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Maritime Archaeology and Wales: some cross-disciplinary currents

Delivered at the 165th Annual Summer Meeting at Llandrindod Wells

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I would like to express my thanks to the Cambrians for inviting me to take up the mantle of President for 2018–19, and to my predecessor, Professor Emeritus Prys Morgan, for his contribution to the work of the Association last year. It is an honour to follow in the footsteps of many such scholars, historians, archaeologists and antiquaries. The choice of topic for this address has been influenced in no small degree by the fact that 2018 was designated 'Year of the Sea' by Visit Wales, following hard on the 'Year of Legend', while 2019 has been heralded as 'Year of Discovery', and both sea and discovery are themes celebrated in a new book, *Wales and Sea* (2019). The last three decades have witnessed a variety of significant achievements in the field of maritime archaeology in Welsh waters, and it is opportune in this address to cast a net widely, highlight some catches, mention some advances in knowledge and protection, and think of the future. Should you wish to explore further and dive deeper, some of the topics I mention can be followed up in the new collaborative book *Wales and the Sea*.[1]

Some universal attitudes to the sea are touched on in the powerful poem *The Sea is History*[2] by the late Derek Walcott (1930–2017), awarded the Nobel Prize for Literature in 1992, in which his perspective is one from the sensuous Caribbean, tackling the experience of living there and the legacy of colonialism:

> Where are your monuments, your battles, martyrs?
> Where is your tribal memory? Sirs
> In that gray vault. The sea. The sea
> Has locked them up. The sea is History.

Seas connect, they unite peoples, they transcend borders, they mould lives. The people of Wales have always been seafaring and sea-dependent, their histories inextricably if at times invisibly connected with water. Welsh seas cover approximately 15,000 square kilometres and make up about 43 per cent of the area of Wales, with over 60 per cent of the population living and working at the coast. Its 1200 kilometre 'long indented' coastline holds a wealth of castles, seaside resorts and ports, in their times serving exploration, defence, trade, industry and leisure activities.

Welsh court poets and wordsmiths have provided a wide range of emotional and symbolic responses to ships and the sea, reflecting the hopes, fears and aspirations of their audiences. Gruffudd ap Maredudd (fl. 1346–82) wrote a moving poem to God, begging him to avert the Black Death from Gwynedd, which he describes (after the plague has taken its toll) as being like an empty merchant ship: 'Do not', Gruffudd writes, 'make it worse than a merchant ship whose goods have been sold, or a deserted landholding'. *Y Llong* ('The Ship'), by Iolo Goch (*c*. 1325 – *c*. 1398), reflects in vivid terms the discomfort experienced

Fig. 1. Tourism and Discovery: this anonymous watercolour sketch dates from sometime between 4 December 1837 and 16 January 1838, when the paddle steamer *Amazon* (in the background) was moored at Holyhead. *Amazon* was the first steam vessel to be employed for survey work by the Admiralty Hydrographic Department (from the west coast of Africa, then around Lisbon and Porto). She finally worked in St George's Channel, the Irish Sea and around Holyhead. *Reproduced courtesy of Tom Lloyd*.

by many on board such merchant vessels. Many of the fifteenth-century poets praising Welsh gentry mention wine from Bayonne, Normandy, Bordeaux, La Rochelle, Speyer-am-Rhein and Spain. In his elegy to Maredudd ap Cynwrig (d. 1428), Rhys Goch Eryri, (fl. 1385–1448) described a ship laden with Spanish wine on its way to replenish Maredudd's Anglesey cellar — a comment on Maredudd's good taste and high social standing.

The fifteenth-century poem by Deio ab Ieuan Du (fl. 1460–80) to Maredudd ap Llywelyn congratulated him on escaping from a ship carrying wine from France that sank where the river Dyfi met the sea (eight of the ten people on board were drowned). His poem *Cywydd y Llong* refers to Siancyn ap Maredudd's capture by pirates and includes one of the earliest references to Madog ab Owain Gwynedd, the legendary twelfth-century seafarer credited with sailing to America in 1170. Composed about the time of John Cabot's expeditions from Bristol to Newfoundland (1490s), the poem belongs to the medieval tradition of a heroic sea voyage and was later cited in Humphrey Llwyd's *Cronica Walliae* of 1559, written to support the Elizabethan propaganda campaign to counter Spain's claims to the New World. By this time, long voyages in large ships were becoming commonplace: Rhys Nanmor (fl. 1480–1513) describes a three-decker boarded at Milford bound for Rome, while Lewis Glyn Cothi (fl. 1447–86) is one of several poets to describe a voyage to the popular pilgrimage shrine of Saint James at Santiago de Compostela.

Fig. 2. John Cabot sought 'new founde landes', and in the following years Bristol's merchants undertook voyages to Newfoundland and its rich whale fisheries. Early illustrations such as those in Conrad Gesner's *historiae animalium liber IIII,* published by Christoph Froschauer in 1558, depict the incomprehensible, including the 'Trol' or 'Devil Whale' and amalgamations of creatures. Barrels are jettisoned to distract the monsters. Image copied from Olaus Magnus' *Historia de Gentibus Septentrionalibus*, 1555. © *National Museum of Wales.*

A wealth of documentary sources provide a historical perspective on medieval shipping in Wales and the risks of those engaged with the sea. To give just two examples, the first takes us back to early fourteenth-century Wales. It concerns a voyage on or about 19 January 1309, during cold weather on the coast of the parish of Abergele. Storms forced an unnamed ship to seek the safety of 'Voryd Creek' (Foryd at the mouth of the Clwyd). It was first forced to beach on the west side of the estuary at 'Cloudesmouth', within the lordship of the castle of Denbigh, while the crew tried to save the cargo. Four tons and two pipes of red wine and casks of salted red herring had been unloaded, when the crippled ship was carried helplessly out to the rough sea by wind and a rising flood tide. Three sailors were left ashore but the rest perished when the battered ship was driven aground on the opposite side of the estuary 'upon the sands of the lord King' at 'Birchloyt' (Aberclwyd, Flintshire), near 'Rothelan' (Rhuddlan).[3] In such circumstances a watch would usually have been organised by the county sheriff, Richard de la Lee, but Rhuddlan's inhabitants took custody of many items cast ashore and much of the ship's equipment was pilfered — much retrieved along the foreshore — while most of the ship's timbers ended up in domestic hearths in Rhuddlan; ropes, anchors, hatches and other tackle were noted in the subsequent inquisition (much 'removed by persons unknown'), while the herrings had by then been cooked and eaten and the wine consumed. Even the

Fig. 3. Early maps show marvels of the seas, which are patrolled by ships, monstrous fanciful sea creatures (stock elaboration styled on earlier versions), and occasionally Neptune. This detail of Orme's Head is from the map of Denbighshire in *The theatre of the empire of Great Britain . . . The second booke: contayning the principalitie of Wales*, published by John Speed in 1616. © *National Museum of Wales.*

coroner for Englefield,[4] Bleddyn Cragh ('Scabby'), despite being responsible for recording and assessing the wreck, misused his authority to claim an anchor and rope. The inquisition lists the wrecked ship's fittings, such as the anchor, main mast and sails, eight 'hacche' (hatch covers), a 'sterocher' (steering oar) as well as at least five 'anyrons' (oars for propulsion in confined waters, such as rivers and ports). Rather than being a 'cog' with tall sides, the ship may have been either a large clinker-built merchant ship with a weather deck; alternatively it could have been an early cog, with side rudder and modest freeboard.[5] The wine and barrelled fish (some lost and 'stove in') suggest that it may have been bound for Chester — shipments from the sea fisheries of Beaumaris, Nefyn and Pwllheli were important in the fourteenth century for that fish-importing port.[6]

A further sense of the risks and dangers of early voyages is provided by the account by a passenger of a voyage in 1473 on board a ship owned by Robert Clement of Drogheda, who was taking it to Pembroke with a number of people on board. The ship crossed to Holyhead where it anchored to await a favourable wind. Passengers Thomas Rede, his wife and sons were then taken ashore by some local Welshmen and promptly robbed — probably because of a quarrel at the time between the men of Dublin and Drogheda and those of Anglesey. Cornelius O'Duhy and his companions stayed on board the ship, having merchandise on board that they intended to sell, including knives and cloaks. The ship sailed a few

days later when a favourable wind had arrived, leaving two crewmen behind who had been sent ashore for bread. The weather then deteriorated, and a severe storm so alarmed O'Duhy and his companions that they asked to be set ashore at St David's; the ship-owner told them that they would be safe there, as it was a place of pilgrimage. They continued overland to Pembroke, but they were rounded up and imprisoned in the castle for at least nine weeks — all except for the narrator, James Ylane, who got away and travelled to Oxford.[7]

Our understanding today of the sea owes much to human curiosity and builds upon the observations of early commentators and antiquaries. Nennius, the ninth-century Welsh monk and author of the *Historia Brittonum* and the *Wonders of Britain* described the Severn bore (*Dau ri Hafren,* that is, the 'Two Kings of the Severn'), and mentions the fabled Mathern plank, a piece of timber that served as a step in front of the sacred spring by the wall of Pydew Meurig, near Mathern church, 'that men may wash their hand and their faces, and have a plank under their feet when they wash'. Each time this is swept away to sea in a Severn flood it is returned to exactly the same place from which it was carried on the fourth day.[8]

References to the sea abound in the *Mabinogion*.[9] Some may reflect perceptions and memories of the thirteenth and early fourteenth centuries, about the time they were set down on parchment; others may unconsciously reflect earlier mythologies, ideologies and perspectives. All but eight of the seventy-nine place-names in the Four Branches are in Wales. Many are coastal — the mouth of the river Alaw (Aber Alaw), islands such as Gwales (Grassholm), Porth Cerddin, perhaps Pwll Crochan ('Cove of the Cauldron'), near Fishguard, Y Traeth Mawr ('The Great Stretch of Sand') at the estuary of the Glaslyn and Dwyryd rivers, and Porthmadog.

