SISTER SHIPS

The Thetis Class
Coast Guard Patrol Boats

Prepared for the Potomac Association
By Les Dropkin, January 2002
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Sister Ships
The Thetis Class Coast Guard Patrol Boats

When the Electra was launched on 30 June 1934 at the Manitowac Shipbuilding Corp. yard in Manitowac, Wisconsin, she became one of eighteen new cutters that made up the Thetis class patrol boats built for the Coast Guard between 1931 and 1934. The Electra, of course, would go on to become the presidential yacht Potomac and have an almost unbelievable future history.

As a class, all the ships were built to the same basic design and it is of some interest to discuss, compare and contrast that design with that of the Potomac. Moreover, her sister ships also have a remarkable history and their stories deserve to be told.

Background to the building of the new patrol boats

One consequence of prohibition in the United States was that enormous profit could be made by those involved in successfully smuggling liquor into the country. Using ships – "rumrunners" – to get the contraband in became a growth industry and it fell to the Coast Guard to interdict such traffic. Unfortunately the vessels available for the task were often obsolete, uneconomical and inefficient. (See Figure 1)

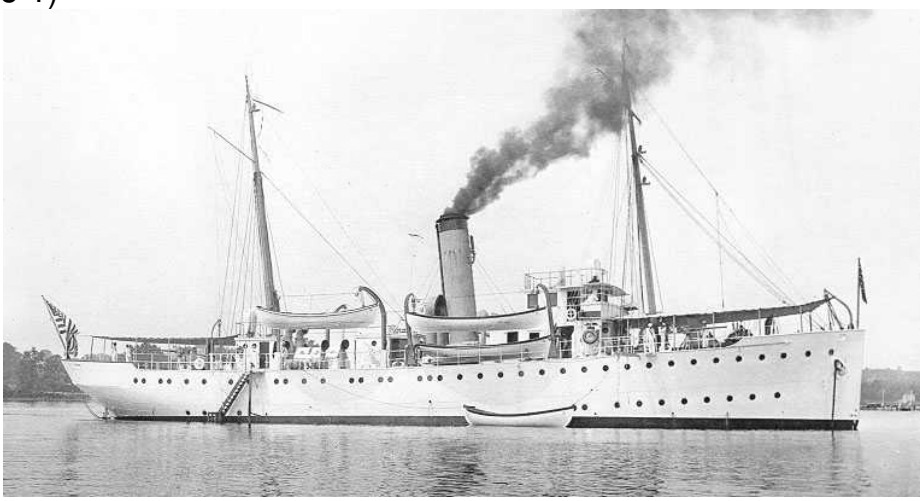


Figure 1
An Old, Pre-prohibition Coast Guard Cutter
(CGC Ossipee)

What was needed was a seaworthy ship that would combine speed with economical operation. By 1930 a design that would provide vessels that were as

light as possible and yet develop maximum speed had been agreed upon after model tests at the United States Experimental Model Basin at the Washington Navy Yard. After competitive bidding in January 1931, a contract to build seven of these newly designed cutters was awarded to the Bath Iron Works Inc. in Bath, Maine.

The first ship built was the Thetis, launched 9 November 1931. The following five months saw the launching of the next six. They too took their names from Greek mythology, as would be so for all the ships in this class: the Aurora, the Calypso, the Daphne, the Hermes, the Icarus and the Perseus.

The class was expanded in 1932 with the construction of the Argo and the Galatea by the John H. Mathis Co. in Camden, New Jersey. With the launching of these two in November and December 1932 the building program came to a halt – temporarily, as it turned out.

Repeal of the 18th (Prohibition) Amendment would presumably remove the need for more of the Thetis class ships and, indeed, by the early thirties momentum was building for repeal. Ratification of the 21st (Repeal) Amendment finally was secured in December 1933.

Although the sale of liquor was now legal, in fact repeal of prohibition did not diminish the need for patrol boats to chase down rumrunners because the avoidance of liquor taxes had taken over as a reason for smuggling.

There was another reason, however, behind the resumption of the building of additional Thetis class vessels – one not always stated. After the first World War, the great naval powers had signed agreements limiting the size and composition of their navies. The London Conference of 1930 saw the last of these treaties. As the decade of the 30's progressed the naval powers sought ways of getting around the treaties. One way, for example, was to build a ship that was a heavy cruiser in all respects but have it carry 6" rather than 8" guns so, technically, it could still be called a light cruiser. Another way was to look to ships built for the Coast Guard as potential naval craft, since the Coast Guard was part of the Treasury Department and not the Navy Department.

New contracts were let to three yards for the construction of three ships each: the Lake Union and Dry Dock Machine Co. in Seattle, Washington which built the Atalanta, the Ariadne and the Cyane; the Marietta Manufacturing Co. in Point Pleasant, West Virginia which built the Nemesis, the Nike and the Triton; and the Manitowac Shipbuilding Corp. in Manitowac, Wisconsin which built the Dione, the Electra and the Pandora. These nine ships were launched in 1934.

Table 1 lists the dates when each ship was launched, commissioned and decommissioned, together with the shipyard. For the Electra and for those ships built by Bath Iron Works – that is, for the first seven built – the date of delivery is also shown. For the Calypso and the Electra, the dates of commissioning and decommissioning are with respect to the Coast Guard, not the U. S. Navy.

TABLE 1
SHIPYARDS and DATES LAUNCHED, DELIVERED, COMMISIONED & DECOMMISIONED

SHIP	SHIPYARD	LAUNCHED	DELIVERED
Thetis	Bath Iron Works Inc., Bath, Maine	9 November 1931	27 November 1931
Aurora	Bath Iron Works Inc., Bath, Maine	28 November 1931	18 December 1931
Calypso	Bath Iron Works Inc., Bath, Maine	1 January 1932	16 January 1932
Daphne	Bath Iron Works Inc., Bath, Maine	27 January 1932	20 February 1932
Hermes	Bath Iron Works Inc., Bath, Maine	23 February 1932	4 March 1932
Icarus	Bath Iron Works Inc., Bath, Maine	19 March 1932	29 March 1932
Perseus	Bath Iron Works Inc., Bath, Maine	11 April 1932	23 April 1932
Argo	John H. Mathis Co., Camden New Jersey	12 November 1932	
Galatea	John H. Mathis Co.,Camden New Jersey	16 December 1932	
Atalanta	Lake Union and Dry Dock Co., Seattle, Washington	16 June 1934	
Dione	Manitowac Manufacturing Co., Manitowac, Wisconsin	30 June 1934	
Ariadne	Lake Union and Dry Dock Co.,Seattle, Washington	23 March 1934	
Nemesis	Marietta Manufacturing Co., Point Pleasant, West Virginia	7 July 1934	
Nike	Marietta Manufacturing Co., Point Pleasant, West Virginia	7 July 1934	
Cyane	Lake Union and Dry Dock Co.; Seattle, Washington	30 August 1934	
Electra	Manitowac Manufacturing Co., Manitowac, Wisconsin	30 June 1934	26 October 1934
Pandora	Manitowac Manufacturing Co., Manitowac, Wisconsin	30 June 1934	
Triton	Marietta Manufacturing Co., Point Pleasant, West Virginia	7 July 1934	

