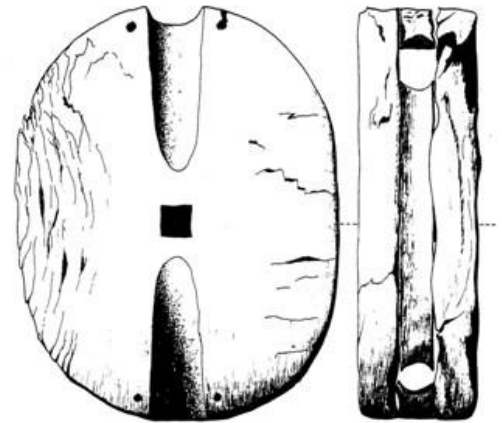




Gossamer Report (Tea Clipper 1868)

Steve Clarkson - March 2013

Supported by the BSAC Jubilee Trust



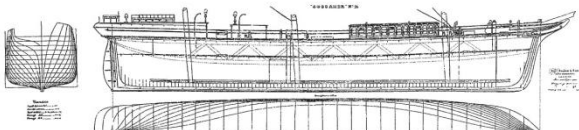
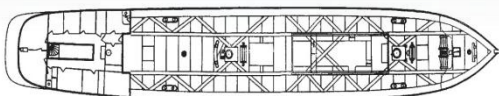
Part of double block, 31.5cms.

Images – Sketch of Block , Painting of the Gossamer (Tim Thomas) & Compass mounting recovered from wreck (She was the same construction and era of the famous “Cutty Sark”)



Alex Steven & Sons
Shipbuilders
GLASGOW

GOSSAMER



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2. Summary



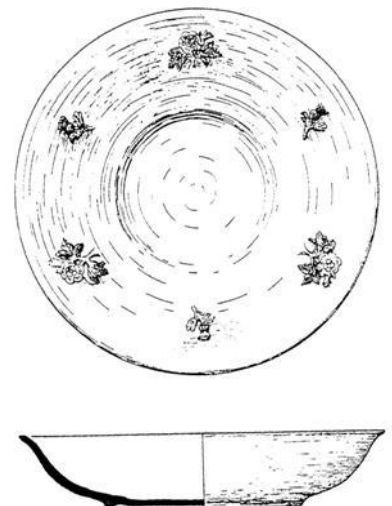
The Gossamer comes from the “Tea Clipper” era between 1843 to 1869 and was born out of the opening up of the tea trade with China. These were very fast ships for the time and averaged 17 to 21 knots. The Gossamer is unique in that it was a composite built ship with an iron frame and wooden planking which enabled the hull to still be covered in copper below the waterline. This meant the ship could carry more weight for its size having an iron frame and keep the hull free of marine growth. Boats of this construction were only made between 1862 and 1869 (a period of 7 years). The most famous in the UK is the “Cutty Sark”, on display in London.

The picture above is a painting of the Gossamer. She was 735 Tons with a length of 181 ft and breadth of 30 ft. On her final voyage in 1868 it was owned by George Kipsel and six others. On 2nd December 1868 she left London on route to Adelaide in Australia carrying a general cargo and some passengers, when the Captain, on board with his new wife, handed over control to the Chief Officer & pilot before retiring to his cabin. They had had a discussion about whether or not they could get to Plymouth on the current tack and, despite the Chief Officer’s concerns, Captain Thomson told them to hold course. This decision and a slow response from the first mate and pilot resulted in the ship hitting the shore just to the east of Prawle Point in South Devon. Out of the thirty people on board only seventeen survived. Captain Thomson and his wife were two of the casualties and are buried in a local church near to the others who died that day.

As well as recently found artefacts we traced some of the previously recovered ones and measured and photographed them. The Chinese plate recovered is an indication that the crew were doing some of their own trading in contraband to make extra money although it could have been part of the cargo of one of the passengers.

We met all our objectives including:

- Carrying out a site survey
- Recovering and finds on the surface
- Recording artefact found as well as recording previously found items
- Introducing experienced divers into Marine Archaeology.
- Search for the two anchors which reportable broke loose



3. Background to Project

In the 1970's Stephen George was snorkelling along the coast near Prawle Point in Devon and came across the remains of a shipwreck. Although the majority of the wood had since gone, the brass bolts (with a name on) used in the planking had been left behind in the crud. This told him it was a composite design and was probably that of the Tea Clipper "Gossamer" lost in December 1868. Some artefacts were recovered and loaned to the Salcombe Museum. This project follows up on the work by re-locating the wreck and completing a site plan as well as establishing what is left of the wreck

4. Acknowledgements

Salcombe Museum

Kew Records Office

Exeter Records Office

Kingsbridge Gazette

UK Tea Council

Tim Thompson (Marine Artist Plymouth) Gossamer rounding the Eddystone lighthouse

Maritime History Museum, Adelaide

Stephen George (Maritime historian)

The Great Days of sail – Andrew Shewan

The Tea Clippers – David Macgregor

5. Legal Status

This site does not have any protected wreck status. The part of the ship remaining on the seabed is believed to have been bought for £25 by a Mr Vivian from a Salcombe boatyard during the initial auction.

6. Introduction

This report looks at the history of the Tea Clippers at the time and the circumstances leading to the “Gossamer” ending up on the cliffs at Prawle Point in Devon. Also included is the history of the ship and our search for the anchors that eventually gave way . The site was re-found to establish what was left of the wreck in order to create a site plan showing the layout of her final resting place and includes other artefacts found in the immediate area.

Included are various images of the artefacts and the team at work.

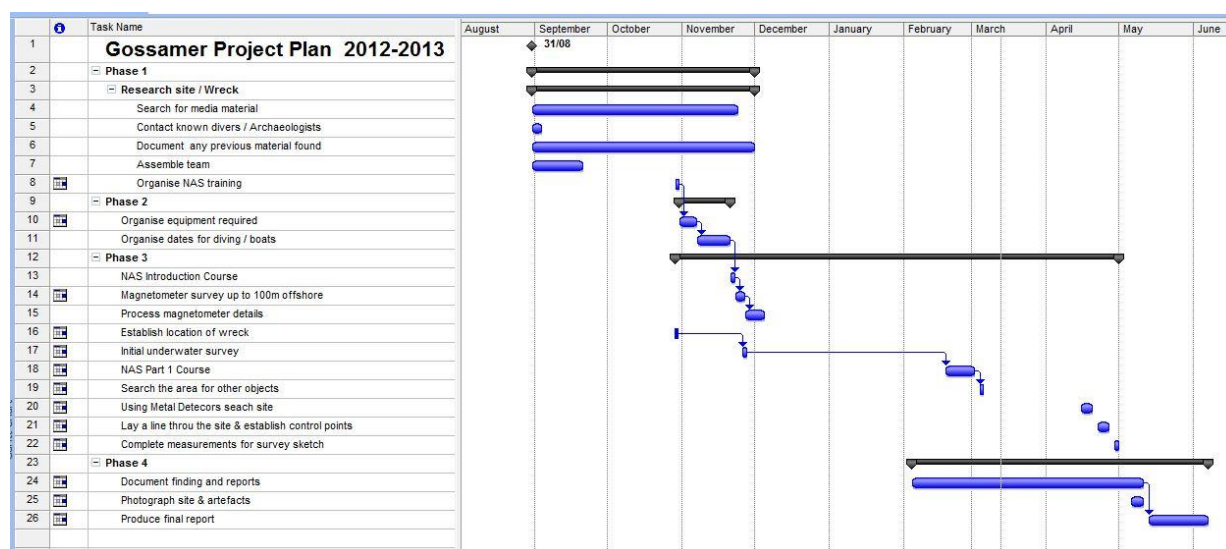
7. Objectives

The objectives of this project were to:

- Carrying out a site survey
- Recovering and finds on the surface
- Recording artefact found as well as recording previously found items
- Introducing experienced divers into Marine Archaeology.
- Find her two anchors which reportable broke loose

8. Plans and Approach

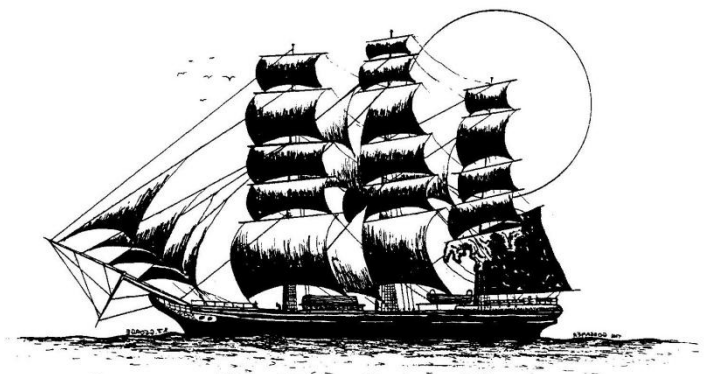
The plan is to do a magnetometer search of the area in order to establish the extent of the wreck and try to locate the two anchors referred to in the report following the subsequent inquest. This will be followed by a search of the site taking underwater photographs and will be followed by a search using underwater metal detectors. A number experienced divers will be trained in ,marine archaeology, to the NAS standards .Below shows the initial plan which was delayed due to poor sea conditions.



9. Training & Promotion

Four people who had done the NAS Into and part 1 were given the opportunity to practice their skills and three Reading BSAC members were introduced to Marine Archaeology.

Artefacts held at the Salcombe Museum were reviewed and presentations were made to promote the Jubilee Trust project. The photo below is one of these presentations at Brixham Yacht Club.

