THE *S.S. POMONA*, A WEST COAST INNOVATION

Brent Rudmann
University of San Diego

ABSTRACT

The *Pomona* was a ship that defined the cutting edge of technology on the West Coast from 1888 to 1908. Like top rate ships of the latter half of the 19th century, she was outfitted with the best technology as it became available. Local papers took pride in the sleek vessel, and made mention of her whenever she broke a record or offered hard-to beat competition to other ships of similar design. The *Pomona* consisted of revolutionary technological elements only recently introduced to the Pacific Coast. Many of her elements, such as her integrated steel hull, triple expansion engine and composite single screw propeller were all prototypes for passenger, cargo and military vessels of the future.

HISTORY

The backbone of the *Pomona* lay with her designers at the Union Iron Works. One of the foremost ship building companies on the west coast, Union Iron Works began as a simple blacksmith and machine shop in 1849. The shop built steam boilers, machinery, locomotives and mining gear. When the mining boom dwindled, the owner capitalized on the maritime industry for a potentially steady income. Under the leadership of Irving M. Scott, the company built the first all-steel merchant ship in the United States in 1885, which led to other experimental vessels including the *Pomona* three years later (Landzuri 1999:8).[1] The *Humboldt Times* published an account of the *Pomona's* launching in 1888:

> *The Pomona:*
> This magnificent new steel steamer arrived at her dock at 9:00 yesterday_A Large Crowd assembled at the dock to greet her, and she presented a beautiful appearance as she rested on the surface of the water. It would be impossible to give a detailed description of this floating palace and her equipment in the limited time at our command.
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> The *Pomona* was built by Union Iron Works at San Francisco and launched sometime in June, we believe; is 220 ft long, with a 33-foot beam, and a 16-foot depth of hold; she has triple expansion engines 23, 24, and 56 inches in diameter with a 36-inch stroke; she is propelled by a single screw 10 foot six inches in diameter, with a 16-foot pitch and will steam between 12 and 13 mph.
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> The register of the *Pomona* is over 900 tons, but she will carry nearly 1200 tons of freight. An independent engine runs one of Edison's patent dynamos, capable of burning 172 sixteen candlepower incandescent lights which are distributed all over the ship, one in each stateroom and the decks are even lighted by them.
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> The masts are iron and she has four metallic lifeboats and four life rafts. Each stateroom is lighted by steam, and has in connection with the electric light, which can be turned on or off at will, an oil lamp to be used in case the electric light is not in operation. This is her sixth trip since she has launched.
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> She is commanded by Cpt. Henssen, who was master of the Los Angeles on her trip here last week-end (*Weekly Humboldt Times* 9-13-1888, Gamble and Schwemmer 1999) .

The Oregon Improvement Company was the first company to run the *Pomona*. Her principle

owner was J.W. Knowles and her captain was Levi L. Hannah (U.S. Treasury Dept. 1888). In 1897, Captain Hannah died of Bright's disease at the age of 67 (*Weekly Humboldt Times* 1-21-1897, Gamble and Schwemmer 1999). The next listed master of the vessel is Captain Doran. On June 25, 1897, Captain Doran was removed from his command for drunk and disorderly behavior and his first officer took over (*Weekly Humboldt Times:* 6-26-97, Gamble and Schwemmer 1999). Captain Shea served until June 1898. After Captain Shea moved on, the next known master was Captain Swanson, who served until the *Pomona* wrecked.

At the time of construction, the *Pomona* was listed with a tonnage deck capacity of 867.53 tons, while the capacity of "enclosures" on the upper deck was listed at 396.55. This gave her a gross tonnage of 1264.08 and a net tonnage of 951.79 (Gamble and Schwemmer 1999). As one of the first steel-hulled vessels built on the west coast, the *Pomona* offered significant competition against the wooden hulled side-wheel driven vessels that were prominent during the 1880s. Classified as a spar-and-awning decked vessel by the *U.S. Pacific Coast Shipwreck Database* (Gamble and Schwemmer 1999), the *Pomona* had sleek classy lines of the day. She sported a vertical cutwater and a round stern, while her gunwales stretched from the bow to the stern with a graceful dip that cumulated amidships. Her hull below the first whale was jet black while the awning above the main deck was painted white and her nameplates were placed along the bow just below the anchors.

Five "water resistant" bulkheads were installed in the manner of the days' technology, meaning that they did not run all the way up to the main deck. This to say that if the hull was compromised the vessel would stay afloat only if water did not reach the uppermost level of the bulkheads. This design proved fatal after the *Pomona* hit a pinnacle rock in 1908, causing her eventual wreck in the nearby Ft. Ross Cove. Always on the edge of technology, the Union Iron Works was building vessels with watertight bulkheads running from the keel to the main deck by 1898 (Bencik 1999: 23).

The *Pomona*'s upper deck housing extended from the stern to the rear of the forward mast. The housing was made of wood and painted a glossy white, while her two masts were built of iron, as was the single black smokestack. By the time of her sinking in 1908, her cabin structure was situated only between her masts, as evidenced by period photos (Best 1964). She evidently carried fewer passengers and more cargo toward the end of her life, including mail and the occasional automobile, the latter of which would be strapped to the deck. An early photo of the *Pomona* shows that she actually carried auxiliary sails for some time after she was constructed, suggestion that her crew did not trust the reliability of the triple expansion engine. All later photos of the vessel show no evidence of the sailcloth

In 1894, a Howden's forced draught system was added to the *Pomona*'s triple expansion engine, boosting her horsepower considerably. The trade off for achieving higher speeds was that she also burnt more coal. Before the Howden system was added, the IHP was listed as 1020. After the installation, the engine was able to push 1388 IHP (not including auxiliaries). Using Franklin quality class coal, the *Pomona* burnt 2403.5 lbs of coal, and after refitting the amount bumped up to 3088 lbs on the same trip (Union Iron Works 1894).