Another Welsh legend, first mentioned in the Black Book of Carmarthen (written before and about 1250) concerns the drowning of Cantref Gwaelod (the 'Lowland Hundred') beneath the Irish Sea in Cardigan Bay, and it is not hard to see how the frequent tidal exposures of prehistoric woodland have fostered this legend. Until about the seventeenth century, the land was called Maes Gwyddno ('the land

Fig. 4. The inscription on this brass, erected in 1609 on the wall of the chancel of Goldcliff parish church, Monmouthshire, recorded the height of the flood of 1607 (1606 in the Old Julian Calendar). The financial loss was stated first in order keep the metrical rhythm of the verse. © *Crown copyright: RCAHMW.*

of Gwyddno'), but it is best known today as Cantref Gwaelod, once part of the sixth-century kingdom of mythical ruler Gwyddno Garanhir ('Long-shanked').[10]

William Camden (1551–1623) published his *Britannia* of 1607 a description of that year's great Severn estuary flood or 'inundation':

> For the Severn Sea, after a Spring-tide, having before been driven back by a south west wind (which continu'd for three days without intermission) and then again repuls'd by a very forcible sea wind, rose to such a high and violent Tide as to overflow all of this lower tract, and also that of Somersetshire over-against it, throwing down several Houses, and overwhelming a considerable number of cattle and men.

This account is the most comprehensive and factual of many descriptions, which collectively explain the primary cause of the 'Great Flood' as a storm surge, recently reviewed by Mark Lewis. [11]

With the so-called Age of Enlightenment, the development of archaeology and the founding of learned societies, there were serious attempts to record and make sense of discoveries by land and sea. The eighteenth and nineteenth centuries were times of burgeoning scientific discovery across Europe, and we see the first appearance of museums and antiquarian societies in Wales. From the establishment of the Cambrian Archaeological Association (CAA) in 1846, its members have investigated and explored our maritime past with increasing scope and depth. Its journal includes a variety of notes on diverse topics such as accounts of ships lost off Holyhead in 1710[12], the coastal antiquities of Newton Nottage [13] and the practice of wrecking by the Butlers of Dunraven and the drowning of Arnold Butler's children near Ogmore 'about the 17th of Elizabeth's reign' — about 1575.[14] A review of the Welsh woollen industry covers sale abroad, and mentions the wearing of Monmouth caps by seamen in Defoe's day,[15] and reports of meetings around the Welsh coast include maritime related topics (e.g. the 1920 Swansea Meeting of the CAA).[16] Twentieth-century volumes contain more detailed papers on subjects such as sea-level, sea power, piracy and pirates, sea transport and trade.[17] In an era of poorly defined terminology and art historical understanding of the transmission and absorption of art styles, it was fancifully suggested in 1920 that the early medieval freestanding cross in the deer park at Penmon on Anglesey could have been erected by 'Swedish buccaneers' (i.e. Vikings) to commemorate a victory.[18] More recently, papers have appeared on seventeenth-century beacon watch towers on the north Wales coast,[19] on sixteenth- and seventeenth-century sailing directions,[20] and on prehistoric human footprints from the Severn Estuary at Uskmouth and Magor Pill.[21] Attention has also been drawn to an underestimation of the late medieval trade at Welsh ports, because of their size, the gaps in evidence, the impact of smuggling and the exemption from royal custom of many ports in the later medieval period.[22]

The Carmarthen-born geographer E. G. Bowen (1900–83) drew attention to Britain and its western seaways, their importance in the 'Age of Saints' and in early historic period ('Sea in the fabric of settlement'), while Donald Moore (1922–2011) edited an important collection of papers from the celebrated CAA conference on the *The Irish Sea Province in Archaeology and History* and spoke on maritime aspects of Roman Wales at the 10th International Limescongress.[23] George Boon (1927–94) *inter alia* excavated in the 1960s on the site of a Roman quay at Caerleon, and published the Roman anchor stock from Porth Felen, as well as imported Roman barrels from *Segontium*.[24]

Nor have inland waters been ignored. Following the recovery of the first logboat in Llangorse Lake in 1925, Cyril Fox (1882–1967), then Keeper of Archaeology at the National Museum of Wales, undertook a rigorous and detailed study of the craft, publishing a paper on the subject in *Archaeologia Cambrensis*.[25] This research interest developed into his influential study of 'monoxylous craft' in Britain, in which he listed thirty-four examples, thirty-one of which he used in his classification.[26] This report continued to

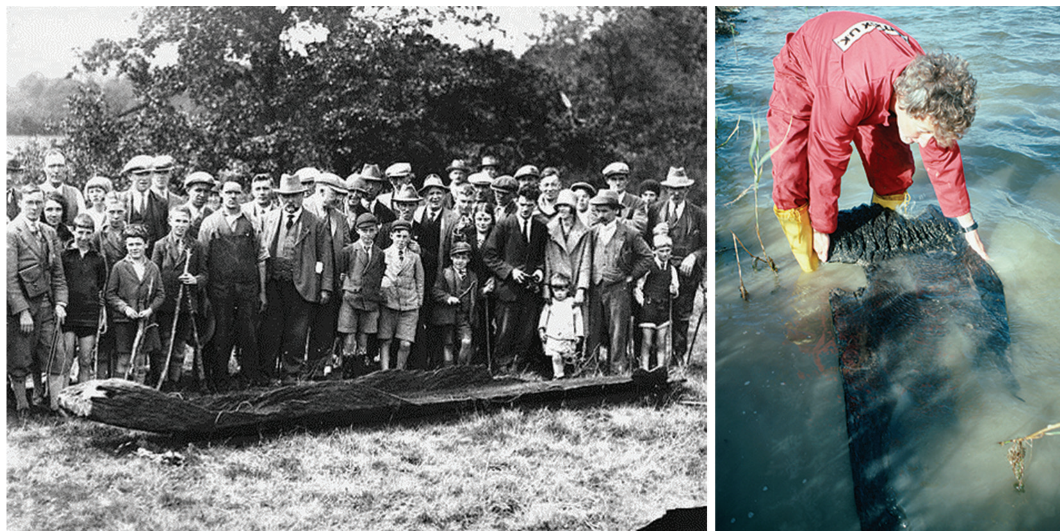

Fig. 5. *Left* The Llandrindod Wells logboat, which elicited considerable excitement when found in 1929, is of medieval date: cal. AD 1029–1206 (see Switzur 1989, Table 4: 915±40 BP (Q-3136) recalibrated using OxCal v4 and the IntCal13 atmospheric curve). © *Radnorshire Museum, Llandrindod Wells*. *Right* The thirteenth-century Llangorse logboat 2, discovered in 1990 in shallow water to the north-east of the crannog, had a similar form. © *National Museum of Wales.*

provoke correspondence for over twenty years. Fox's research on logboats was revisited by Sean McGrail in the 1970s during his ground-breaking catalogue and analysis of logboats from England and Wales, work undertaken in conjunction with Roy Switzur, who obtained important radiocarbon dates for Welsh logboat finds. During the course of this project it was established that Llangorse logboat 1, whose dating Fox recognised as conjectural, concluding that 'we may not be far wrong in assigning it to the period of the Roman occupation' (rather than earlier),[27] was in fact early medieval.[28] The forthcoming publication of the excavations at Llangorse crannog, now in preparation, will re-examine this find in detail.[29]

The CAA has organised a number of maritime-based conferences and meetings, as reflected in the programmes for Newport in 2013 ('Military and medieval connections: Roman and medieval Monmouthshire') and Swansea in 2017 ('Maritime and Industrial Swansea').[30] As the CAA Summer Meeting in 2018 is in Llandrindod Wells, I would like to mention the medieval logboat now in the Radnorshire Museum, Llandrindod Wells, as it is a close parallel to the second logboat, discovered in Llangorse Lake 1990. William Francis Grimes (1905–88) recognised the significance of the Llandrindod Wells discovery, and became fully involved in its recovery in 1929 (in waders up to his knees in the river, with the retrieval team).[31] Like the first Llangorse logboat and another from Llyn Llydaw, it was conserved at National Museum Cardiff.

Over the last twenty years many archaeologists and historians have provided fresh perspectives on our maritime past in Wales, and its care. It is not possible to do justice to all in this address, but I would like to mention a representative selection, such as the masterly work by Ken Lloyd Gruffydd (1939–2015) on the importance of the sea within the history of medieval Wales, and Ralph Griffiths on a wide range of topics such as the Severn Sea in the Middle Ages.[32] Heather James has researched widely on maritime west Wales, and recently written about transhipment from Welsh canal network to ocean-going vessels and the

last invasion of the British Isles. Edward Besly has published papers on coins from wrecks,[33] which led to his writing up the coins from the *Mary Rose*. 'Flagship' monographs and a variety of papers and on-line resources have interpreted the excavated remains of important early vessels from around the Welsh coast (such as the Caldicot Bronze Age boat, the Barland's Farm Romano-British boat, and the Magor Pill and Newport ships).[34]

Reports of early discoveries from the sea are often terse and remain enigmatic. What would we give now for an opportunity to reassess some of these? The value of curating and conserving early boats is well illustrated by clinker hull planking discovered during the creation of a timber pond for the Alexandra Dock, Newport, in 1877. Antiquary Octavius Morgan's accounts (1878, 1882) concluded that this was as part of an ancient 'Danish' vessel, and gave rise to much speculation, until Gillian Hutchinson had an opportunity to reassess the one surviving plank in the 1980s and published a radiocarbon date of cal. AD 880–1220 (95.4% confidence);[35] it is now clear that the radiocarbon sample position within the inner growth rings suggests that the boat may have been built as much as eighty years later than this date range, potentially taking the boat into the period after the initial Norman land-taking. Consequently it seems likely that the so-called 'Danish' ship was in fact the recycled hull of a derelict Anglo-Norman ship, associated with the early development of Newport, but the absence of modern recording at the point of discovery limits our understanding today.

