



# Tracing the Spread of Germanic Languages using Ancient Genomics

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Today, Germanic languages, including German, English, Frisian, Dutch and the Nordic languages, are widely spoken in northwest Europe. However, key aspects of the arrival and diversification of this Indo-European linguistic phylum remain contentious (Polomé 1987, Mallory 1989, Schmidt 1991). By adding 712 new ancient human genomes, we find several southward migrations from northern Europe, coinciding with the split into the three main branches of the Germanic language group: East, West and North Germanic. In agreement with linguistic estimates dating the disintegration of Proto-Germanic no later than 2000 BP (Ringe 2017, Salmons 2017, Agee 2021), we observe that, around 1950 BP, individuals of the Wielbark Culture of present-day Poland are primarily modeled by Eastern Scandinavian Bronze Age and Swedish Iron Age ancestry. This aligns with archaeological theories on the Scandinavian influences in this culture (Stolarek et al. 2023) as well as with post-classical sources claiming a Scandinavian origin for the Goths and the Gothic language (Wolfram 1988). From 1650 BP, a southward push from Southern Scandinavia can be observed into historically Celtic-speaking areas. During the Migration Period (1575–1375 BP), we see this ancestry represented by West Germanic-speaking Anglo-Frisians in Britain and the Netherlands. In Frisia, this spread thus marks the end of the much-debated population hiatus between the Frisii of Roman sources and the appearance of Merovingian Frisians (IJsennagger 2013). Finally, we find a related large-scale northward migration from southern Jutland and northern Germany into eastern Denmark and southern Sweden. We hypothesize that this movement corresponds with the establishment of the historically attested Danes and the linguistic emergence of Old Norse.

Our findings demonstrate the power of combining archaeogenomics with historical linguistics to create unified, integrated models for the emergence, spread and diversification of linguistic groups.

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