Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

CONCOURS D'INGENIEUR DE LABORATOIRE DU MINISTERE DE L'ECONOMIE ET DES FINANCES

DU 25 JANVIER 2016

Concours Externe spécialité chimie analytique

Épreuve n° 2

Rédaction d'un résumé en langue anglaise à partir d'un ou plusieurs articles en anglais

Durée : **2** heures - coefficient **1**

Vous résumerez <u>au quart</u> de sa longueur le texte de 2 pages ci-joint qui comporte : 644 mots.

Vous indiquerez <u>impérativement</u> le nombre de mots en fin de votre résumé.

Le non-respect de cette consigne sera sanctionné, de même qu'une indication erronée du nombre de mots

Ice-age Europeans roamed in small bands of fewer than 30, on brink of extinction

New genomic data suggests that when Europeans emerged from the last ice age they were close to becoming extinct.

In some cases, small bands of potentially as few as 20 to 30 people could have been moving over very large areas, over the whole of Europe as a single territory, according to Professor Ron Pinhasi, principal investigator on the EU-funded ADNABIOARC project.

This demographic model is based on new evidence that suggests populations were much smaller than is generally thought to be a stable size for healthy reproduction, usually around 500 people. Such small groupings may have led to reduced fitness and even extinctions.

'As an archaeologist and anthropologist, I was quite shocked to see how limited, how small the population numbers were. You know, shockingly small,' said Prof. Pinhasi, based at University College Dublin, Ireland.

'I think that what happened, it's on a catastrophic level of demography for a long time in human evolution,' he said.

The impacts of this are significant for understanding the origins of many Europeans today, as it is forcing researchers to reconsider models of human expansion and colonisation of the continent, as well as our genetic ancestry.

By analysing the genomes of human remains, the researchers are able to gather demographic data and clues to potential population sizes.

Prof. Pinhasi's team has found that the genomes sequenced from hunter-gatherers from Hungary and Switzerland between 14,000 to 7,500 years ago are very close to specimens from Denmark or Sweden from the same period.

These findings suggest that genetic diversity between inhabitants of most of western and central Europe after the ice age was very limited, indicating a major demographic bottleneck triggered by human isolation and extinction during the ice age.

'We're starting to be able to reconstruct the actual dynamics of migrations and colonisation of the continent by modern humans and that's never been done before the genomic era,' explained Prof. Pinhasi.

He believes that early humans crossed the continent in small groups that were cut off while the ice was at its peak, then successively dispersed and regrouped over thousands of years, with dwindling northern populations invigorated by humans arriving from the south, where the climate was better.

However, he doesn't think there was necessarily regular contact between these groups. In fact, one impact of the research, he believes, is that we'll start to find more evidence of 'lineages' or ancestors that never made it into the modern gene pool because they died out.

‘You see a real reduction in population numbers and diversity, so you see the few lineages that probably split or separated before the ice age, and then stayed isolated during the ice age,’ he said. ‘Some time after the ice age, they kind of re-emerge, or disperse, and get together, as we see new contributions to European lineages from Asia and in particular the Near East.’

Lonely planet

According to Professor Graeme Barker, principal investigator on the EU-funded TRANS-NAP project at the University of Cambridge, UK, current research paints an increasingly complex picture of setbacks and failures, rather than a simple record of success.

He is looking further back into human history to early human dispersals out of Africa.

Prof. Barker argues humans would have spread out over tens of thousands of years just as other species would have done.

‘The way many people talk about out of Africa is as if humans set out with the Lonely Planet map in one hand. That makes no sense. Plants and animals would have expanded, humans would have expanded,’ he said.

‘Much of what it meant to be modern human (our own species Homo sapiens) probably developed as part of the process of expansion into new environments,’ he added.

What is clear is that new genomic and archaeological data are only starting to help piece together the complicated fragments of the puzzle when it comes to our distant past.

Horizon Magazine, 26 March 2015

http://horizon-magazine.eu/article/ice-age-europeans-roamed-small-bands-fewer-30-brink-extinction_en.html