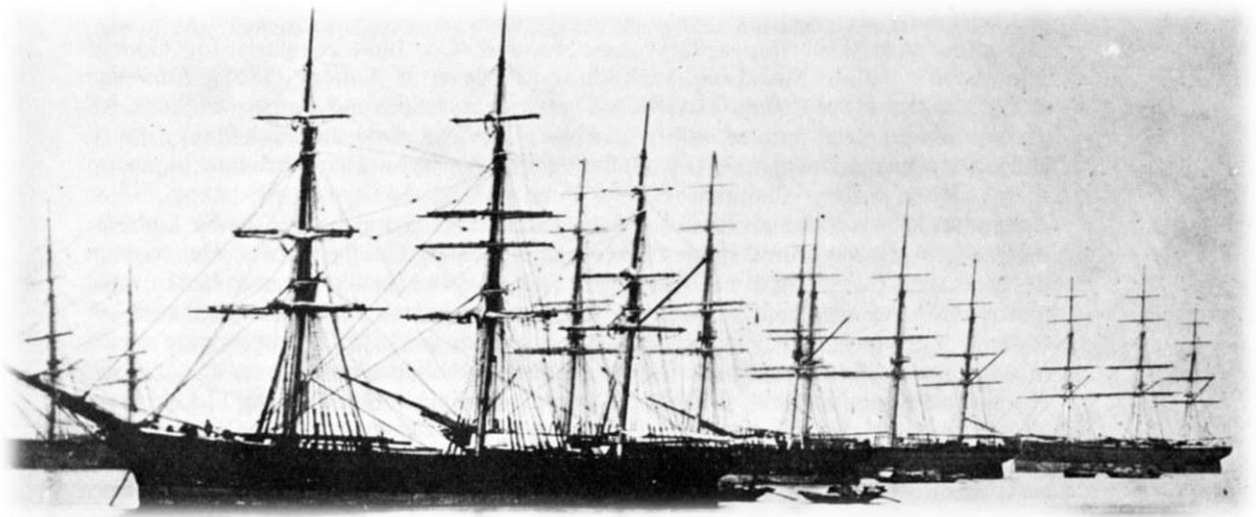


10. People Involved

The project has involved divers from various BSAC clubs Those involved in the project are shown below:-

Steve Clarkson	Reading BSAC (Project leader)
Neville Oldham	East Cheshire BSAC
Dave Parham	Bournemouth University BSAC
Jessica Berry	BSAC General Branch
Tom Cousins	Bournemouth University BSAC
Mick Palmer	Northampton BSAC
Ron Howell	Northampton BSAC
Paul Fiander	Reading BSAC
Bernard Hinton	Reading BSAC
Mike Turner	Totnes BSAC
Sue Mitchell	Reading BSAC
Colin Mathews	Reading BSAC
Emma Harris	Reading BSAC
Gareth Corfield	Reading BSAC
Sue Ticknell	Reading BSAC

11. Tea clippers



These Tea Clippers, both built in the Americas and the UK took off when the trade routes were opened to China in 1853. The chart below shows the major routes involving the UK but this was extended to Australian ports later when “Clippers” started to take on passengers, particularly on route from London. The “Gossamer” was carrying passengers on her last voyage and the ones planning to embark at Plymouth were lucky not to be on board when she sank.

The age of the tea clippers lasted from 1843 to 1869, but this brief reign was marked by such elegance and style for the ships and their cargo that it has gone down in history as a very productive period for trade.

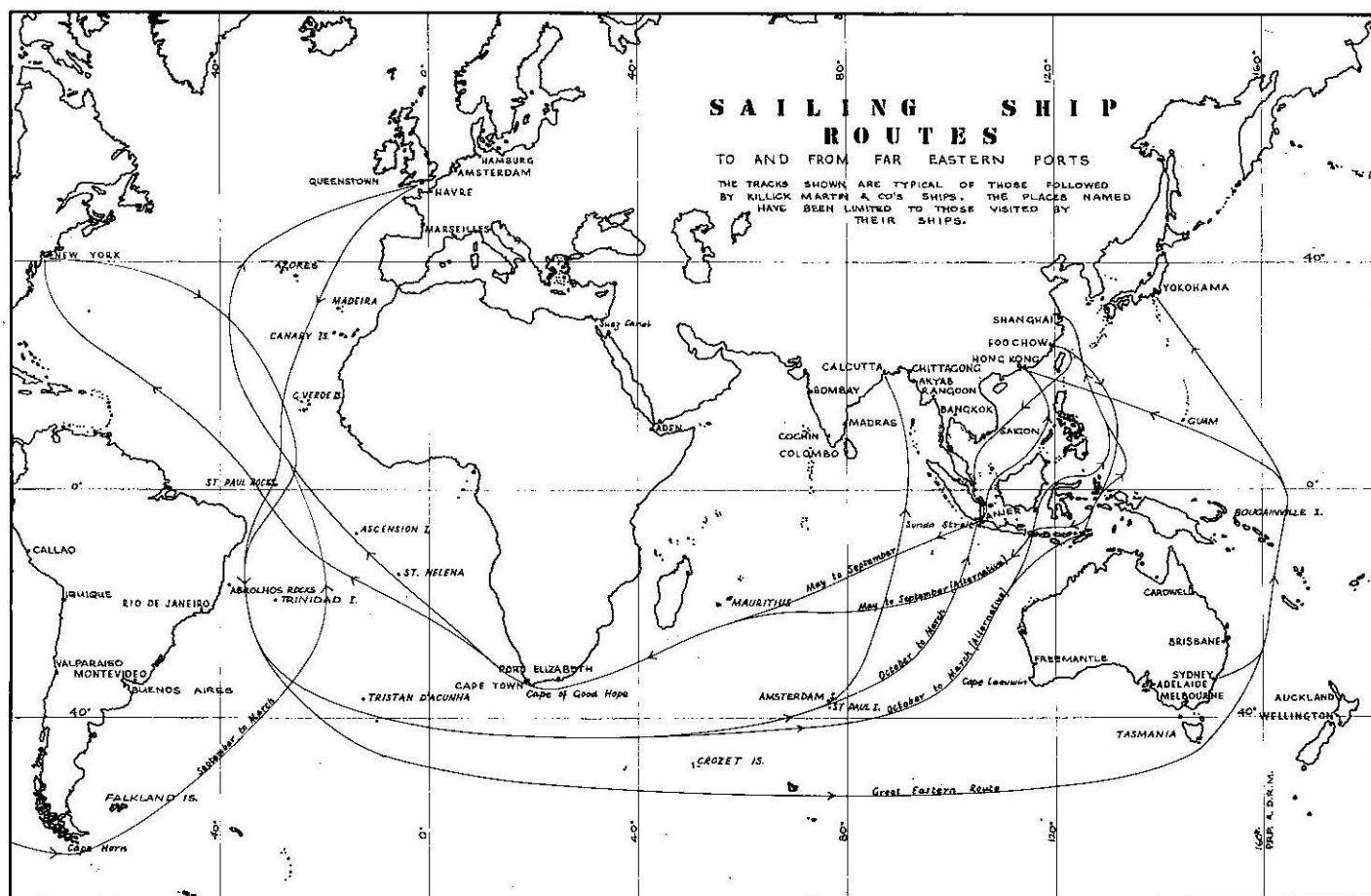
But by 1834 tea had become a freely traded item and Britain was seen as the main customer but it was the Americans who first saw the opportunity and started building “Tea Clippers”



Based on an earlier type of ship called the Baltimore clipper, they were fast and slender, with a narrow hull that was deeper at the back than at the front, and acres of sails on tall masts. Some had as many as six tiers of sails to a mast, and a total of 35 sails. They got their name from the way that they 'clipped off' the miles.

The first true tea clipper was “Rainbow”, designed by John W. Griffiths and launched in 1845. She made the journey from New York to Canton in 102 days - taking more than two weeks off the previous record for that trip. Their development was given another boost by the discovery of gold in California in 1848 and in Australia in 1851. People rushing to seek their fortunes wanted ships that would transport them as fast as possible

The routes established with the opening of trade routes to China, are shown in the chart below. In the case of the Gossamers she would call into a South Australian port to drop off passengers from London prior to picking up the tea from China for the return journey.



When "composite" Tea Clipper ship like the "Gossamer" were first introduced in the UK in 1862, the new design was not accepted until late 1863 when the Scottish Builders Association praised and accepted the design and Lloyd's agreed it would comply with the fifteen year A1 standard. This design involved the creation of a iron frame which was then planked and the first one built in the Scottish A.A&S yard (The same yard who built the Gossamer) was the "John Ligett. She took two years to build and was launched in August 28th 1862 in the command of Captain H.Gamble sailing between London and Hong Kong. She was posted missing on a voyage from New York to London in October 1872.

The tea clippers carried from 200 to 300 tons of shingle ballast, laid so that the chests of tea could be stowed on top of it. The Gossamer, which under the new rules based on the cubic capacity of the hull registered 735 tons, carried 1234 tons of tea at 50 cubic feet per ton, with a crew of 30. Vessels were now designed on scientific principles, and it may be doubted whether the qualities then desirable in a merchant sailing ship, speed, strength, carrying capacity, and economy, have ever been so successfully united as in these famous China tea clippers

a) Annual Races

The famous international Tea Clipper races did not survive very long as the American ships did not take part after 1855 although the British ships, including the Gossamer, did continue to race for a few years. In 1868, only a few months before the Gossamer hit the rocks in Devon, she was allegedly second in the annual tea race from Shanghai to London. The races originated in 1853 when the ports of China such as Foochow, shown below, were opened up to trade.



This port was close to the tea production so the ships could leave in late May with fresh tea, racing it back to Europe with the winning ships getting a premium of sixpence per pound.

The most famous of these clipper races was in 1866 when ten ships set sail from Foochow to London.

The race took over 3 months, crossing the South China Sea, through the Sunda Strait of Indonesia, across the Indian Ocean, around the Cape of Good Hope of Africa, and up the Atlantic Ocean to the English Channel. This was the fastest route for one ship to take, as the Suez Canal was still under construction. The three leaders in the race docked in London within a short time of each other. As they passed land their position was telegraphed back to the UK and posted on a board at the Lloyds office.

Near Dungeness, harbour pilots boarded the Taeping and the Ariel at the same time, and Downs steam tugs were waiting to tow them to the River Thames. It was at this point that the fight was really decided.

Both vessels were taken in tow at the same time and they were neck-and-neck going up the Thames. The Taeping, however, reached Gravesend first, with the Ariel at close by and the Serica was still a close third. Taeping entered the dock at a quarter before 10:00 on Thursday. The Taeping won with a mere 20 minutes lead over Ariel, with Serica third, just one and a half hours behind the leader who won the prize.

In "Teas of the World", Nancy Hyden Woodward wrote that the three tea clippers had taken just 102 days to sail three quarters of the way around the globe.

The Daily Mail reported that "Taeping has thus secured the prize, which is an extra freight of 10 shillings a ton on her cargo of tea. " The Taeping was carrying 767 tons and 1,108,709 pounds of tea.

