

OARS, SAILS AND GUNS: THE ENGLISH AND WAR AT SEA, c.1200–c.1500

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THIS is a survey which focuses on technological change and war at sea as seen through the evidence of English sources. England was a regional naval power in northern Europe between the thirteenth and fifteenth centuries. For much of this period, the main enemies were France, and, to a lesser extent, Scotland and the Welsh princes. The French, Scottish and Welsh wars meant that the operations of English ships at war were restricted mostly to the waters around the British Isles and to the coasts between northern Spain and the Low Countries. The demands on English naval forces were limited compared to what would come after the mid-seventeenth century.

The shipping resources available to English governments in this period varied considerably. Although royally owned ships were generally at the core of major naval operations, at no time before the seventeenth century was the government able to undertake major naval expeditions without using substantial numbers of ships owned by commoners. Medieval English governments for the most part also lacked naval dockyards and had to rely on the ‘civilian’ shipbuilding industry to supply some of its vessels. This means that the financial accounts and other records of medieval English naval activity are also important sources for the history of English merchant shipping and for the general history of maritime technology. The technology of naval warfare changed for England in the later Middle Ages. How much the development of ships and guns changed practice at sea is difficult to assess but certainly the effects contributed to the evolution of standing naval forces.

Until the fourteenth century, oared vessels provided a major part of the striking power in English war fleets. The English called them ‘galleys’. As far as we can make out, these were clinker-built vessels with a double-ended hull form, carrying a single square sail. Until the late thirteenth century, or perhaps slightly before, they were steered by a side- or quarter-rudder alone, although it is apparent that by the 1290s stern rudders were also fitted to some big English galleys. It is also clear that by the 1290s, if not earlier, some had fighting castles at the bow, stern and masthead.¹ All this said, there is still much that is not

¹ Ian Friel, *The Good Ship: Ships, Shipbuilding and Technology in England, 1200–1520* (London, 1995), 39–115, *passim*.

known about them. Were they Anglicised descendants of Viking *drakkar*, or did they derive ultimately from the big oared warships built for King Alfred of Wessex in the late 890s?² Only archaeology can help to answer that question now.

The term 'galley' declined in English usage in the fourteenth and fifteenth centuries. Even by the early fifteenth century, the English were tending to use 'galley' to designate Mediterranean-style vessels. From the second half of the fourteenth century to the late fifteenth century most English oared fighting ships were called balingers or barges, or, latterly, 'barks'.³ These were also clinker-built oared fighting ships, indistinguishable in their recorded written details from the earlier galleys (apart, in the fifteenth century, from changes in rig), whatever they actually looked like. Some of these oared fighting vessels could be very big. In the early thirteenth century, King John had galleys with at least seventy rowers, and out of eight galleys built for Edward I in the 1290s, five had one hundred oars or more. As late as 1401, a hundred-oar balinger was built for Henry IV.⁴ Oared fighting ships remained part of the English naval inventory right into the sixteenth century, although their status and numbers changed. The first English-based navy of any significance to be created after the Norman Conquest was built up by kings Richard I and John in the late twelfth and early thirteenth centuries, to fight the French king. The loss of the Duchy of Normandy to France in 1204 placed an important seafaring region in the hands of an enemy, accentuating the need for naval forces. In 1206, John had forty-seven galleys on station at ports from King's Lynn to Gloucester, plus another five in Ireland, a massive royal fleet for the Middle Ages. He also had sailing ships of various sizes but the galleys were clearly the principal combat arms.⁵ Oared fighting ships needed large crews and this probably limited their ability to stay at sea. Their great military advantage was a tactical one: they could move independently of the wind in combat. Long-distance travel under oars was probably never much of an option, but one should not exclude the possibility that such feats did take place. There is little doubt that the English Crown made much use of oared craft between the thirteenth and fifteenth centuries. Contemporary financial accounts record the purchase of large numbers of oars, and the crews of galleys, barges and balingers were generally much larger than those of sailing vessels of equivalent tonnage, because of the need to have enough men to work the oars. Analysis of surviving tonnage and crew data for English royal ships between 1399 and 1422 suggests a sharp disparity between

² *The Anglo-Saxon Chronicle*, trans. Michael Swanton (London, 1996), 90.

