The Seaton Carew Shipwreck: the recording of a 'chance' maritime find near the mouth of the River Tees

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Introduction and Historical background

Towards the end of the 18th century, the Industrial Revolution in Great Britain heralded a dramatic increase in demand for coal, for both domestic and industrial consumption. Meeting this demand required large numbers of vessels to transport the coal from the major coal fields of Northern England to London and the Continent (Ville,1987). Vessels regularly employed in this 'coal trade', were generically referred to as 'colliers' or more specifically, 'collier brigs' (Finch,1973). A great many were wrecked or foundered *en route,* particularly when running for the shelter of Tees Bay during the often ferocious winter storms that regularly struck this stretch of coast (Lamb, 1991). The 'chance' find made at Seaton Carew is thought to have been one of these 'colliers'.

The discovery of the wreck

On September 4th, 1996, Tees Archaeology were contacted by two local residents of the seaside resort of Seaton Carew near Hartlepool (Fig.1), who informed the section of the remains of an 'old' wooden shipwreck that had recently become exposed on the beach. A site visit with the finders was arranged for that afternoon and this duly confirmed the presence of the wreck. One of the finders, Mr. Joe Howey, explained that the vessel had already lain exposed for some two or three days, though in his fifty years of regularly walking this stretch of beach, he had never seen this wreck before.

The wreck site location

The vessel was located at the southern end of the village of Seaton Carew (Fig.2), approximately half way between the High and Low Water marks, lying upright in a NW/SE orientation with the bows facing directly shorewards and the stern to the sea. The combination of weather and tidal patterns brought about by a recent storm had removed a large quantity of beach sand to reveal the clearly recognisable outline of a wooden-built vessel. The position of the wreck was established through a combination of transit marks and compass bearings to three conspicuous points that were known to be shown on the Admiralty Chart of the Area (No.2567 - Tees Bay Approaches) - the South Gare Lighthouse, the Heugh Lighthouse and the Seaton Clock Tower. This gave the wreck's position as 54º 39.53´N. 001º 10.71´W and this was later confirmed by using a Global Positioning System (GPS).

Initial survey
A brief initial survey was conducted ahead of the incoming tide. This identified a vessel some 25m long (80 feet) and 7m broad (21 feet) with a total of 61 starboard frames and 31 port frames exposed, all exclusively treenail fastened. The positions and orientation of the exposed frames, including the stem and stern-posts, indicated that the surviving structure of the vessel was substantially intact. It also appeared that the frames had been sawn off to a similar level sometime after the vessel had been wrecked.

Preliminary assessment
A search of the Tees Archaeology Maritime Sites and Monuments Record revealed a total of 51 known vessels lost at, or near Seaton Carew. Of these, 49 were recorded as wooden sailing vessels and 2 as steamships. Interestingly, 29 of the sailing vessels were listed as having been stranded or lost on the same day, 11th October, 1824, following a particularly violent storm.

From the initial inspection and documentary analysis, it seemed likely that this wreck of a medium-sized, wooden coastal trading vessel, could well be that of a 'collier brig' with a date of build tentatively thought to be late 18th or 19th century. It was assessed that, with the vessel likely to disappear beneath the sands as quickly as it had appeared, a more detailed though 'rapid' survey of the site should be undertaken without delay. Limited 'trial trenching' would be carried out where necessary to establish the extent of the remains of the vessel.

However, the 'chance' nature of the discovery found the majority of Tees Archaeology staff unavailable at such very short notice to participate in the survey. Fortunately members of a newly established 'Rapid Response Register' were available. This 'Register' had been set up jointly by Tees Archaeology and the Nautical Archaeology Society (NAS). It's aim was to specifically build up a pool of interested and enthusiastic NAS members who would be willing to assist Tees Archaeology staff at short notice in recording maritime sites. Nevertheless, for the most part the survey team consisted only of the authors.

The main survey
The full survey began the following day on 5th September, 1996. The half-tide position of the wreck, allowed a working 'tidal-window' of between five

and six hours a day, however, the site was fully exposed to the weather and the actions of the sea; this and the possibility of theft and vandalism prevented the establishment of a permanent site grid, while all survey equipment had to be carried to and from the site each day.

The same vagaries of tide and weather patterns that had combined to initially expose the wreck, continued to affect the site conditions during the entire survey period.
Sand movement had effectively created a localised 'plateau' close to the wreck site and parallel to the shore, with the bow of the wreck lying at the foot of the resulting slope. Over the course of the survey, this 'plateau' slowly but steadily advanced towards the sea, eventually engulfing the remains of the vessel. In addition, a sand bar that had formed some one hundred metres to seaward also began to contract and change position, eventually creating a 'bowl' around the wreck forming a deep pool around the stern section.

Constantly changing sand levels frequently exposed and then as quickly re-buried a number of features, including frames, planking and the keelson, often before adequate recording could be carried out. A number of frames which initially were only just showing, eventually stood some 1.50m clear of the surrounding sand while the after half of the vessel was at least partially submerged during the whole of the survey period, requiring diving 'drysuits' to be worn when carrying out recording.