In 1886 a short enigmatic note of the discovery of two wooden shields picked up by the resident of a farm near Porth Neigwl on the shore near Bardsey (?Aberdaron Bay) appeared in *Archaeologia Cambrensis*.[36] One bore 'a chevron charged with five ermine spots between four bull's heads, three and one. The whole is of dark wood'. The other 'is a panel, thinner and more battered than the former, was originally painted white. Upon it is carved a mail dexter arm issuing from a wreath, with closed hand holding a branch of broom, from which depends a chain of half the length of the arm, with a padlock engraved with a leopard's head at the end of the chain. The mail is plate-armour, with vambrace at

Fig. 6. The lower hull and cargo of the Magor Pill ship, built about 1240, under excavation in 1995. She lay about half a mile from the shore, and could only be excavated when she was exposed for about two hours each side of low tide. Photogrammetry was used to survey the site prior to lifting. © *National Museum of Wales.*

the elbow, above and below which is a double plate fastened by four round rivets'. While the battered items as described might be thought to come from an early wreck, Thomas Lloyd (Wales Herald of Arms Extraordinary) advises me that the complexity of the heraldic detailing rules out anything old, and they could be early to mid-nineteenth-century, and perhaps from someone's private yacht. Unfortunately, we don't know their size or shape, but the description recalls later ship badges (naval examples regulated by the Royal Navy from 1919).[37]

The achievements over recent decades comprehensively reviewed in the last three versions of the *Research Framework for the Archaeology of Wales* have included sections on maritime archaeology; the third maritime agenda (2017), co-ordinated by Deanna Groom, provides a valuable framework for deciding on priorities for maritime work.[38] I would like, therefore, to focus on a few post-Roman aspects of maritime Wales, through examples of how archaeology is allowing us to understand how ships and the sea were regarded by the societies that produced them, and how, as sophisticated mechanisms for connecting people and cultures, they have contributed to our sense of identity and transnationalism.

The 'keel' is an archaeological type-name for a medieval ship built on the backbone of a keel with overlapping planks (strakes) ending at stem/stern posts, in a north European tradition. The medieval term 'hulk/holk' was used in north-west Europe to describe a large trading ship, such as the *Hulc* owned by Neath Abbey, licensed in 1235 to trade with England. Some authors have used medieval images of ships sharing particular characteristics to define the seagoing hulk as a shipbuilding tradition, but no examples have been discovered. It appears likely that the term was applied in some places to clinker-built ships with large capacities, and in the sixteenth century to both clinker and carvel hulls.

In August 1994, the remains of a medieval vessel of keel-type were discovered on the intertidal mudflats of the Severn Levels at Magor Pill. The subsequent project is a good illustration of effective partnership, from excavation by the Glamorgan-Gwent Archaeological Trust, to recovery, recording conservation and publication. This relied on a collaborative partnership and multiple funding sources, including Cadw – Welsh Government, Laing GTM; Amgueddfa Cymru – National Museum Wales (AC-NMW), Esmée Fairbairn Charitable Trust, Laing's Charitable Trust and the assistance of numerous companies. The Magor Pill ship has provided not only detail on what a ship built in this 'shell-first' ship-building tradition looked like — dendrochronological dating established that the last felling date was in the summer of AD 1240. It is clear from the 171 kilos of iron ore found resting on a wooden hurdle in the hull that her final voyage involved transporting ore as a bulk commodity (important for tools, farm implements, weapons, construction material for buildings and ships and everyday items such as chains, locks, keys and nails). Scientific analysis of the surviving ore pointed to a source in the Fforest Fawr–Llanharry area.[39] When one calculates an original symmetrical loading around the mast and mast-step for the cargo, this works out at a minimum of 684 kilograms or three-quarters of a ton. The ship allows us to contrast our perception of thirteenth-century coastal transport provided by contemporary sources with the reality of a well-preserved hull and her cargo: one of the medieval workhorses operating around the coast. When lifted on a cradle under difficult conditions, interest in the recovery of the wreck went global. The discovery has informed others, including Chris Jones-Jenkins's revision of John Banbury's reconstruction of the castle and dock at Beaumaris castle (Fig. 6).

The 'cog' is a type-name for a distinct northern European tradition of medieval sailing ship with single square sail, stern rudder, keel plank, heavy frames, flush bottom planks and clinker side planks. Designed as bulk cargo carriers, they are known in British waters from the 1200s. We have the name of some cogs operating from Welsh ports, such as the *Anne* of Haverfordwest (1414–15), the *Cog John* of Milford Haven (1406–07), the *Cog John* of Tenby (1396) and the *Thomas* of Tenby (1355–56), the *St Marie Cogg* of Carmarthen (1342–57) and the *Rede Cogge* of Tenby (1404). Archaeology has yet to reveal any within Welsh waters, but well-preserved thirteenth-century remains (possible cogs) have been found elsewhere,

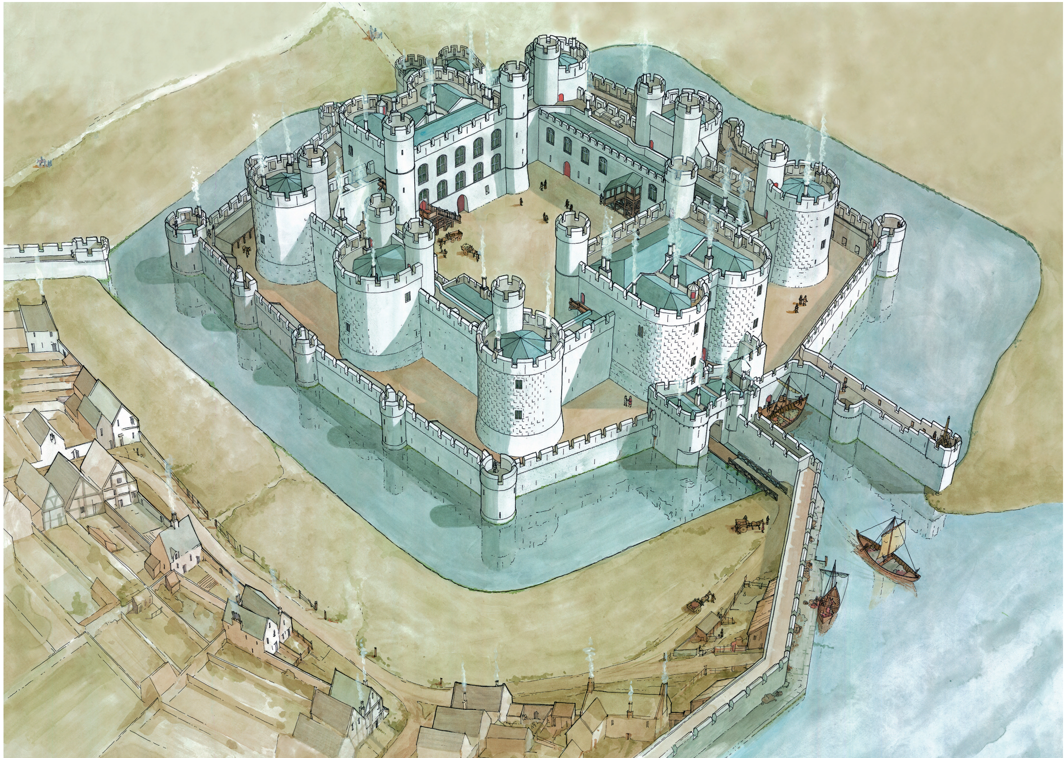

Fig. 7. Chris-Jones Jenkins's updated view (2017) of Beaumaris Castle had it been completed in the early fourteenth century, and its harbour area, showing small ships of Magor Pill-type approaching the watergate. © *Crown copyright: Cadw – Welsh Government.*

including Kollerup (Denmark), Oskarshamn (Sweden), and Puck Bay (Poland). Fourteenth-century cog finds include the Darss cog, lost in the 1330s in the Baltic (off the coast of Mecklenburg-Vorpommern, Germany), the Bremen cog (river Weser, Germany) and two recent discoveries from Doel near Antwerp in Belgium.

The cog was superseded by the adoption of a carvel method hull construction, a 'frame first' sequence in which planks were laid flush and fastened to frames (and not to each-other, as in clinker construction). This development from the second quarter of the fifteenth century allowed shipbuilders to construct larger ships than those of 'shell-first' construction. Consequently three-masted 'caravels' and 'carracks' became more common during the fifteenth century. They are described by Welsh poets such as Lewis Glyn Cothi (fl. 1447–86), who refers to a '*carwel yn rhwygaw heli*' ('a caravel tearing at the sea'), signalling his familiarity with the vessel form. They are recorded in official records, such as a Genoese-owned carrack driven by storm into the haven at Milford Haven in 1409 (the *Sancta Maria et Sancta Brigitta* of Bordeaux),[40] a Venetian carrack the *Seint Marie* putting into 'Goldhap' (Goultrop Roads) in the lordship of Haverfordwest in 1421 with wine, figs, rosin and raisins, and *Le Kervell* of Roscoff ('Roscowe') recorded arriving at Tenby in 1516 laden with sixteen tuns of wine.[41]

For an idea of the appearance of such late medieval ships in Welsh waters, we have long relied on contemporary depictions of ships, some on seals such as the ship engraved on the Common Seal of

Tenby; we have also to look to the Continent, where contemporary ship models often survive, such as the fifteenth-century Catalan votive ship model from Mataró. This Mediterranean *nao* (ship) or *coca/coche* (a ship development combining features of north European cogs), radiocarbon dated to cal. AD 1456–82, had a mainmast and small mizzenmast on the aftercastle. A slightly earlier votive ship model from Ebersdorf, made about 1400, represents a large ship built with heavy projecting beams, probably a late cog hybrid sharing features with the older Bremen cog.[42] Genoese ships which traded with Britain and Flanders from the 1300s, became known as carracks, while the Genoese ship *La Lomellina* lost in the early sixteenth century off the Mediterranean coast at Villefranche was known as a *nave* (from Latin *navis*, ship). Wrecks of early carvel-built ships discovered outside the United Kingdom, such as an early sixteenth-century example discovered off Franska Sternarna, Nämdöfjärd, Stockholm, provide rare insights into north European derivatives of Mediterranean carracks, their technologies and what changes in design were being made at the time.[43]

The Newport ship, whose analysis has been headed by Toby Jones and Nigel Nayling, now offers solid archaeological evidence through interdisciplinary research of a late medieval ship form which operated between Britain and the Iberian peninsula, it origins and activities. It is another illustration of multiple funding sources being found to finance different aspects of a complex project, including Newport Museums and Heritage Service; Cadw – Welsh Government; CyMAL (now MALD), Friends of the

Fig. 8. Members of the Newport Ship Advisory Committee discuss an early version of the laser sintered model of the surviving hull timbers in 2010 (left to right: Mike Corfield, the late Rick Turner, Toby Jones, Michael Lewis, Nigel Nayling, Professor Sean McGrail). © *National Museum of Wales*.