SHIP	COMMISIONED	DECOMMISIONED
Thetis	1 December 1931	1 July 1947
Aurora	21 December 1931	17 January 1968
Calypso	16 January 1932	18 July 1947
Daphne	12 February 1932	1 August 1950
Hermes	7 March 1932	2 November 1948
Icarus	1 April 1932	21 October 1946
Perseus	27 April 1932	26 June 1959
Argo	6 January 1933	30 October 1948
Galatea	3 February 1933	15 March 1948
Atalanta	20 September 1934	1 August 1950
Dione	5 October 1934	8 February 1963
Ariadne	9 October 1934	23 December 1968
Nemesis	10 October 1934	20 November 1964
Nike	24 October 1934	5 November 1964
Cyane	25 October 1934	1 August 1950
Electra	26 October 1934	23 May 1946
Pandora	1 November 1934	1May 1959
Triton	20 November 1934	12 June 1967

The Thetis Class Design

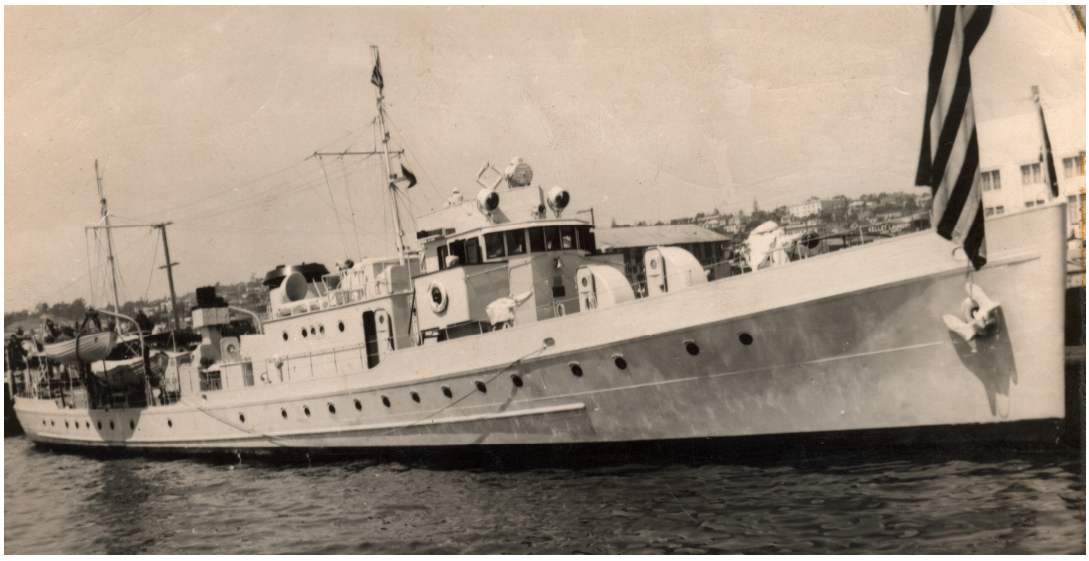


Figure 2
The Perseus - A Typical Thetis Class Patrol Boat

If you look at the overall lines of a Thetis class ship (See Figure 2), a basic design characteristic is immediately apparent – it is high forward, with the midship section dropping off rapidly to afford only the necessary freeboard (the vertical distance between the waterline and the top of the hull). The height forward helps assure dryness – an evident need when the ship is going ahead at a good speed, as may be seen from Figure 3.

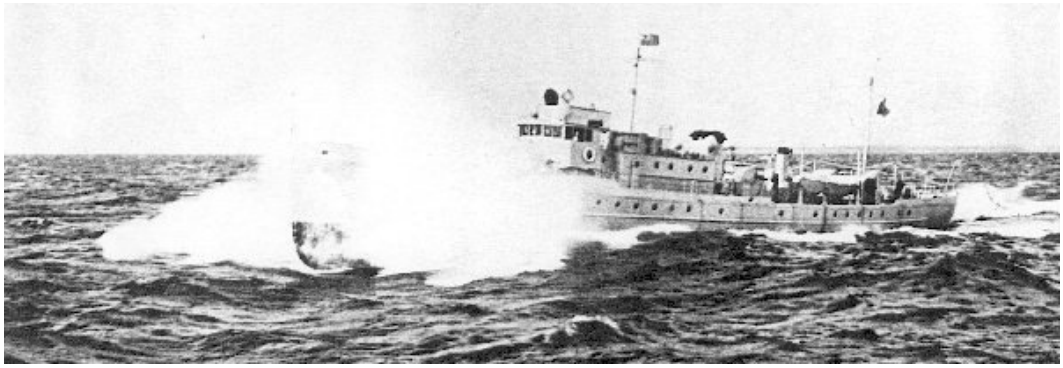


Figure 3
The Thetis
(Photo Taken Shortly After Commissioning)

Before getting into a more detailed consideration of various ship features, it might be well to note the principle ship measurements. (See Table 2)

TABLE 2

PRINCIPLE MEASUREMENTS	
Length Overall	165’
Length at Waterline	160’
Molded Beam at Waterline	24’ 1”
Molded Beam at Main Deck	25’ 3 ¾ “
Molded Depth, Amidships	13’ 2 ½”
Mean Draft at Full Load	7’ 6”
Displacement at Full Load	332 tons
Cruising Radius	4000 miles
Bunker Fuel Capacity	7687 gallons 25 tons
Main Engines (2)	670 horsepower at 450 revolutions
Maximum Sustained Speed	13 knots for 1600 miles
Economic Speed	10 knots for 3100 miles

The most obvious differences in overall profile between the Electra (as converted to be the Potomac) and that of a typical Thetis class ship are those resulting from creation of the presidential areas and the addition of the boat deck. On the other hand, and speaking broadly, the respective profiles from the wheelhouse forward are quite similar. (See Figures 4a and 4b) In reality, of course, there are differences and we will turn to these next.