Attempts at excavating alongside the hull proved totally ineffective due to the low water table and fluid nature of the sand when disturbed, however, limited probing with metal rods was sufficient to establish that a significant degree of the lower hull (if not all), had indeed survived. With time on site restricted, a datum line was established along the centre line of the vessel and datum offset measurements taken to the centre top and centre bottom of each frame. The bow and stern assemblies were drawn to scale on site. Other structural features such as inner and outer hull planking, scarf joints and keelson were recorded as and when they were visible; frames and planks were numbered and tagged. An overlapping photographic record was made, with both colour and black and white prints and a series of more general views taken with colour slide film. A small number of wood samples were taken from selected frames, stem and stern posts, hull planks and treenails for analysis by Dr. Jennifer Jones of the Department of Archaeology, University of Durham.

By September 20th, sand re-deposition had rendered further recording impracticable; the site was then closely monitored until by early November it was noted that the vessel had been completely reburied. Site monitoring still continues on a regular basis, though to date (September 1999), there has been no indication of the wreck re-appearing.

Description of the surveyed remains
The surviving hull of the vessel (Fig.3), measured 25.10m long x 7.07m at the broadest point, carvel built and predominantly treenail fastened. The spaces between the frames and planks contained a mix of sand, beach stones, post-medieval pottery sherds and various pieces of modern debris, including a World War II revolver bullet. Two 'concreted pipes' were recorded in the stern section of the wreck, though it is not known whether they are contemporary with the wreck or merely later debris that washed in.

Frames
Timber samples were taken from the principal timbers of the visible bow and stern constructions; the sternpost, inner sternpost, sternson and stempost (Steffy,1998), were of oak, however, the apron proved to be of walnut, though the exact species could not be determined. At the stern, carved draught markings measured in feet (Figs.4 & 5), **VIII** (upper mark) and **VII** (lower mark), were clearly visible on both the port and starboard sides of the sternpost, indicating that at least 7 feet (2.13m), of the more or less intact lower hull had survived. A 'blind' search by touch revealed no evidence of any other marks lower down the sternpost, though it did indicate the possible presence of one of the rudder gudgeons. The sternpost itself was sided 0.305m and moulded 0.255m.
A total of 91 starboard and 71 port frames were recorded, compared with the 61 and 31 respectively initially identified. Timber sampled from a number of port and starboard frames all proved to be of oak. The overall condition of the timbers was very good, though the upper portions of a number of frames did show some degree of damage and deterioration. There was no evidence of keelworm, barnacles or other encrusting marine growths on the timbers, that would have indicated prolonged or frequent exposure. The average 'sided' and 'moulded' dimensions of the frames were 0.18m and 0.20m respectively. Distance between frame centres averaged 0.28m. While virtually all the starboard frames were located, there were noticeable gaps on the port side of the vessel, in particular the port quarter.

For a duration of just one 'tidal window', an 11m section of the vessel's keelson became exposed as sand was scoured out from within the hull. Recording this feature proved somewhat difficult as the inner hull of the vessel was acting as a large 'swimming pool' and the exposed keelson lay under more than half a metre of water. With no scuba equipment on site, measurements were taken by one of the authors using a mask and snorkel and relaying each measurement to the 'surface'. The keelson was 'sided' 0.30m and with a minimum, though not fully determined, 'moulding' of 0.40m. Two mast-steps were recorded at 9m and 17.8m from the bow. The foremast step measured 0.41m. x 0.13m. x 0.12m. deep and the mainmast step slot 0.37m. x 0.09m. x 0.10m. deep.

Hull planking and fasteners

A number of inner and outer hull planks were present on both the port and starboard sides, primarily treenail fastened, though with evidence of a small number of square-section iron nails being used to fasten some of the ceiling planks to the frames. Three sizes of treenail were recorded: 30mm, 32mm and 34mm diameter. Timber samples of treenails taken from port and starboard frames proved to be of oak. Timber samples were also taken from three starboard side planks; the sprung plank at the bow (Fig.6), proved to be of elm, a midship plank of oak and an midship ceiling plank of larch. The life expectancy of these timbers, based on type and structural location, are contained within Table A of the 1861 edition of 'Lloyds Rules and Regulations'; 12 years for the oak lower planking and 8 years for the elm lower planking and also the larch ceiling planking (Lloyds, 1861). All planks had an average thickness of 57mm. The majority were still firmly attached to the frames, with the exception of the topmost surviving plank at the starboard bow, which had sprung from the stempost and forward frames a distance of some 2m and one of the starboard planks a little aft of midships. At both bow and stern, the hood ends of the strakes were seen to be still in place and firmly attached. Additional evidence from the starboard bow revealed that the vessel had been sheathed in wood, a fairly common 18th and 19th century practice of hull protection and a much cheaper option than fitting copper or yellow-metal sheathing.

Miscellaneous finds

The site generated a great deal of local and Press interest. A 'friendly' metal detectorist was asked to sweep the site and surrounding area and though no finds (non-ferrous), were made within the wreck, a heavily concreted clock mechanism and a small brass pill-box (minus the base), were found in the general vicinity of the wreck at a depth of approximately 0.3m beneath the sand. An almost intact clay pipe was handed in to the site team by a local woman who had found it entangled in seaweed caught around the frames, though it is impossible to say whether this was an associated find, or merely washed into the site from elsewhere.