Newport Ship, Arts Council England, Welsh Church Fund, Arts and Humanities Research Council, and now mainstream funding from Newport City Council. The ship was discovered in 2002 on the banks of the river Usk downstream from the castle of medieval Newport and the large inlet at Town Pill, previously assumed to be the focus of medieval maritime activity in the town. The digital timber recording has facilitated new methodologies for modelling the original hull form, and an innovative rapid prototyping technology, called selective laser sintering, has been applied to create physical solid models of each virtual timber, which were manufactured at a 1:10 scale, and assembled with micro-fasteners to form a model of the remains of the Newport ship. Digital reconstruction of the ship by Pat Tanner demonstrates that the remains represent a substantial medieval ship over 25m in overall length, and may have had two decks and three masts. Research has shown that it was constructed in a shipbuilding tradition which was thought largely to have died out by the end of the fifteenth century, and had seen service, possibly in trade, between Britain and the Atlantic coast of France, Spain and Portugal.[44]

The contents of early wrecks can provide archaeological clues for shipboard activities that are not revealed through historical research in any other way; for example, the methods of cooking, patterns of supply and what medieval crews and passengers consumed. Sometimes they can even point to the likely nationality of people on board. For example, the pottery found on board the Newport ship forms a closely dated assemblage of predominantly Iberian wares, having a precise context for its use and discard, both in terms of place and people. Over 220 fragments of pottery were recovered from deposits associated with the ship. Of these, most (98%) were from deposits in the lower parts of the hold or bilges and appear to represent material discarded on board the ship prior to its refit at Newport in the 1460s. The range of pottery is limited, consisting predominantly of Portuguese Micaceous Redware (plain and burnished).[45] Their place of origin is now thought to be far broader than the Mérida region, much production being centred on the Alto Alentejo area of southern Portugal, inland from Lisbon. The wide range of forms (in contrast to those represented in urban excavations such as Castle Street, Cardiff) includes jars for storing food, pitchers for liquids, cooking pots, bowls, dishes called *lebrillos*, the rims of goblets and lids. Most commonly represented was the all-purpose jar and lid, but the assemblage included sherds of upright or standing costrels (flasks, one with an ownership mark incised on the shoulder), small dishes and other forms (some with burnish-decorated exteriors) and ‘lids’ with small central knob handles.[46] Some are sooted, indicating shipboard use by the crew, complementing use of wooden bowls and other items onboard. These Iberian ceramics complement other associations from the ship with that part of the known world (such as Portuguese coins, hull timber from the Basque region, leaves from a species of prickly juniper that grows in south-west Portugal, and sheets of cork (*Quercus suber*) — possibly cargo). Recent research on the cooking galley of the *Mary Rose* (1545) has shown how sophisticated cooking on a ship’s galley could be and how social hierarchy was maintained through food consumed on board. The nature of some cooking equipment and provisions may at times point to the presence of high-ranking individuals.[47]

Guns from the sea have long been recognised as primary signposts to wrecks of archaeological and historical significance, and two early gun finds may yet lead to the discovery of late medieval wrecks in Welsh waters. Fifteenth- and early sixteenth-century ships carried ‘hangonnes’ (hand guns) and ‘hacbusshes’ (or ‘hackbuts’, an early type of musket) as well as larger guns and hand weapons, and in 1982 a copper-alloy hacbussche was recovered by a diver in an area of dense kelp to the east of Bardsey Island lighthouse. Used on board ships as anti-personnel weapons, such guns were fired with their recoil hooks placed against firm supports, such as a ‘pavise’ (shield), breastwork, parapet or the gunwale of a ship. The hacbussche, which still retains the remains of its wooden tiller, wedged in its socket with cloth, is currently on display at St Fagans National Museum of History.[48] The second find is a rare example of early iron ordnance, still attached to its oak bed, discovered during dredging in Tenby Bay in about 1830 (Fig. 9). According to early reports, it was found about 300 metres north-east of Sker Rock, a formation

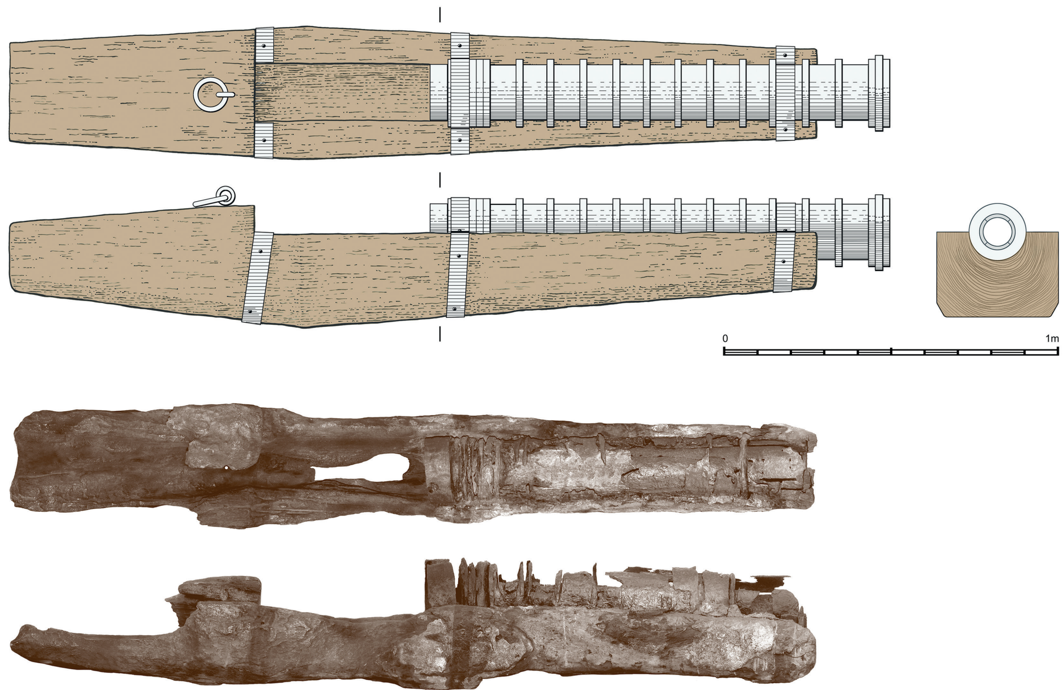

Fig. 9. In about 1830, a rare example of early iron ordnance, still attached to its oak bed, was discovered during dredging in Tenby Bay. Its overall carriage length (280cm) and form are similar to smaller iron 'port pieces' found on the *Mary Rose*, though smaller in size. Drawing by Tony Daly. © *National Museum of Wales.*

at the base of St Catherine's Island (Castle Beach). Like most guns of the fifteenth and early sixteenth centuries, it is made of wrought iron on a wooden bed, and is a type known as a 'port piece', comprising a number of distinct parts: a barrel, a breech chamber (some had handles and could be dropped into place), a wedge (or 'forelock' of elm or iron) to hold the breech chamber tightly against the end of the barrel, and a solid oak wooden bed. Nothing is known about the (as yet undiscovered) ships that lost these guns, but should they be found, the new narratives from such evidence will be significant.[49]

Many places in England and Wales were linked to the sea by craft of different capacities and forms, and it is no surprise that churches and cathedrals across Britain contain representations of ships, some formally commissioned from sculptors, others carved on porches, on misericords or scratched anonymously onto building fabric in the form of graffiti. In Catholic Europe the practice of making votive offerings connected with ships and shipping abounded, many in advance of a perilous voyage or in thanksgiving for rescue at sea or drowning. St Anne's Chapel in Bristol Cathedral displayed 27 ships of wood and five of silver in the fifteenth century, offered by grateful voyagers. In Wales, a partly gilded silver 'shippe to carry Frankingsence' is listed in the record of items removed from Llandaff Cathedral in the 1540s at the Reformation. A more recent votive ship model can be seen in the Norwegian Church, now relocated to Cardiff Bay: the carved ship came from the original church, built in 1868 to serve the religious needs of Cardiff's Norwegian sailors and expatriate community.

