humanities. These geneticists promise answers: using analysis of DNA to discover what 'really' happened during the Bronze Age and the Viking sagas and replace 'biased' histories with cold, hard data.

Not all historians are embracing this new world. Many such studies, they complain, take a 'sequence first, historicize later' approach, in which researchers discover some shift in the genetic make-up in the inhabitants of a region, for example, and then postulate a historical event that might be responsible for the demographic change.

Some historians and linguists felt uneasy about papers published in this journal last year that found similarities between the genomes of people living on the Russian steppe 5,000 years ago and in Western Europe 4,500 years ago. The studies speculated that this correlation was the result of a massive migration to Europe of steppe people who also imported Indo-European languages, a family that includes nearly every dialect spoken on the continent (see *Nature* **522,** 140–141; 2015).

So, one might expect historians to be hostile to the latest sequencing effort. It aims to analyse DNA from 1,100 sets of ancient remains from across Italy, Austria, Hungary and the Czech Republic, to work out who filled the void left by the fall of the Roman Empire — or at least how the empire turned into the Lombard kingdom, which ruled parts of Italy between the sixth and eighth centuries AD.

Yet among the project leaders is a card-carrying medieval historian. Patrick Geary at the Institute for Advanced Study in Princeton, New Jersey, has shaped the questions that the project will tackle and how they will be asked. His colleagues must fight for the soul of their field before it is cannibalized, Geary argues. "If historians do not get involved and engage with this technology seriously, we're going to see more and more studies that are done by geneticists with very little input from historians, or from frankly second-rate historians," he says.

This week, he will lead a workshop that will gather 20 or so early-career historians and archaeologists at the Max Planck Institute for the Science of Human History in Jena, Germany, to learn about ancient DNA and other quantitative tools that are disrupting how scholars probe the past.

Among the issues niggling at historians is the concern that an individual's genetic make-up might be used interchangeably with his or her ethnic identity. Historians prefer to see ethnic groups, such as Anglo-Saxons or Franks, as fluid categories that involve identifying with one group while rejecting others. As such, the Lombard sequencing effort will not use DNA to define a genetic profile of the kingdom's founders, but to ask nuanced questions about migration, continuity between earlier and later inhabitants, and whether their ancestry relates to how and where they were buried.

"Historians will be left behind if they fail to incorporate genetics into their research."

Other efforts to get geneticists and historians speaking the same language are under way. A consortium led by ancient-DNA researcher Hannes Schroeder, at the University of Copenhagen, recently won a €1.2-million (US$1.3-million) grant for a collaborative research project called CITIGEN to make his field more accessible to historians and other humanities scholars. Like Geary, Schroeder worries that historians will be left behind if they fail to incorporate genetics into their research. "The train is running, and you jump on it or you miss it," says Schroeder, who is also involved with an effort using ancient DNA to study the transatlantic slave trade.

The young historians and archaeologists who will get their first taste of molecular genetics this week will hopefully come away with a new tool to bring to their research. But they should be prepared — not just to understand genetics enough to read a paper, but to challenge insights gleaned with ancient DNA and to shape how the technology is used to interpret the past. After all, there are barbarians at the gates. ■

Crunch time

Overtime pay for postdoctoral scientists is welcome — but could mean fewer positions.

Low pay and dwindling prospects of a permanent position have left many postdoctoral scientists feeling unloved. Yet last week, postdocs received appreciation from an unusual place: the US Department of Labor. In a long-overdue revision of the country's overtime regulations, the department explicitly included postdocs among those who are eligible for overtime pay if they earn less than US$47,476 per year. As we report on page 450, rather than pay overtime, many funders and universities are expected to raise the minimum wage for postdocs above that threshold.

The regulations are not perfect. They leave out those whose main responsibility is teaching, and the 1 December 2016 deadline to comply is tough for labs that operate on long-term budgets keyed to multi-year grant cycles. And the overtime threshold, which may become the de facto minimum pay for postdocs, still fails to meet the $50,000 per year minimum recommended in a 2014 report on the biomedical workforce by the US National Academies.

Many established scientists look back on their postdoc wistfully as a time of unparallelled focus on research. Yet the postdoc now too often gives way to the 'permadoc'. Postdocs may languish in that position for more than a decade, sometimes bouncing from one position to another. Their careers are in stasis even as their lives march on. Today's postdocs are older than ever. They raise families and care for elderly parents. Many can hardly be considered trainees: they are functioning as lab managers or staff scientists, but are paid at a lower rate.

The stagnation comes because the number of academic faculty positions has not kept pace with the swelling postdoc ranks — a reality that is now receiving more attention, thanks in part to the laudable efforts of a cadre of established scientists who have made it their mission to address the postdoc plight. Francis Collins, head of the US National Institutes of Health (NIH), joined their ranks last week, when he announced plans to raise the pay for some NIH-funded postdocs to match the new overtime threshold. Other funding agencies should do the same.

Such changes do not come without trade-offs. The NIH budget is finite and higher postdoc salaries, however funded, are likely to translate into fewer postdoc positions — a consequence that worries the US National Postdoctoral Association in Washington DC. It also concerns principal investigators already struggling under flat research budgets.

But the change is needed. Principal investigators should take a hard look at their own labs and hiring practices. Do they need so many postdocs? A bigger lab does not necessarily mean greater impact.

Even graduate students can help to ease the postdoc glut. Many do not think hard about their own careers until they are well into their studies. Postdoc positions are so abundant — because they are cheap — that they have become the default career choice even for graduate students who have begun to doubt that they want to continue in science.

Graduate students should be encouraged to prepare earlier for careers outside academia. For example, the University of Massachusetts Medical School in Worcester has gone beyond the standard 'alternative' career seminars and made career preparation a mandatory part of the curriculum, with required workshops held periodically throughout a graduate student's education. Students initially grumbled at being asked to spend more time away from the laboratory. By the end of the programme, 92% of them said they are glad that they did.

Such changes can go far to bring about reform — not just in the United States, but around the postdoc world. ■