Evaluation

The wreck is located at a point mid-way between the busy 18th and 19th century shipping centres of Hartlepool and the River Tees. By the middle of the 19th century, Hartlepool had developed into a major coal port, as well as providing the only significant safe harbour between the Tyne and the Humber for the 'collier' fleets finding themselves beset by unfavourable winds or stormy weather. On October 15th, 1859, no fewer than 102 vessels entered the harbours at Hartlepool through stress of weather (Stockton & Hartlepool Mercury and Middlesbrough News, 15th October, 1859.)

The vessel had clearly either been driven ashore through stress of weather, perhaps having failed to make the entrance to either Hartlepool or the River

Tees, or deliberately run ashore, perhaps as a last resort to save the lives of the crew. The vessel is very strongly built and despite the effects of the obvious salvage attempts, has retained it's form and shape remarkably well. A less likely alternative, taking into account the very good condition of the surviving timbers, is that the vessel may have been bought as 'condemned' and deliberately beached for salvage.

The 'missing' port quarter frames may indicate damage from a collision at sea leading ultimately to the vessel coming ashore, though perhaps more likely, these frames were removed during the 'salvage' operations that clearly took place following the wreck.
Creating a breach in the hull at this point would have been particularly effective in allowing a cargo of coal to be washed out by the actions of the sea, without requiring the otherwise back-breaking job of physically unloading the coal out through the main hatch and over the side of the vessel. Further salvage would have involved the removal of the masts, rigging, fixtures and fittings, followed by the vessel's upperworks. Eventually all the accessible upper timbers would have been removed down to the level of the sand, at which point the effort required to dig out further timbers would have either been physically impossible or not economically viable. The remaining standing frames, a potential hazard for small craft using this stretch of beach, would then have been cut down level with the sand (Fig.7), for later sale and the salvage operation brought to a close. Local Auction Bills from the Hartlepool area (Fig.8), regularly advertised the sale of timber, stores, materials and cargo, from the many wrecks that occurred there.

Conclusion
The Seaton Carew Wreck is an exceptional 'chance' maritime find, proving to be the most substantially intact wooden shipwreck yet discovered on the North-East coast of England. Despite the limitations of this survey, from the analysis of the results obtained and supporting documentary evidence, it is thought that the Seaton Carew Wreck is indeed that of a 'collier' or 'collier brig' of the late 18th or 19th century.
As a measure of this wreck's local and national importance, it was given Historic Wreck Designation in August 1996, only weeks after the recording work was completed and is the only such designated vessel between The Wash and the Orkneys. The site continues to be regularly monitored by Tees Archaeology.

Acknowledgements
We would like to thank Mr. Joe Howey and Mr. Derek Hodgson, residents of Seaton Carew, for initially reporting the site to Tees Archaeology, to Dr. Jennifer Jones of Durham University, who kindly identified the wood samples, Peter Hart-Allison (Tees Arcaheology) for the illustrations and to Miss Sarah Phillips for her guidance in preparing and editing this article.

Special mention must go to Mr. Mark Parkinson, a member of the ‘Rapid Response Register’, who travelled from Lancashire to Seaton just to be able to spend one afternoon working on the site.

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Captions for "The Seaton Carew Shipwreck: the recording of a 'chance' maritime find near the mouth of the River Tees".

Fig.1 Location map for the Seaton Carew Wreck. (Peter Hart-Allison, Tees Archaeology)

Fig.2 The wreck as first seen on September 4th, 1996. (Photo: Tees Archaeology)

Fig.3 Seaton Carew Wreck Site Plan. Scale: 1: 200. (Drawing: Peter Hart-Allison, Tees Archaeology)

Fig.4 Stern, showing draught marks **VIII** (upper mark) and **VII** (lower mark). (Photo: Tees Archaeology)

Fig.5 Detail drawing of the stern construction. Scale: 1: 10. (Drawing: Peter Hart- Allison, Tees Archaeology)

Fig.6 Starboard bow, showing sprung outer hull plank. (Photo: Tees Archaeology)

Fig.7 Starboard side amidships, clearly showing evidence of the frames having been sawn off at the same level. (Photo: Tees Archaeology)

Fig.8 Auction Bill from a sale of wreck material at Seaton Carew, January 1835. (Original: Hartlepool Museum Service).

Summary
The Seaton Carew Wreck is an exceptional ‘chance’ maritime find, proving to be the most substantially intact wooden shipwreck yet discovered on the North-East coast of England. The survey results and supporting documentary evidence point to this vessel being a typical generic ‘collier’ or ‘collier brig’, a once common type of vessel employed in taking coal from the northern coalfields of England to London and the Continent during the late 18th and 19th centuries. As a measure of this wreck’s local and national importance, it was given Historic Wreck Designation in August 1996, only weeks after the recording work was completed and is the only such designated vessel between The Wash and the Orkneys.