
184 Until 2023, in total c. 1500 of nearly 2000 excavated graves were unearthed documented,  
185 although only a small part of the skeletons is preserved (Kern 2009). As the new excavations  
186 since 1993 have shown, the original number of graves must have been considerably higher and  
187 comprised around 4000-5000 burials. The cemetery was in use until the early La Tène period  
188 and revealed outstanding and precious items from throughout Europe and outside, reporting the  
189 extensive network of contacts of the Hallstatt people, based on the salt trade.

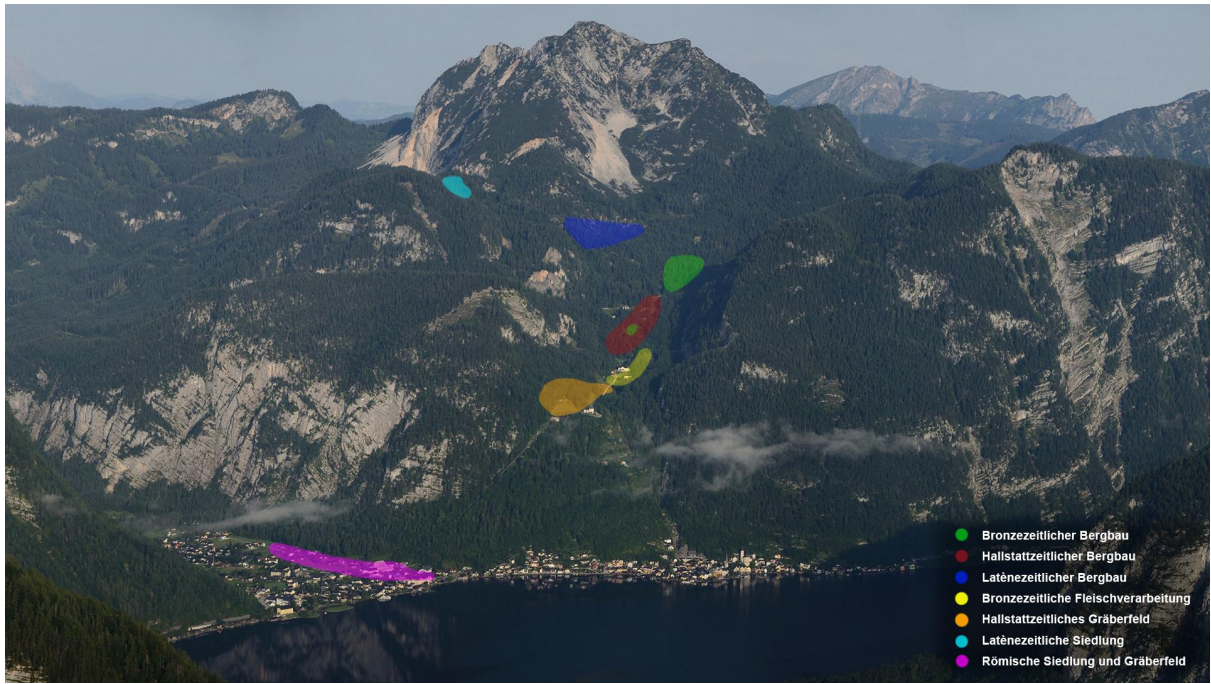
190

191 Some aspects on the skeletons have been investigated in detail, like enthesal changes, chronic  
192 sinusitis, and potential child labour, and are partly published (Pany 2003, Pany-Kucera et al.  
193 2010, 2018, 2019). A complete presentation of the different burials and a detailed chronological  
194 seriation is still pending.

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1 Hallstatt in Austria with lake, village and in different colors the areas of archaeological investigations. The burial site from Hallstatt Period is in orange. © D. Brandner, NHMW



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204

2 Hallstatt Period graves from Hallstatt/Austria documented by Johann Georg Ramsauer (~1850). © NHMW

205  
206 Source  
207 [https://www.nhm-wien.ac.at/verlag/wissenschaftliche\\_serien/archon](https://www.nhm-wien.ac.at/verlag/wissenschaftliche_serien/archon)  
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233 Past, 12:2, 67-80, DOI: 10.1080/17585716.2019.1638554

234

## 235 Bulgaria

236 Varna county, Koriyata (at Suvorovo)

237 Coordinates: 43.353 27.587

238

239 The archaeological site of Koriyata is located near the town of Suvorovo, in the Varna region.  
240 The site was a Middle Copper Age settlement (4750-4600 BC), with later occupation during  
241 the Early Mediaeval period (10th century AD). During the excavations in 2011 a single skeleton  
242 of the end of Late Antiquity period (end of 6th-beginning of 7th c. AD) was cleared to the  
243 north of one of the Chalcolithic buildings.

244 Source

245

246 Slavchev, V. 2013: A Mid-5<sup>th</sup> Millennium Settlement near Suvorovo, Varna District, Bulgaria.  
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## 249 Czech Republic

250 Czech Republic, Central Bohemian Region, Holubice

251 Coordinates: 49.17 16.81

252 Migration Period, Langobard

253

254 Holubice is located in the Vyškov district, 15 km east of Brno. M. Čížmář. K. Gaislerová and  
255 I. Rakovský conducted excavations here in 1979-80. In 105 graves, 86 individuals were  
256 anthropologically determined: 22 men, 32 women and 34 children. According to M. Stloukal,  
257 the burial ground could last about 50-60 years and was used by a 40-60 member group. From  
258 a chronological point of view, J. Tejral included it in the Langobardic period (Middle Danube  
259 phase 4: 510 / 20-540 / 50) (2005 tab.3).

260 According to the cemetery plan, the graves appear to be divided into three groups, which could  
261 lead to the possibility of identifying ancestral structures in Langobar society (Drobenjar 2005,  
262 p. 82)

263 Source

264 Droberjar, E. 2005: *Věk barbarů. České země a stěhování národů z pohledu archeologie*. Praha  
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268 *Herrschaft und Identität*. Wien.

269

270 Czech Republic, South-Moravia Region, Lužice

271 Coordinates: 48.83 17.06

272 Migration Period, Langobard

273

274 Lužice at Hodonín is the largest Langobardic burial ground from the 6th century in Moravia  
275 found so far, counting 120 skeletons. (Head of archaeological research was Z. Klanica 1981-  
276 1990). Average height of the bodies was 177 cm in males and 163 cm in females.

277 The osteological material from Lužice presents strongly pronounced relief of musculature  
278 attachments. Excessive loading of the respective groups of muscles stressed the bone edges on  
279 the fringe of the hip bone as well as those on the bones of the lower and upper extremities. It  
280 seems that this population was hard working.

281

282 Source

283 Svenssonova M. 2002: Population settled north of the middle Danube during Merovingian  
284 time( in Czech). PhD dissertation at Masaryk University Brno.

285 Smrčka V., Marcsik A., Svenssonova M. 2009: The dietary trends and social relations in the  
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287 CLVI, p. 73- 90

288

289 Czech Republic, UstiRegion, Radovesice II

290 Iron Age, La Tène

291 Coordinates: 50.40 14.06

292 Václav Smrčka, Oliver Gábor

293

294 The La Tène burial ground Radovesice 2 is located in the Teplice district near Razice. In 1974-  
295 77 J. Waldhauser examined 37 skeletal and cremation graves. Some individuals were stored in  
296 coffins made of wooden logs.

297

298

299 Source

300 Waldhauser J. 1987: Keltische Gräberfelder in Böhmen, In: Bericht der Römisch-  
301 germanischen Kommission 68, p. 25- 179 .

302 Waldhauser J. 1999: Jak se kopou keltské hroby.Laténská pohřebiště ze 4.-3- století v Čechách  
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304

305 Finland

306 Finland, Vöyri, Kälđamäki

307 Coordinates: 63.15 22.17

308 Anna Wessman and Kristiina Mannermaa

309

310 Migration period-Merovingian period (420-620 CE).

311

312 Found by accident in 1935 in connection to draining work, next to a large erratic stone boulder.

313 Small-scale excavations took place there in 1936 and 1937. Six commingled individuals have

314 been excavated together with cow bones, a wooden axe shaft and a bronze rod. The individuals

315 are believed to have been deposited in shallow water (Wessman 2009: 89-90). Previous

316 radiocarbon dates from 1988 (Ua 991: 1500±85 and Ua 992:1550±80 <sup>14</sup>C years BP) suggest

317 that the site is from the end of the Migration period to early Merovingian period (Formisto

318 1993: 152-153).

319

320

321 The genomic data from Kälдамäki was obtained from a mandibular molar (unnumbered) and

322 the individual is female based on the aDNA.

323

324 Source

325

326 Formisto, T. 1993. *An Osteological Analysis of Human and Animal Bones from Levänluhta.*

327 Vammala.

328

329 Wessman, A. 2009. Levänluhta – a place of punishment, sacrifice or just a common cemetery?

330 *Fennoscandia Archaeologica* 26 (2009): 47–71.

331

332 Finland, Isokyrö, Levänluhta

333 Coordinates: 62.94 22.41

334 Anna Wessman and Kristiina Mannermaa

335 Migration period-Merovingian period (400-700 CE)

336

337 The Levänluhta find material consist of commingled human remains from 98 individuals (MNI)

338 buried along with artefacts and animal bones (Formisto 1993). During the Iron Age this spring

339 site was a pond or a small lake, and it has been archaeologically investigated since the 1800s

340 (Wessman 2009; Wessman et al. 2017). Excavations have yielded an impressive range of finds,

341 including precious copper alloy brooches, arm rings and other dress implements together with

342 an imported copper alloy cauldron (Vestland type), suggesting that most of the buried

343 individuals were women (Wessman 2009). Osteological studies have confirmed that

344 Levänluhta was a cemetery mainly for women and children (Niskanen 2006; Maijanen et al.

345 2021), which is rather uncommon for Finland. Levänluhta and Kälдамäki are unique sites in

346 Finland.

347



348 The genomic data from Levänluhta was obtained from four mandibular molars which have the  
349 museum numbers KM 2:1:a2 (right lower first premolar+left lower third 44 molar), 2:1:a3  
350 (right lower third molar) 2:1:a16 (left lower first molar) and 2:1:a29 (right lower first and third  
351 molar). Three of the samples (coded: DA234, DA238 and DA236) have been previously  
352 published (Sikora et al. 2019). All individuals are females based on the aDNA.

353

354

355 Source

356

357 Formisto, T. 1993. *An Osteological Analysis of Human and Animal Bones from Levänluhta.*  
358 Vammala.

359

360 Maijanen, H., Junno, J-A., Mannermaa, K., Niskanen, M. & Wessman, A. 2021. Re-analysis  
361 of the Levänluhta skeletal material: Sex and stature estimation of individuals in an Iron Age  
362 water burial in Finland, *International Journal of Osteoarchaeology* 2021(31): 347–357.  
363 doi:10.1002/oa.2953.

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370

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377 431–454.

378

## 379 France

380 France, Aisne Haut de France, Bucy le Long

381 Coordinates: 49.39 3.39

382 Jean-Paul Demoule

383

384 The Celtic cemetery of Bucy-le-Long (Aisne department, France) was excavated as a rescue  
385 excavation during the 1980-1990'. It provided about 200 well-preserved La Tène A-B graves  
386 (480-320 BC), with 4 aristocratic chariot burials, 6 main typological phases, that is probably

387 about six generations. The cemetery is organised in several groups of graves, probably family  
388 groups. It is one of the best studied and published Celtic cemeteries all over France.

389

390 About 50 samples (petrous bones) were selected in 2018 by Fabrice Demeter and Jean-Paul  
391 Demoule; 38 have enough preserved aDNA ; 19 of 50 are currently above 1X and will therefore  
392 be used in the more advanced analysis. About 18 C14 dates were made, mainly coherent with  
393 the relative typochronology (see table).

394

395 Source

396

397 Desenne S., Pommepey Cl. & Demoule J.-P. (eds), Bucy-le-Long, Aisne, une nécropole de La  
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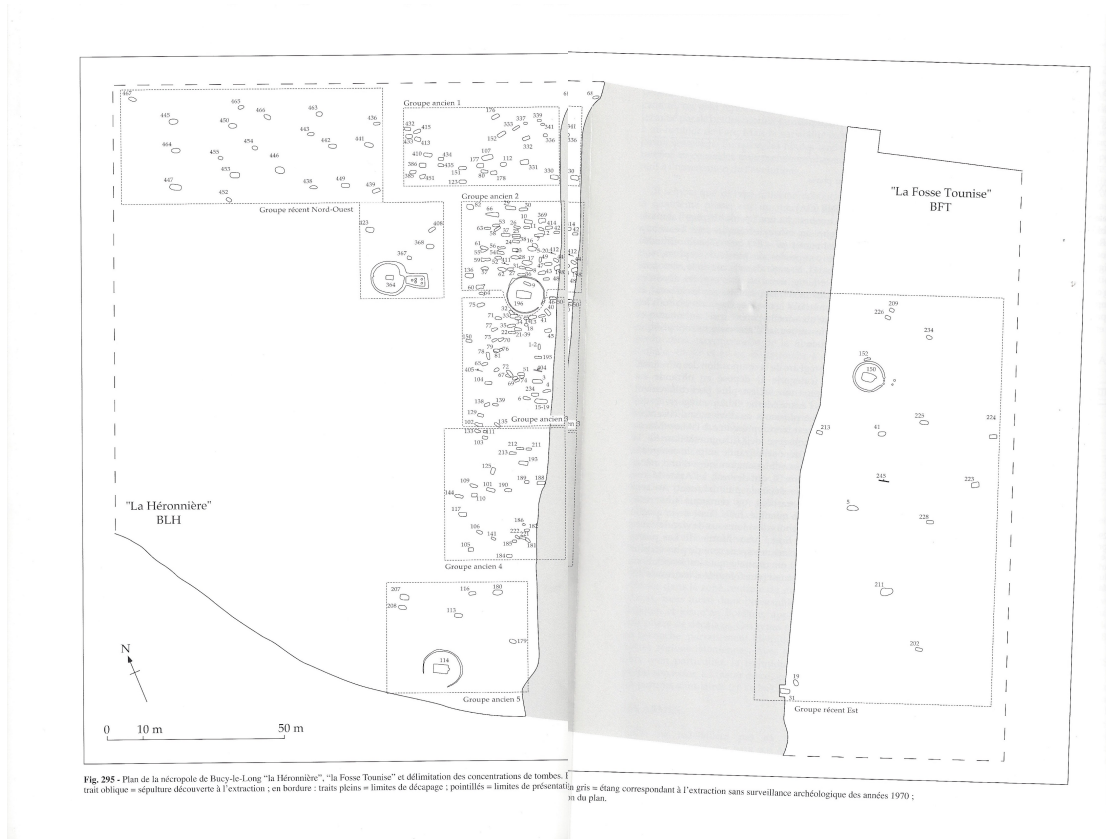
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408 doi : 10.3406/pica.1998.2271 ;