Figure 4a
POTOMAC

Figure 4b
CYANE

A convenient way of making comparisons is to imagine that we are taking a "tour". We will start on the main deck at the bow and work our way aft, commenting on the several features as we come to them; and, as appropriate, comparing and contrasting a Thetis class patrol boat with the Potomac. By and large the Electra can be taken as a "typical" Thetis class boat; where it differs in some important respect, that will be noted. Also, it must be remembered that during the ten years she was the presidential yacht some changes to the Potomac occurred. Further, in restoring the Potomac account had to be taken both of Coast Guard regulations and the fact that she would be open to the public as a museum. These factors will be mentioned as necessary. In view of the several "historic" versions of the Potomac, a decision also had to be made as to which would serve as the target for the restoration. As closely as possible, the restored Potomac reflects the presidential yacht as of June, 1939 – that is, at the time of the visit of King George VI and Queen Elizabeth.

[Since the frames (ribs) are spaced 2 feet apart and the length at the waterline, i.e. between the perpendiculars, is 160 feet, there are 80 frames which are numbered fore to aft, thereby providing a useful coordinate system.]

The forward areas

The first object seen is the anchor windlass. It is situated above the first of six complete transverse watertight bulkheads that extend from the keel to the main deck. As the forwardmost – it's at frame number 7 - it is strengthened to be the collision bulkhead. Below, forward of the collision bulkhead are the anchor chain locker, a storage area and the fore peak (the extreme forward end of a ship below decks). All of this remained unchanged in the conversion to the Potomac.

As part of its armaments, the Electra had a 3 inch caliber gun located about eight feet aft of the anchor windlass. This was removed in the conversion and replaced by the mounting for a .50 - caliber machine gun. The gun itself was kept below, to be brought out as needed.

On the Electra, access to the enlisted men's quarters in the berth deck below was afforded by two companion hatches – "booby hatches" – just aft of the 3" gun. Measured on the center line of the ship, each of the hatches took up about 4 linear feet of deck space, with about 4 feet between them. That is, from frame 14 to frame 16 and again from frame 18 to frame 20. In the conversion to the Potomac the after hatch was removed. On the berth deck the watertight bulkheads at frames 7 and 17 mark off the first of two compartments that serve as berthing space for the crew. The third watertight bulkhead is at frame 28. It, together with frame 17, mark off the second. [Note that the second and third bulkheads are watertight only by virtue of having watertight doors.] A port side ladder adjacent to the Commanding Officer's cabin provides access to the second compartment. In the restored Potomac this ladder is wider and less steep

than the corresponding ladder in the Electra (and the presidential yacht) – it would have looked like the one in the forward compartment. Another difference to note is that the Electra did not have the small combination office/sleeping cabin in this compartment which is found in the Potomac.

Below the two crew's berthing spaces are two corresponding holds: the fore hold between frames 7 and 17 and the main hold between frames 17 and 28.

Aft of the enlisted men's quarters are the officer's quarters. Again, the space is marked off by completely transverse bulkheads – the watertight bulkhead at frame 28 and an oil tight bulkhead at frame 35. Access is by a ladder opposite the Commanding Officer's cabin just to starboard of the ship's center line. This ladder also was widened and made less steep in the restoration. There were four officer's staterooms on the Electra and the presidential yacht, with the two portside ones separated from the two on the starboard side by a central passage. Separating the cabins fore and aft is a bulkhead midway between frames 28 and 35; that is, just aft of frame 31. Although otherwise watertight and extending from keel to the main deck, it is not a completely transverse one, being interrupted by the central passage. As a traffic flow modification for the restoration of the Potomac, the two separate cabins on the starboard side were combined to form the double cabin we see now. The arched opening between its two parts – what often appears as a mirror on first entering – is, of course, the opening in the bulkhead aft of frame 31.

Below the officer's quarters and between this bulkhead and the one at frame 28 are the port and starboard fresh water tanks. The space aft of it, up to the bulkhead at frame 35, is available for additional holds. On the Electra, one of these on the starboard side was used as a magazine; on the Potomac, for a sewage holding tank.

There is a second oil tight bulkhead at frame 37. The two oil tight bulkheads at frames 35 and 37 mark off the space for the port and starboard fuel oil tanks.

Returning now to the main deck of the Electra, we would see the two 1-pounder guns that complete the ship's armament. They were located on the port and starboard sides, outboard of the aftermost booby hatch. The only gun on the Potomac was the machine gun mentioned above; the restored Potomac does not have any armaments.

The Electra and the Potomac – though not the restored Potomac – was also rigged to allow for an awning extending from the forward most companion hatch to the wheel house.

The wheel house

Figure 5
The (Restored) Potomac

Comparing Figure 2 with Figure 5, it will be seen that the wheel house is the area where substantial differences between the Coast Guard patrol boats and the presidential yacht begin to appear.

Shortly after the completion of the first seven patrol boats at the Bath Iron Works, an article appeared in the September 1932 issue of the Marine Engineering and Shipping Age describing the Thetis class vessels. It depicts the relationship between the wheel house and the commanding officer's stateroom as follows: "The pilot house, elevated slightly over the succeeding deckhouse to afford four way vision… The commanding officer's stateroom is forward in the deck house…" A diagram showing the inboard profile and plans of the main and berth decks are part of the article. (See Figures 6a and 6b for selected portions of the diagram) It would seem, however, that the relationship had changed by the time of the construction of the Electra. Photos of the Electra (and others built in 1934 – see the Cyane, Figure 4b, for example) show a profile like the one we see on the Potomac today. That is, with the Commanding Officer's cabin moved forward and the pilot house placed over it.

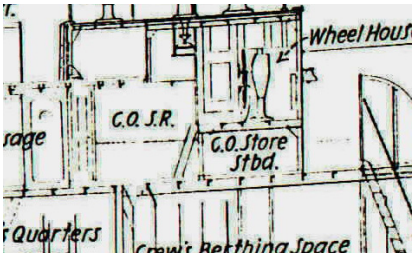


Figure 6a
Inboard Profile
Thetis Class Ship

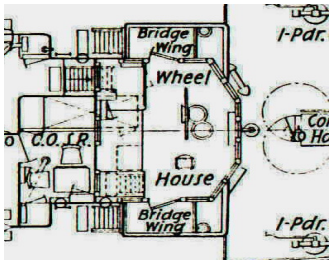


Figure 6b
Main Deck Plan
Thetis Class Ship

Whether on the Electra or one of the earlier built patrol boats, access to the wheel house was by means of two outside ladders to the respective port and starboard bridge wings. (See Figure 6b) When a boat deck was added to the Electra in the conversion, the portside ladder was removed and the ladder leading to the crew's quarters (adjacent to the Commanding Officer's cabin) moved further to the port side; as noted above, this ladder was then widened in the restoration.

A partial deck formed by the open space above the Commanding Officer's stateroom and aft of the wheel house ended above frame 30. In addition to the standard compass in the pilot house there was a second atop the wheel house. Also atop the wheel house was a radio direction finder and three searchlights. The radio direction finder was operated from inside the pilot house.