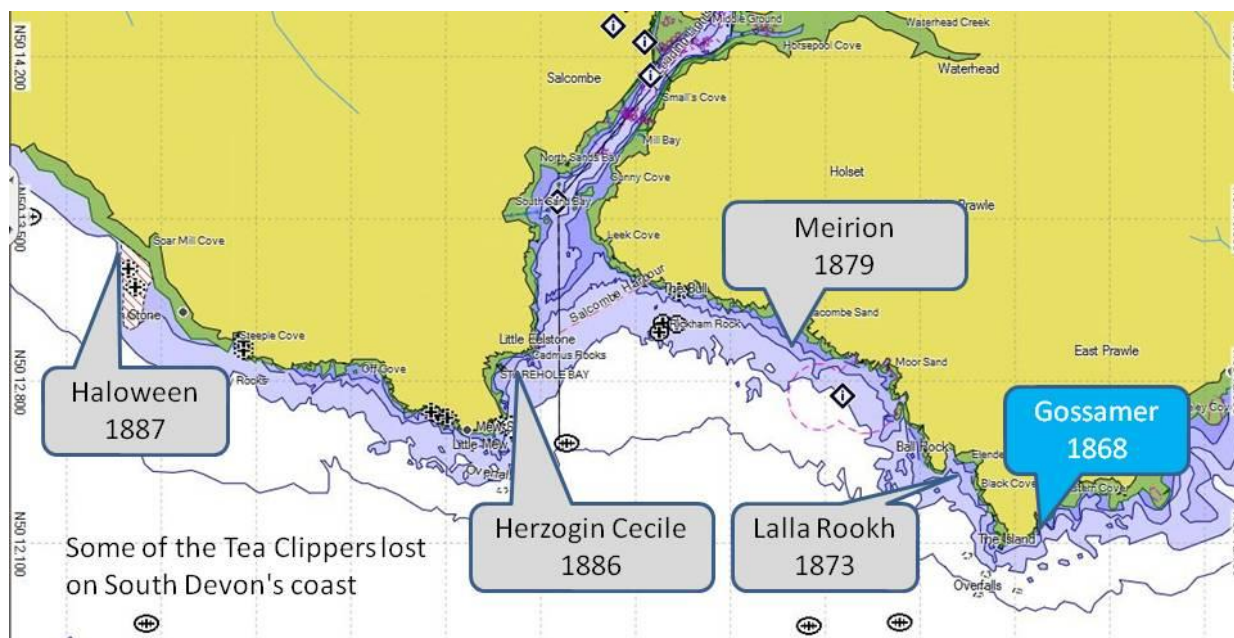


November 1869 saw the start of the end of the Tea Clippers as the new age of steam and the Suez Canal provided much faster alternatives with the Clippers not allowed to use the canal.

Some of these great sailing ships have survived, the best example being the Cutty Sark shown to the left. She was small compared to the American Clippers that could achieve 21 knots but she could still do 17 knots. Another tea clipper who met her end within a quarter of a mile from the Gossamer was the "Lalla Rookh" shown on the chart below but that's another story. Her figurehead of a princess washed ashore in Jersey and is now on display in the "Cutty Sark "museum in the collection of figureheads shown on the right.



Many other "Tea Clippers" met their end on rocks and there are a few on the South Devon coast and these may well be the subject of another report.



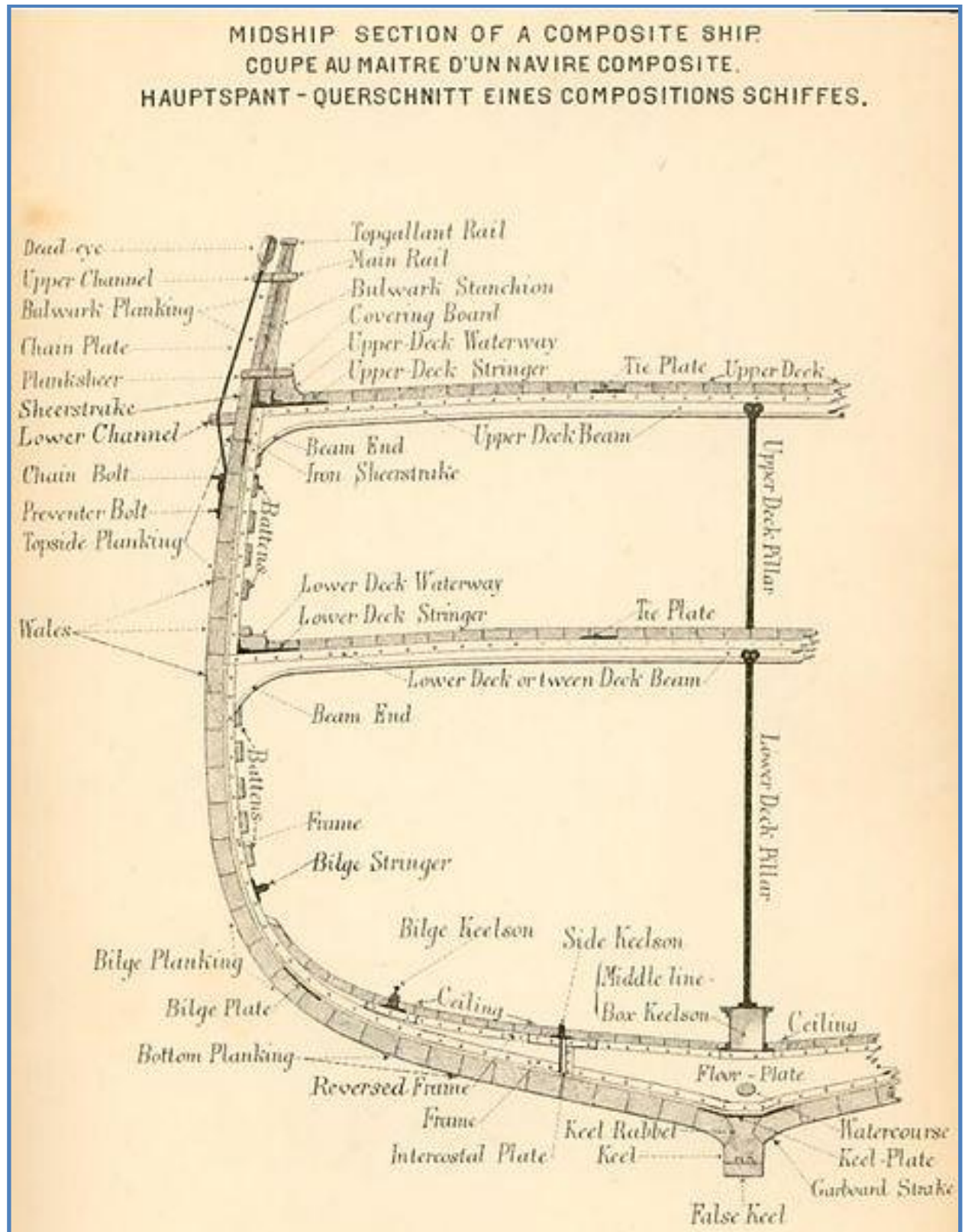
b) Composite Design

This composite system combined the strength of iron frames with the advantage that the wooden planking could be coppered to prevent fouling, which was a serious problem as the ships were designed for speed which was significantly reduced if marine growth took hold on the hull. The iron frames meant that composite ships could carry large amounts of canvas sail with up to 35 sails. Composite ships were therefore some of the fastest ships afloat in the 1800's. Great care had to be taken in building these vessels to prevent galvanic action between the bolts and iron frame so "Gutta-percha" (Natural latex) was used as a non-conductor; the planking was then fastened with yellow-metal screw bolts with counter-sunk heads, the holes being afterwards filled with a composition prepared for the purpose. Mr. Jordan obtained a patent for his invention, but it did not attract much attention until adopted in the construction of the *Taeping*, *Eliza Shaw*, *Yang-tse*, and *Black Prince*. From that time all the tea clippers were of composite build, though it was not until 1867 that the Committee of Lloyd's Register issued rules for their construction. These designs did have their problems due to the galvanic reaction between the different materials and there is some evidence of the insulation used on the bolts found on the *Gossamer*. They were reported to have broken up faster than other types of ship but there is no evidence of this.

The photo below is of one of these bolts recovered from the wreck site.

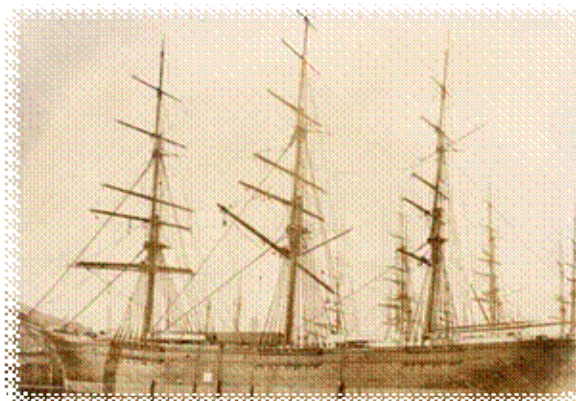


The diagram below shows an example of how the composite ship was constructed.



12. The Gossamer

c) Who was she and what was her role

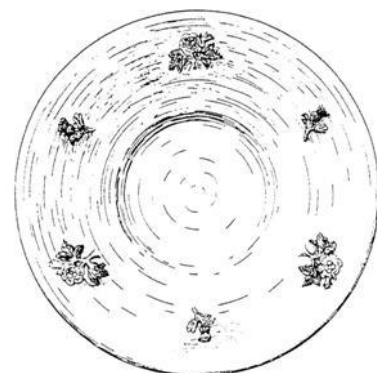


The picture above right is of the 'Sovereign of the Seas'. This was very similar to the 'Gossamer' being built as a composite with wood and iron in the mid 1800's. The picture above is a painting of the Gossamer. She was 735 Tons with a length of 181 ft and breadth of 30 ft. On her final voyage in 1868 it was owned by George Kipsel and six others. On 2nd December 1868 she left London on route to Adelaide in Australia carrying a general cargo and some passengers, when the captain, on board with his new wife, handed over control to the first mate & pilot before retiring to his cabin. They had had a discussion about whether or not they could get to Plymouth on the current tack and, despite the first mates concerns, Captain Thomson told them to hold course. This decision and a slow response from the first mate and pilot resulted in the ship hitting the shore just to the east of Prawle Point in South Devon. Out of the thirty people on board only seventeen survived. Captain Thomson and his wife were two of the casualties are buried in a local church near to the others who died that day.