409

410



411

	N° grave	site		C14 calBC	Typological phase	Groups of graves
<b>CGG 2 022418</b>	BLH 55 02/03/18	Bucy le Long	France	480-320 BC	IIA	2
<b>CGG 2 022420</b>	BLH 213 02/03/18	Bucy le Long	France	<b>485</b>	IIA	4
<b>CGG 2 022421</b>	BLH 224 02/03/18	Bucy le Long	France	435	IIIB-C	BFT
<b>CGG 2 022424</b>	BLH 368 02/03/18	Bucy le Long	France	245	IIIB-C	NW
<b>CGG 2 022425</b>	BLH 17 02/03/18	Bucy le Long	France	<b>473</b>	IIA	2
<b>CGG 2 022426</b>	BLH 37 02/03/18	Bucy le Long	France	480-320 BC	IIA	2
<b>CGG 2 022427</b>	BLH 38 02/03/18	Bucy le Long	France	480-320 BC	IIA	2
<b>CGG 2 022428</b>	BLH 48 02/03/18	Bucy le Long	France	480-320 BC	IIA	2
<b>CGG 2 022429</b>	BLH 57 02/03/18	Bucy le Long	France	480-320 BC	undated	2
<b>CGG 2 022430</b>	BLH 59 02/03/18	Bucy le Long	France	<b>435</b>	IIA	2
<b>CGG 2 022431</b>	BLH 63 02/03/18	Bucy le Long	France	452	IIIA	2
<b>CGG 2 022432</b>	BLH 64 02/03/18	Bucy le Long	France	480-320 BC	IIB	3
<b>CGG 2 022433</b>	BLH 67 02/03/18	Bucy le Long	France	<b>490</b>	IIB	3
<b>CGG 2 022434</b>	BLH 69 02/03/18	Bucy le Long	France	480-320 BC	IIA-C	3
<b>CGG 2 022436</b>	BLH 369 Good 02/03/18	Bucy le Long	France	480-320 BC	IIC	2
<b>CGG 2 022437</b>	BLC 67 02/03/18	Bucy le Long	France	480-320 BC	IIB	« BLC » ?
<b>CGG 2 022438</b>	BLH 54 02/03/18	Bucy le Long	France	480-320 BC	undated	2
<b>CGG 2 022440</b>	BFT 202 02/03/18	Bucy le Long	France	<b>420</b>	IIC	BFT Est
<b>CGG 2 022441</b>	BFT 223 02/03/18	Bucy le Long	France	<b>370</b>	IIIA	BFT Est
<b>CGG 2 022442</b>	BFT 226 02/03/18	Bucy le Long	France	480-320 BC	IIC	BFT Est
<b>CGG 2 022443</b>	BFT 228 02/03/18	Bucy le Long	France	<b>320</b>	IIIB-C	BFT Est
<b>CGG 2 022444</b>	BLH 5 02/03/18	Bucy le Long	France	480-320 BC	undated	2
<b>CGG 2 022445</b>	BLH 16 02/03/18	Bucy le Long	France	<b>465</b>	IIB	2

CGG 2 022447	BLH 27 02/03/18	Bucy le Long	France	480-320 BC	II A-C	2
CGG 2 022451	BLH 53 02/03/18	Bucy le Long	France	480-320 BC	IIA-C	2
CGG 2 022452	BLH 56 02/03/18	Bucy le Long	France	<i>407</i>	IIA	2
CGG 2 022453	BLH 58 02/03/18	Bucy le Long	France	<b>470</b>	IIA-C	2
CGG 2 022454	BLH 60 02/03/18	Bucy le Long	France	<b>378</b>	IIA	2
CGG 2 022455	BLH 66 02/03/18	Bucy le Long	France	<b>379</b>	IIC	2
CGG 2 022456	BLH 70 02/03/18	Bucy le Long	France	480-320 BC	undated	3
CGG 2 022457	BLH 75 02/03/18	Bucy le Long	France	480-320 BC	undated	3
CGG 2 022458	BLH 79 02/03/18	Bucy le Long	France	480-320 BC	IIIA	2
CGG 2 022459	BLH 82 02/03/18	Bucy le Long	France	<i>491</i>	IIIA	2
CGG 2 022460	BLH 114 02/03/18	Bucy le Long	France	480-320 BC		5
CGG 2 022461	BLH 150 02/03/18	Bucy le Long	France	480-320 BC	undated	3
CGG 2 022463	BLH 188 02/03/18	Bucy le Long	France	<b>511</b>	IIA	4
CGG 2 022464	BLH 198-1? 02/03/18	Bucy le Long	France	<i>314</i>	IIA	2
CGG 2 022465	BLH 369 Nord? 02/03/18	Bucy le Long	France	480-320 BC	IIC	2

413  
414  
415  
416  
417

Caption: C14 column : **bold** : ± compatible dates ; *italic* : incompatible dates  
Absolute dates BC = BP - 1950.

## 418 The Jura Culture, Bourgogne Franche Comté

419 Bruno Chaume

420

421 The Tumulus of Moidons/Parançot belong to what Patrice Brun defined as the Culture from the  
422 Jura. These necropolises were set up on the French Jura Plateau; They form a cultural group,  
423 homogeneous all along the First Iron Age (Hallstatt) on their artefact production as well as on  
424 their funerary practices. One of the important points would be to check if these populations  
425 were linked genetically. A few burials from Early and Late First Iron Age should put some light  
426 on the genetic traits of these populations. The hypothesis of sedentary clan families present  
427 since the Bronze Age is suggested by archaeologists to explain the high number of tumulus  
428 within a small space. It will be very informative to study kinship within a group of tumulus  
429 sharing the same territory.

430

431 On the Langres Plateau, at Vix and in the Châtillonnais, at the North-West of Burgundy,  
432 populations were occupying these regions as early as the beginning of the First Iron Age with  
433 a well-established network. The site of Vix was at the centre of the economic activity and the  
434 commercial trade over long distances at the end of the 6th and beginning of the 5th century  
435 B.C. These relatively intensive contacts between autochthon populations and Mediterranean  
436 groups, seem to have led to genetic exchanges. It will also be very interesting to check whether  
437 genetic changes occurred within local populations and when they occurred. Then the question  
438 will be to answer if the entire population was concerned or if it was only the elite.

439 At Vix particularly, it will be very interesting to compare the genome of the Vix Princess with  
440 this of the other human remains excavated in the region and that yielded DNA.

441

#### 442 Camp du Château

443 Coordinates: 46.94 5.85

444

445 The Camp du Château (Salins, Jura) was a hilltop settlement with a summit plateau of less than  
446 1 ha. It was defended by natural cliffs and ramparts, most of which have been dated to the 1st  
447 Iron Age. Sporadic traces of occupation have been attested in the late Bronze age, beginning of  
448 Hallstatt (Ha C), but the imprint of the end of the First Iron Age was the most striking.  
449 Numerous protohistoric necropolises in the area have been excavated since the 19th century,  
450 notably those at Les Moidons.

451

#### 452 Champ Peupin

453 Coordinates: 46.89 5.84

454

455 Tumulus of “Champ Peupin” (ø 23 m) has been excavated in 1869 and by M. Piroutet in 1921.  
456 In the grave D, unfortunately looted, fragments of an iron wheel tyre were evidence of the  
457 presence of a wagon. 2 fibulae date the grave of the late Iron age (530/500 BC).

458

#### 459 Necropolis Les Moidons and Parancot

460 Coordinates: 46.86 5.85 and 46.87 5.83

461

462 The necropolis of Les Moidons (groups of Les Moidons and Parancot) are located in the french  
463 part of the Jura. Around 90 tumuli with 234 graves identified, the Moidons group is one of the  
464 most important necropolis of the eastern part of France. In the object association matrix of all  
465 the tombs, 4 groups were identified for a period extending from the Neolithic to the Second  
466 Iron Age (La Tène). The majority of the graves belongs to the 1st Iron Age (800-450 BC).

467

#### 468 Leuglay, tumulus des Montagnottes

469 Coordinates: 47.80 4.83

470

471 Stone tumulus of 10 m in diameter, central grave of a warrior with a large iron sword and an S-  
472 shaped ceramic urn. Ha C dating (circa 750 BC).

473

474 Maisey-le-Duc, tumulus de la Tête de Maisey S8

475 Coordinates: 47.85 4.67

476

477 Three burial mounds measuring between 14 and 20 metres in diameter were excavated in the  
478 Tête de Maisey area at the end of the 19th century. The excavations were not very methodical,  
479 and only 5 burials were found in the mound 3. A bronze torc, bronze bracelets and anklets, date  
480 these graves to the end of the First Iron Age (Ha D2-D3).

481

482 Nod-sur-Seine, tumulus du Puits de Nod

483 Coordinates: 47.78 4.62

484

485 This stone burial mound was around 10 m in diameter and 1m high. It was excavated in 1965  
486 by René Joffroy and his team. The perimeter of the burial mound was defined by a well-  
487 constructed stone crown. A single burial, facing south-east/north-west, with the head to the  
488 south-east, occupied the centre. The body bore a bronze banded bracelet on the left arm and 2  
489 bracelets on the right arm, one in schist, the other in bronze with oval decoration. The 3rd  
490 bronze bracelet could not be located in the tomb.

491

492 Pothières, tumulus de Crevan

493 Coordinates: 47.90 4.49

494

495 Four burial mounds were excavated by J. Lagorgette in the 1930s on the edge of the plateau  
496 facing Mont Lassois (Vix) on the west side. These stone mounds, each around fifteen metres in  
497 diameter, yielded 9 burials, including one of a warrior. In this case, the sword in an iron  
498 scabbard had been placed to the right of the body. The weapon dates from the early Second  
499 Iron Age (LTA) like most of the other graves.

500

501 Sainte Colombe-sur-Seine, Tumulus 3

502 Coordinates: 47.87 4.52

503

504 This stone mound was excavated by R. Joffroy in 1973. It was located less than 1km from Mont  
505 Lassois (Vix). It was 18 m in diameter and 2 m high. The central tomb had been looted in the  
506 past, but some objects had remained in place or were located in the vertical cone of the

507 clandestine excavation. Fragments of a bronze bowl, a painted truncated-cone ceramic plate  
508 and a duck-head fibula date this burial complex to the very early La Tène period (LTA).  
509

### 510 Tumulus de La Forêt de Châtillon S3

511 Coordinates: 47.82 4.60

512

513 The tumulus of the Châtillon's Forest, probably identified as the Val Thibaut tumulus, was  
514 explored at the end of the 19th century. 7 burials were identified. The bronze ornaments (torc,  
515 bracelets and anklets) date the graves to the end of the First Iron Age (Ha D2-D3) and the  
516 beginning of the Second Iron Age (LTA).

517

### 518 Vix mont Lassois

519 Coordinates: 47.90 4.54

520

521 The hilltop settlement on the plateau of Saint-Marcel

522 Mont Lassois is a coherent and organised complex consisting of a quasi-urbanised space (a  
523 plateau on the summit comprising some 5 ha), a defensive circuit (on the edges of the plateau,  
524 its slopes and at the foot of the flanks of mont Saint-Marcel), burial grounds and open  
525 settlements in the Seine valley. Significant remains found on the plateau of Saint-Marcel and  
526 in the cemeteries at the foot of mont Lassois date to the Late Bronze Age (Final Bronze Age  
527 III) (Chaume 2001, Chaume & Mordant 2011). Thereafter, for a period of around two centuries,  
528 there was a hiatus in occupation until the Late Hallstatt period (Hallstatt D1).

529 The settlement on the upper plateau on mont Lassois is arranged on either side of a north-south  
530 axis. This "main street" structures the access to some fifteen enclosures delimited by palisaded  
531 ditches which contained the dwellings. In the south of the plateau, three buildings raised on  
532 piles represent three enormous collective granaries.

533 The settlement's regular layout suggests that it was planned from the outset and that this  
534 building work was controlled by the local power. Indications of a social hierarchy are  
535 discernible in the types of buildings erected and in the enclosed spaces: classic two-aisled  
536 houses are next to the monumental apsidal buildings.

537 Five large apsidal buildings stood at the heart of this organisation and in the centre of the largest  
538 enclosure. Two were extraordinarily large: Building 1 is 35 m long and 21 m wide and Building  
539 2 is 25 m long and 11 m wide. In 2013, a sixth apsidal building of equally monumental size (30  
540 m long and some 18 m wide) was found in the enclosure next to that containing the five other  
541 apsidal buildings. These buildings show to what degree the Hallstatt craftsmen mastered  
542 carpentry. For Building 1, they created an inner space of 500 m<sup>2</sup>, spanned by a roof whose ridge  
543 towered at least 15 m above ground level.

544 The exact purpose of this building remains hypothetical: was it a public or private building, a  
545 seat of power, a religious or a domestic space? It is likely that it fulfilled all these functions  
546 since the political and religious spheres were not separate in complex chiefdoms.

547 Access to the plateau remains an open question, even though our Swiss colleagues from the  
548 University of Zurich have uncovered what is likely to be a monumental gate set in the western  
549 rampart at the site of Champ de Fossé. Another ascent to the plateau, via the eastern ramparts,  
550 may have existed, as suggested by the flattening of the ramparts' crests.

