HMS 'CALLIOPE' AND THE SAMOA HURRICANE

BY

D.K. BROWN, MENG, CENG, FRINA, RCNC
(Consultant Naval Architect and Historian)

ABSTRACT

The sail-assisted steam warship, HMS *Calliope*, was the only one of 13 warships to survive the great hurricane of March 16 1889 at Samoa. This she did by successfully making the open sea using the full power of her reliable engines, together with the skill of her ship's company.

Introduction

One of the great stories of the Victorian Navy, now largely forgotten, was the survival of the *Calliope* in the Samoa Hurricane of 1889 when six warships of other navies, together with many merchant vessels, were wrecked. Her survival was due to her tough hull, excellent seamanship and, above all else, to her powerful and reliable engines, well served by a devoted engine room crew under:

Fleet Enginer Henry J. Bourke

Engineer William Milton

and Assistant Engineer James R. Roffey.

When *Calliope* completed in 1884 she looked rather old-fashioned with her high sides, broadside armament and a full barque rig (FIG. 1). Sailing rig was still essential as her engines, though quite up to date, still burnt between 2 and 2½ lb of coal per ihp per hour which, with 430 tons of coal, gave her a nominal

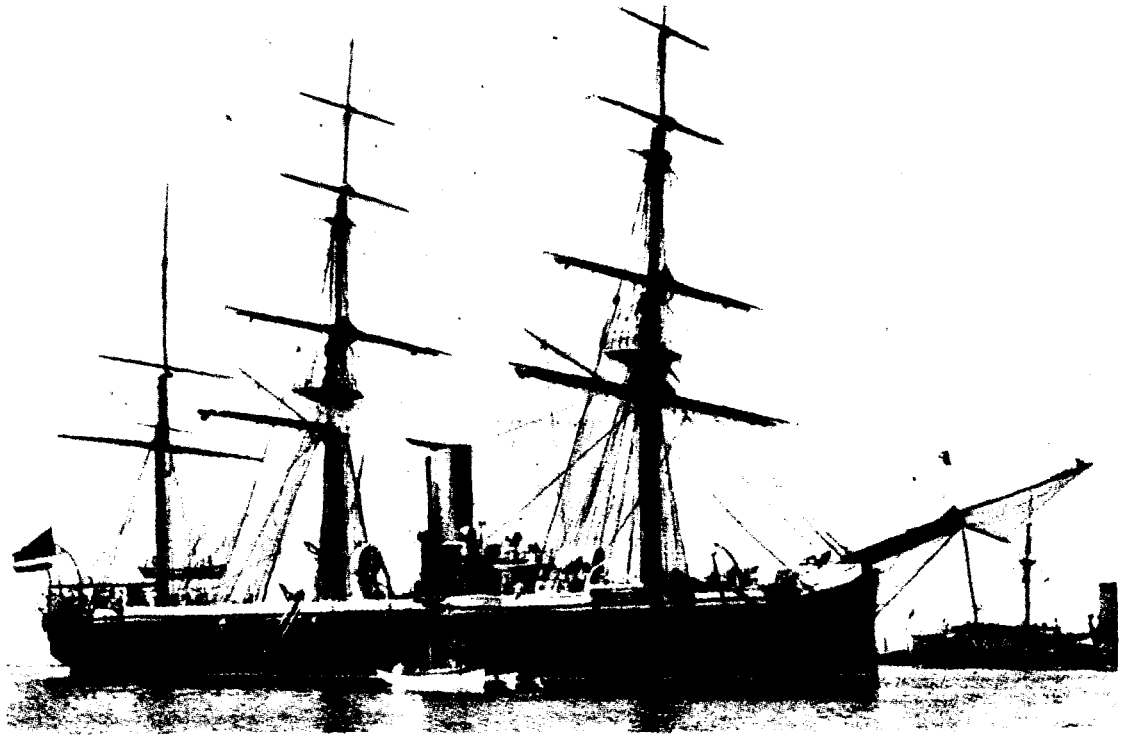

FIG. 1—HMS 'CALLIOPE' AS SHE WAS AT THE TIME OF THE HURRICANE

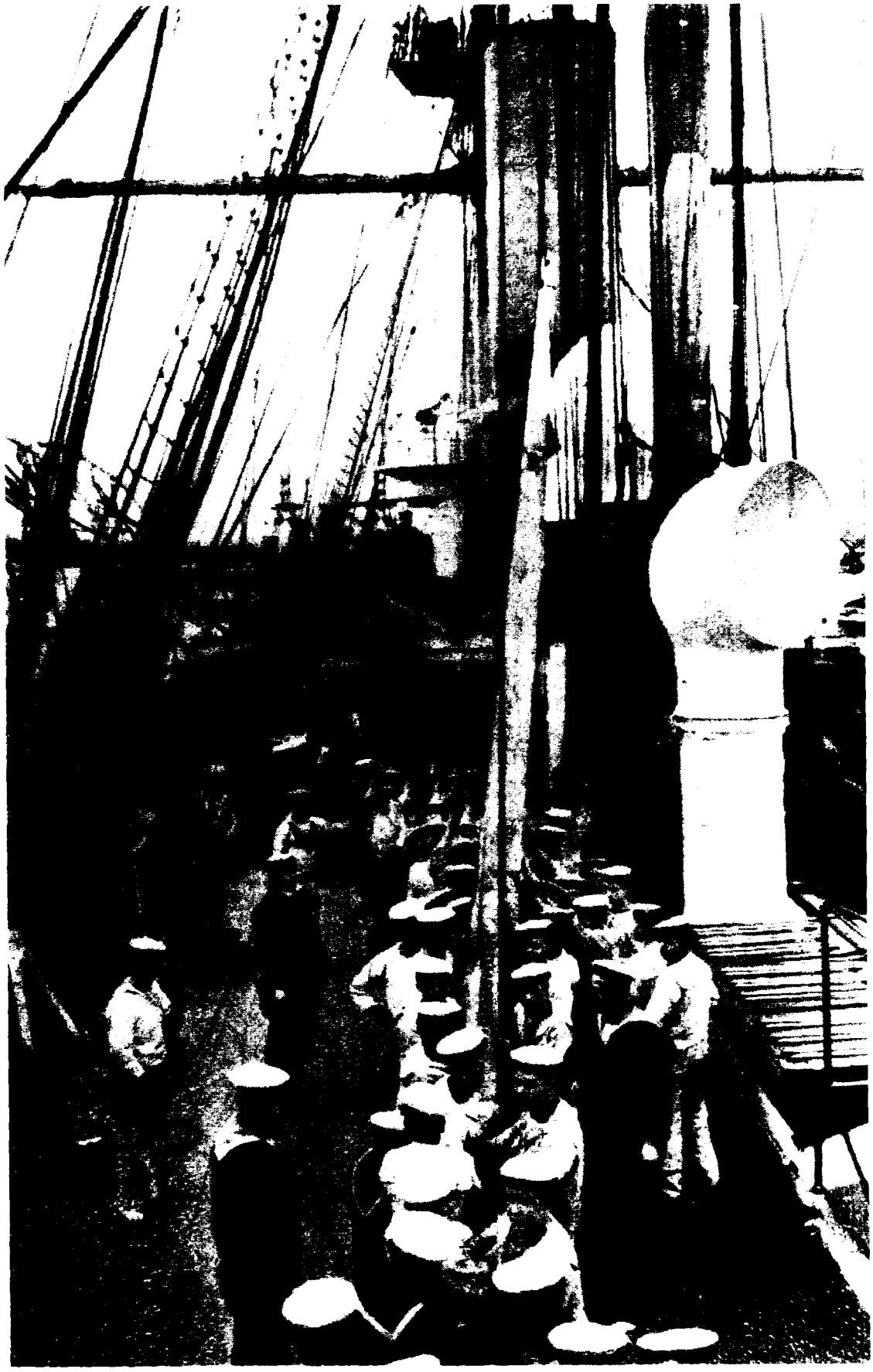

FIG. 2—THE CONGESTED UPPER DECK OF HMS 'CALLIOPE', LOOKING FORWARD, SHOWING THE ENGINE ROOM SKYLIGHT AND VENTILATOR IN THE FOREGROUND

endurance of 4,000 miles at 10 knots—about 16 days easy steaming. In many parts of the world coaling stations were still far apart, coal was expensive and her duties of trade protection and support to colonial administration meant that sail was needed for long voyages. Sail brought penalties, a large crew of 317 men, and an obstructed upper deck (FIG. 2) precluding an effective arrangement of armament. Under steam, the aerodynamic drag of masts, yards and rigging would reduce her speed by 1 to 2 knots in calm air.