The deck house

The Commanding Officer's stateroom was the forwardmost element of the deck house, a structure which extended to frame 40. The forward deck house crosspassage separated the Commanding Officer's cabin from the other parts of the deck house. Going aft along a central passage one would have come to the radio room to port and the officer's lavatory to starboard. Aft of these was the crew's head with the W. C.'s to port and the wash room to starboard. In the conversion to the Potomac, the radio room was moved aft and located where the crew's wash room had been, while that space became the crew's showers; the officer's lavatory became the crew's head and the space where the W. C.'s had been became a cold storage locker. The deckhead, which carried the signal flag locker and a Universal auxiliary generator, became the forwardmost element of the new third deck, the boat deck.

At frame 40 we are at the middle of the vessel. It was at frame 40 that the Electra, when converted into the presidential yacht Potomac, would be divided into two distinct spaces: crew forward, president and passengers aft.

A visualization of the Electra from frame 40 forward is shown in Figure 7; it is a photograph of a model of the ship.

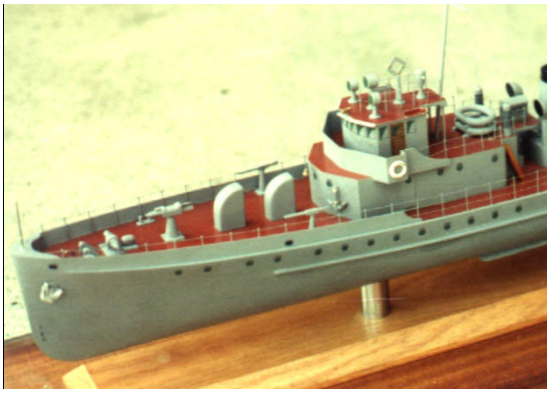


Figure 7
ELECTRA – SHIP MODEL
(midships forward)

The engine room

The structure on the main deck, aft of the deck house, is the engine room trunk. It is about 18 feet long (frame 40 to frame 49) and provided light and air for the engine room below. The engine room itself occupies the space between the oil tight bulkhead at frame 37 and the fourth watertight bulkhead at frame 53. A funnel on the trunk, inclined about 5 degrees from the vertical, enclosed the engine room exhaust.

The pair of main engines on the Electra (and the presidential yacht) were independent, reversing Winton diesel, 4 cycle, 6 cylinder units with 14 inch bore and 16 inch stroke. As noted in Table 2, they were rated at 670 horsepower turning 450 revolutions per minute. In trial runs, the Thetis turned 457.6 revolutions per minute and she showed a maximum of 16.067 knots. The engines were reversed at full speed in 30 seconds. In the restored Potomac, the engines are similar to the originals, but are Enterprise diesels salvaged from a World War II tug. They are also less powerful – 440 horsepower at 400 rpm. Maximum speed is now 14.5 knots.

Figure 8 is a plan of the engine room:

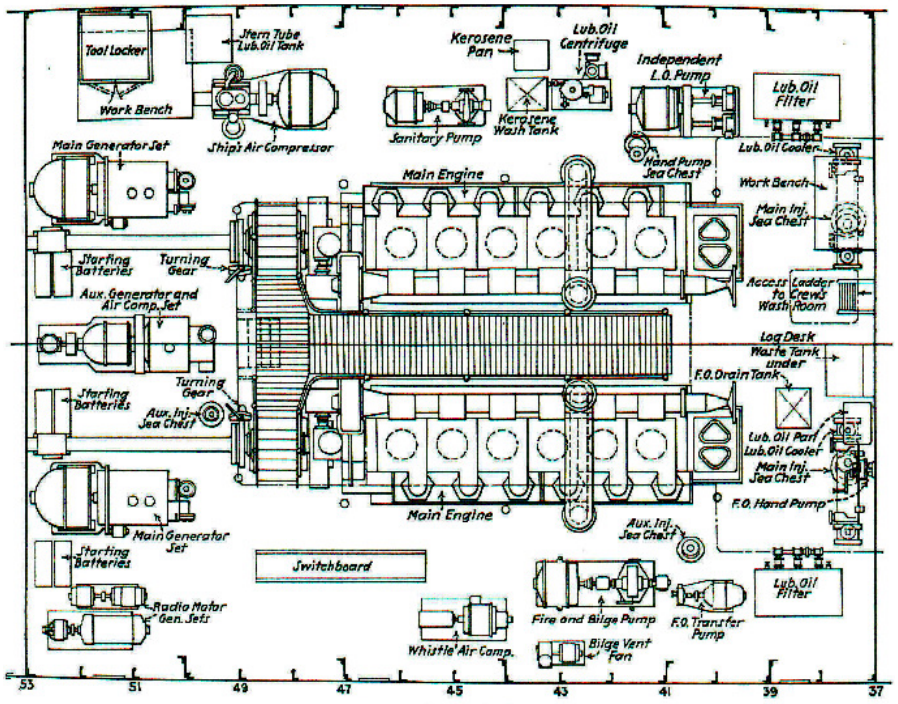


Figure 8
Engine Room Plan - Perseus

On the Potomac today, access to the engine room is from the midships passageway. In contrast, access on the Electra would have been through the engine trunk hatch at frame 49.

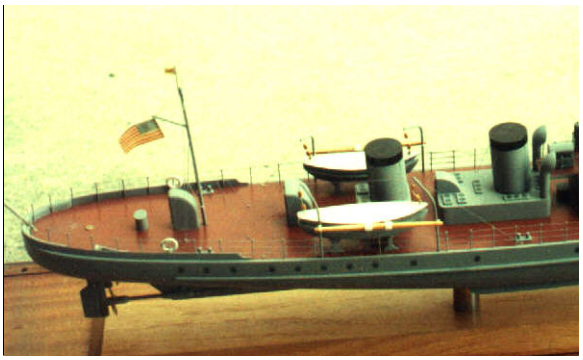


Figure 9
ELECTRA – SHIP MODEL
(midships aft)

The aftermost areas - below

The Electra's galley and enlisted men's mess space was located on the berth deck between the watertight bulkhead at frame 53 and the fifth watertight bulkhead at frame 64.The crew's mess room was shaped like an L, with the galley and the heating boiler (which extended below decks) filling out the area on the port side.

Aft of this was a space defined by the watertight bulkhead at frame 64 and the sixth such bulkhead at frame 69. It was used for the officer's mess to port and a ship's office to starboard.

Further aft was a tank for fresh water, the hawsers and lines stowage space (frame 69 to frame 75) and then the steering gear.

See Figure 10 for the berth deck plan from frame 53 aft.