³ Dorothy Burwash, *English Merchant Shipping 1460–1540* (Newton Abbot, 1969), 103 ff.

⁴ L. G. Carr Laughton, 'Naval Accounts for 1209–1211', *Mariner's Mirror*, 28 (1942), 74–7; Friel, *The Good Ship*, 113.

⁵ N. A. M. Rodger, *The Safeguard of the Sea: A Naval History of Britain, Volume I: 660–1649* (London, 1997), 45–54.

the crew sizes of oared and sailing vessels of the same tonnage, with oared vessels on average having nearly twice as many men for a given tonnage.⁶

That said, it is evident that by the early fifteenth century, sailing ships had supplanted oared craft as the main striking force in English war fleets. The growing size of sailing vessels, and the adoption of fighting castles, may well have been one reason for the downgrading of the oared vessel in English service. The Danish archaeologist Ole Crumlin Pedersen has put forward the hypothesis that the introduction of fighting castles from the late twelfth century onwards (they are first depicted on a seal of 1199) was perhaps originally developed to give oared craft an edge in combat against higher-sided sail-driven ships like the cog. Cogs and their like of course acquired castles, re-establishing their height advantage. Although other scholars, such as Jan Bill, have challenged this hypothesis, it remains a possibility.⁷ Height and crew size were crucial advantages in medieval sea warfare, and it is likely that large, castle-equipped sailing ships could only have been defeated, in most cases, by ships of similar type. This helped to undermine the value of the galley and similar oared vessels as a primary type of warship in late medieval northern Europe, at least in English service. Certainly by the time of king Henry V (1413–22), there had been a decisive shift in the composition of English royal naval forces. Oared balingers and barges were still important, but more as reconnaissance and patrol craft. For example, Henry V's personal fleet was probably at its peak strength, if not peak numbers, in about March 1417. It then had twenty-seven operational vessels with an estimated total tonnage of 6400 tons with 600 tons of this being estimated since the tonnages of one carrack and four balingers are unknown. Eleven of the twenty-seven vessels were oared balingers, but they only made up about 10 per cent of the total tonnage. The other approximately 90 per cent consisted of sailing ships. The English naval victories at Harfleur in 1416 and off the Chef de Caux in 1417 involved the capture of seven very large Genoese carracks, something that would have been very difficult if not impossible for oared ships alone as the carracks enjoyed a substantial height advantage over oared warships. There can be little doubt that these two victories were chiefly gained by sailing ships.⁸ In fifteenth-century English war fleets the oared vessel seems to have been an important auxiliary craft, but never much more than that.⁹

Until the early fifteenth century, English ships, like those elsewhere in northern Europe, used the common north European one-masted rig with a single square sail. This rig was exported to the Mediterranean in the late thirteenth and

⁶ Ian Friel, 'Documentary Sources and the Medieval Ship: Some Aspects of the Evidence', *International Journal of Nautical Archaeology*, 12 (1983), 55.

⁷ Ole Crumlin Pedersen, 'The Vikings and Hanseatic Merchants', in G. Bass, ed., *A History of Seafaring Based on Underwater Archaeology* (London, 1972), 181–204.

⁸ Public Records Office E364/59, *passim*; Friel, *The Good Ship*, 151–2; Rodger, *Safeguard of the Sea*, 143–4.

⁹ N. A. M. Rodger, 'The Development of Broadside Gunnery 1450–1650', *Mariner's Mirror*, 82 (1996), 301–24.

early fourteenth centuries along with the hull form of the cog. In the fourteenth century Mediterranean sailors added a smaller lateen mizzen to this rig to help make the new, large ship-type, the *cocha*, called a carrack by the English and other northerners, more manoeuvrable.

