

# First-degree incest: Ancient genomes uncover Irish passage tomb for dynastic elite

June 17 2020

---



Newgrange as seen on a misty morning. Credit: Ken Williams, [shadowsandstone.com](http://shadowsandstone.com)

Archeologists and geneticists, led by those from Trinity College Dublin, have shed new light on the earliest periods of Ireland's human history.

Among their incredible findings is the discovery that the genome of an adult male buried in the heart of the Newgrange passage tomb points to first-degree incest, implying he was among a ruling social elite akin to

the similarly inbred Inca god-kings and Egyptian pharaohs.

Older than the pyramids, Newgrange passage tomb in Ireland is world famous for its annual solar alignment where the winter solstice sunrise illuminates its sacred inner chamber in a golden blast of light. However, little is known about who was interred in the heart of this imposing 200,000 ton monument or of the Neolithic society which built it over 5,000 years ago.

The survey of ancient Irish genomes, published today in leading international journal, *Nature*, suggests a man who had been buried in this chamber belonged to a dynastic elite. The research, led by the research team from Trinity, was carried out in collaboration with colleagues from University College London, National University of Ireland Galway, University College Cork, University of Cambridge, Queen's University Belfast, and Institute of Technology Sligo.

"I'd never seen anything like it," said Dr. Lara Cassidy, Trinity, first author of the paper. "We all inherit two copies of the genome, one from our mother and one from our father; well, this individual's copies were extremely similar, a tell-tale sign of close inbreeding. In fact, our analyzes allowed us to confirm that his parents were first-degree relatives."



Newgrange chamber. Credit: Ken Williams, shadowsandstone.com

Matings of this type (e.g. brother-sister unions) are a near universal taboo for entwined cultural and biological reasons. The only confirmed social acceptances of first-degree incest are found among the elites—typically within a deified royal family. By breaking the rules, the elite separates itself from the [general population](#), intensifying hierarchy and legitimizing power. Public ritual and extravagant monumental architecture often co-occur with dynastic incest, to achieve the same ends.

"Here the auspicious location of the male skeletal remains is matched by the unprecedented nature of his ancient genome," said Professor of Population Genetics at Trinity, Dan Bradley. "The prestige of the burial makes this very likely a socially sanctioned union and speaks of a hierarchy so extreme that the only partners worthy of the elite were family members."

The team also unearthed a web of distant familial relations between this man and other individuals from sites of the passage tomb tradition across the country, including the mega-cemeteries of Carrowmore and Carrowkeel in Co. Sligo.

"It seems what we have here is a powerful extended kin-group, who had access to elite burial sites in many regions of the island for at least half a millennium," added Dr. Cassidy.

Remarkably, a local myth resonates with these results and the Newgrange solar phenomenon. First recorded in the 11th century AD, four millennia after construction, the story tells of a builder-king who restarted the daily solar cycle by sleeping with his sister. The Middle Irish place name for the neighboring Dowth passage tomb, Fertae Chuile, is based on this lore and can be translated as 'Hill of Sin'.



Starry trails above the passage tombs. Credit: Ken Williams, shadowsandstone.com

"Given the world-famous solstice alignments of Brú na Bóinne, the magical solar manipulations in this myth already had scholars questioning how long an oral tradition could survive," said Dr. Ros Ó Maoldúin, an archeologist on the study. "To now discover a potential prehistoric precedent for the incestuous aspect is extraordinary."

The genome survey stretched over two millennia and unearthed other unexpected results. Within the oldest known burial structure on the island, Poul nabrone portal tomb, the earliest yet diagnosed case of Down Syndrome was discovered in a male infant who was buried there five and a half thousand years ago. Isotope analyzes of this infant showed a dietary signature of breastfeeding. In combination, this provides an indication that visible difference was not a barrier to prestige burial in the deep past.



Additionally, the analyzes showed that the monument builders were early farmers who migrated to Ireland and replaced the hunter-gatherers who preceded them. However, this replacement was not absolute; a single western Irish individual was found to have an Irish hunter-gatherer in his recent family tree, pointing toward a swamping of the earlier population rather than an extermination.

Genomes from the rare remains of Irish [hunter-gatherers](#) themselves showed they were most closely related to the hunter-gatherer populations from Britain (e.g. Cheddar Man) and mainland Europe. However, unlike British samples, these earliest Irish had the genetic imprint of a prolonged island isolation. This fits with what we know about prehistoric sea levels after the Ice Age: Britain maintained a land bridge to the continent long after the retreat of the glaciers, while Ireland was separated by sea and its small early populations must have arrived in primitive boats.

**More information:** A dynastic elite in monumental Neolithic society, *Nature* (2020). [DOI: 10.1038/s41586-020-2378-6](https://doi.org/10.1038/s41586-020-2378-6) , [www.nature.com/articles/s41586-020-2378-6](https://www.nature.com/articles/s41586-020-2378-6)

Provided by Trinity College Dublin

Citation: First-degree incest: Ancient genomes uncover Irish passage tomb for dynastic elite (2020, June 17) retrieved 11 July 2024 from <https://phys.org/news/2020-06-first-degree-incest-ancient-genomes-uncover.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.