Her old-fashioned appearance concealed several up-to-date features such as a steel hull, compound engines and a heavy armament of breech-loading guns. Responsibility for her design lay with Nathaniel Barnaby as Director of Naval Construction and, for the engines, James Wright as the Engineer-in-Chief. Barnaby was an enthusiast for the use of steel in British warships but good quality steel from the Siemens Martin open hearth process was not available in this country until the late 1870s.

HMS 'Calliope'

Calliope was a slightly modified version of the COMUS Class of 1876 which had steel hulls sheathed in teak above water. Below the waterline there was 2½ inches of a cheaper wood covered with copper to protect the hull from fouling. Crew accommodation standards were improving and there was a sick bay, a bathroom for the ratings, a library and improved ventilation—all novel and intended to help attract volunteers for a life far from home. Even so, she was very crowded below decks, with the machinery and coal taking about half the space and the magazine arranged between the boiler and engine rooms. For about 100 feet amidships, over the machinery, there was a 1½ inch steel protective deck. There were nine watertight bulkheads, of which six extended to the upper deck though most were compromised by watertight doors, low down.

The ratings were mainly berthed amidships, over the machinery which must have been rather hot despite the 'improved' ventilation. Their heads were in the forecastle, together with the forward guns and the anchor gear. Warrant and petty officers berthed forward whilst wardroom and junior officers had the more spacious area abaft the machinery. The captain, first lieutenant and navigator had cabins in the poop.

The ship was operated from the forward end of the poop with a small, bullet-proof conning tower on either beam containing voice pipes, engine and steering telegraphs. The wheel was just below, at the forward end of the poop. *Calliope* was 10 feet longer than COMUS and, with a heavier armament, floated a little deeper, and was given bilge keels, 95 feet long. Her particulars are listed in TABLE I.

TABLE I—*HMS 'Calliope'*

Displacement (tons)	2770
Dimensions (feet)	235 × 44'6" × 17'5" frd, 19'11" aft (draught)
Machinery	1 shaft, horizontal compound by J & G Rennie. 2 LP cylinders, 36" stroke, 72" dia.; 2 HP 42" dia. Propeller diameter 16'7½", feathering. On trials made 14.7 knots with 4023 ihp. Six single-ended cylindrical boilers.
Rig	Barque. Mast heights were: 134 ft (fore), 136 ft (main), 114 ft (mizzen).
Armament	Four 6 inch Breech Loaders (BL), twelve 5 inch BL, six Nordenfelt, two field guns, two torpedo launchers.
Complement	317
Cost	£120,000 excluding armament.

The engine was of a type common in both merchant ships and warships of the day. Each LP cylinder was in tandem with its HP cylinder with a common piston rod. There was a separate starting engine and an auxiliary which drove the dynamo for the searchlight. The six single-ended boilers were back to back against a centre-line bulkhead, forming two boiler rooms, and generated steam at 60 lb/in.[2]

Calliope carried four 6 inch guns in sponsons, either side, one pair forward of the funnel and the other at the break of the poop, giving about 150° arcs of fire. The 5 inch either side in the waist had arcs of about 120°. The torpedo launchers were on either side of the lower deck just forward of the boiler room and were hung from a pivoted girder on the deckhead. To fire, a port was opened and the tube run out so that it projected six feet from the side. It could train through 75° and was controlled from a simple director on the bulwark above.

She commissioned under Captain H. C. Kane on 25 January 1886 for the Australian station. The political situation in Samoa was 'confused', with both the USA and Germany trying to establish authority. The UK had no such intentions but sent *Calliope* to keep an eye on British interests and protect British citizens. The USA was represented by Rear Admiral Kimberly with his flag in *Trenton* and with *Vandalia* and *Nipsic*, whilst Germany had *Adler*, *Olga* and *Eber*.