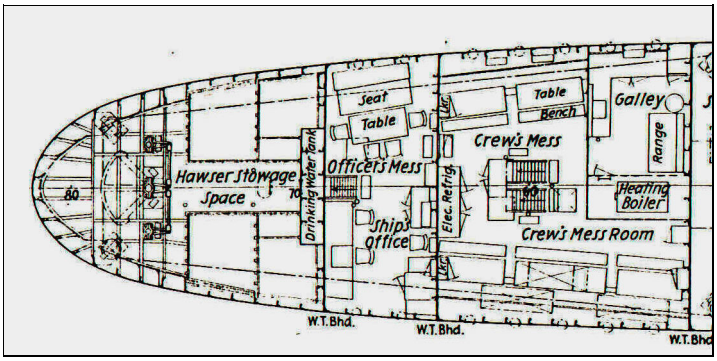


Figure 10
Berth Deck Plan
Frame 53 aft

In converting the Electra into the Potomac, the mess areas and galley were replaced by four guest staterooms, while on the main deck galleys were

installed on either side of the extended engine casing. The port galley became the crew's galley while the starboard one served the presidential party.

In restoring the Potomac we have already mentioned one instance of modifying the historic ship for traffic flow considerations – the arched opening between the two officer's staterooms on the starboard side. Another was the need to provide an additional ladder to afford access to the berth deck aft, that is, to the guest quarters. The restored Potomac replaced the aftermost stateroom with an open foyer and a ladder leading to the main deck fantail.

Also requiring consideration for the restoration was the fact that in converting the Electra into the Potomac significant weight had been added topside. The resulting instability had caused the Navy to insist that President Truman not continue to use the Potomac as the presidential yacht. The addition of all that weight had produced 18 inches of trim by the stern. (Trim is the difference between the draft forward and aft.) To meet stability requirements several weight reductions were introduced; they included making the fresh water tank just aft of frame 69 non-serviceable and using teak decking 2 inches thick instead of the original 2 ½ inches. To correct for the trim, lead ballast was placed between the decks forward. As a result of all the changes made, the restored Potomac has a designer's draft of 10 feet and exceeds required stability levels.

The aftermost areas - topside

Returning to the Electra's main deck to continue the tour, we would see a second smokestack. (See Figure 9) Because the words often used to describe President Roosevelt's elevator refer to its having been installed in a "false stack", questions have arisen as to whether the Electra had a second smokestack and, if so, whether it was a functioning stack.

For all Thetis class patrol boats, the forward stack housed the exhaust conduit for the smoke and gases from the engine room. In addition, these boats needed exhaust conduits for the auxiliary engine, the heating boiler and the galley. The original design, as clearly shown in the 1932 drawings mentioned above, did not have a second smokestack, only the exhaust conduits; photos of the Thetis at launch conform to that design. For whatever reason – aesthetic or functional – by 1933 it appears that a decision had been made to enclose the exhausts in a smokestack. For example, the 1934 edition of Jane's Fighting Ships has a 1933 photo of the Argo with the two smokestacks; or, again, the 1936 edition shows the Icarus with the two stacks. Later editions of Jane's have the comment that the Aurora, the Calypso, the Daphne and the Perseus have only one funnel, thereby implying that all the others have two – note that these four patrol boats were among the first seven built.

The Electra, in common with her sister ships of the class, had two functioning smokestacks. The after stack became a "false stack" when it was made the housing for the elevator that carried President Roosevelt between the

main and boat decks. In later years, when the Potomac belonged to the state of Maryland, the stack (with the elevator) was removed. It can now be seen in Cambridge, Maryland.

Just forward of the second stack was a boat gear locker; a little ways aft, two vegetable lockers. The Electra carried four 19 foot boats in this same area on her main deck. The two to port – one above the other - were dories (flat bottomed pulling boats), while the starboard side ones were surf boats (strong, seaworthy boats that can be launched or landed in heavy surf).

Just aft of the vegetable lockers (about frame 60) was a set of two companion hatches that provided access to the crew's mess space. Another hatch further aft provided separate access to the officer's mess.

For the final item of the tour we simply mention the towing bitt at frame 72 and note that the Electra was rigged for an awning that extended from the hatches to the crew's mess to the towing bitt.

With our tour and discussion of the design of the Thetis class patrol craft now finished, it may be useful to view the full photo of the ship model of the Electra. (See Figure 11)