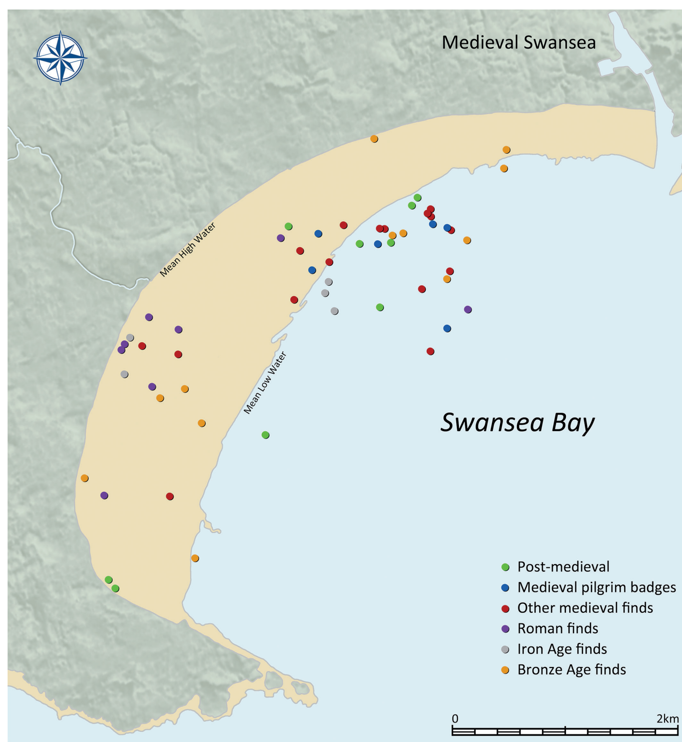

Fig. 10. The reporting of foreshore and beach finds from around the coast of Wales through PAS Cymru is starting to reveal significant distributions: finds from Swansea Bay include medieval pewter pilgrim badges and personal jewellery. Source: Mark Lodwick/ Portable Antiquities Scheme Cymru. © *National Museum of Wales.*

Many medieval pilgrims would rely on sea transport, often setting out in the early summer and returning if possible before the autumn storms. Travellers embarking on such long journeys needed to consider the possibility of death, and invoking heavenly help was a cultural component of daily life. An example is *La Trinite* of Newport, whose owner was granted a license in 1462 to carry 300 pilgrims from the port of Bristol to Santiago da Compostela in Spain.[50] Reminders of such sea voyages are found in the occasional discoveries of pilgrim badges; such as those of Thomas Becket (one of the patron saints of seafarers and renowned for bringing vessels safely to port) found on beaches at Newgale, Tenby and Swansea Bay,[51] one of St Anne teaching the Virgin Mary to read (shrine at Buxton, relics at Canterbury, Reading and Durham) from Swansea Bay,[52] a St Catherine badge from Newgale beach and one illustrating one of St Werberga's miracles (Chester) from Llanelli beach, north Gower. If not accidentally lost during the process of disembarkation, they may have been deliberately thrown into the sea as thanksgiving offerings by relieved passengers on reaching land after long voyages.

The emerging story of the *Ann Francis*, a homeward-bound East-Anglian merchantman wrecked at Aberavon on 28 December 1583, brings together calamity at sea, mercantile relationships with Spain, profiteering, Elizabethan salvage and riotous affray, the Star Chamber, metal detecting, new discoveries, long-term archaeological recording and research, and witchcraft. Fortunately, a contemporary record of the artefacts that were salvaged at the time of the wreck has survived, and it has been possible to build up a better picture of the ship's provisions and cargo by combining the documentary evidence with the growing catalogue of artefacts recovered at different times and recorded by AC-NMW over 40 years. The story of her loss remained largely forgotten until the 1970s and 1980s, when periodic discoveries of late sixteenth-century artefacts were made on the beach after severe gales and spring tides. Their distribution

Fig. 11. A selection of coins from Aberavon beach, thought to come from the *Ann Francis*, lost in 1583. © *National Museum of Wales.*

in mobile beach deposits coincided with accounts of the scattering of wreck material on both sides of the river Afan at the time of the wreck. Items included sounding leads and brass navigational dividers, brass barrel spigots (?galley stores), lead and brass weights, eating and drinking utensils, including a pewter cup and pewter spoons, and personal belongings, including a silver rosary pendant and fragments of an inlaid pewter knife case.[53]

A significant number of Spanish and Spanish-American, Portuguese and German coins have been recovered. The Spanish coins, all in the name of Ferdinand and Isabella (1474–1504), were probably struck after their deaths, while the Mexican coins were produced from 1554. These support the record of £12 16 0d of 'Spanish silver' in the inventory. The Portuguese coins are from the reign of John III (d. 1557), and a gold San Vicente dates from 1555–58. The silver coins of the German States were minted between the 1540s and 1556.

After 1580 the number of English attacks on the New World and Spain grew, and English attempts to establish settlements in the New World proved a direct challenge to the Iberian Empire of Philip II. Elizabeth I hoped to avoid open war and yet still curb Philip's power; as war became inevitable, Philip became more receptive to proposals such as those of the Marquis of Santa Cruz (1583) for an attack against England. However, open war did not occur until 1585 when the Treaty of Nonsuch was signed, committing England and the nascent Dutch Republic to war with Spain. It would be another five years after the wreck before the Spanish Armada was unleashed. Such then was the political stage at the time of the voyage of the *Ann Francis*.

Plundering of the wreck was immediate and led to a confrontation on the beach of upwards of a hundred persons. Sundry 'outrageous misdemeanors' were committed and, according to Star Chamber Proceedings, much wreckage was spirited away in the three to four hours before George Williams, agent to Lord Pembroke (representing his Baglan estate) and Anthony Mansell, brother/son of Sir Edward Mansell of Penrice, Oxwich and Margam (Glamorgan) could muster escorts to exert law and order. Henry Herbert, 2nd earl of Pembroke (1538–1601), courtier and one of the richest men in Wales, was Admiral of South Wales from 1586, responsible for amongst other things dealing with pirates and their prizes, and salvage claims from wrecked ships.

I have recently been involved with my colleague Edward Besly on reporting on newly reported finds from the beach (which include an Elizabethan combination padlock, sometimes called a 'Nuremberg

Fig. 12. The Myddleton chest (in the foreground) was lent by The National Trust for the exhibition *Kizuna : Japan Wales Design* at National Museum Cardiff (16 June – 9 September 2018). © *National Museum of Wales.*

combination lock'), providing a clear date for the use of such objects; the finder's own research has identified the names of fourteen of the crew who perished, and established that a woman from Kings Lynn known as Mother Gabley was convicted of witchcraft for causing the wreck.

The *Ann Francis* was not owned by a Welsh merchant, but we get a glimpse of one of Wales's wealthiest in Sir Thomas Myddleton (1550–1631), who bought the Chirk Castle Estate in 1595. He was an original investor in the East India Company, set up in 1600 as a chartered company trading with the East Indies. The incentive was to frustrate Dutch encroachment on their share of the spice trade, and Thomas's name appears as no. 32 on a list of 101 names or merchants and citizens of London who met at the Founder's Hall on 22 September 1599 and subscribed over £30,000 to fund and finance a voyage to the East Indies. The first company voyage to Japan was in 1611 and among the items shipped back to London were 'trunkes . . . of a most excellent varnish'. One lacquered coffer acquired by Thomas Myddleton for Chirk probably came from Japan about this time, making it perhaps one of the earliest Japanese imports to Wales. [54]

Occasionally legends can be transformed into facts through new discoveries. The legend of the 'Dollar wreck' in Rhossili Bay and the stories of Spanish coins on a Welsh beach is often retold. The *Cambrian* newspaper for 7 March 1807 reported that a low equinoctial tide had shifted sands 'very unusually' to reveal 'part of [a] wreck in a very decayed state' out in the bay 'near Wormshead'. Local men gathered up large numbers of coins nearby, one man turning his trousers into a bag to carry them in. The report said that 12 pounds of silver dollars and half dollars (equal to about 200 silver coins) had been dug out of the sand, as well as assorted bits of old iron and pewter. The newspaper report conjectured that this was once

Fig. 13. A selection of silver pieces of four and eight discovered in 2016 from the site of the 'Dollar wreck' in Rhossili Bay. © *National Museum of Wales.*

'part of the cargo of a rich Spanish vessel from South America called the Scandaroon galley, which was wrecked on that part of the coast upwards of a century since'.

Two cases were brought in 1834 to the manorial court by C. R. M. Talbot, the lord of the manor of Landemore,[55] to enforce manorial right of wreck. The defendants argued that the coins might not have come from wreck, no part of any vessel having been found. The lord of the manor seems to have decided in the end to waive his rights to treasure, and many poorer members of the local community are said to have benefited. It was reported 50 years later that he had seen Spanish coins from 1633 in the hands of one or two 'neighbouring gentry', and that the best-preserved coins were of Philip IV, dated 1625 (J. D. Davies 1885). Two cannon from the wreck were reported standing outside a house in Llangennith and in a private garden at Hillend, and musket balls and a marine astrolabe noted.

Since then sands have covered the evidence, and the wreck turned into a legend, part of the folk-lore of Gower. While researching the accounts for *Wales and the Sea*,[56] it became clear that no examples of coin alleged to derive from the nineteenth-century exposures had been recorded by AC-NMW. Then, out of the blue in 2016, two detectorists reported finding silver coins in the right area. Edward Besly was asked to report on the finds for the Receiver of Wreck, and established that the coins were four- and eight-reales pieces, principally from the New World mints of Mexico and Potosí, the large majority coming from the reign of Philip IV (1621–65). Such coins are for the most part poorly produced and relatively few dates are legible. The latest certain date observed so far is 1636 (there is one possible 1637). Two Seville-minted coins among those found in 2016 suggest that the ship may have come from Spain; an intriguing possibility might be that the ship was carrying Spanish Government bullion silver, part of which was destined for melting down and reminting, as part of a treaty signed by Britain and Spain in 1630 whereby Spain was to supply much-needed silver to the Tower Mint in London. Alternatively, as bullion they could have been out of circulation for 20–30 years (as in the case of the *Ann Francis* coins) before being exchanged and lost, in which case a shipping loss in the 1650s–60s cannot be ruled out. The coins have recently been acquired for the national collections.