Apia Harbour

At high tide Apia harbour appears as a broad open bay, running up to the coast road with houses, stores, churches and trading posts, surrounded by palm trees. Behind, there is 'a beautiful green landscape of mountains, hills and valleys'.[1] At low tide the scene is threatening, with coral reefs closing in from the points at Matautu in the east and Mulinu to the west. Only in the way of the river Vaisingano is water still visible, for coral cannot live in fresh water. Robert Louis Stevenson likened the harbour to a high shouldered jar or bottle with a funnel mouth, with sides of coral everywhere, for the barrier reef formed the neck of the bottle and also skirted the beach forming the collar. A reef of coral ran out to form a dangerous cape, opposite the fairway, which was only three cables wide at the narrows (FIG. 3).

The Hurricane

The great hurricane was preceded by storms in mid February when three small merchant ships were wrecked. There was another gale on 7 March sufficiently severe for the warships to raise steam and head into the wind to reduce the load on their anchors. It was fine on 12 and 13 March 1889 but on the 14th the barometer began to fall and kept on falling. On the 15th the sea got up but local pilots advised that the season of bad weather was over and, on this advice, Admiral Kimberly decided that it would be safe to stay in the harbour but he sent the lower yards down, housed the topmasts, raised steam and set storm main and mizzen stay sails. His flagship, and probably the other ships, had four anchors down. Neither of the other national squadrons were willing to sail and leave the USN in sole control so they stayed too, taking similar precautions*. There were also six small merchant ships of up to 500 tons and many small craft in the main harbour that day.

---

*Professor H. R. Dixon (Royal Engineers) in his fascinating book, *The Psychology of Military Incompetence* (1976), equates the conduct of the three senior naval officers with the Charge of the Light Brigade. He is surely wrong; they were not under orders but using their judgement and, in the light of the earlier storms and of informed local advice that the March storm would not be severe their judgement seems soundly based and, in the case of Capt Kane, correct—just.

By nightfall there was a rising wind and torrential rain which got steadily worse. The wind was from the north, unusual for Apia, and hence the ships were exposed to its full fury. Waves broke over the bow with sheets of spray as high as the lower mast heads, deluging the deck with up to a foot of water. In the darkness it was impossible to see the reefs or whether the anchors were dragging but dawn showed that all ships had been forced towards the shore, some fatally. *Eber* was the first to strike, hitting the reef soon after 5 a.m. on the 16th and she broke up with the loss of all but four of her crew of 80.

