ARCHAEOLOGY time in transition
IT'S ABOUT TIME 2

The fourth article in our monthly heritage series focuses on archaeology, the work of an archaeologist and how archaeological research informs us about our past

The mysteries of archaeology unearthed

WHAT image springs to mind when you hear and see the word archaeologist?

Is it Lara Croft searching for a mythical artefact among the ruins of an ancient civilisation? Or people in muddy, yellow jackets and hard hats brandishing trowels and paintbrushes?

Working in archaeology often involves trowels, hard hats and mud and, in reality, it is never as action-packed as *Tomb Raider* or *Indiana Jones*, but perhaps not surprisingly the Hollywood version of archaeology tends to be one of its enduring associations.

Archaeology is the study of past cultures and societies through the examination of the material remains they have left behind, namely the monuments in our landscape and the artefacts associated with them.

If you look at the buildings in your town, or the monuments in the countryside, you may focus on those monuments that are immediately visible, such as a castle or church, but have you thought about what may be buried beneath your feet or lying at the bottom of the sea?

Lara Croft: The Tomb Raider protagonist is not your typical archaeologist.

Some archaeological monuments survive below ground with no visible trace on the surface. These monuments are like the secrets of our past, only coming to light after being disturbed accidentally or revealed by archaeological excavation.

Our landscape has changed over thousands of years, with each generation gradually eroding some of the traces of those who lived before them. Some monuments survive because of their physical size or fabric, or because they have been protected by local tradition.

Nature also plays a role in ensuring the preservation of monuments. Take for example the Céide Fields, a Stone Age field system that was preserved by a bog that gradually developed as the landscape changed in north Mayo, or the ancient trackways and bog bodies that have survived in the midlands because the peatland environment preserves organic material, such as wood.

SECRETS OF OUR BOGS

Go to http://exa.mn/1iz to find out more fascinating facts about the bog bodies that have been discovered in various parts of Ireland.

Less dramatic changes in the landscape have also led to the preservation and protection of archaeological monuments. A dense covering of overgrowth or the gradual grassing-over of a monument can often help their preservation as they slowly become 'absorbed' into the landscape, often being mistaken for a natural feature. For example, the grass-covered 'hills' we pass daily may in fact protect a passage tomb or barrow burial.

ANCIENT LANDSCAPE

Visit www.ceidefields.com to find out more about this ancient landscape.

Whether clearly visible, preserved beneath the ground or in the sea, all monuments tell us something important about our past — how our ancestors lived (and died) and how this is reflected in our lives today.

Through examination of our monuments we can see the traditions, styles and influences that have been carried forward into our daily lives, from art to architecture, rituals to burial practices, from how we celebrate and commemorate, to the changes in how we defend ourselves and navigate by land and sea.

Archaeologists also gather information from sources such as historical documents, maps, aerial photographs and through fieldwork, though local knowledge is also an important source of information. Most landowners are very knowledgeable and proud of the monuments on their land. Field archaeologists often find that landowners have valuable information about known and 'new' monuments, as well as the folklore and history associated with them.

Through collating all of this information and making comparisons with other monuments here and abroad, archaeologists can piece together the story of our culture, how it has developed and changed, and why we are the people we are today.

A lot of our information has come from studying and surveying monuments.

Field survey, remote sensing and geophysical survey, as well as aerial photographs and cartographic research have helped to build a picture of our field monuments and the subsurface features associated with them.

The Archaeological Survey of Ireland (ASI), as part of the National Monuments Service (NMS), has led the way over the last 50 years in the discovery, recording and protection of monuments of Ireland. The purpose of the ASI is to compile an inventory of archaeological monuments in the State.

The information gathered is stored on a database and in a series of paper files in the NMS archive. The database and archive contain records of all known or possible monuments pre-dating AD 1700 and also includes a selection of monuments from the post-AD 1700 period. There are almost 150,000 records in the database and approximately 138,000 of these relate to archaeological monuments.

Most of these monuments have been entered into the Record of Monuments and Places (RMP) and are now protected under the National Monuments Act (for more information about the ASI and the RMP visit www.archaeology.ie).

Surveys and excavations are also carried out by archaeologists in the Underwater Archaeology Unit (UAU) of the NMS.

This has resulted in the establishment of The Shipwreck Inventory of Ireland (SII), providing a better picture of our marine, riverine and military heritage, from prehistoric dug-out canoes to early medieval wooden bridges and 16th-century Spanish Armada wrecks.