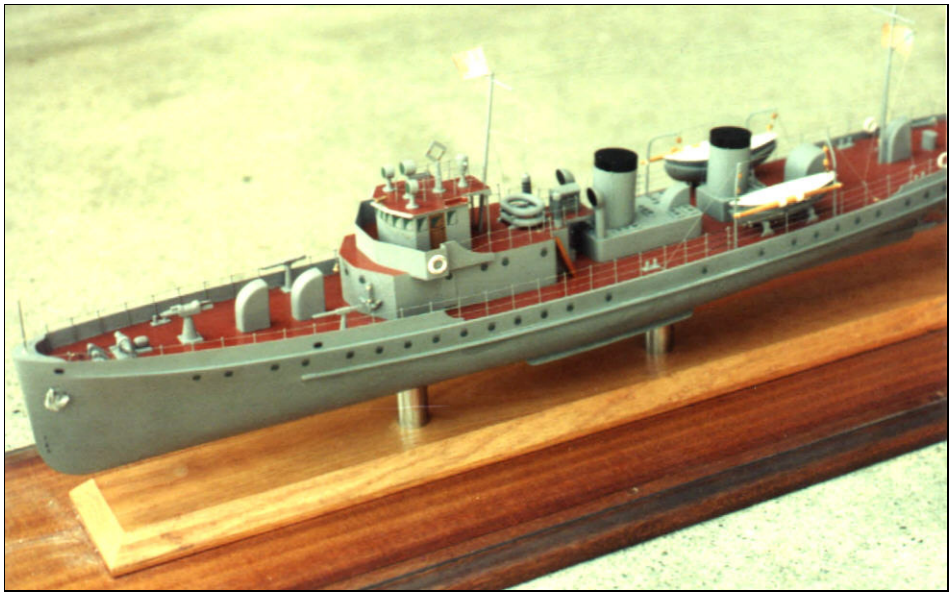
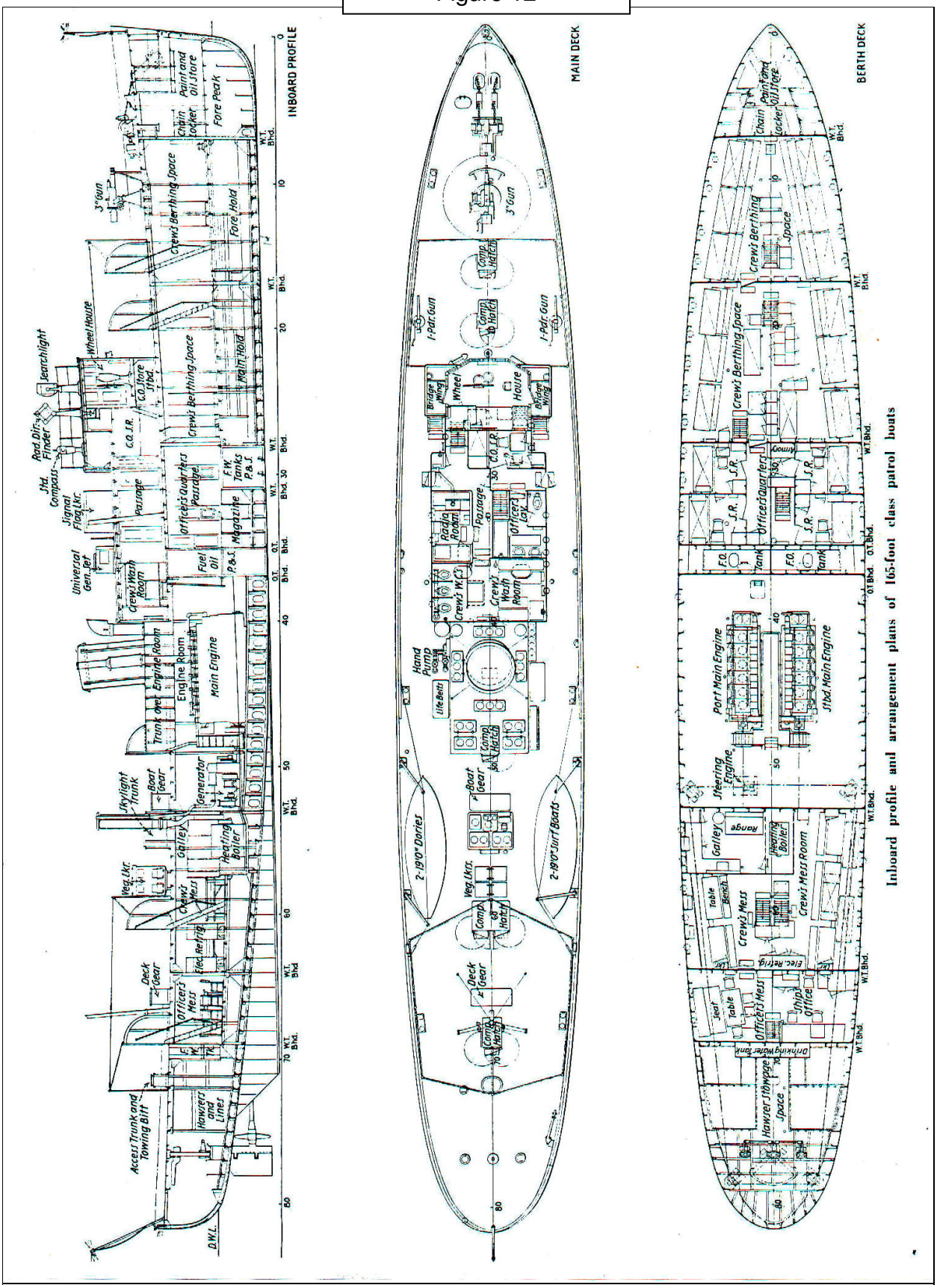


Figure 11
ELECTRA – SHIP MODEL

The diagram showing the inboard profile and plans of the main and berth decks (as published in 1932) is included as Figure 12.

Figure 12


INBOARD PROFILE
MAIN DECK
BERTH DECK
Inboard profile and arrangement plans of 165-foot class patrol boats

The Thetis Class Patrol Boats in World War II

Prologue

The question of the status of the Coast Guard – that is, whether it should become part of the Navy – came to the fore in the very first year of President Roosevelt's administration. [The Coast Guard, as such, had not existed before 1915, when it was formed from the merger of the Life-Saving Service into the Revenue-Cutter Service. It had become part of the Navy during World War 1.] Impetus for such a reorganization had come about because of the Great Depression and the belief that greater efficiency, with a resultant lessening of costs, would follow. After much lobbying, Congressional hearings and the appointment of Henry Morgenthau, Jr. as Secretary of the Treasury the idea became less attractive and the Coast Guard's status remained unchanged.

Except for the three that had been built in Seattle, as the several Thetis class patrol craft entered service, most were assigned to stations along the Atlantic coast.

In describing these boats and their function, the following language was used in a paper presented to the Society of Naval Architects and Marine Engineers in 1937,:

> "Lightly built, crowded and uncomfortable at sea, these handsome vessels – some had two stacks, others one – turned out to be effective trackers. Guided to the blacks on bearings provided by the direction finder-equipped "six-bitters", they could make contact and hold it, their twin rudders providing superior maneuverability and their powerful searchlights illuminating the blacks in any but the thickest weather." [*Blacks* - as in "good guys" wear white hats and "bad guys" wear black hats - was the Coast Guard term for rumrunners]

The transition year - 1941

When President Roosevelt signed Executive Order 8929, effective 1 November 1941, it completed the jurisdictional transfer of the Coast Guard from the Treasury Department to the Navy "for the duration of the emergency"; it was an additional signal that the United States was in perilous circumstances and that hostilities might not be far off. Earlier that year, on 6 August, he had taken the first step toward shifting the Coast Guard in its entirety by signing an Executive Order that transferred the Coast Guard's Honolulu District to Navy control. Then on 11 September another Executive Order was issued – it provided that additional Coast Guard "vessels, units, or people" should be transferred "as should be agreed upon between the Commandant of the Coast Guard and the Chief of Naval Operations."

Slowly, the country had begun to turn its attention away from its internal economic problems in September 1939 when the second world war began with the German invasion of Poland. 1940 had seen the fall of France and the

German attack upon Great Britain in the air and on the sea. America had responded with the "bases for destroyers" deal and the introduction of a peacetime draft. President Roosevelt's Arsenal of Democracy speech presaged the enactment of Lend – Lease in early 1941. In July, American naval forces had taken over the defense of Iceland from the British because – as stated by President Roosevelt in his message to Congress – "The United States cannot permit the occupation by Germany of strategic outposts in the Atlantic to be used as air or naval bases for eventual attack against the Western Hemisphere"; and in August the president had met with Winston Churchill for the Atlantic Conference.

While the specifics of the plan for the transfer of the entire Coast Guard were being worked out in 1941, another plan – Plan Two, as it were – began to be implemented. This involved placing individual ships under naval control. So, for example, the Galatea, the Pandora, the Thetis and the Triton were ordered to report to the Atlantic Fleet Sound School at Key West, Florida on 1 July where they served as training vessels for sonar men.