551

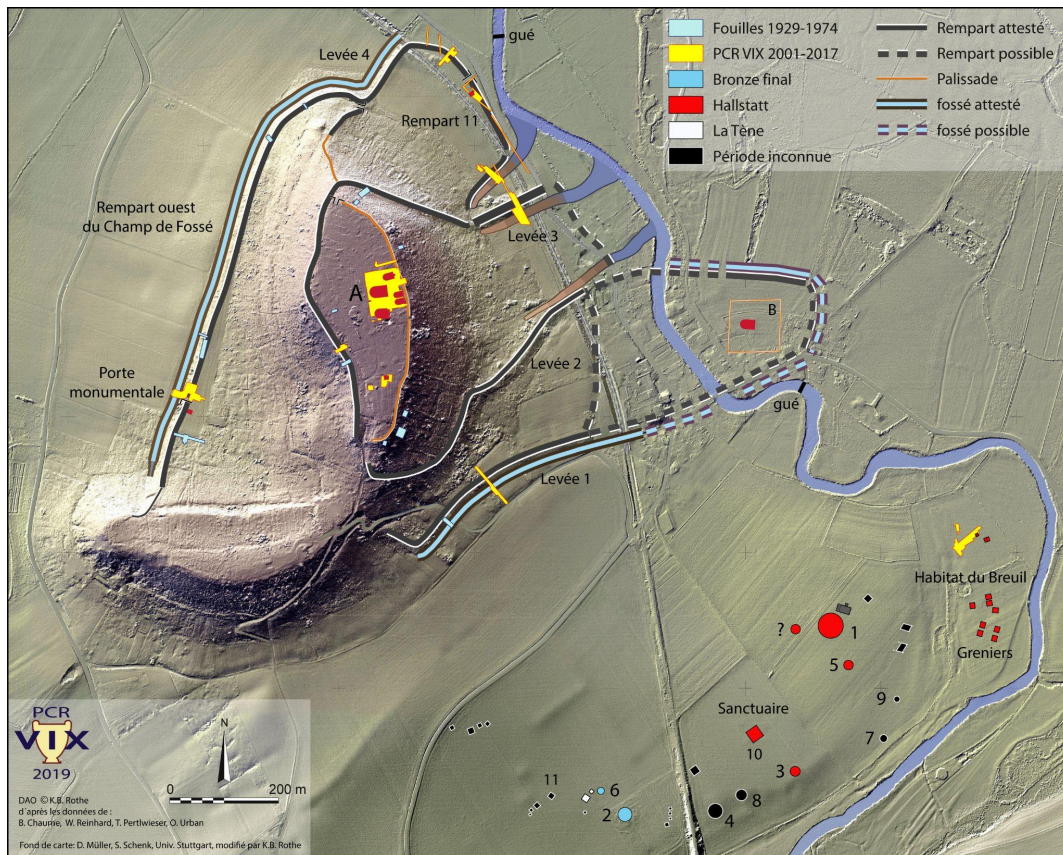
552 Monumentalising the defensive system

553 On the upper plateau, only the eastern edge appears to have been fortified by a rampart of  
554 *Pfostenschlitzmauertype* dated to the Late Hallstatt. Under this 9m-wide rampart, an earlier  
555 defence of the Late Bronze Age (Final Bronze Age III) had been built. Excavations have shown  
556 that the Mont Lassois defences were monumental in character and went far beyond what was  
557 needed for purely defensive purposes. For example, the bank on which Rampart 3 was built (of  
558 which hardly anything remains) was 4 m high and 30 m wide at its base. The ditch that flanked  
559 it on the southern side was impressive, being 25 m wide and 10 m deep. The interior area  
560 protected by this complex defensive system (*intra muros* space) was some 40–45 ha in extent  
561 and we are only just beginning to understand how it was organised.

562

563

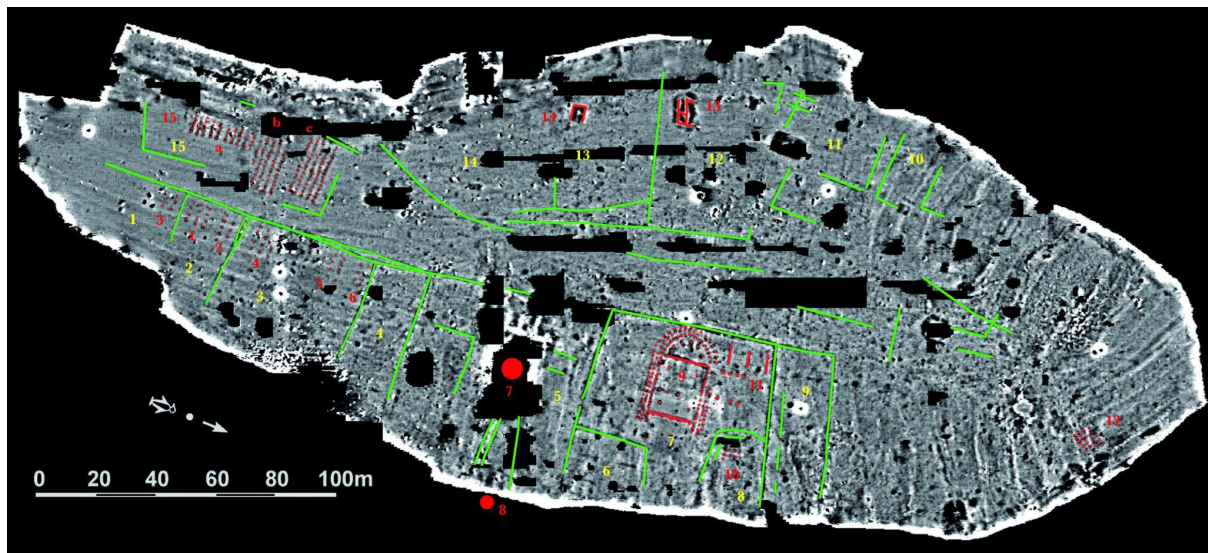




564

565

566 Mont Lassois map (Bruno Chaume)



567

568 Magnetogram of the upper plateau of Mont Lassois (Harald von der Osten)

569

570





571

572 3D reconstruction of the principality of Vix/Le Mont Lassois (Jochen Stuhmann)

573

574 The tumulus of the Lady of Vix

575

576 The princely tomb of the Lady of Vix was discovered at the end of 1953 and excavated by R.  
 577 Joffroy, M. Moisson and R. Paris in January/February 1954. The tumulus, surrounded by a ring  
 578 of stones, measured 38m in diameter and was on average 1m high. The 9m<sup>3</sup> burial chamber  
 579 housed the body of the deceased and her impressive viaticum. The "Lady of Vix" rested on the  
 580 body of a chariot, the 4 wheels of which had been dismantled in antiquity and placed against  
 581 the eastern wall of the burial chamber. The dead woman wore a hollow gold torque around her  
 582 neck. A second bronze torque, on which a leather strap had been wound, was placed on her  
 583 stomach. On each arm were three lignite bracelets and a bronze bracelet with amber beads. The  
 584 deceased was wearing a pair of bronze rings on her ankles. Eight fibulae were found on and  
 585 beside the body, five of them decorated with amber, coral and gold leaf. The four ash wheels  
 586 of the chariot were arranged along the eastern wall of the tomb.

587 The body of the chariot was decorated with bronze plates and balusters. Typological parallels  
 588 between the shell of the hubs and the balusters decorating the body's railing exist with the  
 589 chariot discovered in a tomb in the Ca' Morta necropolis in Como (Italy), demonstrating the  
 590 existence of links between these distant territories.

591

592 The most spectacular element of the viaticum is a large bronze crater, 1.64 m high and weighing  
 593 208,600 kg. The vessel was cast in a cauldron; the handles, riveted to the mouldings on the rim,  
 594 and the foot were cast using the lost-wax technique. The largest bronze vase known to us from  
 595 antiquity was made around 530 BC by Greeks in a workshop in Magna Graecia near the towns  
 596 of Taranto and Sybaris. A locally-made silver phiale and two ceramic bowls made in Athens,

597 dated to 520/515 BC, had been placed on the rim of the crater lid. An oenochoe and three basins  
598 of Etruscan origin completed the bronze tableware set.

599

600 Despite the presence in the burial of a number of imported objects that have been dated with  
601 some accuracy, it is not possible at present to date the burial with an accuracy of less than a  
602 quarter of a century, but it must be dated to the end of the first quarter of the 5th century BC.

603 The DNA analysis presented in this article confirms that the woman was of indigenous origin  
604 and belonged to the social elite.

605

606 A new excavation of the tumulus was carried out in 2019 by a team from INRAP; although  
607 only a small half of the tumulus was excavated, a number of objects of finery were found,  
608 including fibulae, and the architecture of the monument was better understood.

609



610

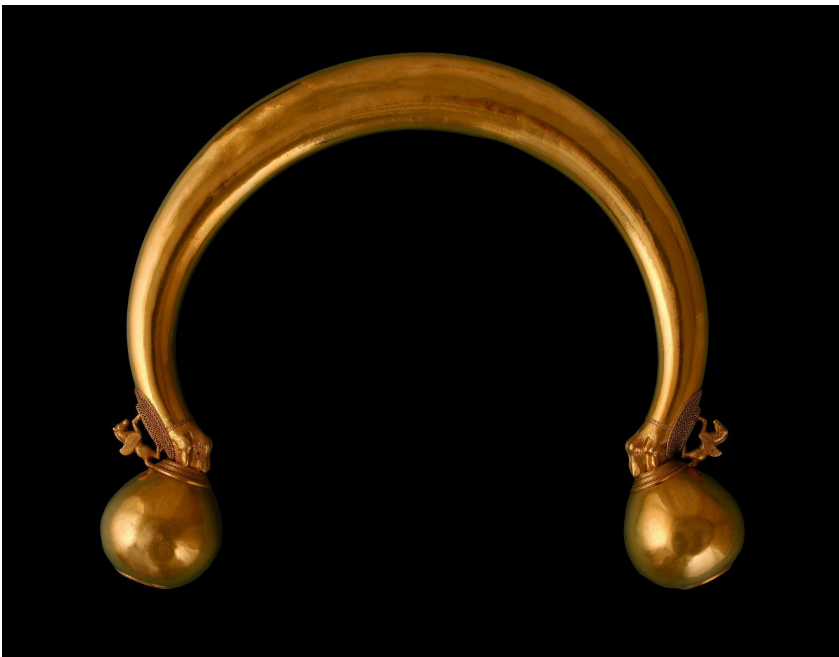
611

612 Reconstitution of the Vix chamber (Musée du Pays du Châtillonnais)

613



614  
615 The Crater of Vix (Dominique Geoffroy)  
616  
617



618  
619 Gold torc of the Vix Princess (Dominique Geoffroy)  
620 Source

621  
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666

## 667 Germany

668 Germany, Saarland, Rubenheim

669 Coordinates: 49.17 7.207

670 Dr Walter Reinhard

671

672

673

674 Tumulus 17 (dm. 25.70/20.30; h. 0.99) lies to the west of the Rubenheim "Schornwald"  
675 necropolis, which comprises a total of 33 tumuli. It was the subject of a comprehensive study  
676 in 1984 by the Archaeological Society of the Saarpfalz District under the direction of the author.  
677 The burial mound, built for a Bronze Age D cremation grave, was clearly raised at the end of  
678 the Hallstatt period and surrounded by a stone crown. In addition to the richly endowed female  
679 grave 1 from the Late Hallstatt period, two unfurnished burials from the same period were  
680 discovered in the mass of the burial mound. Grave 2, oriented SE-NW, and Grave 3, oriented  
681 SW-NE, with a female aged between 50 and 60 years.

682

683 Source

684

685 W. Reinhard, Studien zur Hallstatt- und Frühlatènezeit im südöstlichen Saarland. Blesa 4  
686 (Bliesbruck-Reinheim 2003) Monogr.: 408 Seiten mit 270 Abbildungen; 107 Tafeln; 1 Karte.

687

## 688 Hungary

689

690 Szeged-Kiskundorozsma-Nagyszék II. (site 26/72 No. 34, M5 motorway)

691 Coordinates: 46.27; 20.06

692 The archaeological site was excavated by Csaba Szalontai and Katalin Tóth during two seasons,  
693 in 1998 and 1999. The site is situated on the Banks of Maty Creek in Nagyszék near the western  
694 boundary of Szeged-Kiskundorozsma. A part of an extensive Sarmatian settlement  
695 (approximately 40.000 square metres of the known 72.000-108000 square metre settlement)  
696 and the remains of a small cemetery including 24 graves had been excavated.

697 The settlement seems to have been long-lived. Its history started in the second half of the 2<sup>nd</sup>  
698 century AD and lasted well into 5<sup>th</sup> century AD, based on the excavated wheeled pottery,  
699 thinned with pebbles.

700 The majority of the graves had been looted by contemporary robbers. Based on the grave goods  
701 the cemetery spanned a short period (the late 2<sup>nd</sup> and the first half of the 3<sup>rd</sup> century AD).

702  
703

704 Source

705 Paja L. 2003: Anthropological study of four Sarmatian osteological series (Röszke (sites 48/60  
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711 Szalontai Cs., Tóth K. 2003: Szeged-Kiskundorozsma-Nagyszék II. (site 26/72 No. 34, M5  
712 motorway). In: Szalontai Cs. (ed.) - Museological research along the alignment of the M5  
713 motorway. Szeged, 69-81..

714 Madaras-Halmok, Madaras

715 Coordinates: 46.06 19.27

716

717 The excavation of the Sarmatian period cemetery at Madaras-Halmok is attributed to Mihály  
718 Kőhegyi (Baja, Türr István Museum). The excavation began in 1963 and continued with several  
719 interruptions until 1975. The completely excavated burial site is Hungary's largest Sarmatian  
720 period cemetery, used from the late 2<sup>nd</sup>-century to the turn of the 4<sup>th</sup>-5<sup>th</sup> century. In the  
721 145,000 square meter area, 666 graves were found, although not all of them were Sarmatian  
722 graves, as several Árpadian Age (11-14<sup>th</sup> c. CE) graves (45 graves) in the center of the cemetery  
723 and a larger Árpadian Age settlement were also excavated. Most of the graves in the cemetery  
724 were robbed. The skeletal material is very fragmentary. The results of the archaeological and  
725 anthropological analyses were summarized in a monograph.

726

727 Source

728

729 Kőhegyi M., Vörös G. 2011: Madaras-Halmok. Kr. u. 2–5. századi szarmata temető.  
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735 CLVI, p. 73- 90

736

737 **Italy**

738 Marche, Ripa Bianca

739 Coordinates: 43.71 13.09

740 Serena Sabatini

741

742 Ripa Bianca or Ripabianca lies in a sub-coastal area a few kilometres north of the modern city  
743 of Ancona in the Marche region. The region became part of the so-called Longobard/Lombard  
744 kingdom at the time of its maximum extension (see Gasparri 2012); however the site from  
745 which our sample was collected is not published and we are not able to provide detailed  
746 information about the context.

747

748 Source

749

750 Gasparri, S. 2012 *Italia longobarda: Il regno, i Franchi, il papato*. Rome-Bari: Laterza, 2012

751

752 **Lithuania**

753 Kaunas, Marvelė

754 Coordinates: 54,89 23,87

755 Rimantas Jankauskas

756

757 The Marvelė burial site is located in the western part of the Kaunas city, on the lower terrace  
758 of the southern (left) bank of Nemunas River. Archaeological excavations were conducted  
759 during 1991-2011 seasons. Total area estimated 30-40 thousand sq.m., containing no less than  
760 1590 human graves (both inhumations and cremations), over 100 graves of horses. Burials  
761 should be attributed to the cultural group of the “Flat burials of the central Lithuania”, and  
762 dating stretches from the 2nd to the 12th centuries, i.e. embracing Roman, Folks Wandering,  
763 Viking periods.

