

IRELAND IN THE BRONZE AGE

[June 29, 2012](#) [Charles Mount](#) [Commercial Archaeology](#), [Day of Archaeology 2012](#), [Egypt](#), [Environmental Archaeology](#), [Excavation](#), [Osteology](#), [Prehistoryagriculture](#), [anaemia](#), [Anopheles](#), [Apicomplexa](#), [Archaeology](#), [Bord na Móna](#), [Bronze Age](#), [Culicidae](#), [Dublin](#), [Duma](#), [Egypt](#), [Europe](#), [Heritage Council](#), [Ireland](#), [Irish Concrete Federation](#), [malaria](#), [Medicine](#), [metal use](#), [Microbiology](#), [Mosquito](#), [mosquitoes](#), [National Roads Authority](#), [pathogens](#), [pathology](#), [Plasmodium](#), [pollen](#), [Proceedings of the Royal Irish Academy](#), [professional archaeologist](#), [Project Archaeologist](#), [Roughan Hill Co.](#), [Roughan Hill Co. Clare](#), [Royal Irish Academy](#), [Tara Co.](#), [the Heritage](#), [Togher](#), [Tropical diseases](#), [UCD Experimental Archaeology](#)



The Early Bronze Age pottery from the cemetery in the Mound of the Hostages at Tara, Co. Meath. From O'Sullivan 2005.

About me

I am a professional archaeologist who lives and works in Ireland. Part of my professional work involves overseeing the archaeological programme of Bord na Móna, where I act as Project Archaeologist. Bord na Móna is the commercial Semi-state body with responsibility for the development of the Irish national peat resource. Bord na Móna owns and manages more than 80,000 ha of land spread across Ireland. Most of this is peatland which has

preserved a wealth of organic archaeological and palaeoenvironmental material. I also act as Project Archaeologist for the Irish Concrete Federation where I am responsible for implementing the *Archaeological Code of Practice* which was agreed with government in 2002. But on this particular day I am spending my time working on my own archaeological research.

Research

I have been involved in research on the Irish Bronze Age for more than twenty years and carried out my [Masters](#) and [Doctoral research](#) on the period. Since then I published extensively on the [burials](#), [monuments](#) and [artefacts](#) of the period. For the last number of years I have been collecting, collating and digesting the many hundreds of reports of Bronze Age sites excavated in Ireland that have been generated during the last decade of development-led archaeology. For example more than 600 Bronze Age houses are now known from Ireland and for the first time a substantial village has been found. In this work I have been greatly aided by the willingness of my colleagues to discuss their excavations and even provide copies of unpublished reports. New discussion groups like [UCD Experimental Archaeology](#) and [Togher: Irish Raised Bog Archaeology](#) have also proved to be very positive spaces for discussing finds, sites and ideas. As well as this the [National Roads Authority](#), [The Heritage Council](#) and [Eachtra Archaeological Projects](#) have set a sterling example by publishing reports on line. For the last six months I have been working through my notes and turning them into a book with the working title: *Ireland in the Bronze Age*. My objective is to produce the first synthetic work that covers the entire period of metal use in Ireland from the introduction of copper to the transition to Iron at the end of the Late Bronze Age.

Bronze Age health

Today I am concentrating on the evidence of human health from Early Bronze Age cemeteries. The evidence from cemeteries where there is adequately preserved skeletal material, and these remains have been analysed for pathology, indicates that there was widespread iron-deficiency anaemia amongst the population, both children and adults. These deficiencies present as porotic hyperostosis, cribra orbitalia and dental hypoplasia. Instances have been found to date in a dozen cemeteries in Connacht, Leinster, Munster and Ulster. Usually these diseases are interpreted as indicating a population that was poorly adapted to its environment or was under nutritional stress.

Bronze Age agriculture

However, today the areas in which these cemeteries are found are amongst the most fertile regions of Ireland and the fields surrounding these cemeteries, if not built on, are used to fatten cattle and grow cereals. When I look at the archaeological and palynological evidence for agriculture it indicates that Early Bronze Age farming was generally small scale and carried out in the lowlands in clearings in the forest close to water that were restricted to the lighter and better drained lowland soils (Weir 1995). In the preceding Neolithic period people had tended to clear farmland in upland areas and so in the Early Bronze Age people were moving into a new area of the landscape. These clearings were laboriously made by hand to provide grazing land for cattle and pigs with some sheep and horses. There was some cereal cultivation of both wheat and barley but this appears to have been on a limited scale although preserved wheat and barley has been found at a number of sites. The resources of the forest were also used and hazel nuts, wild apples and berries were collected. The farmers also hunted and the remains of red deer, wild boar and hare have been found at settlements.

The pollen evidence indicates a gradual clearance of forest surrounding the settlements. For example at Roughan Hill, Co. Clare a system of irregularly-shaped fields enclosed by stone walls was laboriously cleared from the forest and contained dispersed houses within enclosures and family tombs covering an area of about 144 hectares (Jones 1998). An area this size might have produced 200-300 cattle annually as well as some cereals and there were all the resources of the surrounding woodlands. Settlements of the period were usually small scale consisting of just one or two houses for perhaps a single family group. The skeletal remains of the farmers tell the story of the hard work of cutting down trees, removing stones from fields and building stone walls. Many people suffered from injured backs with Schmorl's nodes, periostitis, degenerative joint disease and osteoarthritis. The archaeological evidence suggests that the Early Bronze Age people were quite well adapted to their environment and don't appear to have been outstripping the available resources. So I am not happy with widespread nutritional stress as an explanation for the anaemia.

Pathogens

An alternative explanation is that a low level of iron in the blood may be a defence against pathogens. During infection iron is sequestered in the liver, which prevents invading pathogens from getting adequate supplies of this vital element. If these people were being affected by a pathogen it would have to be one that could spread to small-scale low-density communities living close to rivers, lakes and bogs. Diseases like Typhus require a higher density of settlement to spread, however mosquito-borne pathogens are a possibility. For example recent investigations of Egyptian Royal mummies have identified the DNA of

Plasmodium falciparum, the malaria parasite, in association with porotic hyperostosis (Nerlich *et al.* 2008)

Although Ireland no longer has any mosquito-borne pathogens, it did in the past. Irish mosquitoes are known to have spread tertian malaria and the last major outbreak occurred in Cork in the 1840s, 50s and 60s. Mosquitoes also have the potential to spread yellow fever, dengue fever and encephalitic viruses. Today Ireland has 18 species of mosquitoes of which four are Anopheles, potential carriers of the *Plasmodium vivax* protozoan that causes malaria. Although mosquitoes have not been recorded in archaeological or palaeoenvironmental samples they occur throughout Europe and were first scientifically recorded in Ireland in 1823 (Ashe *et al.* 1991). During the Early Bronze Age the climate is thought to have been 1-2° warmer than today and provided a satisfactory environment for mosquitoes to breed.

So an alternative hypothesis to the suggestion that all the iron-deficiency anaemia seen in Early Bronze Age remains is caused by nutritional deficiency could be the presence of a pathogen or pathogens, that triggered the anaemic reaction as a defence mechanism. In this scenario the movement of people into lowland areas close to water and the opening up of the forest canopy altered the ecology and provided new habitats for mosquitoes to colonise. The increased populations of mosquitoes bred in close proximity to humans and spread pathogens that resulted in the anaemic reaction. Although there is currently no direct evidence for mosquito-borne pathogens in Bronze Age Ireland I think this is a useful hypothesis that is worth further consideration and testing.

References

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