The earliest-known English record of a two-master dates from 1410, when a two-masted Genoese carrack captured by pirates was acquired by King Henry IV. The English Crown began using and building two-masted vessels in the years 1416 and 1417, probably learning about the technology from captured ships and seamen. The purpose-built two-masters were either large sailing ships or long, low balingers, which were perhaps perceived to benefit from the improved manoeuvrability. It seems that the 1400-ton great ship *Grace Dieu*, completed in 1418, had three masts, although the precise arrangement is unknown. However, it is clear that in the 1430s an English royal balinger was rebuilt as a three-master, with a small square-rigged foresail to help improve its handling. It is possible that the square-rigged foremast was an English invention, but such developments could hardly be kept secret. By the 1450s and 1460s the three-masted square-rig was spreading across both northern and southern Europe and undergoing development. The result was a handier ship, undoubtedly much better suited to the rigours of transoceanic travel than the old one-masters would have been. As such, the three-master became one of the major instruments of oceanic colonisation and conquest, along with other types like the Portuguese caravel.¹⁰

The Portuguese, whether willingly or not, were also significant in the transmission of southern skeleton-building technology to northern Europe between the 1430s and 1450s. The new type was generally called a carvel by northerners, after the 'caravel'. The first known English-built carvel, Sir John Howard's *Edward*, was constructed in the 1460s. By the early decades of the sixteenth century the technique was being used for the construction of major English war carracks.¹¹ These two epoch-making technological developments in sail plan and hull construction transformed the nature of European shipping and made European transoceanic enterprise feasible, but their precise effect on naval warfare is less easy to chart. The new rig made ships more manoeuvrable, but it became a general standard, not something that conferred a special tactical advantage on any one power. Skeleton construction later made possible the creation of lidded gun ports and gunrooms, but that did not come until the sixteenth century.¹²

The first recorded shipboard gun was a small weapon, used for firing lead pellets and quarrels or crossbow bolts, bought for the English royal ship *All Hallows Cog* in 1337 or 1338. Guns seem to have remained relatively unimportant in English sea warfare until the fifteenth century. Of the thirty or so ships

¹⁰ Friel, *The Good Ship*, 84–109 and 157–70.

¹¹ *Ibid.*, 170–80.

¹² Cf. Rodger, 'Broadside Gunnery'.

possessed by Henry V between 1413 and 1422, only about half had guns and the total of actual weapons did not exceed forty-two. The most heavily armed ship was the 760-ton ‘great ship’ *Holigost*, with seven guns. Where their material is stated, the guns were almost invariably made of iron, although in 1411 a barge of Henry IV’s had both an iron gun and a bronze one. The weapons were called both ‘cannons’ and ‘guns’ although the terms were seldom used interchangeably for the weaponry of the same ship, perhaps hinting at technical differences. The guns were breach-loaders, often with two or even three separate powder-chambers apiece, to speed reloading. We do not know if these were wheeled cannon or swivel guns.

Surviving English ship inventories are rare between the early 1420s and the late 1470s and there are no royal ship inventories between the mid-1430s and the mid-1480s. This is unfortunate as major developments in rig and ship-borne gunnery took place in this period. For one thing it is clear that between the 1420s and the 1480s a revolution had occurred in the provision and use of shipboard guns. Although overshadowed by the introduction of lidded gun ports in the sixteenth century, it was clearly one of the major stages in the development of the warship, and comparatively little is known about it.¹³

Records of the 1470s and 1480s reveal that significant increases had taken place in the numbers of ship-borne guns since the 1420s. In the late 1470s Sir John Howard owned two private warships, the *George Howard* and *Edward Howard*. They carried, respectively, 16 and 15 wrought-iron breech-loading ‘bombards’. A few years later, in 1485, a royal ship, the *Mary of the Tower*, had 48 guns and 11 chambers, plus 12 hakbushes, a crude form of musket. Another royal vessel, the *Martin Garsia*, had 30 guns, 86 chambers, 100 gunstones, that is, round shot made of stone, and 300 tampions or shot wads. The two largest of Henry VII’s ships, the 1000-ton *Regent* and the 600-ton *Sovereign*, built in the 1480s, carried prodigious numbers of guns. The 1495 inventory of the *Sovereign* lists 130 guns of three types, serpentines of iron and bronze and stone guns, all breech-loaders, and all mounted on swivels, called ‘miches’, rather than carriages. These technological changes were complemented by changes in personnel. Gunners began to appear as separate specialists aboard English warships in the 1470s, and were common on large warships by the 1490s.¹⁴

Despite the increasing numbers of guns, there is no sign that they had much effect on English naval tactics before the sixteenth century. All late-fifteenth-century English warships carried large numbers of bills, bows and other hand weapons, arms that were used to fight the boarding actions that still decided the outcome of any naval battle. There is no reason to believe that the English had much notion of the effective use of stand-off gunnery until well into the

¹³ Friel, *The Good Ship*, 150–6.