764

765 Source

766

767 Preliminary results: ATL 1990 ir 1991 metais, V., 1992, t. I, p. 90–94; ATL 1992 ir 1993  
768 metais, V., 1994, p. 120–124, 128–132; ATL 1994 ir 1995 metais, V., 1996, p. 93–95, 99–101;  
769 ATL 1996 ir 1997 metais, V., 1998, p. 173–175, 184–187; ATL 1998 ir 1999 metais, V., 2000,  
770 p. 248–251; ATL 2000 metais, V., 2002, p. 91–95; ATL 2001 metais, V., 2002, p. 114–116;  
771 ATL 2002 metais, V., 2005, p. 92–93; ATL 2003 metais, V., 2005, p. 113–114; ATL 2005  
772 metais, V., 2006, p. 109–110; ATL 2006 metais, V., 2007, p. 141–144; ATL 2007 metais, V.,  
773 2008, p. 175–178; ATL 2011 metais, V., 2012, p. 125–128).

774



775 Monographs: Bertasius M., Marvelė. Ein Gräberfeld Mittel-litauens. Vidurio Lietuvos  
776 aukštaičių II–XII a. kapinynas, Kaunas, Bd. I, 2005; Bertasius M., Marvelė. Ein  
777 Bestattungsplatz mit Mittel-litauischer Pferdegräber. Marvelės žirgų kapiny-nas, Kaunas, Bd.  
778 II, 2009.  
779

780 Kelmė, Maudžiorai

781 Coordinates: 55.85 22.62

782 Rimantas Jankauskas

783 Excavated episodically from 1964 till 1984. Over 300 flat burials dated 8-9th c.c.  
784 Archaeologists attribute them to Samogitian entity, although there are artefacts typical to  
785 Curonians and Semigalians.

786

787 Source

788

789 Valatka V. Maudžiorų (Kelmės raj.) kapinyno tyrinėjimai 1964 m. Archeologiniai tyrinėjimai  
790 Lietuvoje 1964-65 metais, p. 10-11.

791

792 Valatkienė L. Maudžiorų senkapio (Kelmės raj.) tyrinėjimai 1978 ir 1979 metais.  
793 Archeologiniai tyrinėjimai Lietuvoje 1978 ir 1979 metais, p. 89-92.

794 Valatkienė L. Maudžiorų plokštinio kapinyno kasinėjimai. Archeologiniai tyrinėjimai  
795 Lietuvoje 1982 ir 1983 metais, p. 104-106.

796

797 Valatkienė L. Maudžiorų plokštinis kapinynas. Archeologiniai tyrinėjimai Lietuvoje 1984 ir  
798 1985 metais, p. 79-78.

799

800 Panevėžys, Berčiūnai

801 Coordinates: 55.74 24.22

802 Rimantas Jankauskas

803

804 Barrows located west from Panevėžys town, on the right (western) bank of Nevėžis river.  
805 Around 40 semi destructed barrows, dated 3rd-7th c.c. Barrows, known since the beginning of  
806 20th c., are 7-12 m wide and up to 1,2 m high, some of them with stone circles.

807

808 Source

809

810 Tebelškis, Povilas. Panevėžio rajono Berčiūnų pilkapyno 1989 metų kasinėjimų ataskaita.  
811 Kultūros paveldo centro aptarnavimo skyriaus fondų poskyris, f. 27, ap. 1, b. 144. 15.15.

812 Urbanavičienė, Saulė. Panevėžio rajono Berčiūnų pilkapių 1993 metų tyrinėjimų ataskaita.  
813 Kultūros paveldo centro aptarnavimo skyriaus fondų poskyris, f. 7, ap. 1, b. 444. 15.20.

814  
815 Urbanavičienė, Saulė. Berčiūnų pilkapyno (Panevėžio raj.) 1994 m. tyrinėjimų ataskaita.  
816 Lietuvos istorijos instituto rankraštynas, f. 1, b. 2373. 15.21.  
817  
818 Urbanavičienė, Saulė. Berčiūnų pilkapių, Panevėžio raj. (AR 723) 1995 m. tyrinėjimų  
819 ataskaita. Lietuvos istorijos instituto rankraštynas, f. 1, b. 2516. 15.22.  
820  
821 Urbanavičienė, Saulė. Berčiūnų pilkapių, Panevėžio raj. (AR 723) 1996 m. tyrinėjimų  
822 ataskaita. Lietuvos istorijos instituto rankraštynas, f. 1, b. 2723. 15.23.  
823  
824 Vaškevičiūtė, Ilona; ir Juknevičius, Petras. Panevėžio rajono Berčiūnų pilkapyno tyrinėjimų  
825 ataskaita, 1992. Kultūros paveldo centro aptarnavimo skyriaus fondų poskyris, f. 7, ap. 1, b.  
826 425.  
827  
828 Petrulienė, A.. Berčiūnų k./Panevėžio r./pilkapyno (5409) teritorijos archeologinių žvalgomųjų  
829 tyrimų 2011 m. ataskaita.  
830  
831 Tebelškis, Povilas. Berčiūnų pilkapiai. Archeologiniai tyrinėjimai Lietuvoje 1988 ir 1989  
832 metais. Vilnius, 1990, p. 68-71.  
833  
834 Urbanavičienė, Saulė; ir Vaškevičiūtė, Ilona. Berčiūnų pilkapių tyrinėjimai 1992 ir 1993  
835 metais. Archeologiniai tyrinėjimai Lietuvoje 1992 ir 1993 metais. Vilnius, 1994, p. 113-119.  
836  
837 Urbanavičienė, Saulė. Berčiūnų pilkapių tyrinėjimai 1994 ir 1995 metais. Archeologiniai  
838 tyrinėjimai Lietuvoje 1994 ir 1995 metais. Vilnius, 1996, p. 86-89.  
839  
840 Urbanavičienė, Saulė. Berčiūnų pilkapių tyrinėjimai 1996 metais. Archeologiniai tyrinėjimai  
841 Lietuvoje 1996 ir 1997 metais. Vilnius, 1998, p. 168-169.  
842  
  
843 Radviliškis, Kairėnėliai  
844 Coordinates: 55.51 23.66  
845 Rimantas Jankauskas  
846  
847 Partly deranged during recent earthworks and agricultural activities inhumations. Excavated in  
848 1977-1978, 30 inhumations and one cremation found, archaeologically dated 5th-6th c.c. AD.  
849 Burials are quite rich in artefacts (gender-specific jewellery, weapons, instruments and tools).  
850  
851 Source  
852  
853 Stankus J. Kairėnėlių plokštinis kapinynas. Lietuvos archeologija. Vilnius, 1984, T. 3, p. 63-  
854 79.

855

856 Raseiniai, Kalniškiai

857 Coordinates: 55.26 23.44

858 Rimantas Jankauskas

859

860 Flat burials, known since 1935-37. Investigated from 1984 till 2004. In total, 277 burials were  
861 found, among them 259 inhumations dated 5-6<sup>th</sup> c.c. and 18 7-8<sup>th</sup> c.c. cremations. Skeletal  
862 materials are poorly preserved. Inhumations rich with artefacts (gender-specific jewellery,  
863 tools, weapons), some in wooden coffins, males oriented NW, females SE.

864

865

866 Source

867

868 Kazakevičius, v., Aukštaičių kapinynas žemaičių etnokultūrinėje periferijoje. Lietuvos  
869 archeologija, Vilnius, 1999, t. 18, p. 57–67.

870

871 Rokiškis, Vaineikiai

872 Coordinates: 55.72 25.53

873 Rimantas Jankauskas

874

875

876 Vaineikiai barrows, lined with stones, are known from 19<sup>th</sup> c., their total estimated number -  
877 c.50. During excavations in 1977-1978, three barrows were investigated which contained 15  
878 inhumations, mostly dated 3<sup>rd</sup>-4<sup>th</sup> c.c., some - 7-8<sup>th</sup> c.c.

879 Source

880 Simniškytė, A. Vaineikių pilkapyno tyrinėjimai 1997 metais. Archeologiniai tyrimai Lietuvoje  
881 1996-1997 metais, p. 155-156.

882 Simniškytė, A. Vaineikių pilkapyno tyrinėjimai 1998 metais. Archeologiniai tyrimai Lietuvoje  
883 1998-1999 metais, p. 201-202

884

885 Šiauliai, Kalneliai

886 Coordinates: 55.98 23.10

887 Rimantas Jankauskas

888

889 Partly destroyed barrows or burials lined with stone circles. Inhumations roughly N-S oriented.  
 890 Dating according to artefacts – 2nd-4th c.c. AD.

891

892

893 Source

894

895 Salatkienė, B. Kalnelių pilkapiai. Archeologiniai tyrimai Lietuvoje 1982-1983 metais, p. 60-  
 896 64.

897

## 898 The Netherlands

899 Hogebeintum

900 Coordinates: 53.33 5.85

901 Stijn Heeren, Lisette Kootker

902

903 The cemetery of Hogebeintum was discovered and researched when the *wierde* (mound) was  
 904 quarried for its fertile soil in 1904-1905. At least 142 burials were documented, but the  
 905 cemetery must have been (much) larger. Judging from the grave goods and radiocarbon dates  
 906 of cremated bone and charcoal, the cemetery was in use from the early 5th to the first half of  
 907 the 8th century (approx. AD 400-730). A few older dates were explained as resulting from the  
 908 use of old wood for cremation (Knol 2019). The catalogue holds at least 94 cremation burials,  
 909 several buried dogs, and at least 48 human inhumation burials. It also shows whether the  
 910 material is still held by the depot: some 28 partial skeletons or at least skulls are still kept in the  
 911 inventory (Knol 2019). The skeletal material is still in excellent condition. Ten graves were  
 912 selected for multi-dental elemental Sr-O-C sampling (see Kootker & Heeren, 2022). Five of  
 913 these individuals (FM95, FM96, FM98, FM99, and FM101) were selected for <sup>14</sup>C and aDNA  
 914 analysis, of which four are included in the present study.

915

916

									Costa		
CGG ID	Sample ID	Sex	<sup>14</sup> C code	<sup>14</sup> C date (BP)	Calibrated date	Element (FDI)	<sup>87</sup> Sr/ <sup>86</sup> Sr	$\delta^{18}O_{PDB}$	$\delta^{13}C$ ‰ (PDB)	$\delta^{15}N$ ‰ (AIR)	C:N
CGG_2_02 4691	FM95 – kist 249	M	Ua-69910	1587 ± 29	AD 419 – AD 547	36	0.710382	-4.77	-19.9	10.9	3.2
						37	0.710669	-6.15			
						28	0.709513	-5.79			
CGG_2_02 4692	FM96 – kist 249	M	Ua-69911	1688 ± 28	AD 258 – AD 419	26	0.710270	-5.27	-19.8	11.2	3.2

						17	0.710618	-5.57			
						38	0.709540	-5.6			
CGG_2_02 4694	FM99 – kist 249 II	M	Ua-69913	1684 ± 28	AD 258 – AD 422	46	0.710224	-6.53	-20.3	11.2	3.2
						47	0.710896	-6.32			
CGG_2_02 4695	FM101 – 28- 360	F	Ua-69915	1677 ± 29	AD 257 – AD 432	46	0.711104	-4.78	-19.8	10.4	3.2
						37	0.711370	-5.82			
						48	0.710635	-5.45			

917 Biological sex (aDNA), <sup>14</sup>C, and Sr-O-C-N isotope data from five individuals from  
918 Hogebeintum included in this study. All <sup>87</sup>Sr/<sup>86</sup>Sr are incompatible with the expected local Sr  
919 signature and provide evidence for childhood mobility (Kootker et al., 2016; Kootker &  
920 Heeren, 2022). Key: BP - Before Present; FDI - World Dental Federation; PDB: Peedee  
921 Belemnite; AIR: Ambient Inhalable Reservoir.

922

923 Oosterbeintum

924 Coordinates: 53.33 5.87

925 Stijn Heeren, Lisette Kootker

926

927 A small cemetery was excavated in 1987 on the southeastern part of the *wierde* of  
928 Oosterbeintum. The cemetery held between 33 to possibly 48 cremated burials and 46

929

930 inhumation graves. The cremation graves date between the early 5th century and the first half  
931 of the 8th century CE, while the inhumation graves are probably a bit younger, from the second  
932 half of the 5th century to the first half of the 8th century CE (Knol et al. 1996).

933

934 In a previous study, McManus et al. 24 dental elements of the Oosterbeintum population for  
935 strontium isotope analysis, restricted to a single dental element per individual (McManus et al.,  
936 2013). In Kootker and Heeren (2022), an additional sixteen samples from eleven individuals  
937 were selected, in order to obtain subsequent molar 1-2-3 data where available. Five individuals  
938 were included in this study ( S60, S335, S410, S487 (485B), and S570).

939

940 Biological sex (aDNA), <sup>14</sup>C, and Sr-O-C-N isotope data from five individuals from  
941 Oosterbeintum included in this study. All <sup>87</sup>Sr/<sup>86</sup>Sr are incompatible with the expected local Sr  
942 signature and provide evidence for childhood mobility (Kootker et al., 2016; Kootker &  
943 Heeren, 2022; McManus et al., 2013). Key: BP - Before Present; FDI - World Dental  
944 Federation; \* - data generated by McManus et al. (2013); PDB: Peedee Belemnite; AIR:  
945 Ambient Inhalable Reservoir.