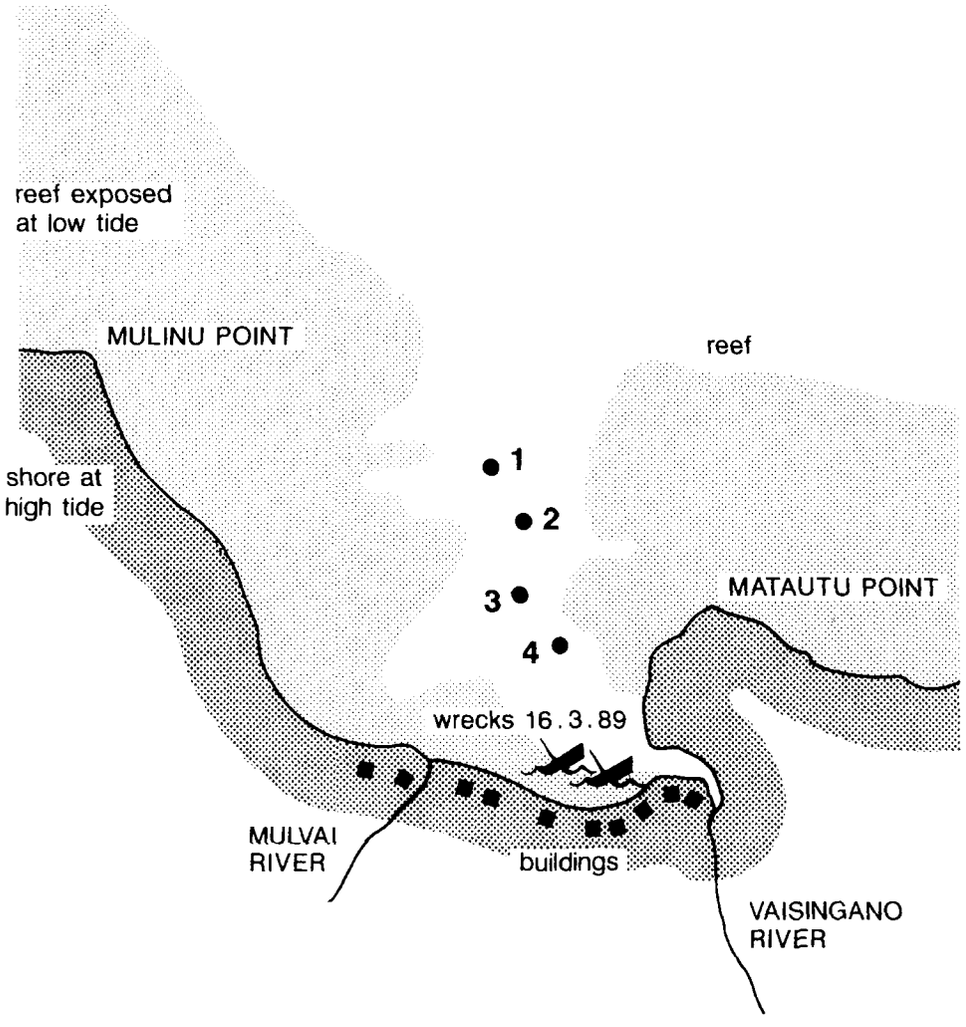

FIG. 3—APIA HARBOUR, MARCH 1889
1. TRENTON'S INITIAL POSITION
2. VANDALIA'S INITIAL POSITION
3. CALLIOPE'S INITIAL POSITION
4. NIPSIC'S INITIAL POSITION

The *Vandalia* had been anchored well out but was dragging towards *Calliope* whilst the *Trenton* was holding her own in the harbour mouth though she was troubled by flooding through a broken anchor port cover. *Olga, Adler* and *Nipsic* collided after they had all dragged their anchors and, for a time, lay locked together, close to the beach. *Nipsic* was a 'wild and piteous sight' as her funnel was torn away at the deck and she was being thrown about in the sea with sparks, smoke and flames coming out of the hole in her deck. She was washed over the reef onto the beach at about 7 a.m. where she was abandoned with the loss of seven of her crew.

Adler went an hour later when she touched the reef and was lifted onto it by an extra heavy wave. Twenty men were lost but the rest, who stayed on board, were rescued when the storm had passed.

Calliope had drifted to within twenty yards of the reef on her port quarter with *Vandalia* drifting down onto her port bow and *Olga* boxing her in on the other side. Captain Kane wrote: 'It was the most ticklish position I was ever in, and without exaggeration, several times the *Calliope*'s rudder was within six feet of the reef. Had she touched, it would have been all up with us. I had to steer over to get out of the way of the *Olga*, to go ahead to clear the reef, and to slack the cables when the *Vandalia* came down on me'. At one time the three vessels were locked together and *Calliope*'s engines had to use their full power to break clear.

'Calliope' Escapes to Sea

Captain Kane realized he could not stay in this position. One possibility was deliberately to drive the ship onto the beach with a fair chance of escape for the crew but he chose the more daring course which could save the ship as well. He decided to slip the cables and make for the open sea, accepting the risk that the machinery might fail or that it had insufficient power to overcome wind and sea. Kane continued: 'I slipped the cables and went hard ahead calling up every pound of steam and every revolution of the screw. In making the passage the vessel literally stood on end. The water coming in at the bows as she dipped, running aft immediately as she rose. I really wondered how the machinery and rudder stood the strain of the tremendous sea that was running'.

Vandalia was passed without mishap and there were then some 8,000 yards to steam in order to reach the entrance of the harbour. *Calliope* was developing revolutions for 15 knots but her speed over the ground was only about two knots and sometimes as low as a half knot. The channel was partially blocked by the *Trenton* which was in serious difficulty; she had lost her rudder about 7 a.m. and flooding was gaining on the pumps. There was only one anchor cable left and then, at 10 a.m., her engine failed. It was about then that Admiral Kimberly saw '. . . the large black hull of a ship looming forth in the dim distance. It was slowly, very slowly, advancing right for us. Now high up in the crest of some sea and then down so low that only her tops could be seen'.

