



12 Pages

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7	Number of Answer Books handed in	

[illegible]

(Gweler yr ochr arall am y fersiwn Cymraeg)

SURNAME: Davis

FORENAME(S): Ewan Charles

(See the other side for English version)

[illegible]

8. Rhaid dychwelyd pob llyfr. Ni chaniateir mynd â llyfrau atebion, wedi eu defnyddio neu heb eu defnyddio, allan o'r lleoliad arholi o dan unrhyw amgylchiadau.

ar gaei oddi wrth y gwyliwr/gwyliwyr.

7. Os defnyddir mwy nag un llyfr, rhwymwch hwy gyda'i gilydd gan ddefnyddio'r tagiau sydd

6. Ni ddylid rhwgo unrhyw ran o'r llyfr hwn; rhaid ei gyflwyno yn gyfan.

5. Dechreuwch bob ateb ar dudalen newydd. Gwneuwch unrhyw fras nodiadau yn y llyfr atebion a thynnu i'nnell drwyddynt.

4. Ysgriennwch eich atebion mewn inc.

3. Rhaid i'r atebion fod mewn llawysgrifen ddarlledadwy. Gall yr Arholwyr naill ai anwybyddu sgript annarllenadwy, neu drefnu iddi gael ei thelpio a chael yr ymgaisydd i dalu.

guddio'ch enw.

2. Rhwch eich enw yn lle a ddarparwyd ar y dde, plygwch et a'i sellio i lawr (gan ddefnyddio'r label a ddarparwyd) !

1. Rhwch yr holl wybodaeth y gofynnir amdani yn y blychau isod.

Cyfarwyddiadau i Ymgeiswyr

12 Tüdalen

Llyfr Atebion Arholiadau



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Llenwch, plygwrch a seilwch (gweler nodyn 2 isod)

CYFENW:

ENW(AU) CYNTAF:

1. IN Nautical archaeology, various technologies are used for the purpose of prospecting and surveying. This technology has developed over time allowing for a much greater degree of information to be achieved from studying shipwrecks. Obviously one of the most important developments is the strides made in personal diving equipment. The invention of SCUBA in the 1920s allowed divers to work with a lot more freedom under water. One searches are one of the primary ways we gather data from a wreck and when we know the vague area of a wreck, we can use divers to prospect the area. One of the first ways divers were used for prospecting was with towed searches. Here a diver is attached to a boat or dolly and is pulled through the water. The diver usually has something to record findings with such as a tablet and some way of contacting the surface, either through tugging on the line or through voice chat. Towed searches allow divers to find immediate points of interest, and can survey a large area, however they are also heavily reliant on the level of visibility in order to be useful. Another way another form of dive survey is a swim line survey. Swimline surveys are comparable to field walking surveys as they both

involve a group moving together across as a line, noting anything of interest that they see. Swimline surveys are usually done with a group of 4 or more divers, allowing coverage of a wide area. When less divers are available, a Jackstay survey can cover the same area. A Jackstay survey takes two divers and involves moving along corridors of ground lines within a square. Both divers follow the ground line, trying to see any features of interest that stick out to them. Jackstay surveys obviously take much more time than swimline surveys as the fewer divers can't achieve as much as quickly. However, a Jackstay survey may notice things that a swimline survey cannot as the slower more methodical pace allows for greater coverage. These kind of surveys are used to try and find points of interest, and are useful in the beginning of a project. A different type of dive survey is needed to survey known points of interest. When divers have a particular point of interest they wish to survey, they can use a circular survey. In a circular survey a diver is tethered to a weighted point and surveys in a circular radius around that point. This type of survey is useful after a geophysics survey has been performed as divers can perform circular surveys at

any places of interest identified by the geophysics survey. Dive surveys are extremely good at providing immediate answers and recovering smaller artefacts. They are most useful when the location of a wreck is already known and for surveying the area around wrecks for smaller points of interest. A disadvantage of dive surveys is that they are extremely expensive and put divers at risk. Any time a diver goes into the water it both costs money to keep them well equipped and to make sure that they are safe. In the latter half of the 20th century major advances were made in our understanding of physics and geology. Many different technologies were developed to measure physical qualities and were put to use by archaeologists to help us understand what is happening under the surface. In nautical archaeology we can use geophysical surveys to find wrecks among the complex sea floor. One form of nautical geophysics is Acoustic Survey. Acoustic surveys use sound to map the sea floor with sonar. Sonar measures how long it takes for pulses of sound to return to a sensor in order to measure distance. Sonar can give us an idea of depth, which can tell us if there is anything on the surface. Unfortunately sonar is not particularly well suited to nautical archaeology. This is because most ship wrecks are simply much

Too small for sonar to see. Sonar is designed to see large topological features rather than small anomalies like shipwrecks. A better way to see shipwrecks is by using bathymetry. Bathymetry measures depth at different points to map the topography of the sea floor. ~~Bathymetry has been used for an incredibly long time, with the oldest bathymetric charts dating back to the Victorian period.~~ Modern bathymetry, including multi-beam sonar bathymetry, can give highly detailed maps of the sea floor including anomalies like shipwrecks. Before it was excavated the map rose was extensively scanned with bathymetric surveying. However like sonar, bathymetry only shows surface topography. In areas of high sediment deposition, shipwrecks can become buried underneath sediment incredibly quickly. For finding shipwrecks there is a new form of geophysics called sub-bottom profiling. Sub-bottom profiling can see below the sediment to see the density of layers deposited over years. There are two forms of sub-bottom profiling, which ~~can~~ give different resolutions. The first is called boomer profiling and it sends out a low frequency pulse at a wide area to establish density. The second and newer form is called CHIRPs or concentrated high intensity repeated pulses. This form uses multiple ~~pulses~~ bursts of high intensity pulses to