946 Valkenburg (ZH)  
 947 Coordinates: 52.17 4.43  
 948 Lisette Kootker, Maura De Coster

949  
 950 A few kilometres from where the Lower German *limes*, recently recognized as a World  
 951 Heritage site by UNESCO, ends in the North Sea, the unique Roman cemetery of Valkenburg  
 952 Marktveld has been excavated. Located circa 500 m. south of the auxiliary fort, the  
 953 archaeological site plays a key role in understanding the population dynamics in a Roman  
 954 borderscape and coastal landscape. This cemetery was used between 50 – 300 CE for the entire  
 955 military community that consisted of men, women and children, who lived in the vicinity of  
 956 the auxiliary fort. The remains of over 650 individuals were recovered, 134 of which are  
 957 inhumations (47 adults, 87 children and infants: Lonnée & Maat, 1998; Smits, 2006); an  
 958 extraordinary number as cremation dominates the Roman burial record in the Netherlands.  
 959 Within the framework ‘Constructing the Limes: Employing citizen science to understand  
 960 borders and border systems from the Roman period until today’ (C-Limes), funded by the Dutch

									Costa		
CGG ID	Sample ID	Sex	<sup>14</sup> C code	<sup>14</sup> C date (BP)	Calibrated date	Element (FDI)	<sup>87</sup> Sr/ <sup>86</sup> Sr	$\delta^{18}O_{PDB}$	$\delta^{13}C$ ‰ (PDB)	$\delta^{15}N$ ‰ (AIR)	C:N
CGG_2_02 4699	S60	F	Ua-69995	1611 ± 27	AD 416 – AD 538	37	0.709822*	-	-19.8	13.7	3.2
						38	0.709781	-4.51			
CGG_2_02 4707	S487 (485B)	F	Ua-70003	1561 ± 27	AD 430 – AD 569	36	0.709322	-4.59	-20.3	11.7	3.2
						44	0.712460*	-			
CGG_2_02 4708	S570	F	Ua-70004	1561 ± 27	AD 430 – AD 569	26	0.708884	-4.67	-20.2	9.1	3.2
						27	0.708791*	-			
CGG_2_02 4702	S410	M	Ua-69998	1556 ± 28	AD 430 – AD 575	36	0.709133	-4.00	-19.4	9.1	3.2
						35	0.708824*	-			
						38	0.709110	-6.63			
CGG_2_02 4700	S335	M	Ua-69996	1535 ± 28	AD 435 – AD 599	36	0.708874	-5.89	-19.5	11.6	3.2
						27	0.709232*	-			
						48	0.708156	-5.94			

961 Research Council (NWO) as part of the Dutch Research Agenda (NWA, 2021-2026, project

962 number: NWA.1292.19.364), 28 adult individuals were available for Sr-O-C isotope research.  
963 As part of the collaboration between C-LIMES and the GeoGenetics Centre at the University  
964 of Copenhagen, petrous parts and/or dental elements of 27 individuals were collected for aDNA  
965 analysis. A more detailed paper integrating archaeological and historical data, <sup>14</sup>C and Sr-O-C-  
966 N isotope data, and aDNA data (kinship, etc.) from Valkenburg Marktveld is forthcoming.  
967  
968

CGG ID	Sample ID	Sex	<sup>14</sup> C code	<sup>14</sup> C date (BP)	Calibrated date	Old sample/individual/Find/Feature ID numbers				Sample type
						ROB	Lonnée	Find	Feature	
CGG_2_1077 54	CL002	M	DeA-36906	1956 ± 19	AD 13 – AD 123	I085	5	102		Bone
CGG_2_1077 33	CL005	-	-	-	-	I081	10	260		Tooth
CGG_2_1077 46	CL005	M	DeA-39646	1982 ± 19	39 BC – AD 114	I081	10	260		Bone
CGG_2_1077 63	CL006	M	DeA-39647	1852 ± 19	AD 125 – AD 233	I079	15	265		Bone
CGG_2_1077 47	CL007	M	DeA-39648	1878 ± 19	AD 120 – AD 225	I002	22	38		Bone
CGG_2_1077 60	CL008	?	-	-	-	I007	23	170		Bone
CGG_2_1077 67	CL010	M	DeA-39649	1944 ± 18	98 BC – AD 25	I028	30	223		Bone
CGG_2_1077 61	CL013	M	-	-	-	I037	39	313		Bone
CGG_2_1077 34	CL013	-	-	-	-	I037	39	313		Tooth
CGG_2_1077 49	CL015	F	DeA-39650	2129 ± 23	342 BC – 52 BC	I024	42	248		Bone
CGG_2_1077 35	CL017	M	DeA-39651	1910 ± 19	AD 72 – AD 207	I021	50	181		Tooth
CGG_2_1077 45	CL017	M	DeA-39651	1910 ± 19	AD 72 – AD 207	I021	50	181		Bone
CGG_2_1077 57	CL018	M	-	-	-	I043	52	237		Bone
CGG_2_1077 36	CL018	M	DeA-39652	1898 ± 19	AD 80 – AD 213	I043	52	237		Tooth
CGG_2_1077 52	CL019	M	DeA-39653	1936 ± 20	AD 21 – AD 200	I051	53	118		Bone
CGG_2_1077 37	CL021	-	-	-	-	I055				
CGG_2_1077 38	CL023	M	DeA-39654	1936 ± 20	AD 21 – AD 200	I041	62	334		Tooth
CGG_2_1077 50	CL023	M	DeA-39654	1936 ± 20	AD 21 – AD 200	I041	62	334		Bone
CGG_2_1077 68	CL025	M	-	-	-	-	16	8	070.0016	Bone
CGG_2_1077 39	CL026	F	DeA-36907	1912 ± 19	AD 70 – AD 206	I031	66	263		Tooth
CGG_2_1077 44	CL026	F	DeA-36907	1912 ± 19	AD 70 – AD 206	I031	66	263		Bone
CGG_2_1077 40	CL027	-	-	-	-	I042	68	337		
CGG_2_1077 51	CL027	M	DeA-36908	1841 ± 22	AD 127 – AD 244	I042	68	337		Bone



CGG_2_1077 48	CL029	M	DeA-39656	1950 ± 19	AD 16 – AD 125	I018	69	167		Bone
CGG_2_1077 41	CL029	M	DeA-39656	1950 ± 19	AD 16 – AD 125	I018	69	167		Tooth
CGG_2_1077 65	CL030	M	DeA-36909	1926 ± 19	91 BC – AD 60	I114	72	242		Bone
CGG_2_1077 42	CL031	F	DeA-36910	1879 ± 20	AD 120 – AD 224	I095	76	31		Tooth
CGG_2_1077 53	CL032	M	-	-	-	I052	86	189		Bone
CGG_2_1077 55	CL033	F	-	-	-	I120	87	280		Bone
CGG_2_1077 66	CL035	M	DeA-39657	2038 ± 19	AD 27 – AD 203	I121	95	59		Bone
CGG_2_1077 56	CL041	M	DeA-39660	1992 ± 19	42 BC – AD 106	I134	129	71		Bone
CGG_2_1077 43	CL041	-	-	-	-	I134	129	71		Tooth
CGG_2_1077 62	CL043	M	DeA-36912	1863 ± 21	50 BC – AD 250	I074	137	182		Bone
CGG_2_1077 64	CL046	F	DeA-39661	2026 ± 21	AD 129 – AD 236	I092	141	160		Bone
CGG_2_1077 58	CL048	M	DeA-39662	1894 ± 18	50 BC – AD 250	I001A	19	155A		Bone
CGG_2_1077 59	CL049	F	DeA-39663	1976 ± 20	AD 83 – AD 212	I001B	19	155B		Bone

List of samples from Valkenburg Marktveld that were selected for aDNA analysis. For future reference, the CL-numbers should be used. Key: Lonnée - Lonnée & Maat (1998). <sup>14</sup>C dates are generated as part of this study (see Iron Age Metadata).

969  
970  
971  
972

### Source

974

975 McManus, E., J. Montgomery, J. Evans, A. Lamb, R. Brettell & J. Jelsma 2013: “To the land  
976 or to the sea”: Diet and mobility in Early Medieval Frisia, *The Journal of Island and Coastal*  
977 *Archaeology* 8, 255-277.

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981 *in Hogebeintum, Groningen (Vereniging voor Terpenonderzoek)*, 159-180.

982

983 Knol, E., W. Prummel, H.T. Uytterschaut, M.L.P. Hoogland, W.A. Casparie, G.J. de Langen,  
984 E. Kramer & J. Schelvis 1996: The early Medieval Cemetery of Oosterbeintum (Friesland),  
985 *Palaeohistoria* 37/38, 245-416.

986

987 Kootker, L. M., Van Lanen, R. J., Kars, H., & Davies, G. R. (2016). Strontium isoscapes in the  
988 Netherlands. Spatial variations in <sup>87</sup>Sr/<sup>86</sup>Sr as a proxy for palaeomobility. *Journal of*  
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990

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 993 RCE.  
 994  
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 996 Marktveld (Zuid-Holland) in the Netherlands. Barge's Anthropologica 3, Leiden.  
 997  
 998 Smits, E. (2006). Leven en sterven langs de Limes : het fysisch-antropologisch onderzoek van  
 999 vier grafveldpopulaties uit de noordelijke grenszone van Germania Inferior in de Vroeg- en  
 1000 Midden-Romeinse tijd, Universiteit van Amsterdam.

1001

1002 **Portugal**

1003 Estremadura, Gruta do Caldeirão

1004 Coordinates: 38.67 9.16

1005

1006 The layer of provenience is a thick, badger-burrowed, and homogenised dark cave earth  
 1007 containing abundant ceramics, mostly of the Bronze Age, and other artefacts ranging from the  
 1008 Late Neolithic to the 17th century. Among the iron artefacts, two buckles (one of armour,  
 1009 another of bridle) were diagnostic of the Visigothic period (Zilhão, 1992: 118-119; Fig. 9.6,  
 1010 nos. 3-4). A human bone sample from this layer had already been dated to the same time range  
 1011 indicated by your new results.

1012

1013 That the three samples from layer ABC-D yielded post-Neolithic ages is hardly surprising, as  
 1014 the human remains therein are associated with artefacts ranging from the Late Neolithic to the  
 1015 early Middle ages and, previously, a rib from this layer had already been dated to the Early  
 1016 Medieval time range. Most of the ceramics are Bronze Age, yet all the human bone dates so far  
 1017 are Medieval, which would seem to suggest that the funerary activity of the Bronze Age  
 1018 consisted of the deposition of incinerations.

1019

1020 The full list of results for layer ABC-D is below. Considering that P11sc375 and P13-32 are  
 1021 the same individual and that the two TO dates are on the same sample, their averages can be  
 1022 calculated and, after calibration, compared with the result for P11-73. The three ages, in the  
 1023 rows highlighted yellow, are statistically distinct and so the dated rib belongs to a third  
 1024 individual. This evidence shows occasional but recursive use of the cave as a burial site between  
 1025 the mid-6th and the mid-9th centuries AD.

1026

1027

1028

---

P11-sc375	left temporal with petrous	UBA-40089	1213	27
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---

P13-32	right temporal with petrous	UBA-40090	1258	31	
Average			1232	20	691-877 AD, 2 $\sigma$
P11-73	left temporal with petrous	UBA-40091	1313	26	657-767 AD, 2 $\sigma$
P11-112	rib fragment	TO-351	1420	50	
replicate	rib fragment	TO-351a	1490	70	
Average			1444	41	548-658 AD, 2 $\sigma$

1029

1030 Source

1031

1032 Zilhão, J. (1992). Gruta do Caldeirão. O Neolítico Antigo. Lisboa, Instituto Português do  
1033 Património Arquitectónico e Arqueológico.

1034 **Russia**

1035 Elizaveta Chernykh

1036 Mazuninskaya culture

1037 The Mazuninskaya culture was described by V.Gening (1968). Named after the Mazuniskiy  
1038 necropolis, the culture was distributed in 3-5 centuries AD in the middle Kama River. The  
1039 culture developed on the basis of the local P'yanoborye culture. The morphological studies  
1040 revealed complex structure of the Mazunino populations which resulted from the admixture of  
1041 different groups of European and Uralian groups. It is argued that Mazunino populations have  
1042 the closest biological affinities with modern Uralic-speaking Mari and Moksha people but not  
1043 Udmurts (Shirobokov, Chernykh 2016; Shirobokov et al., 2018).

1044

1045 Russia, Boyarskiy

1046 Coordinates: 56.05 54.02

1047

1048 The Boyarskiy (Arai) burial ground attributed to the Mazuninskaya culture (the end of 3-4  
1049 centuries AD) is located on the narrow terrace of the right bank of the Kama River,  
1050 Karakulinskiy district, the Udmurtia Republic, Russia. In 2002-2009 183 burials consisting 199  
1051 skeletons were excavated by E.M.Chernykh.

1052

1053 The burials were made in rectangular ground pits with a depth of 20 to 130 cm. The most  
1054 skeletons lay with their heads oriented to the SW and WSW. Remains of wooden burial  
1055 structures (similar to boxes) were found in 1/3 of the burials. In few cases plank log decking,  
1056 burials in the decks, wrapping in birch bark, and swaddling were detected. There were cases of  
1057 tying the legs of the deceased, the crooked position of buried on the side, burials without heads,  
1058 and violations of anatomical order. The frequency of child burials is about 25%. About 42% of  
1059 all burials have no inventory, a half of them are child ones. The number male and female non-  
1060 inventory burials are equal. The specific male and female inventory kits can be detected. The  
1061 Boyarskiy burial ground share a specific feature of the Mazunino necropolises - the placement  
1062 of "female" inventory kits not in the place where they were worn, but in special "donation  
1063 (sacrificial)" places. While in other Mazunino burial grounds such places were usually located  
1064 at the head of the buried in the Boyarskiy cemetery the feet area was used.

1065 According to the cranial studies the population which left Boyarskiy cemetery resulted from  
1066 the admixture of two groups. The first one is possibly related to steppe populations alike  
1067 Sarmatians while second is close to historical Finnish-speaking populations from the Volga  
1068 region.

1069

1070 Russia, Dybrovskiy

1071 Coordinates: 53.63 33.37

1072

1073 The Dubrovskiy burial ground (IV - early V centuries AD) is located on a high steep slope of  
1074 the left bank of the Shekhostanka River (third-order tributary of the Kama River), Kiyasovsky  
1075 district, the Udmurt Republic, Russia.

1076 In 2009–2017 Perevozchikova and V.Bertz excavated 204 burials. Most burials are single made  
1077 in narrow rectangular pits of about 0,6 m depth. The burials were arranged in rows. The buried  
1078 lay stretched with their heads to the South down of the river flow. Several specific features of  
1079 the burial rituals which are not characteristic for the local cemeteries of the time were noted.  
1080 These are: coating the walls with clay, traces of firing, adding chalk to the bottom, backfilling  
1081 with stones. While the male military inventory kit included swords, combat knives, spears,  
1082 arrows, "pink salmon braids", and horse bits, the Female kit consisted of headdresses decorated  
1083 with metal clips, plaques, beads and beads, temporal pendants, chains.