In addition to survey, archaeological excavation is one of the most common methods of finding out about our past. Excavation allows archaeologists to gather information about all kinds of monuments, whether they are upstanding, buried or submerged. It can tell us a lot about the form, fabric, function and date of monuments, how they evolved over time and the major events in their lifecycle.

For example the evidence of attack on a medieval castle or shipwreck, or the abandonment of a settlement after a fire, can often be detected.

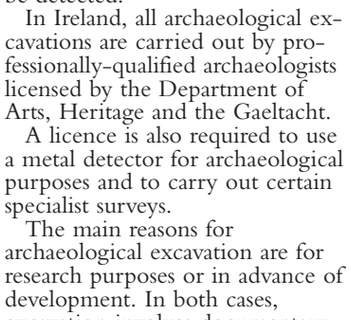
In Ireland, all archaeological excavations are carried out by professionally-qualified archaeologists licensed by the Department of Arts, Heritage and the Gaeltacht.

A licence is also required to use a metal detector for archaeological purposes and to carry out certain specialist surveys.

The main reasons for archaeological excavation are for research purposes or in advance of development. In both cases, excavation involves documentary and map research, possible geophysical survey, as well as detailed recording, planning and excavation techniques.

Archaeological excavation is based on the geological principal of stratigraphy, where each layer of soil is treated as an individual event in time — the bottom layer being the oldest 'event' and each successive layer above this becoming younger or earlier 'events' as you approach ground levels. So, the most recent layer could be the sod in a field or the tarmac in a carpark. The archaeologist records, plans and excavates each layer, starting with the most recent (top) layer.

Within each of these layers there may be differences in soil colour and texture that an experienced archaeologist will recognise as features associated with that soil layer. When excavated, these features may represent the remains of posts that once formed part of a timber structure, or the foundation trench that supported a wattle-and-daub wall. Some larger features may be defensive ditches outside medieval towns, or hearths or rubbish pits.



■ **Go to Theme 3 Unit 3 to become a Ceramic Detective. And find out more about what's involved in pottery analysis.**

The recording of these features gradually builds the picture of the monument, what it was used for, whether people lived, worked or celebrated there, when it was in use and for how long. This information is often corroborated and enhanced by post-excavation analysis of the materials recorded.

LIGHT DETECTION

LiDAR – Light Detection And Ranging is a remote sensing technology that uses a laser to collect height and elevational data. The laser emits a light pulse and the time taken for the pulse to return back to a sensor is recorded, giving a distance between objects.

For more information in the processes involved go to www.itsabouttime.ie Theme 3, Units 2-4.

Most archaeologists directing an excavation will have specialists on hand to advise on artefact retrieval, identification and conservation, as well as environmental sampling and human/animal bone analysis. Today, many archaeologists specialise in these areas of post-excavation analysis and can tell us much more about the monuments and the people associated with them.

Information about past populations and cultures can be obtained from human remains. These are often found in association with early Christian or medieval burial grounds, or as isolated prehistoric burials.

Specialists called osteoarchaeologists are required on-site to advise on human remains, so that details about the lifestyle of that particular population, their diet and how healthy they were can be postulated. Osteoarchaeologists can often detect accidental or violent injuries — which can also tell us about lifestyle — as well as the illnesses that people may have suffered from.

Zooarchaeologists specialise in identifying animal bone and, along with environmental archaeologists, provide us with important information about past environments and how they changed over time. Together, this range of specialists can give accurate information on societies, the animals being bred and eaten, the crops and plants being grown and harvested, the wild nuts and berries being gathered and stored, even the type of wood being used for construction — all at a particular site or period in time.

Post-excavation analysis also includes pottery and flint specialists, as well as conservators — and very often it is all this expertise, along with carbon dates from soil and charcoal samples, that help archaeologists to date a site or monument to a certain time in our past and interpret its story through time (see www.discoveryprogramme.ie or www.excavations.ie).

While most people think of archaeologists as excavators and fieldworkers, many archaeologists work in universities and colleges, where they not only foster an understanding and appreciation of our heritage, but also carry out research that adds to our knowledge of the past. Archaeologists also work in government departments and local authorities, providing advice on planning and development, legislation, policy and codes of practice.