I should at this juncture acknowledge the achievements of past champions of underwater archaeology in Wales, including Cecil Jones, who excavated the Pwll Fanog slate wreck in the Menai Strait, Mike Bowyer, the excavator of the 'Bronze Bell' wreck off Barmouth, John Illsley and Owain T. P. Roberts,

Fig. 14. The square-rigged *Louisa* was built on Prince Edward Island, Nova Scotia, Canada in 1851 by James Yeo for family member, William Yeo, of Appledore, Devon, and originally had been used in the transatlantic timber trade. Her last owner (Lloyd's Register, 1902) was Joseph Rees of Aberaeron. The hulk was the subject of an NAS training weekend in the early 1990s, and investigated by survey and excavation by the University of Sheffield in 1998. The site was scheduled as an ancient monument in 2001, and is now submerged. © *National Museum of Wales*.

responsible for excavating and lifting the Elizabethan Llyn Peris boat, the eighteenth-century Llyn Padarn boat and the medieval Llyn Peris logboat (reassessed by Doug McElvogue in his doctoral thesis).[57]

The last forty years have witnessed incremental improvements to our maritime heritage protection. In 1973 legislation was passed to protect historic wrecks, in response to the furore over uncontrolled diving and looting that followed the discovery of the royal yacht *Mary*, lost off the Skerries in Anglesey in 1675. Having had lost favour with its royal owner by 1665, she was refurbished for general service, providing transport for the Lord Lieutenant of Dublin and his officials or safe passage for precious cargo between Chester and Dublin. On one such journey she came to grief in poor visibility, striking the jagged rocks known as the Skerries. The captain, 35 passengers and three crew were drowned, but the remaining fifteen passengers and 24 crew survived on the rocky island, until they were rescued by a vessel dispatched the next day from Beaumaris. The site was initially subjected to salvage, and later by excavated under licence by archaeologists, led by Mike Stammers of Merseyside Maritime Museum, from 1971 to 1990.[58]

The *Protection of Wrecks Act* 1973 is still in force some 45 years after its introduction (though considered to be a temporary measure at the time), and is used to designate historic wreck sites; licences (visit,

survey, excavation) are usually subject to conditions and to annual scrutiny (originally by the Department of Transport assisted by the Advisory Committee on Historic Wreck Sites, and now by Cadw – Welsh Government). Great progress was made in the 1980s and 1990s to designate sites, which included the twelfth-century Smalls sword guard wreck in 1991 and the *Resurgam* in 1996. The late Richard Avent, Chief Inspector of Ancient Monuments in Cadw, was very supportive of maritime initiatives, as were Inspectors Sian Rees and the late Rick Turner; while in the National Museum of Wales, George Boon was for many years a stalwart member of the Advisory Committee on Historic Wreck Sites.

Fig. 15. The unusual 13.41m-high lighthouse built in 1865 to mark the shoals at Whitford Point, Burry Estuary, Glamorgan, is the only wave-swept large cast-iron tower left in Britain. It was in use in 1914, but discontinued in 1921 (apart from occasional lighting by boating interests), and is now scheduled by Cadw. © *Steve Garrington.*

Resurgam has been described as one of the world's first practical submarines and the oldest surviving powered submarine. Designed by the eccentric inventor the Reverend George Garrett, she was built in 1879 by Cochran & Co. and launched at Birkenhead in November 1879. A few weeks later Garrett and his crew sailed for Portsmouth to demonstrate the vessel's capabilities to the Royal Navy. The submarine reached Rhyl, where they planned to stop for repairs, but winter weather kept them in harbour for months. They finally left in February 1880, accompanied by Garrett's newly purchased steam yacht *Elphin*. What happened next is unclear, but it appears that she sank under tow. Back in the mid-1980s I gave voluntary support to the survey group Marine Archaeological Surveys, which have been invited to mobilise sidescan sonar and other remote sensing devices to find her. Unfortunately the weather deteriorated, and the survey area could not be completed. Then, in 1995 we heard the exciting news that the submarine had finally been

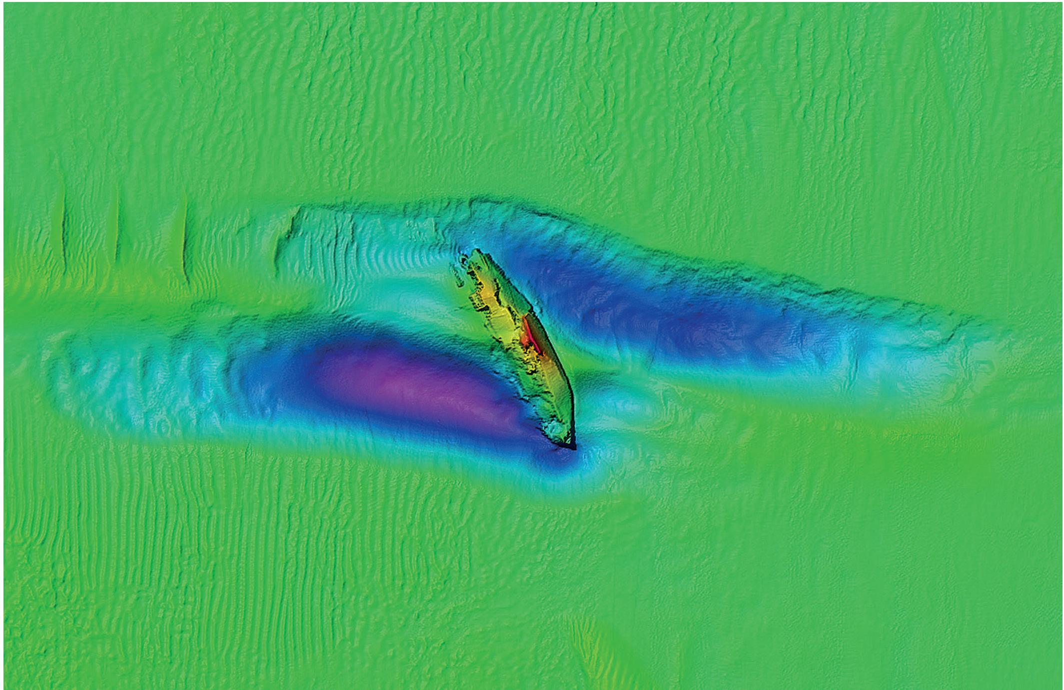

Fig. 16. Multi-beam echo-sounder image of the Elder Dempster steamship SS *Apata*, built in 1914 and sunk in November 1917, one of many images created during the Royal Commission's project Commemorating the Forgotten U-boat War around the Welsh Coast 1914–18, funded by the Heritage Lottery Fund. © *Centre for Applied Marine Sciences, Bangor University.*

found, this time by the time-honoured technique of a fisherman snagging his nets on her hull. *Resurgam* lay close to Rhyl, some 20 kilometres from where she was reported to have sunk, and, remarkably, was still in one piece (though with her main hatch removed). In June 1997 an archaeological project SubMap investigated and surveyed the submarine, using professional divers and amateurs trained in archaeological survey techniques, but discovered no clues as to the cause of her loss.[59]

Passing of the *Ancient Monuments and Archaeological Areas Act* in 1979 permitted the scheduling of ancient monuments within territorial waters, and this protection has been applied to wrecks such as the *Louisa* in the river Taff (before embayment in 2001), as well as other submerged features of maritime history; the *Government of Wales Act* 2006 permitted the grant aiding of excavation or survey on underwater wrecks.

The *Merchant Shipping Act* of 1995 requires all wreck material raised from the seabed or found elsewhere but brought into UK territorial waters to be reported to the Receiver of Wreck, who must decide on its final ownership and place of deposition, and the 'Dollar wreck' and *Ann Francis* finds have been part of this process. Natural Resources Wales have undertaken an exercise in seascape characterisation to identify the important components of underwater and seascape environments. Most recently, the *Historic Environment (Wales) Act* 2016 updates laws relating to the statutory protection of both terrestrial and maritime heritage, and gives equal weight to the protection of marine assets and brings them into the normal remit of terrestrial historic protection.

Fig. 17. Volunteers discover a well-preserved ship's wheel after storms in Swansea Bay during the Arfordir Project. © *Glamorgan-Gwent Archaeological Trust.*

The responsibility for designation and regulation in Welsh waters passed from the Advisory Committee on Historic Wreck Sites to Cadw, who then funded the Nautical Archaeology Society to provide training for divers and others on archaeological survey and excavation techniques for work on wrecks, and on educational and outreach opportunities for amateur diving societies throughout Wales. Further progress came in 2001, when the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) embarked on the compilation of an all-important Maritime Record with the appointment of Deanna Groom as a specialist maritime archaeologist responsible for researching, recording, surveying and exploration of the underwater heritage of Wales.[60]

The most inexorable threat to our marine and coastal historic environment is one we can do little to prevent. The inescapable fact that our coastline is subject to climate change and coastal realignment has long been appreciated. Its extent over time has been highlighted by the West Coast Palaeolandscapes Project by University of Birmingham, Dyfed Archaeological Trust and the RCAHMW, completed in 2010.[61]

The Welsh Archaeological Trusts, Nautical Archaeology Society (NAS) and RCAHMW have all contributed to coastal research under the umbrella of Arfordir (Welsh Coastal Historic Environment Group), unlocking information on intertidal hulks, submerged forests, shell middens, fishtraps, and settlement sites subject to coastal erosion. The Welsh Archaeological Trusts completed a programme of community involvement aimed at training volunteers and local groups to assist in the enhanced survey, excavation and monitoring of the most endangered coastal sites on estuaries, rocky headlands, beaches, and cliff tops, providing a valuable benchmark record. Some 3,000 archaeological sites were recorded, many for the first time. The corpus of intertidal surveys produced by contributors to this project and to the Severn Estuary Levels Research Committee publications provide valuable data on a broad range of evidence around the coast. The results of the Arfordir survey fed into guidance for authorities and agencies responsible for flood prevention and coastal defences, encapsulated in Shoreline Management Plans.[62]

Museums are also playing a role in providing a broader context for new coastal sites, single finds or assemblages. For example, in 1978 Steven Sell of the Glamorgan-Gwent Archaeological Trust discovered a small plano-convex pointed ovate flint handaxe on the high-water mark of Rhossili beach, Gower. Only

Fig. 18. Divers investigating the elusive *Resurgam* discovered in 1995 and now designated under the Protection of Wrecks Act 1973. © *Archaeological Diving Unit*.

the second stray find of a Palaeolithic handaxe in Wales, it was studied in detail by the late Stephen Aldhouse-Green, who was able to acquire it for the national collections.[63] Without doubt, future storms around the coast could lead to more exposures of submerged forests around the coast of Wales, such as the 630 tree stumps that were exposed at Borth in the spring of 2010. The Nautical Archaeology Society, through their 'Adopt a Wreck' scheme, has led community groups to survey and excavate wrecks on the shoreline that are gradually being broken up by the waves. Studies have also been undertaken by Wessex Archaeology, relating to the vessels associated with slate and coal industries, highlighting wrecks carrying Welsh coal and slate. A pan-Wales study of ports, harbours, wharfage, estuaries and supply points was also undertaken by the Welsh Archaeological Trusts.