An individual ship could also become a commissioned Navy ship – as had the Electra when she became the USS Potomac. This happened to the Calypso when she was transferred to the Navy and commissioned on 17 May 1941. Designated AG – 35, she was assigned duty as a tender to the Potomac. In August, just as the presidential flag had remained on the Potomac while she went through the Cape Cod Canal to further the impression that President Roosevelt was on board, so too did the Calypso help to provide cover by remaining in New England waters and continuing to act as an accompanying vessel to the Potomac. With the outbreak of war, she was returned to the Coast Guard after being decommissioned on 20 January 1942.

The start of the war

The war came early to the East coast. Five German U – boats were sent to attack merchant shipping in January 1942, with devastating results. It would take many months before any effective "dim – out" could be inaugurated and the U – boats simply lay offshore, with the lights of the coastal cities making the ships easy targets. It would also take a long time for convoying tactics to be developed. Indeed, the operation – named Operation Drum Roll by the Nazis - was so effective and successful that the German U – boat commanders would look back and call this period the "Happy Time".

Major naval resources were being committed to the North Atlantic, the life line to Great Britain. As a result, the only ships readily available for taking on the responsibility of chasing the submarines were the Thetis class cutters together with their predecessors, the 125 foot patrol boats known affectionately as the "Buck and a Quarter" class.

In February of 1942, the Thetis class cutters received the alpha – numeric naval designations WPC – 100 through WPC – 116, with the designations being

assigned in alphabetical order starting with the Argo. In Navy references the Thetis class is often called the Argo class. (See Table 3)

Table 3

SHIP:	Argo	Ariadne	Atalanta	Aurora	Calypso	Cyane
DESIGNATION:	WPC-100	WPC-101	WPC-102	WPC-103	WPC-104	WPC-105
SHIP:	Daphne	Dione	Galatea	Hermes	Icarus	Nemesis
DESIGNATION:	WPC-106	WPC-107	WPC-108	WPC-109	WPC-110	WPC-111
SHIP:	Nike	Pandora	Perseus	Thetis	Triton	
DESIGNATION:	WPC-112	WPC-113	WPC-114	WPC-115	WPC-116	

It was about this time that the armament of the boats was changed to reflect their new sub - chasing mission by removing the one-pounders and installing two depth charge racks and a “Y” gun depth charge projector. In addition, they were equipped with 20 mm antiaircraft guns and/or Lewis machine guns.

The cutters were small ships, designed for coastal patrol, not ocean patrols. Moreover, only minimal air cover support was available, making their new duties even more difficult. Yet these ships, augmented by other small craft, served admirably in almost all conditions.

Initially, the only defense available for the Florida and Gulf coasts were three cutters – the Nemesis, the Nike and the Vigilant (WPC – 154), 19 unarmed Coast Guard aircraft and 14 lightly armed Army aircraft. Gradually additional resourses were added.

We can note that by mid 1943 US warships had sunk only 11 U – Boats, and that 6 of these were by Coast Guard cutters. The Icarus and the Thetis accounted for two of the six.

First blood for the Coast Guard – the Icarus

One of the German submarines to reach the East coast in Operation Drum Roll was the U – 352. It arrived on 2 May 1942 off the North Carolina capes, one of the busiest shipping areas along the coast. Patrolling this area was the Dione. Although the U – 352 made several attacks during the next few days, it failed to sink any ships. Then on 7 May it was seen on the surface by a plane. Barely escaping the plane’s bombs, it crash dived and escaped.

In the meantime, the Icarus, which had been patrolling in the New York area, was ordered to proceed to Key West as part of the Navy’s response to the German shift of submarine attacks southward. On 9 May it was off the North Carolina coast.

About 4 PM, propeller noises were heard on the U –352. Seeing a mast through the periscope, the sub dived and fired two torpedoes; in a few moments

the sub shuddered from an explosion. Assuming that a merchant ship had been sunk, the U – Boat came to periscope depth to find the Icarus heading straight for it.

The Icarus had just missed being hit; the explosion was caused by the torpedo striking the ocean floor. Now the Icarus could hear the U – 352. Knowing that it had been detected, the U – 352 tried to hide in the sediment and disturbed water while the Icarus made one pass. Then the U – Boat commander hoped to be able to attack and destroy the Icarus, either by torpedoes or by his deck gun.

But the commander of the Icarus, although temporarily losing contact, calculated the sub's location and in a pass dropped five depth charges. Then reversing course, three more were dropped. When large bubbles began to break the surface of the water, the Icarus doubled back to drop an additional two depth charges.

The depth charges had found their mark. The badly damaged U – 352 surfaced and was raked by fire from the Icarus. As their U – Boat sank beneath them, the crew jumped into the water. Thirty three were picked up and brought to the Charleston Navy Yard – the first German prisoners taken in combat by any US forces in World War II.

The second kill – the Thetis

About a month later, while the Thetis was off the Florida coast on training and regular patrol missions, reports of submarine activity started to come in. On 10 June a U – Boat, the U – 157, had been spotted off the northern Cuban coast heading west. That night the sub attacked and damaged a freighter. On the 11th a radar equipped army bomber was sent out to find the sub. Although it had been spotted and depth charges dropped, the U – 157 dived and escaped.

In the hope of preventing further attacks on merchant shipping vessels by the U – 157, an intensive search was mounted by a combined force of Army bombers, three destroyers, the Thetis, the Triton and ten other patrol craft.

Seen by aircraft several times, the sub repeatedly escaped until definite contact was made by the Thetis on 13 June. After attacking the sub with a series of depth charges at five second intervals and set for different depths, debris – including pieces of freshly broken wood, pants of a kind worn by German submarine crews and a tube of lubricant made in Germany - was observed. The Thetis returned to Key West to rearm while the Triton and several other patrol boats made attack runs as insurance, as did the Thetis when she returned. Actually these additional runs were unnecessary since the Thetis had destroyed the U – 157 on her first run.

Training and experience on the part of the Thetis' commander had played an important role. Its commander had served on three different cutters and had commanded the *Dione*. Working off the Coast of North Carolina he had already had a great deal of experience hunting U-boats.

The rescue missions

Hunting down U – Boats was one mission; rescuing survivors and picking up the dead was another. The onslaught on shipping along the Atlantic coast, especially during the first six months of 1942, was almost as severe a blow as the attack at Pearl Harbor had been. In February, 4 ships had been torpedoed in 4 days; in May, 41 ships went down. By the end of June almost 400 ships had been sunk, with thousands of seamen killed and nearly two and a half million tons of shipping lost.

One sailor on the Dione recalled those days as follows:

> "The torpedoed ships would burst into flames and the sailors would be coated in a residue of oil and fuel. Most of the time, these men literally burnt to death. We had the solemn task of picking up any remains that we could find, and if there were any survivors, we would take them back to shore."