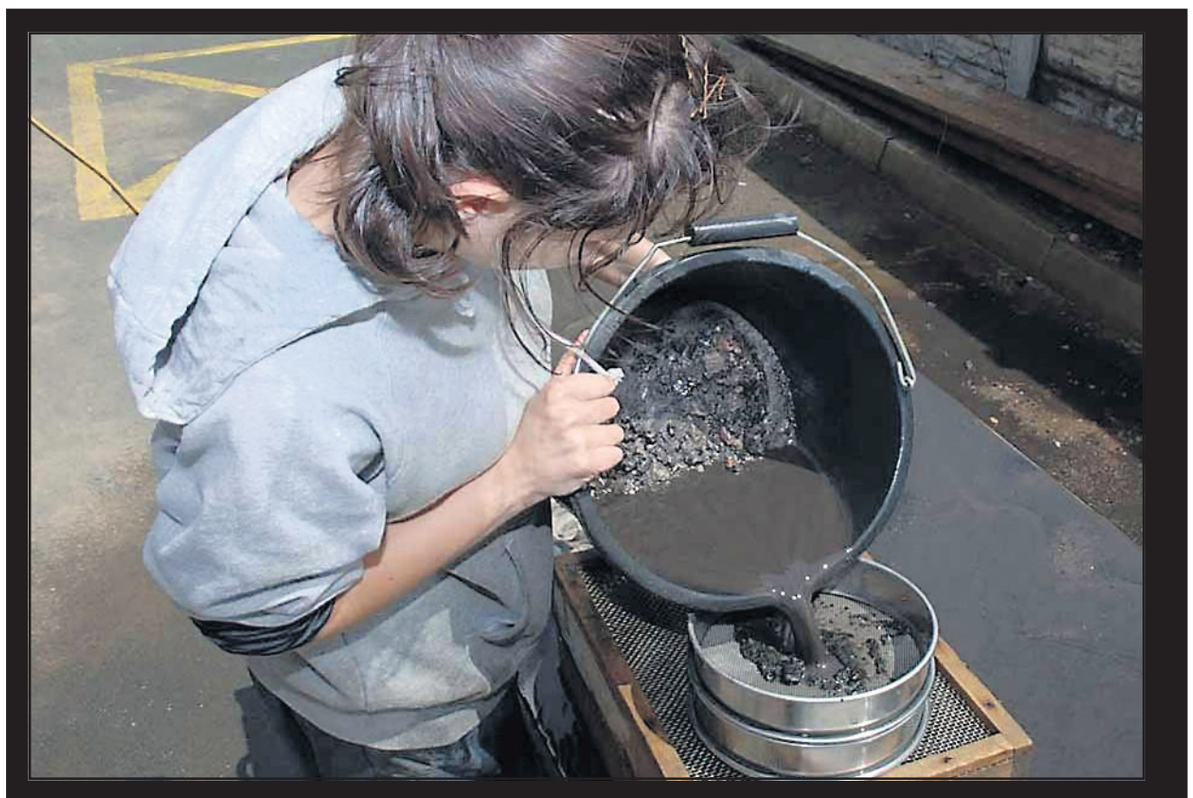
Geophysics is the non-invasive investigation of subsurface conditions in the earth through measuring, analysing and interpreting physical fields at the surface. Some of the methods commonly employed include: electromagnetics, ground-penetrating radar and resistivity.

With the recent advances in science and technology, archaeologists have access to scientific techniques like LiDAR and geophysics. Archaeology is so much more than scraping the ground with a trowel or washing bones in a basin. It is integral to the protection of our heritage for future generations.

Archaeologists are not just 'interested' in the past, they help to provide us with important information about our history and ancient heritage.

They often shed new light on known historical events, enabling a flow of information and knowledge between our educational institutions and legislative and protection agencies.

The information gathered by archaeologists about our monuments and artefacts, past populations and environments ensures our archaeological and historical heritage is better understood, appreciated and protected.



Clockwise from main: Soil sieving to find charcoal and small bones and seeds; inside a zoo-archaeological lab; excavations at Taney, Dundrum, Co Dublin; identifying seeds in the lab. Through examination of our monuments we can see the traditions, styles and influences that have been carried forward into our daily lives.

Pictures: Limerick Education Centre, Chris Corlett/NMS

■ **This article is the fourth in a series of articles published by the National Monuments Service of the Department of Arts, Heritage and the Gaeltacht in conjunction with The Irish Examiner and Limerick Education Centre aiming to supplement the recently revised second edition of 'Archaeology in Classroom, Time in Transition'. The resource offers a comprehensive range of engaging lessons across a series of three themes: Worship and Commemoration; Lifestyle and Living; Archaeology at Work.** All the lessons are targeted (but not exclusively) at students who are undertaking the Transition Year Option. In this article the focus is on the concept of commemoration; the archaeological and historical evidence of its development and its relevance today. For a more complete picture this article should be read in conjunction with Theme I, Unit 4, Lessons 1 and 2 of Time in Transition available on www.itsabouttime.ie.