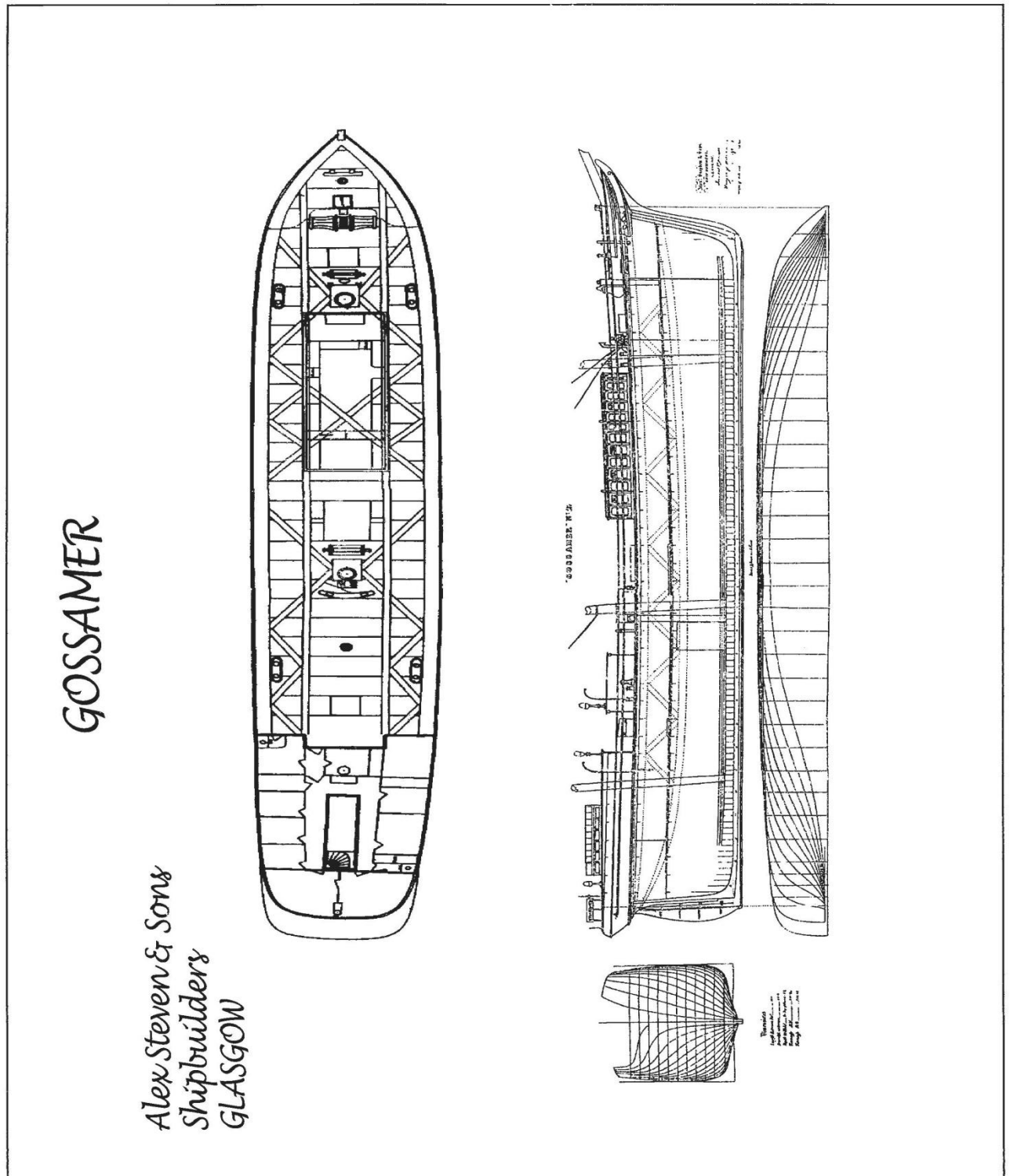
The actual location of the site is very little known and not dived but in the 1970's Stephen George dived the wreck site and recovered some items that are now in the Salcombe Museum. The Gossamer is also not a very well known Tea Clipper and appears in very few records

The period this ship was built is key in the transition from wooden sailing ships to steel powered ships. She was a composite built by company Alexander Stephen and Sons (AS&S) in the Kelvinborough, Glasgow in 1864. Built of wood around a steel frame, this construction did present some challenges to the designers due to corrosion but also offered a greater stowage area. The design was eventually accepted by Lloyds and the first built by the AS&S, the 'John Lidgett' was built in six months and launched in 1862. This composite design only lasted until 1876 when steel ships took over the seas. The Gossamer registration number was 50265,311 and she was classed as a 'full square rigger'

The Chinese plate, recovered is an indication that the crew were doing some of their own trading in contraband to make extra money although it could have been part of the cargo of one of the passengers.



Below is a sketch is of the original makers plans



At the time of sinking the Gossamer was owned by the following people:

George Kipsel ,Manchester	Gentleman 16 shares
Thomas Craven ,Luss	Merchant 16 shares
Alan Potter, Liverpool	Merchant 13 shares
Joseph Nilson, Ambleside	Gentleman 8 shares
William Crossfield, Liverpool	Merchant 4 shares
Henry Crossfield, Liverpool	Merchant 4 shares
Thomas potter, Liverpool	Merchant 3 shares
TOTAL SHARES	64

d) Her Final Days

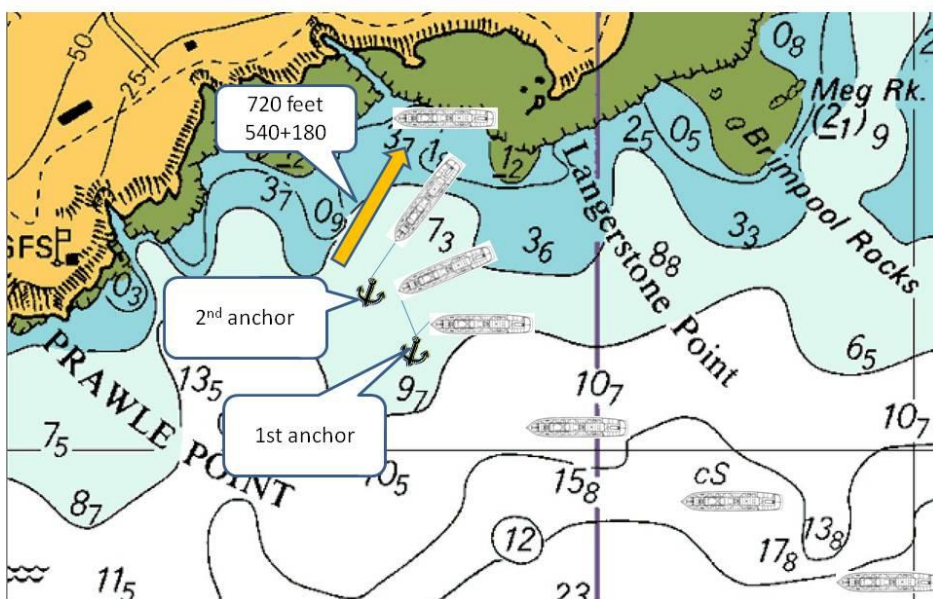
On Wednesday 2nd December 1868 at 2:30pm the Gossamer left London bound for Adelaide with a general cargo and was due to pick up passengers at Plymouth. She was towed by the tug "Middlesex".

On board were Captain Thompson and his recent bride, of two weeks, Barbara. There were accompanied by the Chief Officer, Peter Merrifield and the Pilot, Andrew Grant.

They had been delayed by bad weather but eventually set off and made the Devon coast on Thursday the 10th when the wind veered from the north to a southwest gale. It is not totally clear what happened as accounts differed but the captain had had a conversation with his chief officer, Peter Merrifield about whether or not they would clear Start Point on their current tack and the captain thought they would so he told him to stay on the same heading and went below for a sleep having had very little rest over the past two days due to the severe weather conditions. At that point they were nine miles off Start Point. He left the task of sailing the ship to his chief officer along with the Pilot. When they neared Start Point the Chief Officer told the pilot that he did not think they would clear the land but the Pilot thought they would so they held the course but the chief officer eventually called the captain but it was too late as the leeway was such that she was unable to tack. They put one anchor down which had 540 ft (164m) of chain and this held for a while as they put down the second anchor. At this point they had already grounded the ship on a reef. Both anchors broke loose resulting in the ship drifting back into the rocks just 300 ft off the shore where they launched the boats which were destroyed in the surf. The coastguards at Prawle had watched the drama unfold and soon deployed a rocket launcher across the stricken ship. Word soon got out and rescuers appear on the beach.

The captain had set a course for Plymouth and was hoping they would not have to put in another tack. The image below shows what could have happened in that last half hour before hitting the shore. She hit the rocks with 540ft of chain out on the second anchor.

Possible last half hour before the Gossamer hit the rocks



Eleven people lost their lives but some of these could have possibly been saved. One of the negro crew, who was a good swimmer, had offered to take the captain and his wife ashore and the captain declined the offer. His wife, Barbara, was swept into the sea and Captain Thomson jumped in to save her but both were drowned in the raging surf. Nineteen of the crew and passengers were saved, some by using the line that had been deployed from the shore and others by swimming ashore.

There was a report that the ship had broken up very quickly and the deck ended up on the shore in one piece. Although the wood and iron have disappeared from the wreck, the bolts remain their original position in the crud. This does not support the theory that the wreck broke up quickly.

It is difficult to tell who was ultimately to blame but, at the inquest held by Mr Bone, of Devonport, and the coroner at St Sylvester Church, Chivestone. Andrew Grant. The Pilot, was found guilty of manslaughter and sent for trial in Exeter. On March 7th 1869 he was found not guilty and the case was dismissed as it was not clear who was actually in charge at the time.

Hundreds of looters arrived to plunder the £50,000 worth of general cargo including ropes, sacks, casks, calico, furniture, shoes, boots (See Artefacts), nails, blankets, cheese and bonnets. The plan was to get all this cargo back to London to sell but such was the problem of stopping the looting, all of the cargo was sold off by auction on the green adjacent to the wreck. Over one thousand people flocked to the area but the auctioneer was only selling the cargo, and parts of the ship, in large lots creating a riot in the crowds who eventually convinced him (By threatening him) to sell the items in smaller lots. Some of the locals were caught looting and fined. The ships bell was amongst the items sold (See the artefacts section)

The following article appeared in the Kingsbridge Gazette 19-12-1868

“The total loss of the Gossamer clipper ship bound for Adelaide from London has already been notified by telegram in the papers. Further particulars of the disaster unfortunately show the loss of life to be greater than at first anticipated.

The Gossamer, a china tea clipper ship of 735 tons registered, was built in 1864, by Stevens of Glasgow. She was owned by Messrs Potter and Brown of Liverpool, and was dispatched from London last week for Adelaide, Australia with a general cargo. She left the downs on Wednesday in charge of a London pilot. On Thursday, during a strong south westerly breeze, Gossamer was wending her way down the channel in the pilots charge. The captain, who had only then been three weeks married, and who had been on deck all the previous night, lay below with his wife. Midway between the Bill of Portland and the Lizard there is a promontory which stands far out in the channel which has three principle heads, Start Point, Prawle Point, and Bolt Head. Approaching the centre of these headlands the mate told the pilot what he thought but the pilot, it is said, still kept on a starboard tack, the ship having to put into Plymouth for passengers. When within half a mile of the shore, the pilot gave orders to put the ship about, but owing to the flood tide and wind setting on shore she missed stays. The captain rushed on deck and two anchors were let go, but they

would not hold and the ship was driven onto the rocks some hundred yards from the shore and soon began to break up.

The coastguards were soon on the scene with the rocket apparatus, and by its means a number of lives were saved. Several of the crew, however, jumped over board to endeavour to swim to the shore, and these were nearly all drowned. The captain and his young wife both perished. A black man, one of the crew, and a noted swimmer offered to take the lady on this back, but unfortunately the offer was declined and the sailor swum ashore with ease. Shortly afterwards a tremendous sea washed the poor woman overboard and her husband springing into the sea after her, they both drowned being washed ashore two hours afterwards. Five other bodies had also been recovered.

The Gossamer had on board in all thirty souls and it is defiantly ascertained that seventeen only had been saved, whilst thirteen had perished.