1084

1085 Russia, Zaborinskiy

1086 Coordinates: 56.23 53.64

1087

1088 The Zaborinskiy burial ground (4 century AD) is located in the Sarapulskiy district, the Udmurt  
1089 Republic, Russia on the right bank of the Kama River tributary Kyrykmas. The burial ground  
1090 was excavated in 1983 and 2002 by N.L. Reshetnikov and V.A.Bernts. In total 30 burials  
1091 arranged in clear rows were studied. The buried lay in 30-90 cm deep rectangular pits with their  
1092 heads to North or North-East. In a half of burials funeral offering kits were found. No  
1093 morphological studies have been done so far.

1094 Both Dubrovskiy and Zaborinskiy burial grounds are attributed to the Mazunino culture (3-5  
1095 centuries AD) of the Pyanoborsk cultural community (Ostanina, 1997; Goldina, 2004).

1096

1097

1098 Source

1099

1100 Gening V.F. 1967 The Mazuninskaya culture of the Middle Kama. *Voprosy arkheologii Urala*.  
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1117

1118

1119 Chersonesus City, Chersonesus City

1120 Coordinates: 44.36 33.29

1121 Vladimir Kolosov

1122

1123 The necropolis is located on the Black sea shore in the northern part of the Greek colony  
1124 settlement of Chersonesus in the outskirts of present-day Sevastopol on the Crimean Peninsula.  
1125 The necropolis was discovered as a result of archaeological excavations by the archaeological  
1126 team of the Chersonesus Museum under the leadership of D.G.Belov. The first two burials were  
1127 discovered during excavations in 1935, and in the following 1936 91 more burials were  
1128 discovered. In the course of the following years, a number of burials were also discovered in  
1129 this sector of the settlement. As a result, more than 150 graves were identified and studied in  
1130 total The most burials were found within the area bounded by two transverse streets of the  
1131 ancient Cheronesus city - the eighth (VIII) from the east and the tenth (X) from the west. The  
1132 northern border of the necropolis runs along the coastline, the southern border along the  
1133 Chersonesos gully. (Belov, 1950. 273). At present time the osteological materials are housed  
1134 in the Peter the Great Museum of Anthropology and Ethnography (Kunstkamera) of the Russian  
1135 Academy of Science (collection 5656).

1136  
1137 The main bulk of the burials are inhumations made in the ground pits. The buried were stretched  
1138 on their back (mainly with an eastern orientation) or crouched on the left or right side. A  
1139 significant number of children's burials in amphorae were also excavated. The inventory is  
1140 rather poor, but it allows the burial to be dated to the early stage of the Greek colonization of  
1141 the Black sea territories within the 5th-4th centuries BC. (Belov, 1950. 275-278).  
1142  
1143 The necropolis dates back to the early stages of the history of Chersonesus, which should be  
1144 characterized by a high level of social, population and ethnic diversity. It is sometimes argued  
1145 that the crouched burials are associated with the autochthonous Taurian population. An  
1146 alternative assumption is that such burials reflect the social position of the buried (Ivanov, 2013,  
1147 13-17; Stoyanov 20014).  
1148  
1149 All samples taken for the genetic study are from the burials made in simple graves pits without  
1150 any inventory.  
1151 5656-21 – skeleton of an adult lay stretched off the back with its head oriented to the East  
1152 (Belov, 1938. 171).  
1153 5656-24 – poor preserved skeleton of an adult destroyed by the later burials. Possibly lay  
1154 crouched on the right side with its head to the east (Белов. 1938, 171).  
1155 5656-25 – skeleton of a child crouched on its left side with its head to the south-west (Belov,  
1156 1938. 171).  
1157 5656-34 – skeleton of an adult stretched on its back with head to the east. The right hand lay  
1158 on the pelvic bones, the left was bent upward at the elbow joint. Traces of ash and coal were  
1159 found in the burial (Belov, 1938. 175).  
1160 5656-35 – skeleton of an adult lay stretched on its back, head to the east. The right arm was  
1161 bent and lay on the stomach, the left - on the chest. Traces of ash and coal were found in the  
1162 burial. (Belov, 1938. 175)  
1163 5656-45 – skeleton of an adult stretched on its back with head to the East-South-East (Belov,  
1164 1938. 175).  
1165  
1166  
1167 Source  
1168  
1169 All in Russian  
1170 Belov G.D. Report on excavations in Chersonesos for 1935-1936. Simferopol: State. publishing  
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1181

1182 Kabardino-Balkaria, Zaragizh

1183 Coordinates: 43.33 43.71

1184 B. Kh. Atabiev

1185

1186 Zaragizh is a complex of archaeological sites from the 3rd century - the middle of the 1st  
1187 millennium AD on the border of the plain and foothill zones of the Caucasus, on the Cherek  
1188 River near the village of Zaragizh (Chereksky district of Kabardino-Balkaria, Russia). Includes  
1189 a vast settlement with a complex system of fortifications (the oldest - Koban cultures), burial  
1190 mounds and soil burials located on the site of an earlier irrigation system. The settlement was  
1191 discovered by V. M. Batchaev in 1986, the burial grounds by B. Kh. oval (early) and rectangular  
1192 (late) catacombs with a stone foundation and, as a rule, a perpendicular dromos; the evolution  
1193 of the design of the vaults of the chambers from shed to arched and lancet can be traced. about  
1194 finished and extensive catacombs up to 7 meters deep. In the catacombs - from 2 to 21 stucco  
1195 and circular bowls, mugs, jugs, weapons (including those with wooden and gold details,  
1196 decorated in the cloisonne style), belt set, brooches and other decorations (including with the  
1197 use of gold, various inserts), amulets, toiletries, Roman coins, indications, and others. Zaragizh  
1198 is considered as the center of one of the Sarmatian-Alanian groups in the Caucasus.

1199

1200

1201 Source

1202

1203 Atabiev B. Kh. Excavations near the village of Zaragizh of the Kabardino-Balkarian Republic  
1204 // Archaeological discoveries 1995. M., 1996; L'or des princes barbares... P., 2001.

1205

1206 Tuva, Aymyrlyg

1207 Coordinates: 51.88 95.62

1208 Eileen Murphy, Vyacheslav Moiseyev

1209

1210 The cemetery complex of Aymyrlyg is located in the Ulug-Khemski region of Tuva, deep in  
1211 southern Siberia and near the border with Mongolia. It spanned a vast distance of some 10 km  
1212 and was located alongside a tributary of the mighty Yenisei river. It was excavated over a 16  
1213 year period between the 1960s and 1980s by Dr A.M. Mandelshtam and Dr E.U. Stambulnik  
1214 of the Sayano-Tuvinsky expedition team from the Institute of the History of Material Culture

1215 in St. Petersburg because the entire zone was scheduled to be flooded as part of the workings  
1216 of a hydro-electric power station. The human skeletal remains were brought to the Department  
1217 of Physical Anthropology of the Kunstkamera Museum. A detailed osteoarchaeological and  
1218 palaeopathological analysis was undertaken of the population for PhD research (Murphy 1998)  
1219 and this study has formed the basis for additional and ongoing projects. Approximately 800  
1220 individuals were recovered from the burial ground – most of the earlier 607 interments dated  
1221 to between the 5th and 2nd centuries BC and were attributed to the Uyük culture of the later  
1222 Scythian period (Mandelshtam 1992, 185). The remainder of the population were derived from  
1223 the Shurmak culture of the early Hunno-Sarmatian period and was associated with the  
1224 expansion of the Xiongnu empire into Tuva. They are largely thought to date to between the  
1225 3rd century BC and the 2nd century AD (Stambulnik 1983, 34; Murphy 2012).

1226 Mandelshtam and Stambulnik (1992: 196) were of the opinion that the change from the Uyük  
1227 Culture to the Shurmak Culture involved the movement of new groups of people into Tuva. A  
1228 detailed craniometric and osteometric analysis was undertaken on a number of individuals from  
1229 Aymyrlyg (Bogdanova and Radzjun 1991). The findings indicated that the Uyük Culture  
1230 individuals at Aymyrlyg displayed more European characteristics than Shurmak Culture  
1231 individuals who displayed more pronounced Asian features. In addition, differences in the  
1232 degree of Asian and European admixture were evident between Shurmak Culture individuals  
1233 buried in ground pits and stone cists. This finding was interpreted as evidence that the  
1234 population burying their dead at Aymyrlyg during the Hunno-Sarmatian period was  
1235 heterogeneous, comprising both individuals of the preceding Uyük Culture and those of the  
1236 more recently arrived Shurmak Culture (Bogdanova and Radzjun 1991: 55–100).

1237

1238 In a previous study, aDNA of mycobacterium bovis was identified in five individuals from the  
1239 burial ground, none of which are included in the current study (Taylor et al. 2007; Murphy et  
1240 al. 2009). The date range of these individuals extended from the 4th century BC to the 4th  
1241 century AD. A weak positive for brucellosis was identified in one individual but this could not  
1242 be replicated at a later date.

1243

1244 CGG\_2\_021493 - 6862-363 - Scythian.

1245 *Burial XX.10. Sk. 1*

1246 The individual was recovered from a rectangular stone-cist along with three other individuals  
1247 including CGG\_2\_021495 - 6862-364. The skeleton was near-complete but had been disturbed.



1248 It was situated near the southwestern wall of the tomb and the skull lay near a stone slab upon  
1249 which was a clay pot.

1250

1251 The skeleton was that of an 17-25-year-old female, with an estimated stature of 161.1 cm.  
1252 Osteoarthritis was evident on several rib heads, while osteophytosis and Schmorl's nodes were  
1253 present on thoracic and lumbar vertebrae. Reactive new bone formation, suggestive of a  
1254 pulmonary infection, was observed on the visceral surfaces of three right ribs and on the dorsal  
1255 and visceral surfaces of a left rib. Periodontal disease of considerable severity and a large dental  
1256 abscess were visible, and the individual had lost one tooth ante-mortem.

1257

1258 CGG\_2\_021494 - 6862-138 - Scythian.

1259 *Burial VI.10. Sk. 1*

1260 The individual was recovered from within a log house tomb along with the remains of three  
1261 disturbed skeletons. The skeleton was near complete. The individual lay on the left side with  
1262 the head to the west. The legs were flexed and the arms were extended with the hands in front  
1263 of the pelvis. The skull lay on a stone slab. The individual was associated with a notable array  
1264 of grave goods – fragments of an iron pin, covered with gold foil, were located near the slab  
1265 associated with the skull. A further 11 objects appear to have been directly connected to Sk. 1,  
1266 including a bronze mirror within a leather case. In addition, to these the distal ends of the lower  
1267 arm bones, the left ilium and the midshaft of the left femur displayed green discoloration  
1268 suggestive of original association with bronze objects.

1269

1270 The skeleton was that of an adult female, aged 25-35 years, with an estimated stature of 156.5  
1271 cm. The bones were generally gracile and developmental dysplasia of the left hip was evident.  
1272 The left leg was atrophied but osteoarthritis was visible on and on the bones of the right leg  
1273 which suggested it had borne weight. In addition, pronounced Schmorl's nodes were evident  
1274 on the lower thoracic and upper lumbar vertebrae. The morphology of the right arm bones was  
1275 suggestive that she had used crutches that placed particularly strain on the right side of the  
1276 body. Linear dental enamel hypoplasia is indicative of childhood physiological stress. Slight  
1277 periodontal disease and one caries were visible.

1278

1279 CGG\_2\_021495 - 6862-364 - Scythian.

1280 *Burial XX.10. Sk. 2*

1281 The individual was recovered from a rectangular stone-cist along with three other individuals  
1282 including CGG\_2\_021493 - 6862-363. The skeleton was practically complete. The individual  
1283 lay on their right side, and had flexed arms and legs. The head was orientated towards the NW  
1284 and was situated at the edge of a stone slab. A clay pot was located near the stone slab. An area  
1285 of green discoloration on the left iliac crest is suggestive that the individual had been buried  
1286 with a bronze object.

1287

1288 The skeleton was that of an adult male of 25-35 years, with an estimated stature of 170.8 cm.  
1289 A well-healed fracture was visible on the right clavicle. Vertebral osteophytosis was evident on  
1290 cervical, thoracic and lumbar vertebrae, while Schmorl's nodes were evident on many thoracic  
1291 and lumbar vertebrae. Osteoarthritis was visible at the distal end of the left first metacarpal.  
1292 The individual was robust with pronounced entheses. Reactive new bone formation, suggestive  
1293 of pulmonary infection, was evident on the visceral surfaces of five right ribs. Considerable  
1294 periodontal disease, two caries and five dental abscesses were observed, and six teeth had been  
1295 lost ante-mortem.

1296

1297 CGG\_2\_021492 - 6862-359 - Scythian.

1298 *Burial XX.9. Sk. 1*

1299 The individual was recovered from a log house tomb along with the remains of a further eight  
1300 individuals. The skeleton was practically complete. The individual lay on their left side, and  
1301 had flexed arms and legs. The head was oriented to the west and the skull lay on a stone slab.  
1302 A clay pot was positioned beside the stone slab at the head. Fragments of an iron object were  
1303 located on top of the right side of the pelvis. A bronze container associated with a belt fragment  
1304 and two pieces of an iron object were recovered adjacent to the left pelvis. A bronze buckle and  
1305 fragment of cowrie shell were located beside the left femur, while the remains of an iron knife  
1306 were retrieved from beneath the right femur. Three arrowheads lay near the individual's feet.

1307

1308 The skeleton was that of a young adult male, with an estimated stature of 165.9 cm. Reactive  
1309 new bone formation was present on the left humerus, left tibia and both fibulae, as well as on  
1310 right rib 9 and left rib 7 and the anterior surfaces of lumbar vertebrae 1-3 and 5. These lesions  
1311 are indicative of systemic infection but the new bone formation on the lumbar vertebrae are  
1312 also suggestive of brucellosis or tuberculosis. Schmorl's nodes were visible on most thoracic  
1313 and lumbar vertebrae. Periodontal disease of slight severity was observed.

1314

1315 CGG\_2\_021497 - 6862-381 - Scythian.

1316 *Burial XXIII.10. Sk. 2*

1317 The individual was recovered from within a log house tomb but the archive report did not  
1318 include details of the context. Based on the context numbers of skeletons it is evident that at  
1319 least two other individuals were recovered from the tomb. Only the skull was available for  
1320 analysis.

1321

1322 The skeleton was that of a probable adult female aged 25-35 years. The left orbit had an  
1323 abnormal enlarged appearance suggestive of the presence of a soft tissue mass within the orbit.  
1324 The right orbit was also slightly enlarged and asymmetry of the nasal bones was evident. It was  
1325 considered that the lesions may be compatible with the genetic condition neurofibromatosis  
1326 (Murphy et al. 1998; Murphy 2000).

