

STUDLAND BAY, c. 1525

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Country: United Kingdom

Place: England, Dorset, Poole Harbor, Studland Bay.

Coordinates: *Lat.*50°39'20.38"N / *Long.*1°54'51.43"W

Type: Unknown

Identified: No

Dated: Circa 1525

Beam: Estimated, 7.2 m.

Keel Length: Estimated, 14.4 m.

Length Overall: Estimated 21.5 m.

Number of Masts: Unknown

History of the shipwreck

Found 1984 by divers investigating a net snag near Hook Sands, outside Poole Harbor, Dorset, England, in the English Channel. Excavations started 1984-87 under Ian Horsey with the Studland Bay Wreck project, and Keith Jarvis 1988-92, with the Poole Bay Archaeological Research Group. All recording was *in situ*; the wreck was not raised. The ship is from the Iberian-Atlantic shipbuilding tradition. A preliminary report was released (Hutchinson 1991), followed by a leaflet from the museum associated with the excavation (Poole Museum), and a section in *Encyclopaedia of Underwater and Maritime Archaeology* (Delgado, 1997: 405-6). In 2000 a hull analysis was published (Thomsen 2000).

Dendrochronological dating attempted, but too few rings in the timbers to point to any specific region. Ballast was 55% of Basque origin. Leather finds point broadly to first half of 16th century. Ceramics include Isabela polychrome and others, all from Seville, from c. 1450-1550. Iberian origins and cargo reflecting trade between Spain and England suggest wrecking date prior to 1533, when Henry VIII divorced Catherine of Aragon. Pottery evidence for Spanish trade in Poole is absent before ca. 1500. Thus, likely date, on the basis of cargo: first quarter of 16th century (wrecking date). It is not impossible that this ship was built prior to 1500.

Description of the site

The site consists of three areas resting in approx. 12m of water, about 370m east of Hook Sands. The wreckage is scattered, and divided into three areas. Area 1, to the northwest, consists of an entire length of the starboard side covered by ballast stones. The remains measure approx. 22.5m long and 3.5m wide. It consists of 12 strakes and two tiers of futtocks at roughly main deck level. Area 2, east of Area 1, is a piece of the keel and midship timbers 12.5m long and 2.5m wide, from the stem scarf to "a point approximately the same distance aft of amidships." Area 2 spans 4-5 strakes and the length of the floor timbers, just to the joints of the floors and first futtocks. Area 3, to the southeast, is an incoherent highly dense mass of wood, organic material, and heavy guns and breech chambers, all well-preserved. Areas 1 and 2 were resting on clay and buried in sand. Area 3 exhibits a complex process of scouring into the clay that is not yet fully understood.

The wreck formation process, as suggested by Thomsen, is that the vessel hit Hook Sands, a mobile sand bar where the wreck now lies. The keel split in two at its after end. The wreck became encapsulated in sand and sank as the sand bar migrated westward. The hull, pinned down by ballast, sinks down to the layer of clay as sand moves away and separated into three discrete areas, based on the weight of the timbers (heavier timbers sinking in a more vertical direction).

Cargo

Cargo seems to indicate trade between Spain and England, and has been used in dating. Of the 760 finds, most were basic items relating to shipboard life (bolts, nails, barrel-staves, hoops, firewood, cordage, seeds). Some faunal bone and sacking fragments associated with fig seeds were also found. Metal: A 150mm wrought-iron breech loading gun, three breech chambers and eight stone shot were found. Leather: Shoes of a turn-weltd construction, a style fashionable on the European continent ca. 1485-1547, and in England from ca 1513. Pottery: tin-glazed ware (Isabela polychrome and lustreware, both from Seville) and 116 sherds of coarseware (primarily Merida-ware). One fragment of a Saintonge pegeaux, two fragments of a Breton jar, and one fragment of German stoneware (these likely for shipboard use).

Ballast

Area 1, to the northwest, was covered by two tons of ballast stone. Ballast was determined to be 55% of Basque origin.

Anchors

No anchors are referred found on this site.

Guns

One 150mm wrought-iron breech-loading gun, three breech chambers and eight stone shot were recovered from Area 3, to the southeast. This gun was raised. A gun fragment was found in Area 1, as was a breech. A second possible gun was seen in Area 3.

Iron concretions

A row of concretions exists along the southern edge of Area 1 timbers. As the hull was only excavated *in situ*, these concretions are not fully known. They may be the remains of bolts for deck beams and knees, or iron artifacts that were displaced as the ship sank.

A chain concretion was found approx. 2m north of Area 1 between frames 50 and 60.

Hull remains

The hull remains were fragmented and scattered. The excavation focused on three main areas, named 1 to 3 according to order of discovery.

Keel

Keel preserved over 12.5m. It is 27cm wide amidships, tapering to 21cm forward. It is slightly rockered. It is attached to the stem with a vertical hook scarf. Approx. 2.65m aft of this scarf, the keel is 185mm deep with a mushroom-shaped cross-section. Garboards are at a 70 degree angle. Observation indicated that the angle may be less acute further amidships, and the keel may not even be rabbeted. The keel was attached to every third or fourth floor timber with iron bolts 25-30mm in diameter.

