

# New study finds earliest evidence yet of differential access to land

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Hereditary inequality began over 7,000 years ago in the early Neolithic era, with new evidence showing that farmers buried with tools had access to better land than those buried without.

The research, carried out by [archaeologists](#) from the Universities of Bristol, Cardiff and Oxford, is published in *PNAS* today.

By studying more than 300 [human skeletons](#) from sites across [central Europe](#), Professor Alex Bentley and an international team of colleagues funded by the Arts and Humanities Research Council uncovered evidence of differential land access among the first Neolithic farmers – the earliest such evidence yet found.

Strontium isotope analysis of the skeletons, which provides indications of place of origin, indicated that men buried with distinctive Neolithic stone adzes (tools used for smoothing or carving wood) had less variable isotope signatures than men buried without adzes. This suggests those buried with adzes had access to closer – and probably better – land than those buried without.

Professor Bentley, Professor of Archaeology and Anthropology at the University of Bristol, said: "The men buried with adzes appear to have lived on food grown in areas of loess, the fertile and productive soil favoured by early farmers. This indicates they had consistent access to preferred farming areas."

The strontium isotope analysis also revealed that early Neolithic women were more likely than men to have originated from areas outside those where their bodies were found. This is a strong indication of patrilocality, a male-centred kinship system where females move to reside in the location of the males when they marry.

This new evidence from the skeletons is consistent with other archaeological, genetic, anthropological and even linguistic evidence for patrilocality in Neolithic Europe. The results have implications for genetic modelling of how human populations expanded in the Neolithic, for which sex-biased mobility patterns and status differences are increasing seen as crucial.

Professor Bentley said: "Our results, along with archaeobotanical studies that indicate the earliest [farmers](#) of Neolithic Germany had a system of land tenure, suggest that the origins of differential access to land can be traced back to an early part of the Neolithic era, rather than only to later prehistory when inequality and intergenerational wealth transfers are more clearly evidenced in burials and material culture.

"It seems the Neolithic era introduced heritable property (land and livestock) into Europe and that wealth inequality got underway when this happened. After that, of course, there was no looking back: through the Bronze Age, Iron Age and Industrial era wealth inequality increased but the 'seeds' of [inequality](#) were sown way back in the [Neolithic](#)."

**More information:** 'Community differentiation and kinship among Europe's first farmers' by R. Alexander Bentley, Penny Bickle, Linda Fibiger, Geoff M. Nowell, Christopher W. Dale, Robert E.M. Hedges, Julie Hamilton, Joachim Wahl, Michael Francken, Gisela Grupe, Eva Lenneis, Maria Teschler-Nicola, Rose-Marie Arbogast, Daniela Hofmann and Alasdair Whittle in *PNAS*.

Provided by University of Bristol

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