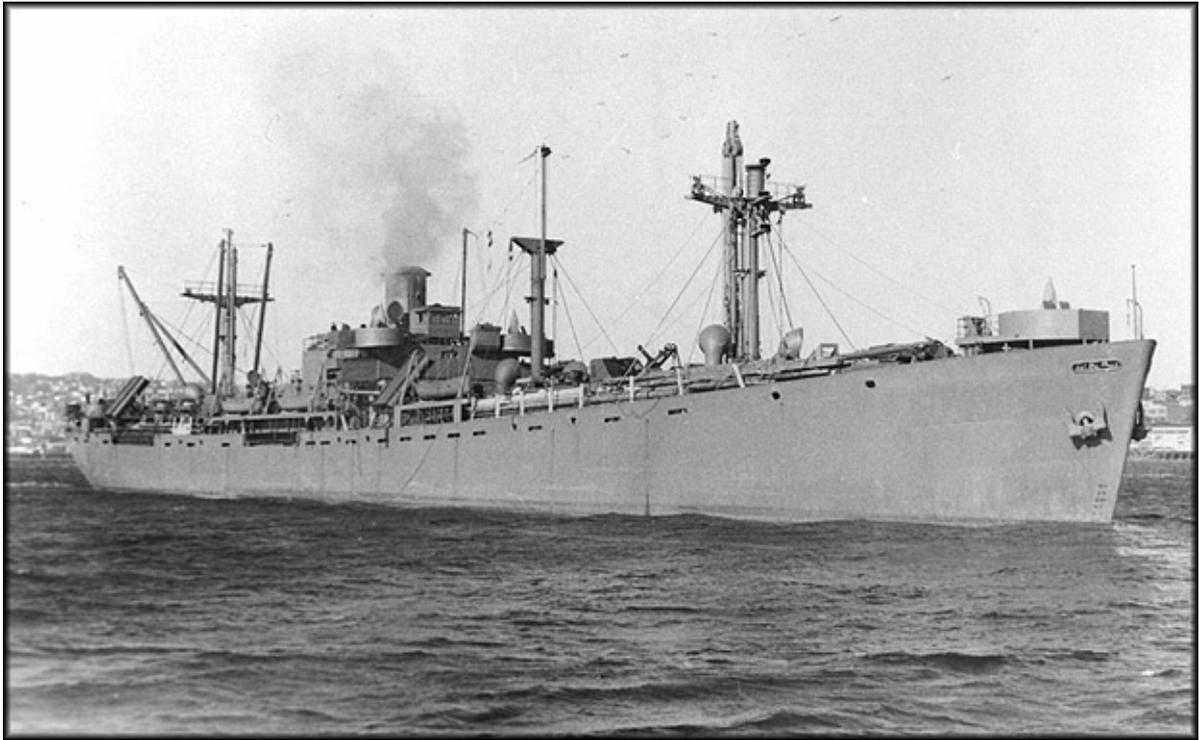


'LIBERTY' CARGO SHIP

BRIEFING

written by

James Davies



Key Information

Country of Origin:	United States of America
Manufacturers:	Alabama Dry Dock Co, Bethlehem-Fairfield Shipyards Inc, California Shipbuilding Corp, Delta Shipbuilding Co, J A Jones Construction Co (Brunswick), J A Jones Construction Co (Panama City), Kaiser Co, Marinship Corp, New England Shipbuilding Corp, North Carolina Shipbuilding Co, Oregon Shipbuilding Corp, Permanente Metals Co, St Johns River Shipbuilding Co, Southeastern Shipbuilding Corp, Todd Houston Shipbuilding Corp, Walsh-Kaiser Co.
Major Variants:	General cargo, tanker, collier, (modifications also boxed aircraft transport, tank transport, hospital ship, troopship).
Role:	Cargo transport, troop transport, hospital ship, repair ship.
Operated by:	United States of America, Great Britain, (small quantity also Norway, Belgium, Soviet Union, France, Greece, Netherlands and other nations).
First Laid Down:	30 th April 1941
Last Completed:	30 th October 1945
Units:	2,711 ships laid down, 2,710 entered service.

Overview

In 1936, well over 90% of the American merchant fleet was more than 20 years old. In order to ensure that America possessed a fleet that was adequate to meet the future anticipated needs a decision was made to greatly increase the number of American ships. The fleet was to be owned and operated by American companies, and in order to ensure their success the American government decided to subsidise the building costs and operating expenses of the ships. As yet there was little urgency in the programme, run by the US Maritime Commission.