Stem post

The stem was connected to the keel with a vertical hook scarf, partly preserved. The stem itself was not preserved.

Sternpost

The sternpost was not preserved, but the aftermost part of the keel survived. The sternpost connection would have used a vertical hook scarf like the stem. The keel had a skeg, originally 10-15cm long, which projected under the rudder. This skeg was connected to the sternpost with gudgeons, whose positions were determined by fastening holes. The stern knee, which also functions as deadwood, is bolted to the keel.

Frames

Framing consists of floor timbers connected to futtocks with square-lap joints, fastened with one treenail and one iron nail. The first futtocks were only preserved in their lowest 60-90cm, mainly on the starboard side just aft of midships. It is likely that the framing pattern followed that of the

Iberian-Atlantic tradition in which the first futtocks are attached to the aft side of the floor timbers aft of midships, and the forward side fore of midships.

Midships frames were pre-erected up to the first futtock (around the turn of the bilge). Disarticulated upper futtocks were interpreted as second and third futtocks, attached only to planking. As the hull was only recorded *in situ*, it was unable to be determined if the master-frame-and-ribband method was used here, though it is likely.

Keelson

The keelson was not preserved.

Maststep

The mast step was not preserved. The mast-partner, consisting of two pieces with semi-circular notches, was found. A dovetail tenon on the starboard side suggests it was connected to the carlings, while bolt holes on the aft piece suggest it may have rested on top of the carlings at some point in time. The preserved aft piece is 200cm long, 87cm wide, and 25-28cm thick. The semi-circular cut in its forward edge to receive the mast is approx. 42cm in diameter. 12cm off-center to port, in its aft edge, a second 30-40cm in diameter semi-circular cut was designed to receive the pump tube.

Ceiling Planking and Stringers

No ceiling was preserved, but filling pieces (*escoperadas*) were found.

Deck Beams

No indications of deck structure were found.

Pump, 'bung holes,' and misc.

Three holes, two 90mm and the other 62-66mm in diameter, were drilled through a strake, and one was plugged. They seem to be fairleads for foresail sheets and/or braces (for iconographic evidence, see Olaus Magnus' *Historia de Gentibus Septentrionalibus* 1555: 116).

The pump-foot valve of walnut, with its associated flapper of 7-8 layers of leather, was found on the port garboard strake between floors 225 and 227. The valve has an outer diameter of 20cm and a 73mm bore. The flapper's diameter is 10cm. Evidence from the design of the mast-partner indicates this ship had only one pump. It may have been treenailed to the keel.

An elm board 120cm long x 40cm wide x 18-20mm thick, with a 40cm wide "keel-shaped" rabbet, was found and interpreted as some kind of cabin structure—a doorway lintel or an alcove.

Planking

Because the hull was not dismantled, individual plank lengths could not be determined. They were feathered to meet rabbets in the stem and sternpost (below the transom), and at the rise at the forward end of the keel. Planks were secured to the frames with two iron nails and one or two

treenails. Planks were fit tightly with little caulking. Two patches were visible, one between frames 36 and 39 and another under frame 105.

Fasteners

Nails: Heads 18-26mm in diameter, with a 9mm-square shank.

Bolts: 25-30mm in diameter. Keel bolts and bolts for standing rigging found.

Treenails: Approximately 25mm in diameter.

Caulking

Minimal traces of caulking.

Wood Analysis

Hull is entirely “fast grown” oak, *Quercus robur* and *Quercus petraea* (Hutchinson 1991).

Walnut (*Juglans sp.*) was used for the pump base, and elm (*Ulmus sp.*) was used for the lintel.

Size and scantlings

A reconstruction was attempted, based on the hull remains. It was noted that the third futtocks are reverse futtocks; the tumblehome begins at the overlap of the second and third futtocks. The midship frames have a deadrise of 20-24 degrees at the turn of the bilge.

The estimated dimensions are: length overall: 21.548m, keel length: 14.365m, Beam: 7.183m, transom width: 3.591m, and sternpost height: 4.788m.

Table 1. Scantlings of the timbers remains of the Studland Shipwreck

Timber	Sided [cm]	Molded [cm]
Keel	21	27
Floor timbers	18	17
Futtocks	17	17
Room-and-space	39	-
Planking	31	6

References

Delgado, J.P. (Ed.), 1997, *Encyclopaedia of Underwater and Maritime Archaeology*. London.

Hutchinson, G., 1991, The Early 16th Century Wreck at Studland Bay, Dorset. In R. Reinder & P. Kees (Eds), *Carvel Construction Technique*. Oxbow Monograph, **12**: 171-175. Oxford.

Olaus Magnus, 1972, *Historia de Gentibus Septentrionalibus*. Romae 1555. (Intro. by John Granlund). Copenhagen.

Thomsen, M. H., 2000, The Studland Bay Wreck, Dorset, UK: Hull Analysis. *IJNA* **29**:1 69-85.