¹⁴ PRO C76/163, m.6; Michael Oppenheim, ed., *Naval Account and Inventories in the Reign of Henry VII 1495–7*, Navy Records Society 8 (London, 1896), 38, 50, 69, 194–5, 261 and 339–44; Rodger, *Safeguard of the Sea*, 160–1.

sixteenth century. Famously, both the *Regent* and the French warship *La Cordeliere* were destroyed when both caught fire during a boarding action in 1512. Swivel guns of the type which bristled from ships in the 1490s would have been only useful as anti-personnel weapons. It is possible that one reason for their use in large numbers was that it was anticipated that a significant number would be unreliable. Twenty-nine of the *Regent's* guns were lost in unspecified ways in the 1497 English campaign against Scotland.¹⁵ Heavy ship-borne guns that could sink other vessels only began to make their appearance in north European waters in the early sixteenth century. For most contemporary seafarers the aim in battle was to capture an enemy ship, not sink it, if at all possible. A captured ship could be a valuable prize, and surviving officers could be ransomed. A sunken ship might mean one less enemy vessel, but it was otherwise no use to anyone.

Unlike medieval France, with its impressive galley dockyards at Rouen and elsewhere, medieval England lacked anything like a standing navy. One or more officials of the royal household, assisted by others appointed on an *ad hoc* basis when the pressure of work required it, essentially undertook the management of the king's ships. From the 1330s the clerk, later keeper, of the king's ships, an administrator and finance officer rather than an operational commander, normally ran the ships.¹⁶ The king's ships were far from being a navy in the modern sense of the word, although it was recognised by Crown and commoners alike that they did have some function in the defence of the kingdom and of English shipping, as well as in the prosecution of war. Although fleets of royal ships were sometimes quite large – particularly those of John and Henry V – few medieval English monarchs had the financial resources to keep a large fleet in being for very long. Royal fleets tended to be built up rapidly in times of need, and then demobilised or sold off after the crisis had passed. For instance, after Henry V died in 1422 most of his ships were quickly sold off to help settle his debts. The king's sea and land campaigns had removed the threat of French sea-borne attack and there was no longer seen to be any need for a large royal fleet.¹⁷

The uses to which the medieval king's ships were put were also not always 'naval' ones, even in time of war. Henry V, for example, revived the royal fleet in order to help pursue his ambition to take the throne of France. The fleet rose in number from seven usable vessels in July 1413, to twenty-seven by March 1417, and at its height in 1420, the king owned something like thirty-six ships. The accounts of the clerk of the king's ships for 1413–22 show that twenty-nine of

¹⁵ Rodger, *Safeguard of the Sea*, 170; Oppenheim, *Naval Accounts*, vol. 8, 279.

¹⁶ Rodger, *Safeguard of the Sea*, 128–30 and 158–9.

¹⁷ Susan Rose, ed., *The Navy of the Lancastrian Kings and the Accounts and Inventories of William Soper, Keeper of the King's Ships, 1422–1427*. Navy Records Society 123 (London, 1982), 52.

the king's ships were used at one time or another in naval operations, such as invasion fleets or sea-keeping patrols, but that seventeen also went on merchant voyages, most of them carrying wine from Bordeaux, although a few went further afield to Prussia and Portugal.¹⁸ It is possible that the ships on the Bordeaux run went as convoy escorts, but the crew sizes on these enterprises were generally smaller than those for war operations. The main reason for sending the ships seems to have been monetary. Henry's one-masted sailing ships were used on these voyages and on the face of it they were profitable. Between September 1413 and June 1416, twelve ships completed twenty-six trading voyages, which netted the very large sum of £2055 in freight payments from merchants. The proceeds were ploughed into the financing of the royal ships. However, if one subtracts the costs of crew wages and victuals from this figure, the profit reduces to £400 and the whole enterprise may well have been run at a loss, as £968 was spent on the upkeep of the twelve ships over this period, much of which must have been necessitated by the rigours of the voyages. The deficit was even greater than this as one 220-ton ship, the *Cog John*, was wrecked off Brittany during a Bordeaux voyage. Nevertheless, the fact that these voyages continued suggests that contemporaries saw them as successful.¹⁹