In late 1940, desperate for new tonnage to offset losses, British representatives took ship plans to America to try to persuade the American government to let Britain place orders for 60 new ships in US shipyards. The Americans agreed, however no space existed in shipyards to allow them to be built and it was decided to build two new shipyards to meet the British need. These ships bore the prefix 'Ocean', and the first ship (the *Ocean Vanguard*) was launched on 15th October 1941.

Simultaneous with the decision to build ships for the British was a decision to rapidly expand the US merchant fleet, however the choice of a design appropriate for mass production was a difficult one. The previous ships built by the US Maritime Commission were of a very high quality (but not suited to mass production), in stark contrast to the British wartime designs (which deliberately emphasised speed of construction), and there was considerable resistance to the idea of lowering standards to build ships rapidly. Faced, however, with an urgent need, little time and a sound and readily available design a common-sense decision was taken to adopt the basic British concept for the American emergency fleet. This design was modified somewhat to further aid mass production and to suit American building techniques and other US preferences, and orders were placed for the first 200 of these ships in early 1941.

As with the 'Ocean' ships, no shipyards existed to build these vessels and a total of nine new shipyards were announced (including the two required to build the British vessels). Later expansions resulted in even more shipyards, and a total completed fleet of 2,710 ships. It was a project on a massive scale, undertaken with great speed and efficiency. The first Liberty ship (the *Patrick Henry*) was launched on 27 September 1941 (and completed on 30 December 1941), which was an incredible feat considering that just seven months previously neither shipyard nor workforce existed to build her.

The ships suffered from some initial structural problems, particularly related to the lack of understanding of the influence of welding on the strength of some key elements (such as hatch corners), however once the problems were understood they were soon fixed. Less easy to fix was the 'stiffness' of the ships - they had a rapid roll motion which was uncomfortable for the crew and could lead to damage to cargo. This could be partially offset by putting solid ballast in the 'tween decks, thereby raising the centre of gravity and reducing the 'stiffness'. Unfortunately, if not stowed properly (and sometimes even when stowed properly) this ballast could shift in a storm and put the ship in grave danger of foundering.

A total of 2,710 Liberty ships were completed (with one more being burnt out on the slipway and never completed). This huge total almost defies the imagination when considering the resources that must be employed to produce this number. Putting it in perspective, 1,088 Curtis Hawk fighters were produced, and approximately 2,900 M16 half-tracks. During the peak building period (March 1943 to December 1943) over 100 were completed per month.

Despite being initially labelled an 'ugly duckling' by the newspapers, and intended to be expendable if necessary, the ships eventually caught the imagination of the public. They proved to be easy to build, reliable and versatile, exceeding even the most optimistic expectations for their overall contribution to the war effort.

The Liberty ship saw service all over the world: they were present in the Atlantic and Russian convoys; they anchored off the beachheads in North Africa, Europe and in the Pacific islands; they carried food to civilians as well as supplies and equipment to the armed forces; as hospital ships they treated the wounded; they transported prisoners away from the fighting; they evacuated rescued Allied prisoners from Asia; in perhaps their most welcome role, they brought the troops home again after the fighting was over.

Units

Variant	Built	Notes
General Cargo (Original)	2316	This is the basic Liberty ship, with five cargo holds (three forward, two aft), central machinery, and a single propeller.
Tanker (Redesign)	62	<p>The Liberty tanker was proposed in late 1942 as a response to the need to transport more oil (due to the US entry in to the war) and offset the large losses amongst the existing tanker fleet. The initial intention was to both convert existing cargo ships and build specific new tonnage as tankers, however the conversion plan was soon abandoned.</p> <p>The tanker was very similar to the standard cargo ship, with the same length, breadth and draft, as well as the same propulsion system. It deliberately retained dummy or redundant deck equipment to prevent these ships from being identified as tankers (and so prevent them from being specifically targeted), with the necessary piping being concealed. The deception was further aided by the ability of these ships to carry deck cargo.</p>
Collier (Redesign)	24	In contrast to the Liberty tanker (which was produced with minimal changes to meet an urgent wartime need), the collier represented a major redesign to meet anticipated peacetime requirements. The Liberty collier's outward appearance had little in common with the standard Liberty ship. The main change was the relocation of all machinery aft. The ship was very slightly longer than the standard vessel, but with the same breadth and depth. This meant that many of the standard Liberty plates and structural members could be used for the hull, although some new components were needed.
Troopship (Conversion)	247	<p>Large amounts of additional transportation were required at relatively short notice to carry prisoners from North Africa to prisoner of war camps in North America. This transportation was to be provided by converting existing cargo vessels, with the original plan calling for the ships to carry 308 prisoners, however this was later raised to 504.</p> <p>The conversion was relatively simple, with five-tier bunks being added, along with additional facilities (galleys and sanitary facilities). To provide an essential minimum of protection in the event of an emergency, additional lifeboats, liferafts and lifejackets were provided, people were generally not accommodated below the waterline and two emergency escapes were installed from each compartment.</p>
Hospital Ship (Conversion)	6	The vessels were essentially floating hospitals, with operating theatres, wards and other details following the same general requirements as those for shore-based hospitals. As with the troopships, additional lifeboats, liferafts, lifejackets and escape routes were installed. Following international conventions the ships were provided with clear identifying marks, including an illuminated red cross on the deck.
Box Transport (Conversion)	44	These ships were designed to handle heavier loads than the standard Liberty ship, catering for items of up to 30 tons, and four hatches replaced the normal five. Besides these modifications, they were little changed from the standard liberty ship, although they were directly operated by the US armed forces rather than by civilian organisations.
Repair Ship (Conversion)	11	In a similar way to the hospital ships, who treated damaged people far from normal facilities, repair ships were built to maintain equipment away from the normal heavy repair facilities. Aircraft in particular require frequent heavy maintenance to ensure their continued operation. As the island-hopping campaign moved closer to Japan, and further from established bases, the repair ships moved with the forward fields. The British Royal Navy also requested repair ships (primarily intended to maintain warships), and five were built to meet their needs. Three, however, were retained by the US Navy and never entered British service.

