Introducing the Homeland Timeline Map

Prehistoric migrations in “real-time”

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Overview

• aims of the map
• letting the data speak – aDNA
• Basic genomics and a quick recap on some steppe migrations (with R1-lineages)
• introducing The Homeland Timeline Map
• strengths and weaknesses
Aims of the map

Accounting for prehistoric languages is impossible from language alone:
- late appearance of writing gives too many “black spots” in our knowledge
- historical loanword research helps but often leaves several possible contact scenarios

Using ancient DNA and archaeology to track migrations of different populations and culture groups
- gives a better backdrop of prehistoric contacts with absolute dates
- sorts out the origins of the populations and cultures in contact

A tool for combining disciplines
- archaeology, genomics (DNA) and language
- overview of the present state of knowledge in ancient DNA
- visualising migrations makes it more relatable to people
- useful for both “prehistorian” and layperson
Letting the data speak

ancient DNA in basal ancestry colours

WHG

EHG

Anatolian farmer

CHG/Iran

Levant farmer

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Genomics

Y-DNA lineage (from father)

MtDNA lineage (from mother)

Jobling et al. 2010
Genomics

Modern populations sampled around the world:

In Western Eurasia (and South Asia), **Y-haplogroups R1a** and **R1b** dominate.
“Steppe”
The “Steppe”-lineages

Two Y-haplogroup markers in the steppes following migrations both east and west

- R1b1a1a2 (M269)
- R1a1a1 (M417)
- both start in the steppes (so far)

R1b-M269:
Yamnaya
(3300-2800 BCE):
- Samara (North)
- Kalmykia (South)

R1a-M417:
Sredny Stog culture
(pre-Yamnaya c. 4000 BCE)
Genomics and dispersals – West
Farmer and Hunter-Gatherer ancestry + Steppe ancestry 3000-2500 BCE

Mikkel Nørtoft 2018
Genomics and dispersals – West
Farmer and Hunter-Gatherer ancestry + Steppe ancestry 2500-2000 BCE

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(Olalde et al. 2018)
Dispersals from Europe – Corded Ware goes east!

Farmer and Hunter-Gatherer ancestry + (CW) Steppe ancestry 2800-2500 BCE

Migrations
- Indo-European
- Uralic (multiple migrations)
Dispersals from Europe – East

Anthony 2007 and Parpola 2012:

2800-2200 BCE
The road to Sintashta (Indo-Iranian)
With European farmer substrate from Corded Ware
Dispersals from Europe – East


**Hepatitis B**

**R1a-Z93+**

Anthony 2007
The road to India
From c. 1500 BCE (Indic):
R1a-Z93+ is frequent in North Indians (especially brahmin priestly class)
Narasimhan et al. 2018

Mitanni 1500 BCE

Irishan
R1a-Z93+

Indic (a.k.a. “Aryan”)

Anthony 2007
The Homeland Timeline Map

Features:
- everything interactive (zoomable and clickable)
- fluent time line: 8200-1 BCE
- 33 finds/indications of the earliest wheels
- 666 finds/indications of early wool
- 1768 ancient individuals sampled for aDNA (genome-wide) coloured by basal ancestry clusters (+ “Steppe”)
- c. 120 archaeological cultures (mostly coloured according to DNA finds)
- 263 individuals with highlighted R1-lineages (shown by SNP-number) (+ R1 haplogroup tree)
- river and lake names (from “Natural Earth”)
- 24 Indo-European language labels (shown as language branches)
- hundreds of links and references

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**Strengths:**
- more overview of complex data
- more accessible understanding of different disciplines to the public (and scholars)
- common ground for cross-disciplinary discussions on related topics (often neglected in the past)
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**Weaknesses:**
- simplification of complex data does not show “the whole truth” (e.g. the aDNA monocolours (but then read the individual pop-up comments and the cited publications))
- lack/abundance of data in different areas due to preservation or unstudied regions can skew the actual picture
  - e.g. lack of DNA in France, Italy, Scandinavia
  - abundance of wool in Denmark but few wool finds in the rest of Europe can be misunderstood as only Denmark producing wool (when it is probably opposite, cf. Frei et al. 2017)
- much important data (especially archaeological) missing (but the map is continuously updated)
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We have tried to describe the pitfalls in the description below the map

Overall, we think the strengths of laying a common ground to help cross-disciplinary work outweighs the weaknesses of this kind of data visualisation

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Thank you 😊

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Literature

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