The realisation that wrecked ships were not the only important historic underwater features led to an examination of other types of sites and their need for protection. Since 2011, The Royal Commission has focused its maritime recording onto the archaeological potential for downed aircraft at sea and commenced a GIS digitisation project to identify historic seascapes features, primarily from historic charting and coasting pilots. Crashed aircraft sites, historic vessels that were still afloat (some in museums, but many owned and maintained by private individuals) and submerged prehistoric sites and landscapes were also recognised as being important facets of the maritime historic environment. The *Protection of Military Remains Act* 1986 now protects military air-crash sites, while measures have also been introduced to assist owners of floating historic vessels.

The Royal Commission's partnership project, Commemorating the Forgotten U-boat War around the Welsh Coast 1914–18*,* funded by the National Lottery, is currently using the latest imaging techniques to reveal underwater wrecks from the Great War, and will support coastal communities around Wales to tell their previously untold stories about the Great War at Sea. Marine geophysical surveying is capturing high-resolution data of several wrecks, as well as underwater video footage showing the ecology and

Fig. 19. One of the largest objects to be reported through the Portable Antiquities Scheme in Wales being recorded by Tony Daly in 2002 on the site of the former Glamorgan canal on Dumballs Road, Cardiff. In addition to the revolutionary slogan ‘ÉGALITÉ LIBERTÉ’, the cannon bears the legend ‘RAMUS AU CREUSOT LAN.2’, indicating that it was cast at The Royal Foundry at Le Creusot in 1793–94. © *National Museum of Wales.*

biodiversity of the wreck sites. This work will be carried out by the Centre for Applied Marine Sciences at Bangor University.

The current partnership, CHERISH (Climate, Heritage and Environments of Reefs, Islands and Headlands), funded by the European Union, involves four partners (RCAHMW, Discovery Programme of Ireland, Aberystwyth University and Geological Survey of Ireland). Funded through the Ireland–Wales Co-operation Programme 2014–20, it was launched on 23 March 2017, and will run until December 2021.[64] A key objective of this cross-disciplinary project is to increase knowledge and understanding of the impacts (past, present and near-future) of climate change and increases in stormy and extreme weather events (such as storms Ophelia and Brian in 2017) on the cultural heritage of select zones of the Welsh and Irish regional seas. It is targeting data and management knowledge gaps, employing innovative techniques to discover, assess, map and monitor heritage assets on land and beneath the sea, and developing best practice for future climate change adaptation.

Despite such inspirational initiatives, the familiar risk of neglect has not gone away. Our maritime archaeology is often out of sight, and consequently out of mind. Sea levels are rising, climates are changing, and natural forces continue to erode much unsurveyed or changing historic landscape around our coast. The fact that in June 2018 two men were jailed for failing to declare items removed from British cruiser HMS *Hermes* (sunk in the First World War in the Straits of Dover) in contravention of the *Protection of Military Remains Act* 1986, reminds us of the continuing need to be vigilant. More can be done in Wales to increase awareness of our maritime heritage and its future protection, and the U-boat project 1914–18 is bringing together communities to reveal wrecks at risk, and seek out their untold stories. The future display of the rare early boats and ships from Wales such as the Barland’s Farm boat and the Magor Pill and Newport ships, all spectacularly rescued from oblivion, has yet to been resolved.

The financing of the conservation of underwater artefacts is an enormous problem and can act as a deterrent for some. What, we wonder, is the future of *Resurgam*, monitored and fitted with sacrificial anodes to slow down corrosion, but exposed to periodic buffeting by tempestuous seas off Rhyl? Will the internationally significant Elizabethan finds from the wreck of the merchantman *Ann Francis* have a future as an integrated assemblage in a museum curated on behalf of the people of Wales, or be dispersed? Will financial constraints jeopardise implementation of the best mitigation strategies to the ever-growing

Fig. 20. A treasure house of ship graffiti on the wall of an outside toilet at Trefin, Pembrokeshire, recorded in 2002. Sketches of vessels record their gross tonnages, the nature and weight of the cargoes loaded and their destinations. © *National Museum of Wales.*

requirements for energy and aggregates? It can only be a matter of time before a medieval cog is found in Welsh waters: how will heritage bodies, museums and the public respond? A secure future for such fragile heritage must lie in all of our own hands if solutions are to be found.

If we extend our thinking beyond archaeology to 'mariculture' in its widest sense, much unlocked potential exists within cross-disciplinary fields of visual culture. To take just one source, I would like to mention early artists' sketch books, starting with the visit of the Yorkshire draughtsman Francis Place (1647–1728) to Wales in 1678. Remarkably accurate depictions of lost maritime landscapes around Wales can be gleaned from the work of this draughtsman, printer and engraver, who was heavily influenced by his friend, the renowned Bohemian landscape artist and etcher Wenceslaus Hollar (1607–77). He produced some of the earliest panoramas of Welsh coastal towns, drawn from life and capturing shipping and maritime features that have long since disappeared. Ten sketches now in the collections of National Museum Wales were made during Place's drawing and angling tour of Wales in 1678. According to George Vertue (1684–1756), Place and his close friend and fellow artist William Lodge (1649–89) were arrested during their Welsh excursion as suspected Jesuit spies, at a time when anti-Catholic feeling was especially strong. During such insecure times spies were suspected everywhere. For artists with non-local accents drawing coastal town defences, castles and quays, arrest was an occupational hazard.

In his view of Cardiff from the bank of the river Taff, Place provides one of the earliest accurate depictions of what had served as the medieval quay for the town, at the end of present Quay Street. He

Fig. 21. This watercolour of ships in Swansea Bay painted by Reverend Calvert Richard Jones (1802–77) on 16 February 1830 is one of many sketches recording vessels of all types operating around Wales; the wrecked remains of some are periodically exposed when sand is scoured away. © *National Museum of Wales*.

shows a small single-masted vessel on the river, a type that would have made regular trips between the south Wales coast and north coast of Somerset and Devon.[65]

Another remarkable recorder was the Reveverend Calvert Richard Jones (1802–77), who became a maritime painter in his formative years, making numerous accurate drawings of coastal features and shipping around Swansea, Neath and Briton Ferry, Milford Haven and Pembroke Dock. Although he was less of a scientific pioneer of photography than Talbot and Llewelyn, Jones became one of the leading exponents of the fledgling photographic art. In the 1840s and 50s he took many photographs of the Swansea area, developing his own style of panoramic and architectural photography made by aligning two photographs taken across a wide scene. As well as his famous photographs of the docks and bays at Swansea, his sketches and watercolours provide remarkable details of shipping that no longer survive except as shoreline hulks. We are fortunate that fellow Cambrian Tom Lloyd spotted such a notebook a few years ago, while recently AC-NMW has been fortunate to acquire another of his notebooks, worked up as finely observed watercolours, with accurately observed rigging (Figs 21, 22).

For a remote discovery with strong Welsh connection, I would like to end in Arctic waters. In 1839 *HMS Erebus* set sail for the Antarctic under the command of Captain James Ross. Originally built as one of the 'Hecla' class bomb vessels at Pembroke Dockyard, she was launched in 1826, and after only two years' service, she was selected along with the *Terror* for an Antarctic expedition (1839–43) under the command

Fig. 22. This watercolour of a paddle tug on Loughor Flats was painted by Reverend Calvert Richard Jones (1802–77) on 19 September 1831. © *National Museum of Wales.*

of James Clark Ross. Amongst the many objectives of this expedition, two of importance were to measure the earth's magnetic field in the southern hemisphere and to locate the south magnetic pole. She was famously lost in pack ice during the Franklin expedition of 1845. Her remarkably well-preserved hull was rediscovered in 2014 off King William Island, Canada — providing an opportunity for archaeologists and naval historians to compare the plans and models of a Pembroke-built ship with what survives in Arctic waters, and learn more about her working history as a ship from cradle to grave (Fig. 23).

The importance and appeal of maritime history has in recent years benefited from an increase in digital platforms of relevance and interest to the general public, developers and regulators, such as *Coflein* and *Casgliad y Werin Cymru – People's Collection Wales*); peer-reviewed publication of new discoveries remains an important goal, particularly when so much recording goes under the radar and remains unpublished.

The sea has contributed so much to forming the country of Wales and its people, and to undervalue its significance is to miss half of the story. This hidden but rich inheritance should be treasured and safeguarded for future generations to understand and enjoy. 2019 in Wales has been designated 'Year of Discovery'. Let's hope it will be good one!