Specifications

	Cargo	Tanker	Collier
Dimensions			
Displacement (Max.)	14,245 tons	14,245 tons	14,730 tons
Length (OA)	441 ft 6 in (129.81 m)	441 ft 6 in (129.81 m)	443 ft 7.5 in (130.43 m)
Length (pp)	417 ft 8.75 in (122.82 m)	417 ft 8.75 in (122.82 m)	417 ft 8.75 in (122.82 m)
Length (WL)	427 ft (125.52 m)	427 ft (125.52 m)	429 ft 3 in (126.20 m)
Beam	57 ft (16.76 m)	57 ft (16.76 m)	57 ft (16.76 m)
Draft ^[Note 1]	27 ft 8 ⁷ / ₈ in (8.16 m)	27 ft 8 ⁷ / ₈ in (8.16 m)	28 ft 7 ¹ / ₈ in (8.41 m)
Block Coefficient	0.745	0.745	0.744
Propulsion	2500 hp (1.86 MW)	2500 hp (1.86 MW)	2500 hp (1.86 MW)
Speed	11 kts	11 kts	11 kts
Cargo Capacity			
Deadweight ^[Note 2]	10,856 tons	10,674 tons	11,047 tons
Gross tonnes	7,176 tons	7,219 tons	6,643 tons
Cargo volume ^[Note 3]	562,608 ft ³ grain (14,297 m ³) 499,573 ft ³ bale (12,695 m ³)	272,978 ft ³ (6,937 m ³) 64,826 barrels	472,799 ft ³ (12,015 m ³)
Miscellaneous			
Armament ^[Note 4]	Varies	Varies	No information
Compliment	81	81	46

Note 1: Draft quoted is maximum normal seagoing draft in peace conditions, and corresponds to the maximum displacement. This draft may be exceeded in coastal or inland waterways, or by overloading during wartime. Unladen ships will have a significantly lower draft.

Note 2: As well as cargo weight, deadweight also includes the weight of stores, fuel and other consumables, although on a cargo ship the 'deadweight' is dominated by cargo weight.

Note 3: Cargo volume is quoted in various measures depending on the type of vessel. The 'grain' measurement is for general dry cargo vessels, and indicates the total volume of the holds, excluding any structural items or fittings (grain fills in all corners and around structural members). The 'bale' measurement is again for general dry cargo vessels, however it measures volume up to the stiffeners on the inside of the hull, with space between stiffeners being lost (bales of cargo don't flow around beams). The 'barrel' is quoted for oil carriers, although in the modern world oil is now normally measured by the ton.

Note 4: The armament provided varied considerably, and could include four inch and three inch guns, 20mm and 37mm cannon, as well as 0.3 and 0.5 inch machineguns. The largest gun (generally a four inch) would typically be fitted at the stern, and would be flanked by two smaller guns (such as two single 20 mm cannon). There would usually be four gun positions on the superstructure, and these could be 20mm cannons, machineguns, or a mixture of both. The forward mast would be provided with two guns, usually 20mm cannon or 0.5 inch machineguns. On the bow would often be a single three inch gun. Many variants on this typical arrangement existed, with additional guns being fitted in other areas (such as two or four guns added adjacent to the second mast), or the arrangements changed from those described above (such as replacing the single bow gun with two 37mm cannon).