Large quantities of cargo have been washed ashore and Lloyds agent of Dartmouth has taken charge of the wreck, and in this office he assisted by a body of coastguards and police who have had enough to hold the pilfering propensities of visitors in check. At the inquisition Monday, the jury viewed the bodies which were identified as those of captain Thompson and Barbara his wife, Grarver, second steward, Sherry, Moore, Chapan and Wallstream, able seaman, and J.Dycker, Threw an apprentice,"

The following is a list of all but one of the people saved:

James
Burns
F.E.Whelby
F.H.Dunlop
H.G.Carlin
W.Coltrough
P.N.Merrifield
W.Patterson
Homer
Gall
C.Cmith
John
Jameson
A.Grant
Gates
Brown

Those who died are:

Captain Thomson, Barbara Thompson, Graver, J.Sherry, G.Moore, Chapman, Gardner
J.Wallstream, J.Dycker, Thew & an apprentice.

The tombstone of the captain and his wife, Barbara Kerr, are in the Churchyard of St Sylvester Church Chivelstone, South Devon. Other crew members who died that day are also buried in the graveyard. The following picture of a women's glove recovered from the wreck may well have belonged to the Captains wife, Barbara, who is buried with her husband. The top picture shows the church and house which was the "Seven Stars" public house. This was used for the inquest for those that had died on the gossamer.



e) The Inquest

Capt Calkitt of Liverpool represented the owners and underwriters and Mr Squares, solicitor of Kingsbridge, watched the proceedings on behalf of the pilot, Grant.

The first witness to be called was Peter Merrifield, chief officer aboard the Gossamer. He said that he thought the pilot ought to have tacked or wore the ship at bearing at half past twelve in the afternoon at the latest, or set sail on to force her faster through the waters. It was in the opinion of the witness manifestly necessary for the safety of the ship that the pilot should have adopted one or other of the three courses he had mentioned.

He did not think that she would have struck if she had tacked or wore a bearing. He believed that the pilot was sober. The inquest was then adjourned.

The ship was insured with underwriters at Liverpool and the cargo, worth about £40,000 was insured partly at Liverpool and partly at Lloyds.

The inquest on the bodies lost by the wreck of the Gossamer was held at the Seven Starts Inn, Chivelstone on Monday, Before Mr Bone of Devonport, Coroner of that District, who acted as in consequence of the death of Lt Cublin, the coroner of the district. The jury, having viewed the 8 bodies which were recovered from the wreck, which were in the belfry of Chivelstone Church, and then returned to the Inn, where the first witness called was Peter Merrifield.

“Sir, I was the chief officer of the ship Gossamer of Liverpool. We left London on Wednesday, December 2nd at half past two pm.

The crew consisted of the captain, three officers, all certificated, boatswain, carpenter, 10 able and one ordinary seaman, 5 apprentice cooks, 2 stewards and a London pilot, Andrew Grant, who was in charge, having joined at the London dock. We were towed down river by the tug Middlesex. Heavy weather kept us in the Downs till Wednesday morning when we went down channel with a moderate north wind. All went well until Thursday 10th, when it veered to a strong south west gale that weathered the ship heading west, and half south, Start lighthouse bearing North West at nine miles distant. The Captain asked me if I thought that the ship would get round Start Head and Prawle Point. I replied, not unless there is more canvas on her. He said that he thought that she would. I went on deck, it being my watch. The ship was under lower tip sails, all topmasts stays and spankers. I told the pilot we were making a deal of leeway and asked him what he thought about getting round. He said “I don’t not know.” The Captain says she will go round. I do not think she will, but I will try it. It will be just a drag around Prawle Point. I suggested that we should do better with more sail, and he complained of the inefficiency of the crew.

The coastguards under Captain Manthorpe, RN, the inspecting commander of the this district, with the villagers, rendered much assistance to the stricken men. Mr Pengelly received several into his house. A police detachment was sent out by Mr Supt James Vaughan to assisting guarding the property which was saved, notwithstanding this, a great deal of it has been plundered and much wasted by the recklessness which was employed in breaking open the cases in which it was

packed, to save themselves labour in carrying it up the cliffs. Such wastage of life and property has taken place is indeed sad to contemplate and although no judicial proceedings can restore those who have been stricken by such carelessness, it is necessary if any if guilt can be laid at any individual, he should be punished as an example to others.

24/9/1868

The fatal blundering on board the unfortunate ship Gossamer culminated in the loss of 13 lives and £50,000 of property will form the subject of an enquiry, not only before the criminal court at Exeter, but also before skilled assessors appointed by the Board of Trade.

In all reasonable possibility, the persons responsible for the disaster will meet with such punishment as the law directs, while the moral effects of the operation of the law upon the offenders, it is hoped will induce more cautious and more respect for the life and property of persons in such charge for the future. The allegations made by the pilot in defence of his conduct, that, as he was acting beyond the extent of his limits, he was merely acting as the assistant of the captain, after passing Dungeness, and that the captain had indicated that he thought the ship would weather the Prawle, was dismissed as altogether worthless, for all the evidence goes to show that the pilot was in sole charge of the vessel during the first mate's watch at the time of the casualty, as then he would have been entitled to go below at 12 o/c when the captain's watch ended. The captain left the deck when the vessel was 9 miles off the Start, and there was at that time, perhaps, reasonable ground to suppose that she might go round the Prawle. But, as the vessel was proceeding so slowly, the current, which runs between the Start and the Prawle Point and sweeps round the shore caused her to be making more leeway than real progress, and this should have been calculated by the pilot, especially as his attention was called to it by the mate. The serious omission to inform Capt Thomson that the ship was in danger of a fatal blunder, on the part of the chief officer cannot be excused, and the unfortunate man was not appraised of the danger until he heard the paying out of the anchor chain, when the vessel was almost on the rocks.

f) Alexander, Stephen & Sons (AS&S)

The two pictures shows the “Linthouse Engine shop” of AS&A as it was in 1870. It was rebuilt on this site in 1991 as a testimony to the skills of the Victorian engineer, and serves as an excellent reminder of Scotland’s shipbuilding heritage.



The Company was founded by Alexander Stephen who began shipbuilding at Burghead on the Moray Firth in 1750. In 1793 William Stephen, a descendent of his, established a firm of shipbuilders at Footdee in Aberdeen.

In 1813 another member of the family, again called William, commenced shipbuilding at Arbroath

Alexander Stephen, a member of the third generation of the family, merged the Aberdeen and Arbroath businesses in 1828 and then, after closing the Aberdeen yard in 1829, moved production to the Panmure yard in Dundee in 1842 In 1850 Alexander Stephen arranged a lease of the Kelvinhaugh yard in Glasgow from Robert Black for twenty years from May, 1851. The site of the Kelvinhaugh yard is now Yorkhill Quay, The Arbroath yard finally closed in 1857. Due to the restrictions in size of the Kelvinhaugh yard, as well as the impending expiry of the lease, in 1870 the Glasgow business moved to a new site at Lighthouse. The Dundee shipyard was sold to the Dundee Shipbuilders' Company in 1893.

In a tragic disaster in 1883, the Daphne, a steamer, capsized after its launch from the Lighthouse yard, and 124 workers lost their lives. In 1968, Stephens was incorporated into Upper Clyde Shipbuilders and was closed after the latter organisation collapsed in 1971 the engineering and ship repair elements of Alexander Stephen & Sons were not part of the UCS merger and continued until 1976, with the Company eventually wound up in 1982, when the shareholders were repaid.



The ship repair business was based at the Govan Graving Docks, which had been purchased from the Clyde Port Authority in 1967. There is no knowledge of the earliest ships built, but the last 153 which were built on the East Coast are recorded. On the Clyde the firm built 697 ships, 147 at the Kelvinhaugh shipyard and the remainder at Linthouse. It was at Stephens's shipyard that Billy Connolly served his apprenticeship as a welder.

Part of the site is now occupied by a Thales Optronics facility, with the former main office building converted into lettable office space by Govan Workspace. The A-listed former Engine Shop was salvaged by the Scottish Maritime Museum in 1991 and rebuilt at its site in Irvine.

g) Previous work on the site

The only known previous work carried out on the site was in the 1980's when Stephen George, Neville Oldham and members of the South West Maritime Archaeological Group recovered some items from the site. Most of these are now on display in Salcombe Museum. Artefacts from site

13. Artefacts

The following are a list of artefacts and site area identifications

Identification & area	Description
<i>G-A</i>	<i>Brass Dolphin (Another has been known to have been recovered)</i>
<i>G-B</i>	<i>Brass Flange & Pipe</i>
<i>G-C</i>	<i>General wreckage area on site</i>
<i>G-D</i>	<i>Brass Bolts (For composite construction)</i>
<i>G-E</i>	<i>Leather boot & ladies Shoe</i>
<i>G-F</i>	<i>Pulley Block</i>
<i>G-G</i>	<i>Sounding Lead</i>
<i>G-H</i>	<i>General wreckage area on site</i>
<i>G-J</i>	<i>General wreckage area on site</i>
<i>G-K</i>	<i>Planking</i>
<i>G-L</i>	<i>Coal</i>
<i>G-M</i>	<i>General wreckage area on site</i>
<i>G-N</i>	<i>Pewter cruet stand</i>
<i>G-O</i>	<i>Lead Shot</i>
<i>G-P</i>	<i>Smokers pipe</i>
<i>G-Q</i>	<i>Crockery , bottles, plates</i>
<i>G-R</i>	<i>Brass Door hinge</i>

<i>G-S</i>	<i>Brass door catch</i>
<i>G-T</i>	<i>Brass door lock plate</i>
<i>G-U</i>	<i>Lead disk</i>
<i>G-V</i>	<i>Cotton reels</i>
<i>G-W</i>	<i>Hessian sacking</i>
<i>G-X</i>	<i>Brass pointer</i>
<i>G-Y</i>	<i>Brass sheathing</i>
<i>G-Z</i>	<i>Wooden frame</i>
<i>G-AA</i>	<i>Chain</i>
<i>G-BB</i>	<i>Brass mechanism</i>
<i>G-CC</i>	<i>Lead carriage (toy)</i>
<i>G-DD</i>	<i>Wooden marbles (Toy)</i>
<i>G-EE</i>	<i>Brass Nails</i>
<i>G-FF</i>	<i>Iron ingot</i>
<i>G-GG</i>	<i>Copper nails</i>
<i>G-HH</i>	<i>Gold sovereign</i>
<i>G-JJ</i>	<i>Brass pintle pieces</i>
<i>G-KK</i>	<i>General wreckage area</i>
<i>G-LL</i>	<i>Small brass mechanism</i>
<i>G-MM</i>	<i>Silver plated fork</i>
<i>G-NN</i>	<i>Silver plated spoon</i>
<i>G-OO</i>	<i>Brass rods (From hatches)</i>
<i>G-PP</i>	<i>Brass wingnuts</i>
<i>G-QQ</i>	<i>Brass door latch plate</i>
<i>G-RR</i>	<i>Brass bar mounted on cast iron (Engraved Taylor Brothers)</i>
<i>G-SS</i>	<i>General wreckage area</i>
<i>G-TT</i>	<i>School slate</i>
<i>G-UU</i>	<i>Brass bolt with lead washer</i>
<i>G-VV</i>	<i>Brass/copper flange</i>
<i>G-WW</i>	<i>Brass spur (for saddler)</i>
<i>G-XX</i>	<i>Brass ring 3" diameter</i>
<i>G-YY</i>	<i>Button (Shaped as a Maltese cross)</i>
<i>G-ZZ</i>	<i>Large wood fid (15" long)</i>
<i>G-AAA</i>	<i>2 Inkwells</i>
<i>G-BBB</i>	<i>Women's glove</i>
<i>G-CCC</i>	<i>Sailmakers glove</i>
<i>G-DDD</i>	<i>Wooden carpenters plane</i>
<i>G-EEE</i>	<i>Ships bell</i>
<i>G-FFF</i>	<i>Large wooden Fid (15" long)</i>
<i>G-GGG</i>	<i>Hardwood fid</i>