1327

1328 CGG\_2\_021499 - 7256-85 – Hunno-Sarmatian (Xiongnu)

1329 *Burial XXXI.177*

1330 The archive report for the year of excavation (1982 or 1983) was unavailable but the context  
1331 number suggests an individual burial, typical for the Hunno-Sarmatian phase of burial.

1332

1333 The skeleton was that of a young adult female of 17-25 years, with an estimated stature of 145.8  
1334 cm. Lytic lesions, suggestive of a non-specific infection (or perhaps tuberculosis or brucellosis  
1335 although not typical lesions) were evident in the right mandible and superior surface of the sixth  
1336 lumbar vertebra, with a large sub-circular lesion measuring almost 30 mm present at the  
1337 proximal metaphysis of the left tibia. Reactive new bone formation was visible at the midshaft  
1338 of the right tibia. Slight periodontal disease and two caries were evident.

1339

1340 CGG\_2\_021498 - 7256-98 – Hunno-Sarmatian (Xiongnu).

1341 *Burial XXXI.205*

1342 The archive report for the year of excavation (1983) was unavailable but the context number  
1343 suggests an individual burial, typical for the Hunno-Sarmatian phase of burial.

1344

1345 The skeleton was that of an adult female of 25-35 years, with an estimated stature of 149.7 cm.  
1346 Plaques of reactive new bone formation were visible at the heads and necks of the left ribs 4-9  
1347 and right ribs 7, 8 and 11. The lesions are suggestive of a pulmonary infection. Schmorl's nodes

1348 were present. Slight periodontal disease, two caries and two abscesses were present. Five teeth  
 1349 had been lost ante-mortem.

1350

1351 Source

1352 Bogdanova, V. I and Radzjun, A. B. 1991. Paleoantropologicheskiye Materiali Gunno-  
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1361

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 1364 *Sarmatskoye Vremya, Archeologiya SSSR*. Moskva: Nauka. (The Hunno-Sarmatian period in  
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## 1403 Slovakia

### 1404 Gerulata

1405 Coordinates: 48.05 17.14

1406

1407 The exact position of Gerulata is in Rusovce, a present- day suburb of Bratislava on the right  
 1408 bank of the Danube. The prosperity of Gerulata peaked in Traian- Hadrian's period. The  
 1409 military detachment at Gerulata was formed by a cavalry troop of auxiliaries.

1410 Archaeologists uncovered four burial grounds which date to the 1st-2nd and 3rd-4th centuries.

1411 It appeared that the method of burial in these burial grounds was biritual i.e., skeletal and  
 1412 cremations

1413

### 1414 Source

1415 Pichlerová M.1986: Gerulata und seine Rolle im Bratislavaer Tor. *Archeologické rozhledy*  
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1417

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1420

### 1421 Trnava, Cifer-Pac

1422 Coordinates: 48.30 17.51

1423

1424 Cífer-Pác (South-western Slovakia) is an archaeological site that provides evidence of the  
 1425 coexistence of Avars and Slavs. Excavation in this area during the years 1971 to 1983 revealed

1426 a relatively large avar-slavic burial site dated to the 8th to 9th century (Kolník, 1975). The  
1427 burial site consists of 119 skeletal graves with varying degrees of preservation. Based on the  
1428 accompanying inventory of the graves, graves 1 - 38ab are dated to the 8th century and graves  
1429 39-119 from 8th to the first half of the 9th century. No skeletal remains were preserved in 25  
1430 graves due to completely decomposed bones. The remaining 94 graves contained skeletal  
1431 remains of 101 individuals, including 61 adults (20 males, 29 females and 12 individuals with  
1432 undeterminable sex) and 40 juveniles (Baldovič, 2003). No cremation burials occurred on this  
1433 burial site and the equipment of graves was relatively diverse. Most of the graves contained  
1434 only parts of ceramics and the objects of everyday use like needles, spindle whorls (female  
1435 graves), iron knives and buckles (male graves), just a few individuals were buried with more  
1436 valuable things or weapons: gilded bronze forging (CP33), necklace with metal and glass beads  
1437 (CP22), two rings and lance (CP28), axe and lance (CP85), casted belt decorations with animal  
1438 or plant ornaments (CP15, CP24, CP28, CP33). Furthermore, ten horse riders' graves (CP9,  
1439 CP12, CP15, CP16, CP17, CP24, CP28, CP33, CP34 and CP109) were excavated. The walls  
1440 of these graves were hardened with wooden posts and they contained skeletal remains of riders  
1441 and probably their horses. In addition, the skull analysis of 22 individuals from this burial site  
1442 revealed 6 cases of individuals with typical mongoloid cranial features (CP2, CP3, CP61, CP63,  
1443 CP72, CP105) and 9 cases of mixomorphic individuals with both mongoloid and europoid  
1444 cranial features including 3 individuals with higher percentage of mongoloid features (CP55,  
1445 CP66, CP69).

1446  
1447 In a previous study, we focused on the determination of mitochondrial haplogroups in this small  
1448 Avar-Slavic population which lived in the 8th to 9th century, in order to determine the increased  
1449 presence of possible "Avar" mitochondrial haplogroups (typical for the region of western and  
1450 central Asia) in this mixed population, because the archaeological and anthropological research  
1451 showed the incidence of Avar burial rites and also mongoloid cranial features of some  
1452 individuals from this burial site (Šebest et al, 2018).

1453 Additionally a case report was published – dealing with a severe case of skeletal TBC found in  
1454 one of the individuals from this burial site (Kyselíková et al, 2016).

1455

1456 Source

1457

1458 Baldovič, M., 2003: Anthropological analysis of skeletal burial place Cífer-Pác (dist. Trnava)  
1459 from 8th – 9th century AD (unpublished master's thesis). Department of Anthropology, Faculty  
1460 of Natural Sciences, Comenius University, Bratislava, Slovakia.

1461

1462 Kolník, T., 1975: Cífer-Pác, stanica z mladšej doby rímskej. Paper presented at III. International  
1463 Congress of Slavonic Archaeology, Bratislava, Slovakia.

1464

1465 Kyselíková, K., Šebest, L., Bognár, C., Šarkan, M., Baldovič, M., Beňuš, R., Kádaši, Ľ., 2016:  
1466 Molecular detection of Mycobacterium tuberculosis complex in the 8th century skeletal  
1467 remains from the territory of Slovakia. *Biologia*, 71(6):613-619.

1468

1469 Šebest, L., Baldovič, M., Frtús, A., Bognár, C., Kyselicová, K., Kádaši, Ľ., Beňuš, R., 2018:  
1470 Detection of mitochondrial haplogroups in a small avar-slavic population from the eighth-ninth  
1471 century AD. American Journal of Physical Anthropology, <https://doi.org/10.1002/ajpa.23380>  
1472

1473 Kyselicová, Klaudia, et al. "Molecular detection of Mycobacterium tuberculosis complex in the  
1474 8 th century skeletal remains from the territory of Slovakia." *Biologia* 71.6 (2016): 613-619.

## 1475 Spain

1476 Madrid, Camino de las Yeseras

1477 Coordinates: 40.40 -3.50

1478 Jorge Vega

1479

1480 The site called “Camino de las Yeseras” is located on a raised terrace of the Henares River that  
1481 shares its flow with the Jarama River, located near the confluence of both canals, in the Madrid  
1482 district of San Fernando de Henares. The necropolis is located on the western edge of such a  
1483 terrace.

1484 It is a great archaeological site, with more than 22 hectares and more than 10.000 archaeological  
1485 structures well identified and documented. Despite the site being occupied during the late  
1486 Neolithic, the Campaniform period of the site needs to be also highlighted, with impressive  
1487 internments, several defending pits, huts, different activities areas and great archaeological  
1488 ground holes with symbolic material associated.

1489

1490 In 2006 within the western escarpment of the terrace which belongs to the floodplain of the  
1491 Jarama river, a huge amount of visigothic tombs were detected and well identified. Emergency  
1492 archaeological works were undertaken over 22 tombs that were going to be damaged as part of  
1493 a building project. These graves are mainly simple pits with great rock slabs as the cover. Two  
1494 of them present pit walls strengthened with great rock blocks creating a cist shape.

1495

1496 The tombs have been reused since some of them contain remains of several individuals placed  
1497 surrounding the remains of the main individual. At least 52 individuals belonging to these 22  
1498 funerary structures have been well identified, with an axis of East-West. The good graves found  
1499 are scarce, although they seem to provide a dating for 6th and 7th centuries A.D.

1500

1501 In conclusion after the anthropological analysis the current asserts are the following: the sex of  
1502 the individuals has been well identified in 27 of the 52 cases, being 12 males and 15 females.  
1503 Regarding the group of age, the majority of the individuals belong to the age-frame between  
1504 21-40 years old, which is the 49%, followed by the infancy group deceased at the age of 6 years  
1505 old, which is the 21 % and followed by the infancy II group, with 7-12 years old, being the  
1506 13%.

1507

1508 It can be observed that the probability of death is rather high (19%) during the child age, it  
1509 decreases during the youth and increases extremely during the adult age up to 81%. Only 12%  
1510 of this population reached the mature age, keeping the probability of death as its previous age  
1511 group. According to this data, only 2% of the population would exceed the age of 60 years old.  
1512 The following two interments are selected for the sample to be analyzed: A118 E1 UE 1,  
1513 corresponding to a child male individual and A119 E3 UE 2, corresponding to a female adult.  
1514



1515  
1516  
1517 Top: Aerial view of the site. Bottom: Example of a burial.  
1518

1519 Madrid, Estevillas Virgen de la Torre

1520 Coordinates: 40.38 -3.56

1521 Jorge Vega

1522

1523 The hispanic-visigothic necropolis of “Estevillas-Virgen de la Torre” was excavated between  
1524 the years 2010-2011. His area was about 9.067 m<sup>2</sup> and 824 archaeological structures were  
1525 excavated and well documented, of which 694 are tombs. Within them remains of up to 894  
1526 individuals have been excavated and studied. It is the biggest visigothic necropolis excavated  
1527 in Spain.

1528

1529 The whole site spans over a little hill and its surroundings, with a central area where there are  
1530 hardly any funerary pits due to the presence of the modern mining which most likely destroyed  
1531 the structures that were located in such a zone. More specifically, these are two zones that rather



1532 lack structures related to the necropolis. Nearby to the south, on the west bank of the ancient  
1533 greek called “Arroyo de los Migueles” we have excavated a settlement with 166 huts and about  
1534 2000 associated structures (kilns, pits, wine presses, cisterns...) between 2017 and 2023.

1535  
1536 Within the necropolis, the majority of the tombs are sorted in several streets very irregularly  
1537 organized. There is more density of tombs in some specific locations, thus most of these have  
1538 barely 1,5 metres of distance between them.

1539  
1540 It is highly unlikely to find archaeological remains on the surface, although in very few cases  
1541 small bones, high-fired indeterminate pottery or steel nails perhaps belonging to the coffins can  
1542 be found.

1543  
1544 The majority of the tombs (70%) are E-W orientated, being NE-SW the axis of the rest. There  
1545 are several types of tombs: simple pits, a pit with another previous pit and rock cists. Almost  
1546 half of the interments have a lid or cover made of big rock slabs. Usually, the inside contains a  
1547 single body, however some of them (33%) includes remains of several individuals, a clear sign  
1548 of later reuse of the tombs.

1549  
1550 We have been able to document offerings and objects of personal good graves of the 20% of  
1551 the tombs, composed mainly by belt buckles of different typology: with a scutiform base,  
1552 lyriform etc. fibulae with an arch of hinge, trilaminar, some hoop-type earrings, necklaces of  
1553 vitreous paste or amber beads, circular and rectangular section rings, some knives and many  
1554 iron nails. Also, a small set of jars with trilobed rims and with a handle and several small bottles  
1555 with one or two handles.

1556  
1557 All these remains and archaeological material are pointing out that the necropolis was inhabited  
1558 between the end of the 5th century A.D., with the arrival of the Visigoth as allies of the roman  
1559 government, and the early 8th century with the beginning of the Muslim conquest.

1560  
1561 The anthropological analysis shows a rather high child mortality (the 20% of this part of the  
1562 populations) between 4 and 12 years old and a barely percentage of individuals framed in the  
1563 mature age between 40 and 60 years old and old age from 60 years old on, being higher the  
1564 percentage of men within the same age group. The causes for the high mortality of adult young  
1565 women would be among the issues related to childbirth and the different diseases after it.

1566  
1567 The health state and the nutrition of these populations shows a high presence of injuries  
1568 associated with an excess of certain muscle groups and tendons, almost always related to the  
1569 action of certain physical activities, inherent to the development of work in the field, such as  
1570 carrying heavy loads. There is also a high presence of spinal cord injuries, a homogeneous  
1571 appearance in both men and women and is directly related to the mechanical overload of the  
1572 spine when performing certain physical activities.

1573

1574 Traumatic injuries show an average rate of representativeness of the whole population. These  
1575 are mainly fractures in long bones such as extremities and their distribution is greater within  
1576 the adult male population.

1577

1578 Nutritional markers studied indicate a high incidence of caries, an average incidence of tartar,  
1579 high dental wear, especially in molars, and an average rate of enamel hypoplasia that show  
1580 specific cases of physiological stress during the life of an individual, which may be due to a  
1581 period of starving during the childhood, or to some type of infectious disease.

1582

1583



1584

1585 General view of the site.



1586  
1587 Burial with two individuals  
1588  
1589

1590 Menorca, Monterrey-Estiviel

1591 Coordinates: 39.87 4.12

1592 Jorge Vega

1593

1594 The necropolis was identified during the building works for the new Wastewater Treatment  
1595 Plant (WWTP) in Toledo, which was excavated in 2012. The site is located about 800 metres  
1596 from the current course of the Tagus River on its right bank and 8 km downstream from the  
1597 city of Toledo, the capital of the Visigothic kingdom since the middle of the 6th century.

1598

1599 The complex comprises 154 tombs being all inhumation burials, of which 137 contain human  
1600 remains, 17 are looted (with remains of construction materials and even highly fragmented and  
1601 deteriorated remains of individuals).