Give multiple readings at a much higher definition. One of the first ships that CHIRPs was used on was the Grace Dieu, Henry VIII's flagship. Sub-bottom profiling can give us good notes about the size, position, and location of wrecks buried in sediment. However the technology is currently extremely expensive. These technologies that allow us to ~~find a ship before it is excavated or recovered.~~ However ~~Geophysics~~ another method of geophysical survey is magnetometry. Magnetometry measures changes in magnetic fields and is extremely good at finding metal and ceramic objects. Magnetometry is used in marine technology to survey large areas, usually by dragging a magnetometer behind a boat or under water if magnetometry is one of the best survey methods for finding sites that you're unsure of their location. The advantages of using a geophysical survey is that you can cover data across a wide area, and survey areas that divers can't usually reach. The disadvantage is the cost, as all of this technology is extremely expensive.

2

The evidence for the use of boats and ships in late-Prehistoric Europe is not just limited to ships themselves. Both through the discovery of surviving ships and wider material culture, we can see a rich sea-faring culture of the ~~late~~ bronze age. Ship based iconography can be found everywhere in northern Europe especially Scandinavia. From Monuments like the ship shaped stone Benlith, to smaller instances of rock art. In the upland regions of southern Sweden there are many examples of maritime based rock art. Ships and sailors are depicted within in recurring motifs. The coastal upland region was heavily populated in the late bronze age and it seems that coastal sailing / boat usage was common. This can also be seen in metal work from the same area. Razors in particular seem to carry a particular connection to sailors as they are almost always decorated with iconography of ships. In a survey of 150 bronze age razors from southern Sweden 90% were found to have some form of boat-themed iconography. Another example of boat iconography can be seen on the Rorby sword, a bronze sword with the image of a stylized long boat running along the lower edge. But other than the surrounding material culture we can see the bronze age ship usage in

The archaeological remains of the ships themselves. In Britain we can see a change in the style of ships being used. We can see from sites like Mill Farm Port in the middle bronze age that the most common type of boats were log boats, carved from a single piece of wood. This type of craft was well suited to short journeys especially in late and mid bronze but couldn't make longer journeys that stronger types of boat became necessary. This began a new era of sewn plank boats. These boats are defined by being made from separate planks, joined together with timber or rope and often propped with caulking of fibre, pitch and moss. These ships were longer, skinner, and stronger than the log boats that preceded them. They made it possible for large groups to travel together in the same ~~large~~ boat or for cargo to be carried, opening the doors to immigration and trade. Some of the first examples of these ships discovered in Britain are the ~~late bronze~~ ~~ships~~ ~~from~~ Llanes ~~late bronze~~ boats. Discovered in the Llanes estuary near Hull, this assemblage of various bronze age boats and plank fragments were some of the first sewn plank style boats to be described. excavated in various parts between 1960-1980 - The boats have all been found to be made of oak planking with

caulking made from a mixture of Moss and pitch. Another example of the sewn plank style of boat was discovered in Brigg in 1978. The Brigg "Raft" as it can be known was the center of a certain amount of controversy when it was discovered due to disagreements about its shape. The boat was found flat with 5 oak planks all with cleats. A cleat is a form of joinery where a lump is left on the plank and a hole placed into it in order to join two pieces together with another piece of timber. The disagreement was whether these cleated planks sat level together as a raft with all 5 planks sitting horizontal or did the central plank serve as a keel plank and the others rose and but around it to form a canoe shape with the cleats on the inside. It was unclear which was true as both were possible with other forms of ships observed around the world. Radio Carbon Dating places the Brigg "raft" at around 890-670 BCE. Another boat from the Bronze Age discovered in Britain is the Dover boat. The Dover boat was discovered near Dover in the tidal flats of the English channel. The boat was seen to have been constructed from oak in a sewn plank style and

was caulked with fiber. The Dover boat had a long central keel plank that was cleated to allow oars to connect on. The keel plank was much longer than other sewn plank ships of the time, and seemed to be able to take a lot of people on board. The Dover boat was reconstructed at half scale in 2010. This reconstruction could fit around 20 people and was found to be sea worthy. The Dover boat and other sewn plank boats were most likely rowed rather than sailed but we have no proof of either. Other sewn plank boats have been found but in worse condition. ~~One~~ in Caldicot, Gwent, with holes. A plank was found in a cave that was dated to 1017 BCE and ~~was found~~ had a cleat visible. Another fragment of cleated plank was found at Gold Cliff. This piece is believed to be a side stroke and ~~was~~ had a cleat on one end. The Gold Cliff plank was dated at 890-690 BCE. In conclusion a vast array of evidence exists for the Bronze Age having a richly developed sea-faring culture, both in the archaeology of ships that survive, showing us a period of technological advancements and techniques, as well as the wider culture, who took great pride in sea-faring and made it a part of their identity within their material culture.