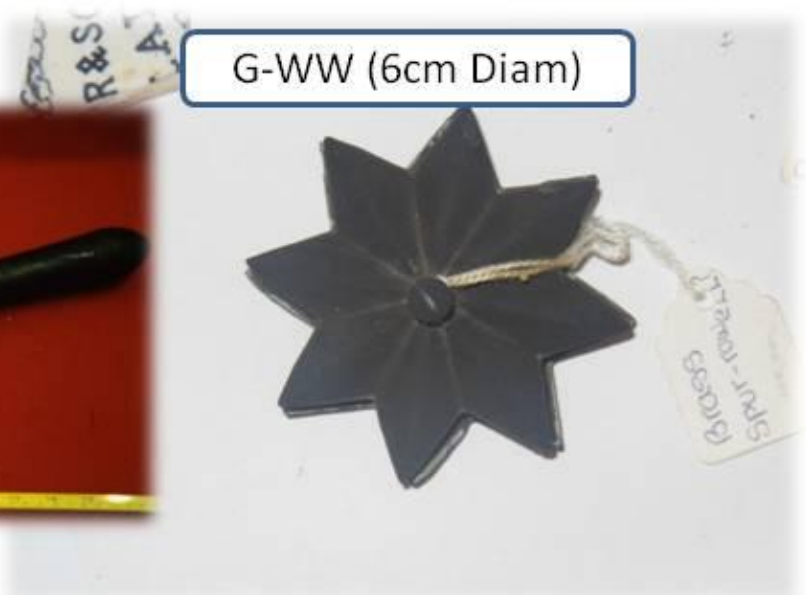
a) Artefacts, pictures and sketches

The following section shows photographs of some of the artefacts as well as sketches. Considering where they were located they are in remarkable condition

G-AA Brass Dolphin Binnacle leg (51 cm tall)







The boot recovered from the shipwreck was part of the general cargo and has remained in remarkable condition as it packed for the journey.

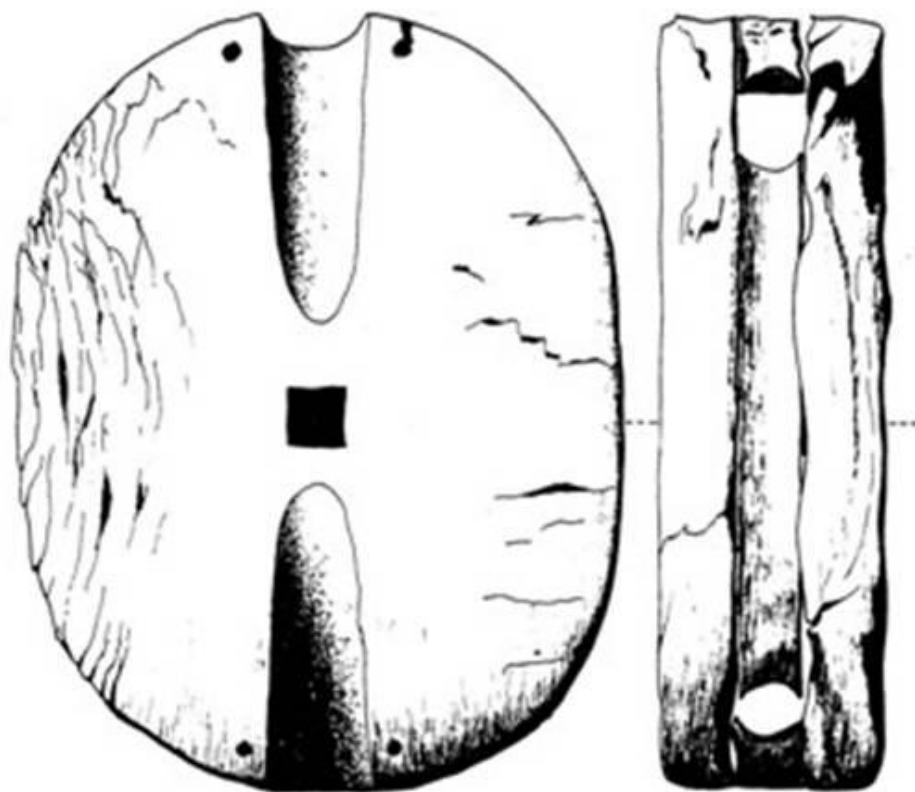




Artifact G-EEE

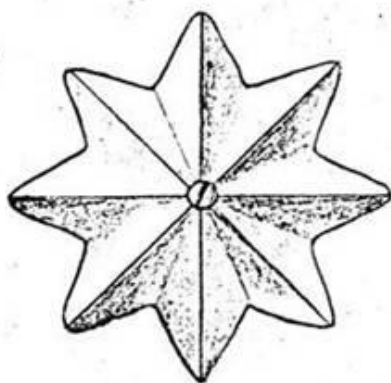
The whereabouts of the ships bell is not known but was sold at Bohams for £956 in 2004. We believe the bell had been previously sold at Auction in Plymouth in the 50's



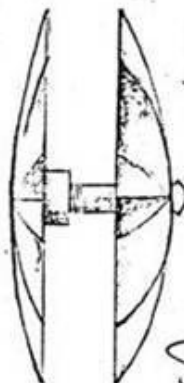


G-F

Part of double block, 31.5cms.



A button from the wreck also bore this same pattern.



Brass 'Star' from the
Gossamer, prauze Pt.
A full rigged clipper
ship, she sank in
1887.

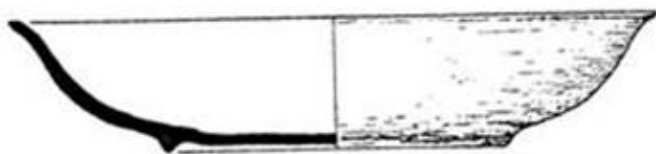
Actual size.

Spur Rowell.

G-WW (6 cm Brass
Star)



G-Q
Chinese plate



G-N
cruet decanters
& stoppers

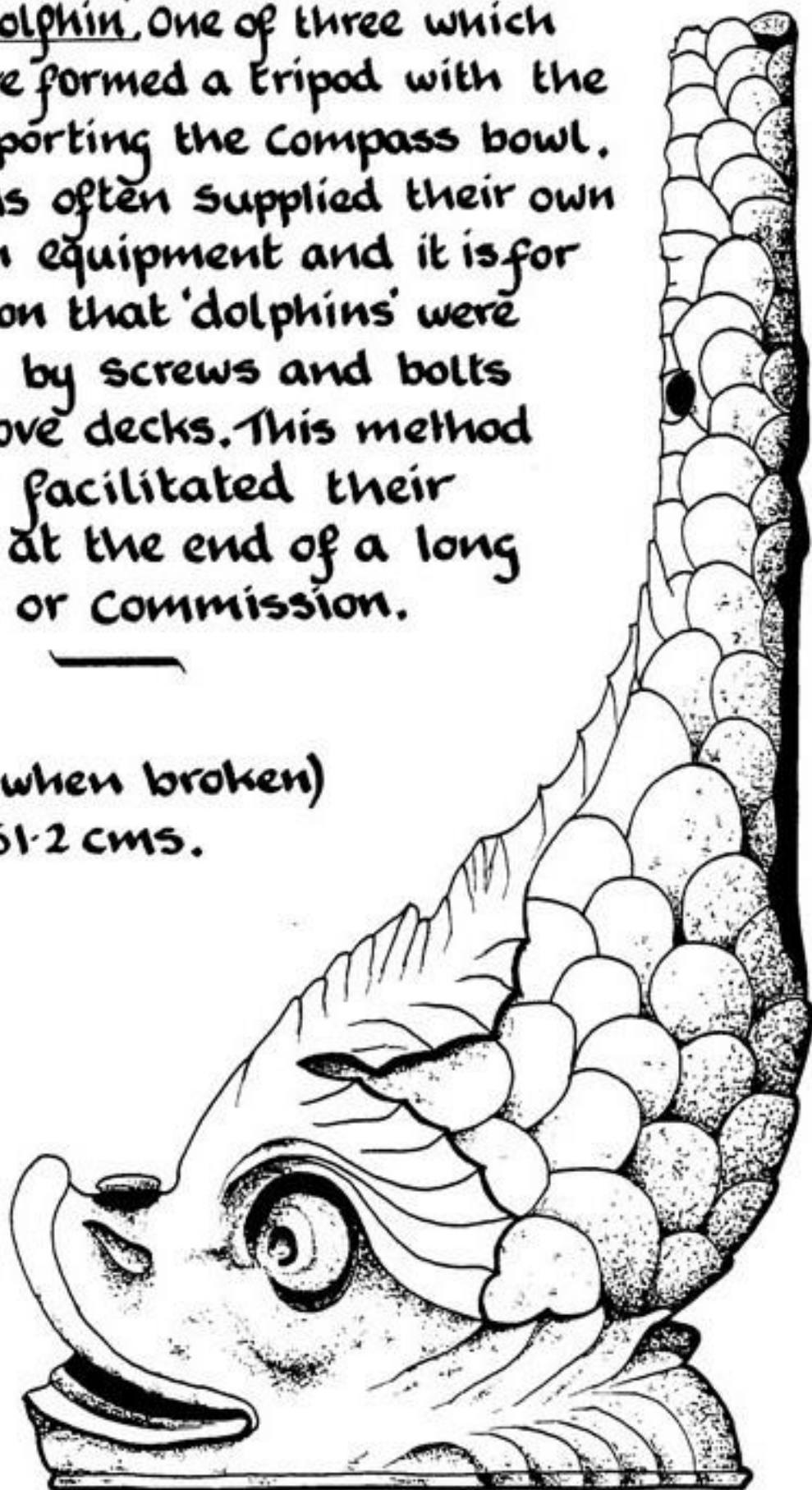
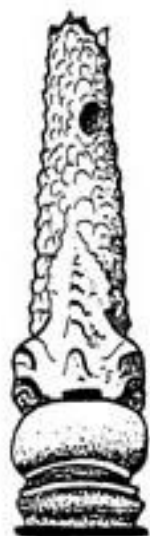


Glass oil decanters from
cruet stand.