1602

1603 Archaeological data points to the use of the site for a time span of c. four centuries (4st - 7th.  
1604 centuries CE). The oldest tombs date from the 4th century BC. C., 104 of them contain Late

1605 Roman materials, present a N-S orientation and they would have been in use during the 5th  
1606 century AD.

1607

1608 In the second half of the 6th century, coinciding with the establishment of Toledo as the capital  
1609 of the Visigothic kingdom, a small necropolis with 33 E-W oriented tombs was established  
1610 within this same space, sometimes even breaking previous tombs. We have identified the  
1611 presence of 44 individuals and it seems to be occupied for a large part of the 7th century. In  
1612 general, they are graves with a single individual buried in it, although with the presence of  
1613 reuses with up to four individuals in the same grave. It is a cemetery associated with a rural  
1614 establishment of an agricultural nature located nearby.

1615

1616 Anthropological data show that the individuals buried are men, women and children. We have  
1617 identified the remains of ten infantile individuals, highlighting a greater female presence (ten  
1618 individuals of which half correspond to young women). The reasons for this high mortality in  
1619 young women should be sought in the unequal incidence of diseases, work risks and, above all,  
1620 infections related to childbirth.

1621

1622 Six graves were selected for sampling, only EI 93 is a female young adult.

1623



1624

1625 View of the excavation with the opening of the burials.

1626





1627  
1628 Example of a burial.  
1629

1630 UK

1631 Gloucestershire, Randwick Long Barrow

1632 Coordinates: 51.76 -2.25

1633 Alan K. Outram

1634

1635 Randwick Long Barrow lies atop Randwick Hill (Witts 1883) to the NW of Randwick village  
1636 in Gloucestershire, England. The monument has not been investigated in detail in the modern  
1637 era, but is a Cotswold-Severn type Neolithic long barrow displaying apparent Roman re-use  
1638 (Hutton2011). The site was excavated in 1883 by Witts (1883), whose limited account describes  
1639 the finding of the remains of several human skeletons both outside the southern walls and within  
1640 the chambers, alongside some animal bones. The chamber also yielded both flint flakes and  
1641 Roman pottery (Witts 1883), evidencing both prehistoric and Roman era activity. Teeth from  
1642 two human mandibles were analysed in this study, from old collections originating from  
1643 Gloucester Museum, however, the precise location of these within the barrow, in relation to  
1644 these Victorian excavations, is not known. From a contextual standpoint the remains could have  
1645 been either Neolithic or Roman, but the radiocarbon dates undertaken for this study concord  
1646 with the latter.

1647

1648

1649 Source

1650

1651 Hutton, R., 2011. Romano-British reuse of prehistoric ritual sites. *Britannia* 42: 1-22.

1652 Witts, G.B., 1883. Randwick long barrow. *Proceedings of the Cotteswold Naturalists' Field Club*. 8: 156-60.

1654

1655

1656 UK, Orkney, Mine Howe

1657 Coordinates: 58.73 2.93

1658 Nick Card and Jane Downes

1659 Archaeological investigation at Mine Howe first took place in 1946, when a remarkable stone-  
1660 built underground 'staircase' was discovered during local exploration of the site's central  
1661 (natural) mound. In 1999, geophysical survey across the Mine Howe mound and its surrounds,  
1662 followed by four seasons of targeted excavation, revealed a striking ritual complex dating to  
1663 the mid to late Iron Age. The Mine Howe excavation established two key loci to the complex:

1664 1. a roughly circular enclosure surrounding the mound and its central subterranean staircase  
1665 structure, the creation of which substantially modified the appearance of the mound. The  
1666 enclosure featured a monumentalised revetted entrance on its western side, and excavation  
1667 revealed a complex history of infilling, recutting and remodelling of the enclosure ditch  
1668 throughout its history. Both the composition (artefacts, and extensive depositions of animal  
1669 bone indicative of feasting) and dating (indicating deposition/re-deposition of relict materials)  
1670 of the midden infills of the ditch point to ritual activity and a performative focus to the  
1671 enclosure's use and the ditch infill events. The enclosure ditch was constructed in the second  
1672 century BC at the earliest, but possibly as late as 50 cal BC, and final infill activity took place  
1673 within the third to fourth centuries AD.

1674 2. Approximately 8 metres west of the southern (north-facing) enclosure entrance terminal, a  
1675 roughly circular stone-built structure c.4.5-4.75m in diameter was identified, in addition to  
1676 several earlier, more ephemeral structures. Internal features and associated material identified  
1677 this structure as primarily a workshop for the production of both ferrous and non-ferrous  
1678 metalwork. Construction and early use of the workshop structure took place 60 cal BC – cal  
1679 AD5, followed by an established phase of intensive use 40 cal BC- cal AD 25 and 20 cal BC –  
1680 cal AD50, a phase of decommissioning and closure, cessation of of metalworking activity and  
1681 the associated burial of two individuals (CGG\_2\_018914 and CGG\_2\_018915, see below)  
1682 dated to cal AD20-100, a reactivation of workshop activity after a short hiatus (cal AD 55-130)  
1683 and a final accumulation of midden-enriched soils, accompanied by sporadic activity, from cal  
1684 AD 70-140.

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*Mine Howe: the ditch enclosure, and the circular workshop structure to the west of the enclosure entrance (left) and the workshop interior during excavation (right) showing the grave cut for CGG\_2\_018914 in the foreground.*

CGG\_2\_018914: A sub-oval, N-W aligned grave cut containing the extended, supine inhumation of a young woman was inserted against the north-west workshop wall, inside the structure, during the period when the formal use of the workshop came to an end (Burial C827, within grave cut context C897). It is possible that this may represent a specific decommissioning event related to this transition in use. The grave was capped with flagstones. The body was placed with head to the south, with arms beside the body and legs straight. Grave goods included two spiral toe rings and an unusual worked antler object on her chest. One ring had been placed on the middle toe of the left foot and another on the second toe of the right, perhaps simply ornamental, perhaps forming part of sandal-type footwear. Some of the bones – particularly the skull – were slightly crushed by the stone capping, but the inhumation was complete and fully-articulated. The grave had two backfilled deposits, the lower deposit of which contained potsherds, worked stones, whelk shells, crucible fragments, copper alloy sheet fragments, and large quantities of charred plant remains, including several hundred carbonised barley seeds, weed seeds, burnt peat and industrial waste. This atypical grave fill signature may represent smashing and deposition of pots by mourners during burial, with shells and grain representing food offerings. Crucibles and industrial waste may allude to the metal-working activities undertaken when the workshop was active. Osteological analysis established that the woman was 15/16-18/20 when she died and c. 5 foot 2 inches tall (possibly not fully grown). Schmorl's nodes noted on several vertebrae indicated significant physical activity including the carrying of heavy loads. Other pathologies included the presence of spina bifida, but only in its minor form which would not have affected her physically. There was also evidence that she suffered from anaemia, perhaps via poor diet or parasitic infection, genetic predisposition, or a combination of these. Severe iron deficiency may have been a contributing factor in her death at such a young age. Separate radiocarbon dates from two ribs (GU-15640 and GU-15641) returned consistent determinations which indicate that she died between cal AD15 and cal AD100.

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*CGG\_2\_018914 during excavation (Burial C827, within grave cut Context 897)*

1745 CGG\_2\_018915: A second grave (Context C1863) was located 4.6m to the north-west  
1746 of the workshop. A fairly shallow, irregular pit (1.45m x 0.54m by 0.27m deep)  
1747 contained the flexed skeleton of an aged adult male placed on his left side, aligned NE  
1748 – SW with head to the south-west, and with legs and feet together (Burial C1861). The  
1749 body was carefully arranged, but not fitted within the pit - the head on the slope of the  
1750 cut, the legs bent perpendicular to the body, and the toes of the left foot bent to fit  
1751 within the pit but still protruding. Almost too small for the individual within it, the pit  
1752 appears hastily dug, the grave filled seemingly midden-derived, and there were no  
1753 grave goods. Several large flagstones capped the grave, and had badly crushed the skull  
1754 – it is possible that they were rapidly flung rather than carefully placed. Initially placed  
1755 at 25 - 35 years, this individual was later re-aged to late 40s or perhaps even early 50s,  
1756 due to the presence of ossified thyroid cartilage, and degenerative joint disease. The  
1757 teeth were not significantly worn, suggesting that he may have enjoyed a relatively  
1758 non-abrasive, perhaps even high-status diet. He was c. 5 foot 5 inches tall and probably  
1759 right-handed. Like the young female buried in the workshop, a very physical lifestyle  
1760 was indicated with well-developed upper arm muscles and several joint/bone diseases  
1761 including spinal osteoarthritis, Schmorl's nodes and spondyloarthropy. He also likely



1762 suffered from Paget's disease, a thickening but weakening of the bone. Together this  
1763 suggests significant mechanical stress, a result of constant bending, lifting and carrying  
1764 heavy weights on his back.

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1774 CGG\_2\_018915 during excavation (left) and the grave with capping still in place  
1775 (right)

1776

1777 Several traumatic unhealed wounds suggested that this man met a violent end: puncture  
1778 wounds to the scapula, cut marks on the lower jaw, scapula, ribs and left metacarpal  
1779 were likely caused by two or more different weapons: a projectile and a slashing blade.  
1780 Chop marks also imply use of an axe. The penetrating wounds were inflicted to the  
1781 back while the chopping/slashing wounds were to both, around the neck,  
1782 predominantly to the left side of the body, but also more widely across vertebrae,  
1783 clavicle, sternum and mandible. It seems likely that he was fired at from behind and,  
1784 once down, stabbed and slashed repeatedly while on the ground - probably still moving,  
1785 as injuries were inflicted to both back and front. This violent death may simply indicate  
1786 a frenzied attack, but the subsequent careful burial, facing away from the workshop,  
1787 may also suggest a ritualised killing, and it may be significant that the individual was  
1788 possibly marked out both by social status and by pathological conditions that could  
1789 have been seen as 'marks' with supernatural significance. Two modelled radiocarbon  
1790 dates taken from the rib bones (GU-15638, GU-15639) were contemporary with those  
1791 of burial C897, suggesting that this man also died between *cal AD20* and *cal AD90*.

1792

1793 Isotopic analysis for both individuals comprised bone (carbon and nitrogen) and tooth  
1794 enamel (strontium, lead and oxygen). Results were remarkably similar in all five isotope  
1795 systems, suggesting similar geographic origins and childhood diets. C and N values suggest a  
1796 diet rich in animal protein from terrestrial and a moderate marine input, together with C3 plant  
1797 consumption. There was no evidence from lead, strontium or oxygen to indicate that either  
1798 individual originated from somewhere other than Orkney.

1799

1800 Relevant radiocarbon determinations:

Sample ref	Site context	Sample code (GU)	Calibrated age range (95% confidence)	Modelled age range (95% confidence)
CGG_2_0189 14	897	15640	60BC-AD120	AD15-90
		15641	40BC-AD130	AD20-100
CGG_2_0189 15	1861	15639	50BC-AD120	AD20-95
		15638	50BC-AD130	AD20-95

1801

1802

1803 Source

1804 Card, N & Downes, J 2003 'Mine Howe - the significance of space and place in the Iron Age'.  
1805 In Downes, J & Ritchie, A (eds) 2003, *Sea Change, Orkney and Northern Europe in the Later*  
1806 *Iron Age AD 300-800*, 11-19.

1807 Card, N., Downes, J., & McKenzie, J (eds) Forthcoming *Mine Howe: an Iron Age Ritual*  
1808 *Complex*.

1809 Patterson, N., Isakov, M., Booth, T. et al. Large-scale migration into Britain during the Middle  
1810 to Late Bronze Age. *Nature* 601, 588–594 (2022).  
1811 <https://doi.org/10.1038/s41586-021-04287-4>

## 1812 Ukraine

1813 Crimea, Suvlu-Khaye

1814 Coordinates: 44.74 33.88

1815 Alexei Voloshinov, Vyacheslav Masyakin

1816

1817 The Suvlu-Khaya necropolis is located in the southwestern part of the Crimean peninsula, in  
1818 the eastern part of Bakhchisarai. 46 burials dated by the end of 3 –first part of 5 centuries AD  
1819 were excavated by A.A.Voloshinov, V.V.Masyakin in 2009-2019.

1820

1821 The samples for genetic studies were taken from the burials attributed to different chronologic  
1822 periods.

1823

1824 The first group of burials dated by 3 century AD corresponds to the final stage of the Late  
1825 Scythian archaeological culture. Archaeological data reveals significant Sarmatian cultural  
1826 influence in Crimea in this period. The burials were made in the undercut graves. In most cases,  
1827 the buried lay with their heads to the east.

1828  
1829 Sample 3 belongs to a male of 35-45 years old. His skull was artificially deformed which is  
1830 very characteristic for the Sarmatian society. On the skull in the region of the right frontal  
1831 tubercle there is a rhomboid opening from an intravital penetrating injury with traces of healing  
1832 (Kazarnitski, 2016). The skeleton lay in a wooden coffin and accompanied by red-lacquered  
1833 vessels, a fragment of a Roman bronze spoon, an animal bone and an iron knife. Dating - the  
1834 first half of the 3rd century AD.

1835  
1836 Burials of the second cultural-chronological group were found in catacombs, which were used  
1837 for multiple burials. The catacombs are oriented from west to east and southwest to northeast.  
1838 In those cases when it was possible to fix the bones in situ, the buried were placed with their  
1839 heads toward the entrance of the chamber. Such a burial tradition is presumably associated with  
1840 the Alans. The burial inventory is represented by numerous stucco ceramics and pottery red-  
1841 lacquered vessels, amphoras, ornaments and costume details, and weapons. Burials in the  
1842 catacombs date back to the 4th - first half of the 5th centuries AD. This group includes burials  
1843 in catacombs 7 (burial 3, genetic sample 1) and 32 (genetic sample 2).

1844  
1845 It was suggested that together with obvious Alanian influence, the burial tradition of the second  
1846 period shares some characteristics of Chernyakhov, Przeworsk, and Wielbark cultures which  
1847 are related to the ancient German tribes (Voloshinov, Masyakin, 2016). According to historical  
1848 evidence, the so-called Dory State with a multicultural population was established by the  
1849 Eastern Goth tribes in Crimea in the 3-5 centuries AD.

1850

1851

1852 Source

1853

1854 Kazarnitski A.A. 2016. The anthropological description of the skeletons from the Late Antic  
1855 burial ground of the Suvlu-Khaya. *Kratkii soobscheniya Instituta Akheologii*. 243. Pp. 203-  
1856 218.

1857

1858 Voloshinov A.A., Masyakin V.V. 2016. The German elements from the Suvlu-Khaya  
1859 necropolis. In: *Bosporskie chtenia, Kimmeriyskiy i varvarskiy mir v period antichnosti I*  
1860 *srednevekovya. Issledovateli I issledovaniya*. Vo. XVII. Kertch. Pp. 119-126.

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1862