The king's ships had a multiplicity of uses, but they were seldom intended to be much of a combat force by themselves. Medieval English naval expeditions, large and small, relied on using conscripted merchant ships and other vessels belonging to English owners. As far as one can make out, impressment commands were generally obeyed, although at times they caused serious interruptions to sea-borne trade. Merchant vessels were essential for moving troops, horses and stores, and with the addition of fighting castles, if they did not already have them, could be converted into warships. Although we do not know the full size of the English merchant fleet at any point in the Middle Ages, musters for royal fleets do give us some notion of the numbers of vessels used by English merchants. Edward III used the largest recorded fleets in the 1340s, with 440 ships mobilised for carrying an army to Brittany in 1342 and at least 750 vessels used in the king's voyage to Normandy in 1346. The Black Death of 1348–50, which killed a large portion of the population of Europe, inevitably reduced the shipping resources of every kingdom, leaving fewer mariners to man ships and less demand for shipping. Despite chronicle accounts of Henry V using a fleet of 1500 ships for his 1415 invasion of France, there is little evidence to back this up, and financial records suggest that English fleets were smaller than they had been in the 1340s. Given the fact that the Black Death and later epidemics had substantially reduced the English population by the early

¹⁸ PRO E364/54, E364/59 and E364/61, *passim*.

¹⁹ PRO E364/54 D, m.2r – F, m.2v, *passim*, and E364/59 F, m.2r.

fifteenth century, this is not very surprising.²⁰ English rulers also intermittently hired vessels from friendly foreign powers for use as both transports and combat vessels. In 1417, for example, twenty foreign ships were hired for use in sea patrols, and over fifty more served as transports.²¹

The records of the customs at Bordeaux, an English possession until 1453, give a good idea of the changing sizes of English merchant ships in the late Middle Ages. The Bordeaux wine ton of 252 gallons was the principal container used in the port and the wine trade inevitably used some of the larger contemporary bulk-carriers. As an employer of shipping, the trade seems to have been at its peak in the early fourteenth century. For example, in the three months between late June and Michaelmas 1303, there were 271 wine shipments from Bordeaux. Fifty-five of these shipments were carried in ships capable of carrying between 150 and 250 tons, and in the following year one shipment even reached 303 tons. The tonnage lading figures, although variable, are a good guide to the actual as opposed to alleged carrying capacities of ships. By the 1350s, after the Black Death, English ships in the 150 ton-plus range were much rarer, a situation that persisted into the early decades of the fifteenth century. However, there was also a sharp increase in the numbers of these ships by the 1440s, and the appearance of vessels in the 200 ton-plus range. One ship calling at Bordeaux in 1444–45 was even able to load 380 tons of wine, perhaps the largest cargo of any English-built merchant ship in the Middle Ages. The ship in question was the *Grace de Dieu*, built on the Yorkshire coast in 1439, which later ended up as a derelict royal warship on the river Hamble in the 1480s. A muster of ships in 1450–1 for an expedition confirms that the English at this time possessed significant numbers of large merchant ships. Out of sixty-three vessels collected, eighteen were between 200 and 400 tons' burden. Between the 1420s and the 1450s the English merchant fleet seems to have had more large vessels than it was to have for another century and a half or so. It is ironic that the English government of the time lacked the finance and other capabilities to make effective use of this shipping in the revived war with the French Crown.²²

Significant numbers of non-royal ships were also private warships, used by pirates and privateers, and were of great value to the Crown in times of war. This fact served to undermine royal efforts to curb piracy. Some of the biggest pirates, like the notorious John Hawleys of Dartmouth, father and son (1370s to

²⁰ Rodger, *Safeguard of the Sea*, 118–19 and 140–1; Christopher Allmand, *Henry V* (London, 1992), 78.