Brass 'dolphin', one of three which would have formed a Eripod with the tails supporting the Compass bowl.

Captains often supplied their own navigation equipment and it is for this reason that 'dolphins' were fastened by screws and bolts from above decks. This method of fixing facilitated their removal at the end of a long passage or Commission.

Height, (when broken)
51.2 cms.



14. Challenges diving the site

b) The Location of the site

The following photograph shows the shoreline next to the site in an exposed position off Prawle Point Devon.



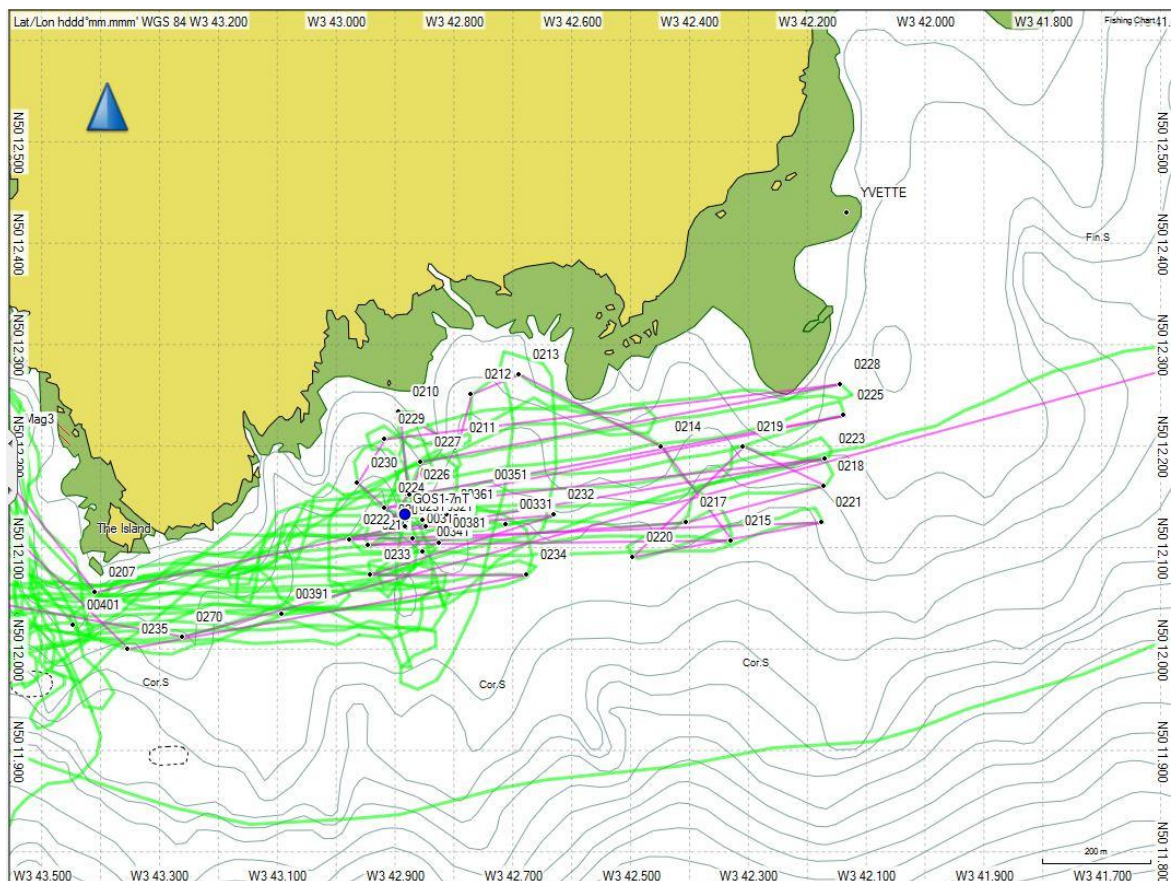
You can see from the photograph above that the sea condition need to be flat calm in order to dive the site and one of the other challenges was that a considerable amount of broken off kelp collects in the area and this needs to be cleared in order to investigate the site.

15. Research

Research has been done on the history of the ship and circumstances surrounding its wrecking off Prawle Point. In addition divers who have previously dived the wreck have been interviewed regarding condition of the site at the time and what artefacts were found.

16. Find the Anchor's Magnetometer Survey

During a calm weather period a magnetometer survey was done in the area off Prawle Point. The objectives were to find any evidence of iron wreckage in the bay and in particular if there were any anchors in the area. The following chart shows the area covered and the track of the magnetometer over a two day period. We covered an area to the southwest of the wreck in order to follow the path taken by the ship as it dragged and lost its anchors.



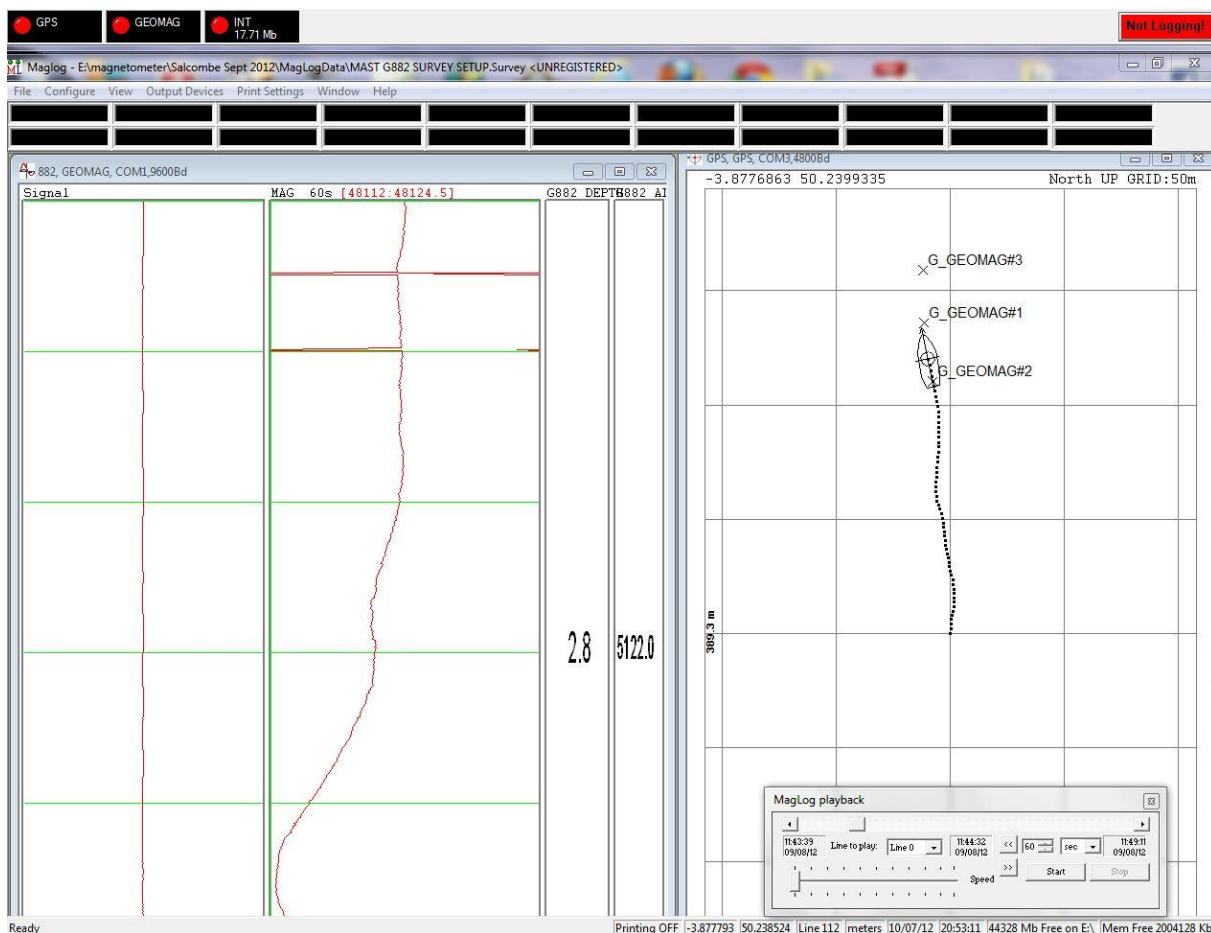


The magnetometer hired was a Geometrics G882. The model G-882 cesium-vapor marine magnetometer provides the same high performance as our airborne instruments delivering high resolution results in all types of survey applications. The G-882 is a low cost, compact system designed for professional surveys in shallow or deep water.

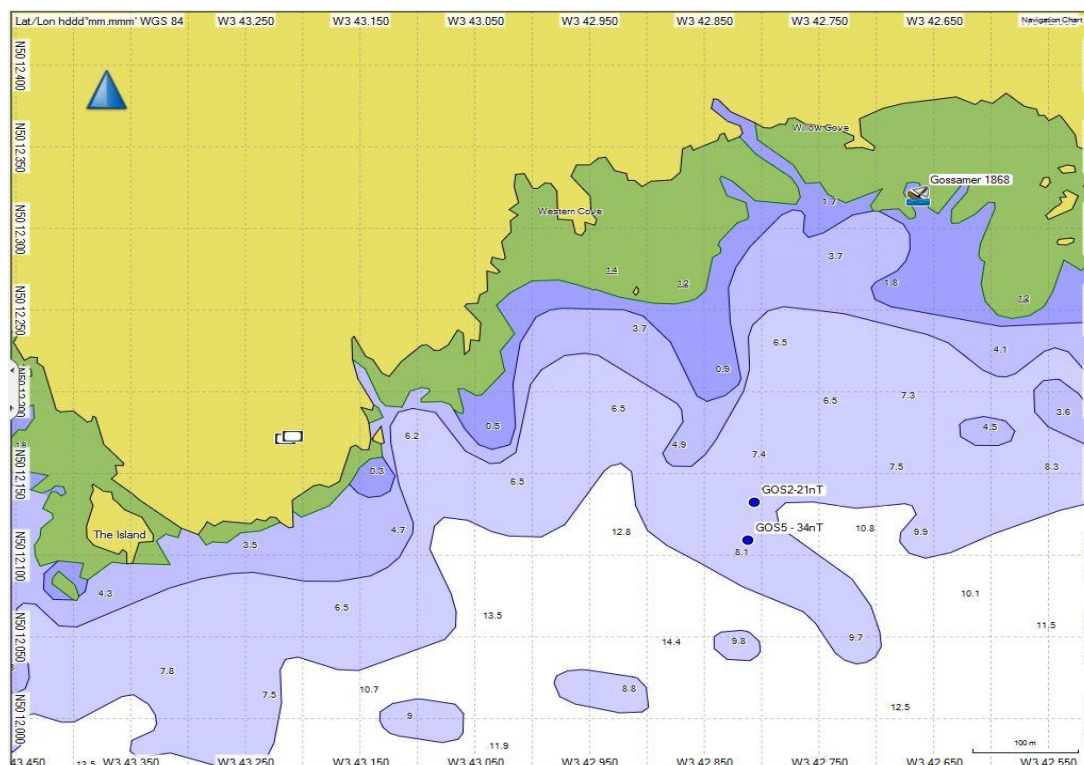
The G-882 magnetometer's digital output can be recorded with any serial data logger but its full potential is obtained when used with our MagLog Lite™ software to log, display and print GPS positioned measurement results.