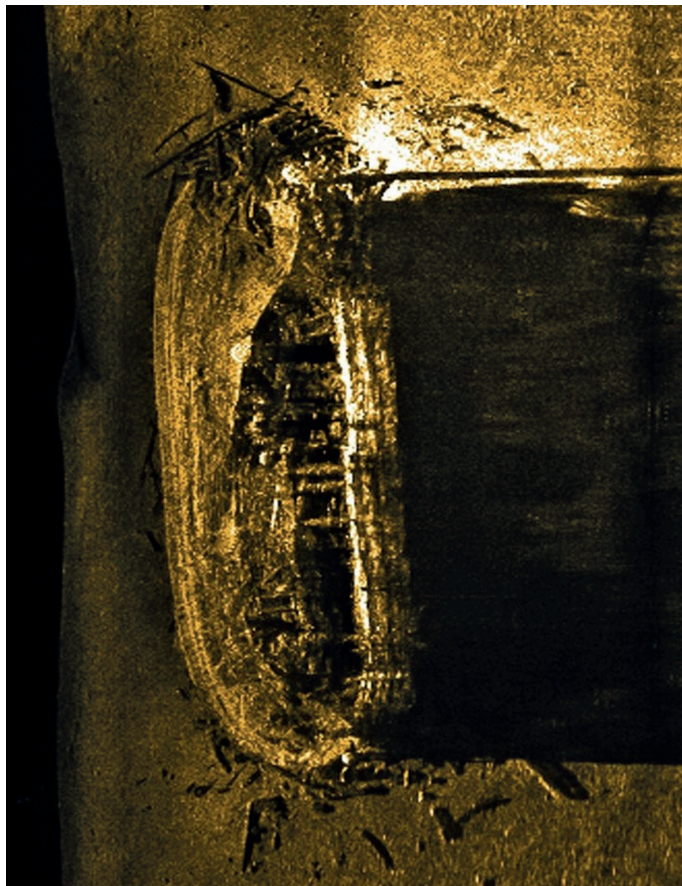

Fig. 23. HMS *Erebus*, built as a strong bomb vessel at Pembroke Dock in 1826, took part in the Ross expedition to the Antarctic in 1839–43, and was lost in pack ice during the Franklin expedition to the Arctic in 1845. This sidescan sonar image shows her well preserved hull, rediscovered in 2014 off King William Island, Canada. © *Parks Canada.*

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The subject of this address as a subject has a broad horizon and deep waters, and I only been able to mention a few of the organisations and numerous individuals who have and continue to make contributions to our understanding of this subject area. I have relied heavily on the scholarship and expertise of many, and I would like to thank them all. For particular help with the content of this address, I would like to express my thanks to colleagues in AC-NMW – Tony Daly for drawings and Robin Maggs for photography; Mark Lodwick (PAS Cymru) for information on coastal artefacts; Elizabeth Walker for information; Edward Besly for information on coin finds. I am grateful to Tenby Museum for access to their collection; Sian Rees and Alan Aberg (co-editors) and all the contributors to *Wales and the Sea*; Deanna Groom and Toby Driver and colleagues in RCAHMW for information for images and information; David Jenkins for information on the Trefin 'treasure house'; Toby Jones for information on the Newport ship; Alex Hildred, Ruth Brown and Kay Smith for comments on the guns; and all finders for promptly reporting their discoveries.

NOTES

1. Redknap, Rees and Aberg (eds) 2019.
2. Walcott 1980 and 1986.
3. National Library of Wales, Bettisfield MS 1484; Pratt 1984.
4. Englefield (Tegeingl) was one of three cantrefs making up Flintshire.
5. The deep sea trader or *knarr* known as Skuldelev 1, built about AD 1000–50, had a length of 16.5 metres and raised decks fore and aft. The Kollerup cog of about 1150 has been reconstructed with both side and stern rudders, decking fore and aft, and a laden freeboard of about 1.2 metres amidships: Englert 2015, figs 4.10, 4.11.
6. Fish exported from Tenby was noted for its quality and white herring was sent by sea to Goodrich castle for the table of Joan de Valence; the kitchens of Henry Lacy at Aldbourne (Wiltshire) were supplied with stockfish from Denbigh: Davies 1978, 110–11.
7. Trinity College Dublin (TCD), MS 557, V, 270ff; VI, 164ff; *Registrum Octaviani* no. 26, the register of Archbishop Octavian of Armagh, based on a testimony dated 2 September 1473; O'Neill 1987, 121–2.
8. Morris 1980, 42.
9. Davies, S. 2007
10. North 1957, 147ff. North also noted dune formation and encroachment at Kenfig and Margam Burrows from the thirteenth to the sixteenth centuries: North 1957, 115–17.
11. Lewis 2007, 60–6.
12. From Bodleian Library, Bulkeley MSS; Anon 1851, 235–6.
13. Knight 1853, 229–62.
14. Watkins 1881.
15. Skeel 1922, 256.
16. 'Swansea Meeting Report', *Archaeologia Cambrensis*, 6th ser., 20 (1920), 341–3, with notes on Port Eynon and Culver Hole.
17. For example, Fleure 1915, 407–10.
18. Allen 1920, 194.
19. Lloyd 1964, 150–8; Lloyd 1967, 195–7.
20. Richardson 1995, 204–23.
21. Aldhouse-Green *et al*. 1992.
22. Dimmock 2005, 63.
23. Moore 1970 and Moore 1977.
24. Bowen 1969; Moore 1970; Boon 1977 and 1978.
25. Fox 1925.
26. Fox 1926.
27. Fox 1926, 146.
28. McGrail 1978, 332. A radiocarbon date from the logboat of 1135±60 BP (Q-857) calibrates to cal. AD 770–1005 at 95% probability (Switzur 1989).
29. Redknap and Lane forthcoming.
30. Rees 2014; James and Lynch 2018.
31. Grimes 1931a and 1931b.
32. Gruffydd 2016; Griffiths 2018, 95–113.
33. Besly 1997.

34. Nayling and Caseldine 1997; Bell *et al*. 2000; Nayling and McGrail 2004; Nayling 1998; Nayling and Jones 2014.
35. Hutchinson 1984.
36. Anon 1886, 235–6.
37. Examples of nineteenth-century losses include the *Richmond*, carrying passengers and cargo from New York to Liverpool, driven ashore at Aberdaron after losing its rudder on 26 November 1821, and the *Kent*, a schooner built in 1816 lost on rocks in the bay on 22 October 1867. I am grateful to Deanna groom for this information.
38. See <www.archaeoleg.org.uk/pdf/maritime2011.pdf>; <www.archaeoleg.org.uk/pdf/refresh2016/maritimerefresh2016.pdf>; and <https://www.archaeoleg.org.uk/pdf/review2017/maritimereview2017.pdf>.
39. Young and Thomas 1998.
40. *Calendar of Patent Rolls*, 1408–13, 178.
41. Lewis 1913, 164.
42. Christensen and Steusloff 2012; Meer 2004.
43. Adams and Rönnby 2013, 103ff.
44. For a comprehensive examination of the wider fifteenth-century context of the Newport ship, see Jones and Stone 2018. For seven months in 1465/96, Lisbon accounted for about 80% of Bristol's Iberian trade (Stone 2018, 194).
45. Previously much was called Mérida-type ware. See Gutiérrez 2000 for range and Gutiérrez 1995 for terminology.
46. Similar to those found in Plymouth and Exeter: Redknap 2017 available at <archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-1563-2/dissemination/pdf/Newport_Ship_Specialist_Report_Pottery_and_Tile.pdf>.
47. Lecture by C. Dobbs, 'Reconstructing the Cook's Galley on the Mary Rose – from seabed rubble to working kitchen', at the 7th Experimental Archaeology Conference, Cardiff, January 2013.
48. National Museum Wales, acc. no. 87.42H.
49. For more, see Redknap, Rees and Aberg 2019, 130–1; 239.
50. Public Record Office, C76/146m.15; Trett 2014, 4.
51. Redknap 2010, 155. I am grateful to Steve Sell for bringing the St Werberga's badge showing five geese inside a wattle enclosure to my attention in 1997.
52. Portable Antiquities Scheme, NMWPA 2009.135; the cult of St Anne was strong in the fifteenth century.
53. It has a narrow V-shaped central opening for a single-edged knife blade with a width of about 20 millimetres.
54. Sutton 1981, 11.
55. Landimore near Cheriton (Glam.).
56. Redknap, Rees and Aberg 2019.
57. In 2018 Amgueddfa Cymru – National Museum Wales accepted the Llyn Peris boat as a donation from First Hydro Company and Owain T. P. Roberts. The museum will be considering its potential for future display at Llanberis.
58. Tanner 2008.
59. Holt 2017.
60. See <cadw.gov.wales/historicenvironment/protection/maritimewrecks> and <www.nauticalarchaeologysociety.org>. Maritime records are accessible online at <www.coflein.gov.uk>. This

followed the White *Paper This Common Inheritance* (1990) announcing funding for the Royal Commission on the Historical Monuments of England to prepare a Maritime Record of site, followed by Northern Ireland (1993) and Scotland (1995).

61. DAT 2011; Fitch and Gaffney 2011. Work on the Severn Levels by Professor Martin Bell and others have also shone a bright light on the rich but eroding potential of submerged coastal landscapes around Wales.
62. See online at <https://lle.gov.wales/catalogue/items/ShorelineManagementPlan2>.
63. Green 1981, 337–9.
64. See details online at <www.cherishproject.eu/en/>.
65. Sections of this quay revetment, buried along modern Westgate Street, were revealed by contractors in 1973 and found to survive to a height of 3.57 metres. As the meander of the river Taff slowly moved seaward, the quay had become redundant by 1828, and Cardiff's quay had shifted elsewhere.

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