²¹ PRO E364/59, H m.2r.; *Rotuli Normanniae*, ed. T. D. Hardy, 1200–1205 and 1417–1418 (London, 1835), 320–9.

²² PRO E101/158/10; E101/173/4; E101/185/7; BL Add. MS 15524; PRO E364/92, A m.1v – B m.1r. (I am grateful to Dr Wendy Childs for making her transcripts of these accounts available to me); R. C. Anderson, 'The *Grace de Dieu* of 1446–1486', *English Historical Review*, 34 (1919), 584–6.

1430s) were important men, powerful and honoured in their own localities, and too useful to the Crown to ever suffer much for their piratical activities. Pirates favoured speedy oared balingers and barges, and John Hawley the Younger even presented one of his vessels, the balinger *Craccher*, to Henry V. The masters of royal ships could be pirates. John William, who rose to be the master of the great ship *Jesus*, had committed at least one act of piracy when he had earlier worked for John Hawley as master of the *Craccher*. Some monarchs, such as Henry IV, seem to have used privateering campaigns as a means of exerting pressure on enemies without the risks of open war.²³

What did technology mean in all of this? Actual shipbuilding for the English Crown in the Middle Ages concentrated on the construction of oared fighting ships, rather than sailing vessels. The former were probably much less easy to come by than the latter, and certainly few people but the king would have been able to crew and operate the sorts of big galleys constructed for Kings John and Edward I. Even in Henry V's time, the actual construction of ships for the Crown was restricted to four 'great ships' (super-large, clinker-built carracks) and eight balingers or barges.²⁴ Purchase played very little part in Henry V's ship procurement 'process': at least seventeen of the twenty-eight other sailing ships acquired by the Crown in this period were prizes. Later in the century, in the time of Henry VII in the 1480s and 1490s, the four new ships built for the king were two carracks and two oared barks. Any other vessels were acquired by alternative means.

The shipbuilding industry that built these vessels was 'civilian' in nature. Despite some naval base or dockyard construction in the time of John and Henry V, there were no specialised warship building yards in the sense of those that existed in the eighteenth century. The Crown had to rely on the dispersed and somewhat disorganised English shipbuilding industry for what construction and maintenance work it required. The industry worked entirely in clinker construction until the mid-fifteenth century, and its gradual conversion to carvel construction from about the 1450s still lacks a complete explanation, although factors such as lower costs (less iron, more wood, fewer specialist workers required) and improved hull serviceability may well have played a part. This, however, was a general change for shipping of all types, and it is clear that not all English warships were being built carvel-fashion until the early decades of the sixteenth century.²⁵

Changes in English ship rig may have been fostered by the royal fleet.

²³ J. C. Appleby, 'Devon Privateering from Early Times to 1688', in M. Duffy *et al.*, eds, *The New Maritime History of Devon*, vol. I: *From Early Times to the Late Eighteenth Century* (London, 1992), 91; Rose, *The Navy of the Lancastrian Kings*, 42, 245 and 250; C. J. Ford, 'Piracy or Policy: The Crisis in the Channel, 1400–1403', *Transactions of the Royal Historical Society*, 5th series 29 (1979), 63–78.

²⁴ Rose, *The Navy of the Lancastrian Kings*, 245–52.

²⁵ Friel, *The Good Ship*, 39–67 and 170–80.

Certainly Henry V's fleet changed rapidly from having no two-masters in 1415 to a situation in 1420 where it had one apparent three-master and eleven two-masters, of which four were English-built. Five of the two-masters were former Genoese carracks. Two other ships were possibly from Spain and one from Bayonne. Certainly the 'new' two-masted technology was available in other parts of northern Europe at about the same time, but there is clear evidence of its rapid adoption for ships of the English royal fleet, apparently to improve large sailing ships and long, low balingers.²⁶