Calliope passed so close to *Trenton* that her fore yard arm passed over the latter ship's deck and it only just cleared as the *Calliope* lifted. As *Calliope* passed the *Trenton* 'the American Admiral and his men gave us such ringing cheers that they called forth tears from many of our eyes . . . I will ever remember that mighty outburst of fellow feeling which I felt came from the bottom of their hearts of the noble and gallant Admiral and her noble sailors'. *Calliope* returned the cheers and, soon after, she cleared the reef with 60 yards to spare, reaching the open sea, badly bruised, with four boats smashed, spars and rigging damaged, anchors and cables lost and the ornamental work at bow and stern destroyed. The hull and the all-important engines were unharmed and there was no difficulty in riding out the remainder of the storm.

Trenton dragged slowly all day, swerving from side to side but held off the reef by the backwash. She hit *Olga* and finished against *Vandalia* where she sank to the gundeck but with the loss of only one of her crew. *Vandalia* lost 43 men, mainly those attempting to swim 20 yards to the shore through the confused sea where the swollen river met the waves coming in. The local inhabitants showed great bravery in forming a human chain to rescue the Americans.

Olga collided with *Nipsic* and then hit *Trenton* twice, removing one quarter gallery each time, before hitting *Vandalia* and ending on the beach. Since she had neither power nor steering she cannot be blamed for this series of incidents and, though damaged, she was the only German ship to be salvaged.

After the Hurricane

Four days after the storm, *Calliope* returned to the harbour at Apia, the only survivor of the 13 ships which had been in the harbour. Stevenson describes the scene: 'The morning of the 17th displayed a scene of devastation rarely equalled, the *Adler* high and dry, the *Olga* and *Nipsic* beached, the *Trenton* partly piled on the *Vandalia* and herself sunk to the gundeck; no sail afloat and the beach piled high with the debris of ships and wrecks of mountain forests'.

Calliope's wonderful achievement thrilled the country as much as any hard-won battle would have done. The Board expressed their deep admiration for Captain Kane and his crew and acknowledgements came world-wide. As one account said 'To do this it was necessary that the construction of the cruiser should be faultless, that there should be no flaw in either the hull or machinery, and no deviation by her officers and crew from one inflexible purpose'.

Calliope won the lower deck nickname of 'Hurricane Jumper' but her active career was short; she returned home in 1890 and, though used as a sea-going tender from 1897–1905, was then struck off the effective list. In 1907 she became the RNVR drillship on the Tyne, remaining there until 1957 when she was broken up at Blyth. Today, such a historic ship would probably have been preserved. Her sister ship, *Calypso*, was still afloat at Lewisport, Newfoundland, in 1952—perhaps a reader can say what has happened to her?

The story of the Samoan hurricane was widely told in Victorian days as an heroic epic of the Navy. The skill and courage of sailors and engineers, the seaworthiness of the *Calliope* and the reliability of Rennie's engines are worth remembering today.

TABLE II lists the main parameters of the other ships involved. It is clear that *Calliope* was more highly powered in relation to displacement than any other ship which must have been an important factor in her survival.

TABLE II—*American and German ships at Samoa*

Ship	*Dispt.* tons	*Length* ft, in	*Horse power* ihp	*Speed* kts	*Fate*
Trenton	3900	253′0″	3100	12.8	Wrecked 16.3.89
Vandalia	2033	216′0″	1150	12	Wrecked 16.3.89
Nipsic	1375	185′0″	700	10	Salvaged. Sold 1913
Olga	2387	250′6″	200	13.5	Salvaged. Broken up 1905
Adler	1024	187′10″	950	11.5	Wrecked 16.3.89
Eber	724	169′9″	760	11	Wrecked 16.3.89

Sources

1. Report of Captain Kane.
2. Kimberly, Rear Admiral L.A.: *Samoan hurricane*; Washington Navy Yard Museum.
3. Osbon, G.A.: *Notes on cruisers*; Naval Photograph Club.
4. Wood, W.: *With the flag at sea*; London, Constable, 1901.

see also:

5. Koop, G.: The Imperial German Navy and the hurricane at Samoa; *Warship* no. 48, London, Conway, Oct. 1988.