of migration or simply the spread of ideas. Allentoft and his colleagues found evidence for migration, in the form of a massive shift in the genetic make-up of northern and central Europeans at the start of the Bronze Age. Before 3000 BC, their genomes resembled those of early farmers from the Middle East and even earlier European hunter-gatherers. By 2000 BC, their genomes looked more like those of people from the Yamnaya culture, which arose on the steppe around 2900 BC.

The findings echo those of a team that sequenced 69 ancient Europeans[3]. Both groups speculate that the Yamnaya migration was at least partly responsible for the spread of the Indo-European languages into Western Europe.

Allentoft's team found genetic traces of the Yamnaya in people who lived near the Altai Mountains in central Russia from 2900 BC to 2500 BC, potentially explaining why Indo-European languages are spoken so far into Asia. "It's pretty clear that these eastern cultures in the Bronze Age are linked to the Yamnaya," says Pontus Skoglund, a population geneticist at Harvard Medical School in Boston, Massachusetts. But he is not yet convinced that the culture's wanderings explain the origins of all Indo-European languages.

Ancient population genomics also offer insights on physical and physiological traits. Allentoft's team found that the ability to digest milk into adulthood — nearly universal in northern Europeans today — was rare in Bronze Age Europeans, contradicting earlier claims that the trait helped early European farmers to gain calories from milk. Of the 101 sequenced individuals, the Yamnaya were most likely to have the DNA variation responsible for lactose tolerance, hinting that the steppe migrants might have eventually introduced the trait to Europe.

Another team has analysed[4] DNA from 83 ancient Europeans and discovered that a mutation linked to thick hair and numerous sweat glands, once thought to have emerged in East Asians, was common in Scandinavians as early as 7,700 years ago — potentially revealing a connection between these groups. That analysis, posted on the preprint server bioRxiv in March, also found evidence of evolutionary pressure on height: Iberians seem to have become shorter after farming arrived in what is now Spain and Portugal 8,000 years ago, whereas the Yamnaya who migrated out of the steppe appear to have been taller than their neighbours.

In future, researchers are likely to probe genomes to see how past events shaped modern susceptibility to disease, says Larson. For instance, survivors of the fourteenth century Black Death, which killed around half of Europeans, may have carried gene variants that protect against certain infections.

"It's an interesting time, because the technology is moving faster than our ability to ask questions of it," says Larson, whose lab has also amassed around 4,000 samples from ancient dogs and wolves to chart the origins of domestic dogs. "Let's just sequence everything and ask questions later." ■ SEE NEWS & VIEWS P.164

1. Rasmussen, M. *et al*. *Nature* **463,** 757–762 (2010).
2. Allentoft, M. E. *et al*. *Nature* **522,** 167–172 (2015).
3. Haak, W. *et al*. *Nature* http://dx.doi.org/10.1038/nature14317 (2015).
4. Mathieson, I. *et al*. Preprint at bioRxiv http://dx.doi.org/10.1101/016477 (2015).

CLARIFICATIONS

It could have been clearer in the News story 'Ebola R&D woes spur action' (*Nature* **521,** 405–406; 2015) that the US Food and Drug Administration was not consulted about or involved in the design of the brincidofovir study; the agency advocated generally for randomized clinical trials on drugs against Ebola. In the News Feature 'CRISPR, the disruptor' (*Nature* **522,** 20–24; 2015), the June 2012 entry in the graphic entitled 'The rise of CRISPR' was ambiguous. The researchers had targeted the CRISPR system to specific DNA sequences, highlighting its potential for genome editing.