The Bell Beaker Phenomenon

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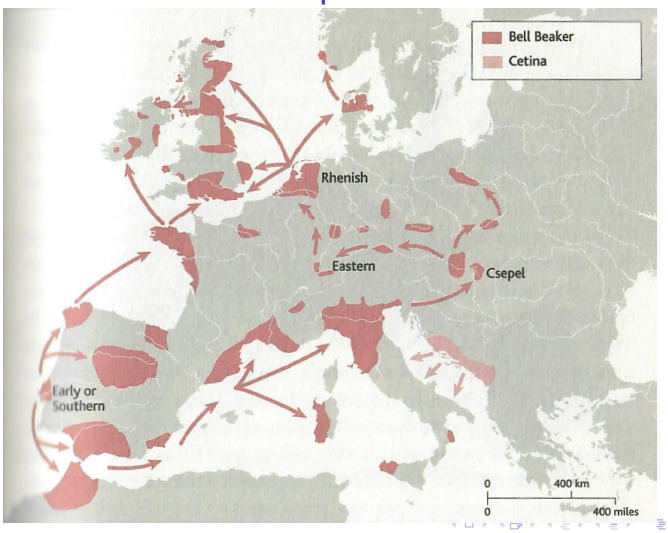
Time line

Funnelbeaker	4100–2800 BC	N Europe
Yamnaya	3300–2600 BC	steppe of Russia & Ukraine
Corded Ware	2900–2350 BC	eastern to western Europe
Bell Beaker	2800–1800 BC	central and western Europe

Bell beaker covered Europe



Bell beaker: the diagnostic artifact

An "all-over cord" style bell beaker from Scotland.

Maritime-style bell beakers from Spain

Replica Bell

Y-chromosome data

Outside of Iberia (Spain & Portugal), nearly all Bell Beaker males carried Y-chromosome haplogroup R1b-M269, which came from the steppe of Russia and Ukraine.

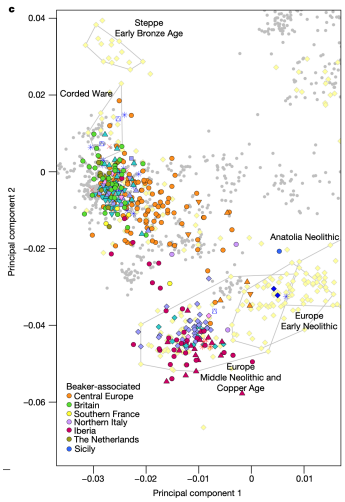
Within Iberia, there are a few copies of R1b-M269, but most men carried local Y chromosomes—inherited from the Neolithic of Iberia.

Iberian males with R1b-M269 had a lot of steppe ancestry in their nuclear genomes.

Earliest Bell Beaker sites are in Iberia.

(Olalde et al 2018)

Bell Beaker PC plot, based on nuclear DNA



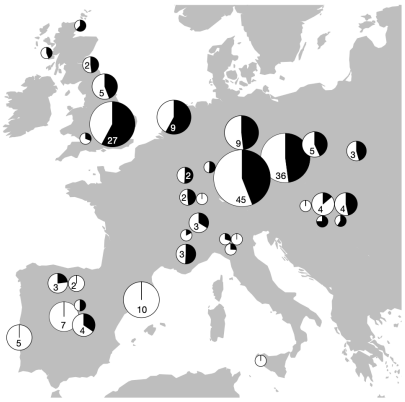
Colored dots at center left are Bell Beaker nuclear genomes.

Varying degrees of admixture between steppe ancestry and European Neolithic ancestry.

Lots of admixture.

(Olalde 2018)

Fraction of steppe ancestry w/i Bell Beaker genomes

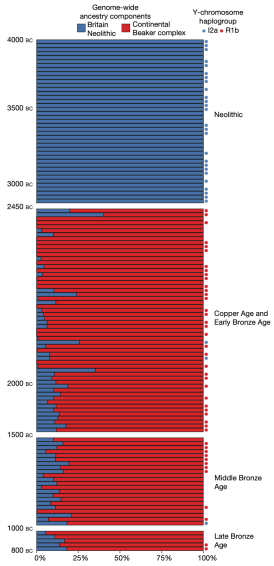


Substantial steppe ancestry everywhere except Iberia.

Within Iberia, France, and Britain, the non-steppe component is most similar to earlier Iberian genomes.

Suggests Bell Beaker spread N from Iberia without much mixing.

(Olalde 2018)



90% replacement in Britain

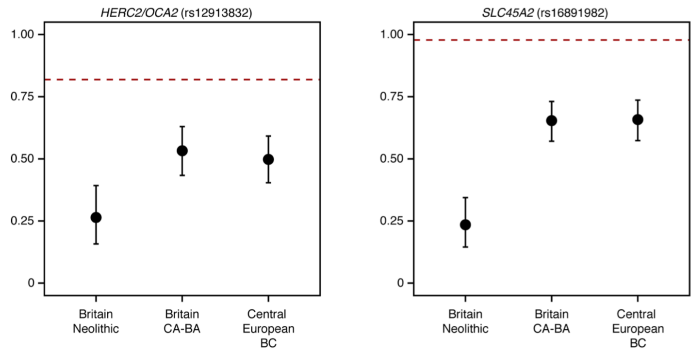
Top: Neolithic Britain had distinctive DNA, both nuclear and Y.

Copper age and early Bronze: Bell Beaker invasion replaces nDNA and yDNA.

Neolithic DNA seeps back in—but mainly in nDNA; not yDNA.

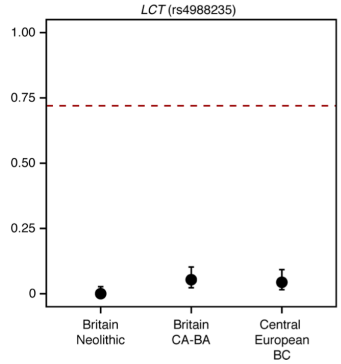
Middle-late Bronze age: no further change. 90% replacement.
(Olalde 2018)

Bell Beaker pigmentation genes



Bell Beaker invasion increased frequency of alleles for light skin and eyes, but not to levels (red) seen in modern Britain.

Lactase persistence



Lactase persistence allele is still very rare, even after arrival of Beaker folk.

Archaeologists once argued that the Bell Beaker phenomenon was a movement of "Beaker folk."

In the 1960s, archaeologists saw it as the movement of ideas rather than people.

Genetic evidence shows that ideas moved in some places; people in others.