The four 'great ships' built for Henry V between 1413 and 1420 represented another major innovation. It was not unusual for an English monarch to have a single large sailing ship as a prestige piece. King John had had a 'great ship' called *Dieulabeneie*, and Richard II and Henry IV had had the 300-ton *Trinity*, for example. The first of Henry V's great ships was a rebuild, at about 400 tons, of the old *Trinity*, renamed the *Trinity Royal*. The second, the *Holigost*, was a rebuild of a large Spanish ship, but the biggest ones, the 1000-ton *Jesus* and the 1400-ton *Grace Dieu* were constructed from scratch. As a group, the great ships appear to have been clinker-built versions of Mediterranean carracks. Certainly the Genoese carracks hired by the French at this time represented a major threat to English naval forces. The great ships were different in size and scale from earlier large royal ships, and represented a trend in English and other north European warship building that can be traced into the sixteenth century and beyond. The large war carracks were potent symbols of royal power. They carried as many people as a large village. The *Jesus* had a crew of 201. The tall, heavily manned ships were perceived to be of great use in the form of sea warfare that was resolved by boarding actions. It is difficult to point to the use of such carracks as being particularly decisive, but it should be noted that both the *Holigost* and the *Trinity Royal* were in the thick of the fighting in the battle of Harfleur in 1416, a battle which not only saw the capture of three large carracks, but also resulted in an English victory.²⁷

As discussed above, guns appear to have had very little effect on the nature of naval warfare in northern Europe before the sixteenth century. However, if this was entirely the case, one does wonder why there was a sudden sharp increase in the numbers of guns carried on English warships in the latter part of the fifteenth century. There must have been a perception that larger numbers of guns made a warship more effective. Although the bulk of these were small, anti-personnel swivel guns, this does not mean that they were mere popguns. In a boarding action, the 600-ton *Regent* would have been able to fire fifty or more such weapons at an enemy ship alongside, and the relatively quick reloading time for a small breech-loader could have meant that the fire from the ship was able to devastate any open decks or perhaps even penetrate light superstructure.

²⁶ Rose, *The Navy of the Lancastrian Kings*, 245–52.

²⁷ PRO E101/42/39; Carr Laughton, 'Naval Accounts', 74.

For people who believed in the reality of hell, the noise and smoke alone could have been very daunting. Although it may not merit the title of an ‘armament revolution’, the rising use of gunpowder weapons on sailing warships in the second half of the fifteenth century was a real phenomenon, one that served to make the ship a deadlier instrument of war. However, it was a phenomenon that had probably already reached its limits by 1500. Until the invention of the lidded gun port in the early sixteenth century, it was not possible to mount guns in any numbers below the castle or the weather deck. This in turn limited the size of weapons that could be used, as a large battery of heavy guns could pose major stability problems. Once the lidded gun port and the gunroom were developed, it became easier to carry heavy guns, as these could go below the weather deck, lowering the vessel’s centre of gravity. The ship-borne heavy gun eventually became a destroyer of ships, but the techniques and tactics required to make this possible were not fully developed until the seventeenth century. The rise of the ship-borne gun in the fifteenth century was in the context of existing tactics. It made ‘red war yet redder’ rather than revolutionised it.²⁸

Changing maritime technology did transform the ways in which the English waged war at sea in the Middle Ages, but the transformations in England seem to have been matched by those in other countries. England kept up with new developments, and perhaps led the way in some, but prevailing medieval economic and technological conditions made it impossible for anyone to maintain a decisive technological margin for very long. Superiority in numbers and the ability to raise fleets when needed seem to have mattered more, giving the English a sufficient edge over their naval opponents in Wales, Scotland and France. Although French forces were able to stage many devastating raids on the English coastline during the Hundred Years War, in the fourteenth and fifteenth centuries French armies were never able to invade England. By contrast, the English were able to invade France on a number of occasions, culminating in Henry V’s conquest of northern France and his recognition as heir to the French throne. However, medieval England’s wars were ultimately won or lost on land. The only way in which the English could gain even partial control of the English Channel was to conquer Normandy, which was achieved, briefly, between 1419 and 1450. The English naval forces could never have won the long series of conflicts between England and her enemies in the thirteenth, fourteenth and fifteenth centuries but they were effective enough to make it possible for the English Crown to undertake periodic sea-borne offensives against those enemies. Without English medieval sea power, disorganised and ramshackle as it sometimes was, there would have been no Hundred Years War and all the terrors that went with it.

²⁸ Thomas Hardy, ‘Channel Firing’.