The record of the Nike during those six months is typical. On 3 February, operating out of Key West, she was patrolling the Delaware coast when she rescued 40 survivors of a freighter. Three days later she picked up the entire 38 man crew of a torpedoed tanker. The tanker crew had spent 2 days in a lifeboat before being spotted by Coast Guard aircraft, which had then alerted the Nike. On 14 May she rescued 9 survivors.

Perhaps another way to appreciate these times is to consider what was described in official reports as a "routine action at sea" by the Calypso on 5 August 1943. The previous day a convoy had left New York bound for Key West. One of the regular escort ships on that run was the USS Plymouth. Originally built as the private yacht Alva by Krupp in 1931 in Germany, it was 265 feet in length and 46 feet in the beam. It had been given to the Navy on 4 November 1941, made into a gunboat and then commissioned on 23 January 1942. Now on 5 August off Cape Henry, Virginia she was hit by a torpedo. Listing heavily and with the ship in flames, the crew was ordered to abandon ship; within two minutes she sank.

The primary task of the Calypso, also part of the escort force, was now to screen the convoy, find the sub and destroy it – "whether there were survivors or not" in the words of the Calypso commander. While self – inflating rafts were dropped to survivors by patrol aircraft, the Calypso, which had been about 8000 yards from the Plymouth, approached the oil slick area. As it did so, the commander realized that if the sub should make a second attack, he might be faced with the possibility of having to drop depth charges in the midst of the shipwrecked crew – a choice, as it turned out, that he did not have to make.

Once among the survivors, who were rapidly being scattered by high winds and trying to keep afloat in the oil, the Calypso often had to stop her propellers so she would neither endanger the lives of those in the water nor become fouled by the debris. On the other hand, she had to maintain enough speed so that in the event of an attack she could respond quickly.

When it became clear that there was not going to be enough time to save the lives of all the survivors by simply hauling them in, the ship's life boat was put over – not an easy task with the Calypso rolling and high seas about. And the presence of sharks in the water did not make the task any easier.

At this point a fire (of unknown origin) broke out but was quickly put out. It was not allowed to interrupt the rescue operation or the medical care being given.

With every available space on the Calypso turned into a sick bay, she headed for port. But this too was not to be straight - forward. The sea grew even higher, she ran into fog banks off Norfolk and she had to navigate without her gyro compass, which had become disabled during the rescue operation.

Only 85 of the Plymouth's crew of 155 survived the U – Boat attack.

Epilogue

By mid 1943, the availability of additional resources, the increased use of convoys, the development of better tactics and the breaking of the German Naval Code had all combined to bring about the beginning of the end of the U – Boat menace.

Along the Pacific coast and in the Gulf of Alaska, the Japanese never mounted a comparable submarine threat and the patrol boats played a much less important role. The Aurora, the Atalanta and the Cyane escorted convoys in the Gulf of Alaska and the eastern Aleutians, but there were few Japanese submarines in those waters.

The Thetis class craft continued their patrol and rescue activities throughout the war. Effective 1 January 1946, the Coast Guard was returned to the jurisdiction of the Treasury Department by Executive Order 9666.

The Later Years

With the war ended, the ships returned to the Coast Guard and began taking up regular rescue and patrol duties. But also, as they now begin to have their own ship histories, it is less meaningful to think of them only as members of a class.

Some were decommissioned fairly soon after the end of the war – the Icarus being the first – 21 October 1946. Others were decommissioned in the late 40's and the 50's; some not until the 60's, with the Aurora being the last of the class to be decommissioned – 17 January 1968. (See Table 2)

Ultimately, all would be sold off by the Coast Guard. Some were sold very soon after being decommissioned – like the Galatea: decommissioned in March 1948, sold in July, 1948. On the other hand there was the Argo: decommissioned in October 1948, but not sold until November 1955.

Once sold, most of the ships left little trace of their subsequent histories. Presumably most would have been junked, either shortly after being sold or after undistinguished activities. A few, however, do have interesting stories to tell.

The story of the Cyane

The Cyane was sold in December 1954 to a company that renamed her the Can Am and converted her into a fish – processing vessel. (The Atalanta and the Daphne were sold at the same time to the same company, but their subsequent histories are not known to me.)

With the enlisted men's quarters turned into holds, a refrigeration system installed and with both the after stack and mainmast removed to obtain greater deck space, she was sent to fish in the waters off Central and South America. In an ironic and striking parallel to the Potomac's history, this former chaser of rumrunners also was seized for drug running.

After being sold once more, she was renamed the Ruby E and fitted out to be a salvage vessel. When her owners ran into financial difficulties and defaulted on their loan, the bank took her and put her up for sale once again. Bought by the San Diego Tug and Barge Company, the plan was to strip her of fittings and machinery and sell the hull for scrap.

The company, however, was induced by a local diver to donate the hull to "wreck alley", an artificial reef and dive attraction off Mission Bay, San Diego. To accomplish this meant both that she would have to be cleaned so that she would not be a danger to the environment and that she would have to be "diver safe". To prevent entrapment, doors were removed or welded open and holes were cut to allow access to different parts of the ship.

On 18 July 1989 she was towed to her location and anchored. But after the sea cocks were opened in the expectation that she would fill with water and sink, she refused to do so. What had prevented her from sinking was that two

secret compartments had been built fore and aft of the engine room in her drug smuggling days to hide drugs. Once discovered, and with the help of several large pumps, she began to flood and sink.

Today she sits in 90 feet of water, upright and intact on the bottom with just about all areas of the wreck accessible to divers. Now almost completely covered with anemones and marine encrustations, there is a great deal of marine life in and around her. Truly an artificial reef, she can be described as being a wreck in very good condition.

The Story of the Calypso
and that of the Argo, the Perseus, the Nike and the Triton

The Calypso's story is rather different from that of the Cyane. Decommissioned 18 July 1947, the Calypso was sold in November 1955 to a sightseeing cruise company, the Circle Line in New York City. Needing new ships, the Circle Line had two principle requirements: (1) that the ship could make the 35 mile cruise around Manhattan in under three hours; and (2) that the ship could fit through and under the bridges in the narrow Harlem River.

The Calypso was the ideal ship for the Circle Line, and since she was surplus to the Coast Guard, the price was right too. After rebuilding her superstructure to make a twin deck passenger vessel and renaming her the Circle XI, she started carrying tourists around Manhattan in 1958.

The Argo was sold to the Circle Line at the same time as the Calypso. These worked out so well that the Circle Line subsequently also bought the Perseus (November 1959), the Nike (May 1966), and the Triton (January 1969).

Remarkably, the Calypso and the Perseus still have their original Winton engines, and still operate today using the old-fashioned Engine Order Telegraph system to indicate maneuvering orders from the Captain to the Engineer and Oiler. These old Winton engines actually outperform modern engines in reliability, fuel economy, thermal efficiency and clean stack emissions.

Figure 13
CIRCLE LINE XI
(former Calypso)