The G-882 is designed for operation from small vessels for shallow water surveys as well as for large survey vessels for deep tow applications (4,000 psi rating, telemetry over steel coax available to 10Km). Being small and lightweight (40 lbs net, no extra weights) it is easily deployed and operated by one person. Power may be supplied from a 24 to 30 VDC battery power or the included 110/220 VAC power supply. The standard G-882 tow cable includes a Vectran strength member and can be built to up to 700m (no telemetry required). The shipboard end of the tow cable is attached to an included junction box or optional on-board cable for quick and simple hook-up to a power source.

The data was recorded using the MagLog software and processed using Magpic. The following show the Maglog software in use on the boats PC.



The chart below shows the positions of targets from the processed magnetometer data. Both of them have an nT value consistent with an object such as an anchor. This was 20 – 30nT 7m above the target.



The two larger magnetic anomalies found are almost exactly where we would expect to find the anchors based on the reports of how much chain she had out when first grounding. Although they look close on the above chart, the two targets are 44m apart.

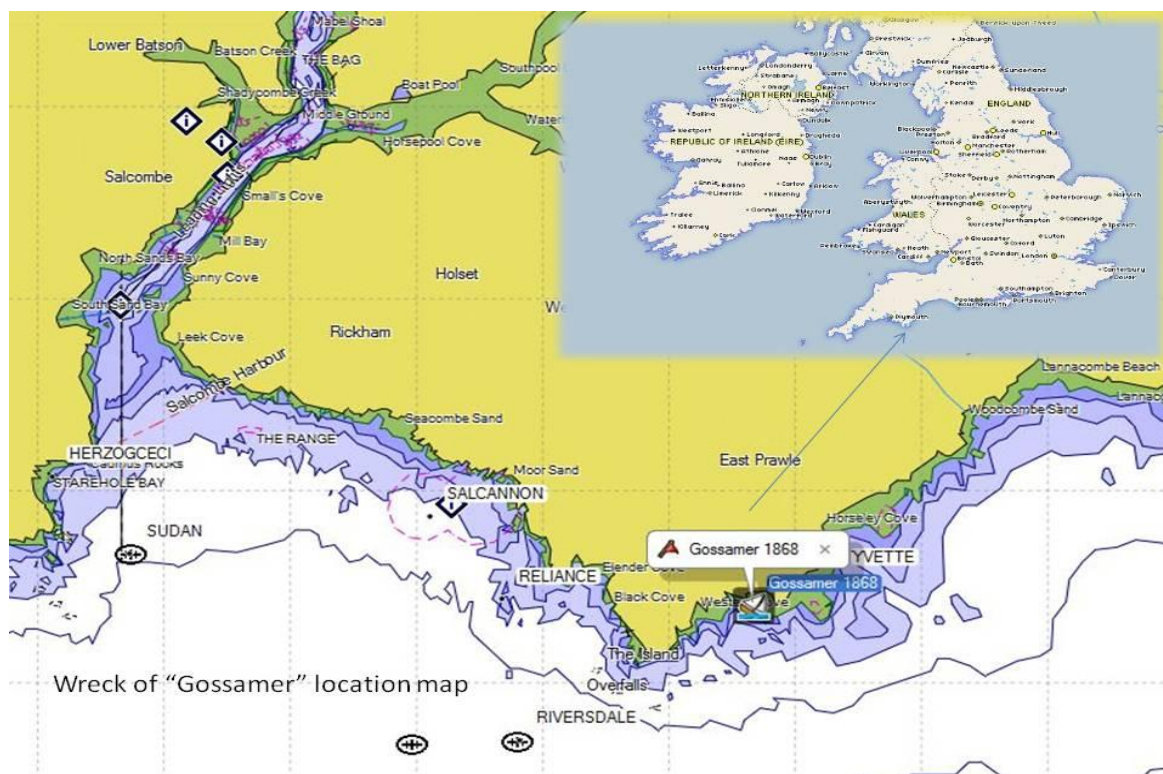
Due to very poor underwater visibility when diving these potential anchor sites, we have been unable to establish that they are anchors. This will be verified in the summer of 2013.

17. Finds Disposal

The majority of finds to date have been loaned to the Salcombe Museum by Stephen George. Any new finds, once registered with the receiver of wrecks, will be offered to the Salcombe Museum on loan if agreed with the receiver of wrecks.

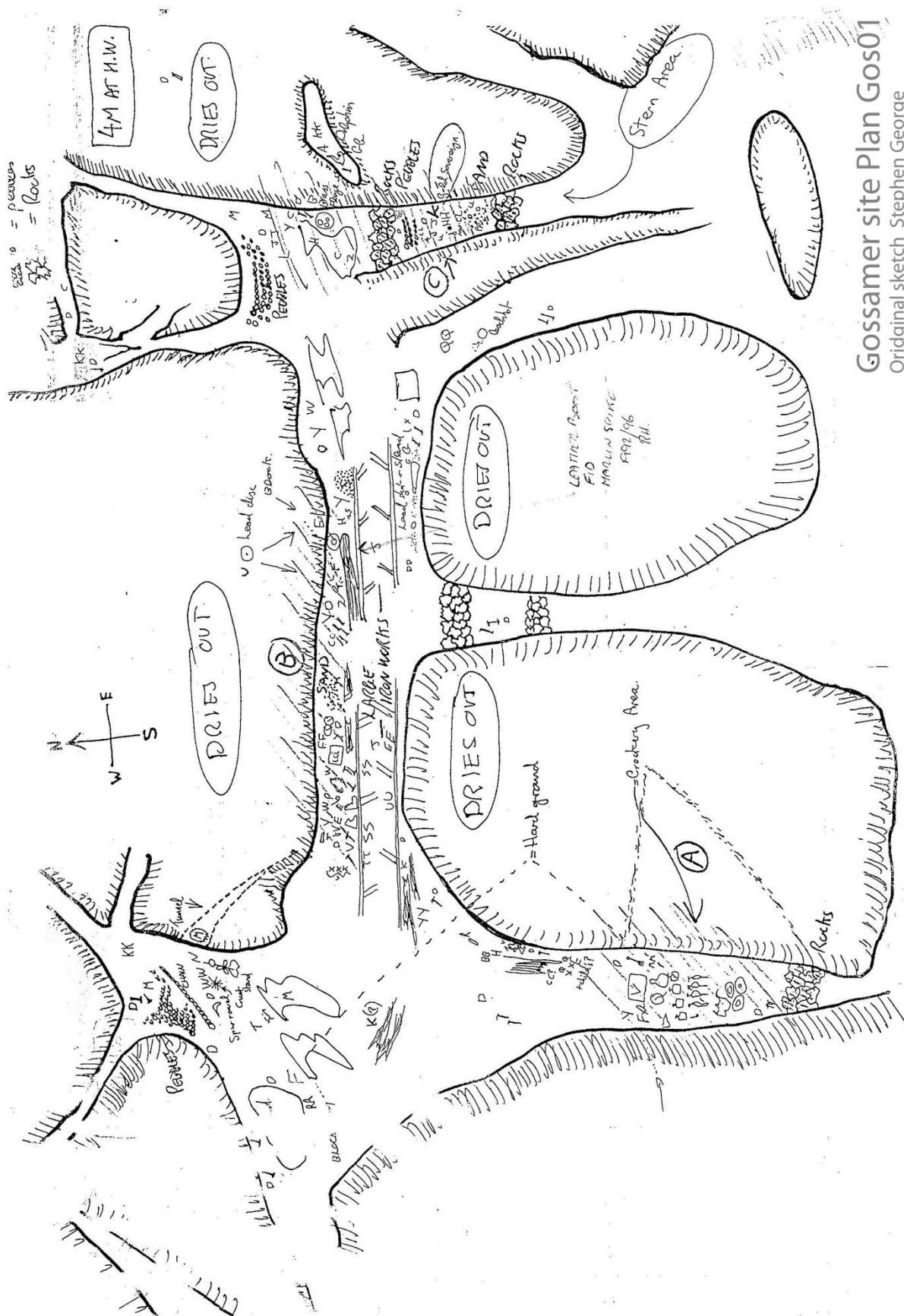
18. Site Location

The following images show the location of the “Gossamer” off Prawle Point near Salcombe in South Devon. Although not a lot of the wreck is left, the images below shows how she may well have broken up and is consistent with the site plan..



19. Site Plans

The following sketch shows the layout of the site and where the artefacts were recovered from:



Gossamer site Plan Gos01

Original sketch Stephen George

Updates Steve Clarkson Feb 2013

20. On site activities

Date	Objective
23/5/2012	Initial mag (proton) survey of bay & re-location of wreck site
7 & 9/9/2012	Mag (Caesium) survey off Prawle looking for anchors
9/11/2012	Visit site by sea to survey adjacent foreshore
15/2/2013	Confirm target mag targets
20/4/2013	Diving site
21/4/2013	Diving possible anchor hits
28/4/2013	Magnetic survey south of original hits.
4/5/2013	Diving possible anchor hits and site

21. Conclusions

The site of the Gossamer and what is left of her, was confirmed and a record of the site has been produced. All of the known artefacts have been recorded using photographs and sketches and her history, where known has been documented including, what we think we're here final moments. Considering the very exposed location of the shipwreck, it is amazing how some of the artefacts have survived over the years.

Many of the Tea clippers over this period have been well documents but it has been very difficult to find anything about the Gossamer.

We achieved all of our objectives and will continue to carry out more research both on site and in the various records offices. I am sure the rough seas in the area will reveal more.

22. Financial Report

The project spend was roughly in line with the planned cost. A detailed spreadsheet and receipts are available if required.

Some members of the team provided all their own personal boats .

Hire Equipment	Magnetometer/metal detector hire	£440
Equipment bought	Rope, buoys, slates, tapes etc	£67
Air		£190
Boat fuel	Fuel for club & private boats & harbour fees	£720
Boat Hire	Own boats used	0
Research	Trips to Kew/Exeter etc	£150
	Total spend	£1567
	Jubilee Trust Funding	£1000

23. Possible future projects on the site

During the investigation a number of magnetic anomalies were found in the bay. These may well be from the Gossamer or another shipwreck and will be further investigated.

24. Underwater photographs on “Gossamer” wreck site



Above – Bolts still in place

Below – Wood



25. Some pictures of the team