THE *POMONA* AT WORK IN A COMPETITIVE MARKET

In 1895, articles in local papers began appearing comparing the *Pomona* to "sister" ships:

> The *Corona* arrived here March 20, 1890, taking the place of the *Pomona* which was put on the route after the loss of the *City of Chester.* She was intended to be a sister vessel to the *Pomona*, that the contracts for the two vessels of approximately the same size, were let the same year, one in the east and one in San Francisco. Both vessels were launched in 1888 (Falconer 1993:255).

With luxury service in mind, the Pacific Coast Company purchased the *Pomona* from the Oregon Improvement Company in 1896.[2] Hailed as the "pride of the coaster fleet" by local papers,

the ship was constantly compared to other first class vessels of the day such as the *Humboldt:* "In fact the new steamer, except that it is built of Humboldt pine instead of iron, will greatly resemble the *Pomona* in general appearance and interior arrangement."

Another article comparing the *Humboldt*to the *Pomona* explains the interior design of the day in better detail:

> All of the interior finish is oak, highly polished. The social hall is simply grand, the panels being elaborately decorated with Lincrusta Walton, an upright piano, eight electric lights depend from a chandelier directly over the stairway leading to the dinning hall. A large French plate glass mirror adds greatly to the hall, the seat of which are upholstered with red plush. A commodious smoking room is located aft (Falconer 1993:272)

Another article appeared in 1897 as well, showing the hot competition that existed between the *Humboldt* and the *Pomona*:

> The steamers *Humbolt* and *Pomona* are in hot competition on the Eureka route, says Tuesday's *Chronicle*. The *Pomona* has been noted for being a model steamship and for having made fast time between the city (San Francisco) and Eureka. The new *Humboldt* is as modern as money can maker her, and she has beaten the *Pomona*'s record for speed on her first trip. When the *Pomona* arrived here last, Captain Doran reported having made the passage in 15 1/4 hours.
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> The *Humbolt* arrived yesterday and captain Bonifield reported having come down in 15 1/4 hours. There will be a great deal of dispute over the time made by both steamers. The *Humboldt's* real time from wharf to wharf was 17 3/4 hours, but from bar to bar it was 15 1/4 hours. It is claimed the *Pomona* counts from bar to bar (Falconer 1993:273) .

The speed argument was further debated two weeks later:

> From a telegram received by Richard Sweasy yesterday forenoon it is learned that the steamer *Pomona* arrived at San Francisco at 6:15 a.m., and the steamer *Humboldt* at 8 o'clock. According to the time of departure taken by the *Humboldt's* people, they contend that the *Pomona* won by four minutes. The only word received by the PCSS Co. was to the effect that the *Pomona* had beaten the *Humbolt*, no time being stated. Mr. Baird, the *Pomona*'s agent, was out of the city yesterday so no statement could be obtained from him. Mr. Sweasy says that figuring 250 miles for the trip, the steamers made an average of 15 1/4 miles during the trip. Humboldters should be proud of both boats as there is surely not any great difference between them (*Humbolt Times*, 4-10-1897, Gamble and Schwemmer 1999).

WRECK REPORTS

Wreck reports are available for the *Pomona* after the year 1901. On January 13, 1901, the *Pomona* was listed at 1264 gross tons. On route to Eureka, Captain Shea, with 60 passengers and 58 crew, ran the $250,000 ship into the side of the wooden schooner *Fearless*. The weather conditions were reported as calm with thick fog. Captain Shea reported only $500.00 in damage to the *Pomona*, and that the *Fearless* was towed to safety and let alone (Wreck Report Cat No. 363. Jan 13 1901. SFMM). According the *Humbolt Times*, the *Pomona* had nearly cut the bow off of the *Fearless* (*Humbolt Times*: 1-15-1901, Gamble and Schwemmer 1999).

On January 9, 1903 at 11:25 a.m. with J. J. Shea as captain, the *Pomona* suffered $2500 worth of damage when she collided with another ship in San Francisco harbor. The *Pomona* was moving in heavy fog to the Broadway dock from the "Spar" dock. At the time the vessel was insured at $125,000 and was still valued at $250,000. She was not carrying any passengers and had 52 crew aboard(Wreck Report cat No. 363. Jan 9, 1903.).

On September 5, 1904 at 1:05 a.m. the *Pomona's* newest master, Captain Swanson, was heading towards San Francisco from Eureka. She was carrying 160 passengers and the usual complement of crew. The value of the ship is listed at $160,000, a sharp drop from the previous year's accident report. In a dense fog, the *Pomona* slammed into the *S.S. Westpoint*, causing $500.00 in damage to the *Pomona* (Wreck Report cat No. 363. Sept. 5, 1904, SFMM).

The last wreck report available concerns the fateful stranding of the *Pomona* on a wash rock in the Ft. Ross Cove. The *Pomona* was steaming towards Eureka from San Francisco on March 17, 1908 (*SF Chronicle*, No. 63, March 19, p.2 col. 1). The numbers of passengers listed are 84 persons, and 63 crew. The vessel is now listed at $200,000, and is carrying a cargo worth $50,000. Captain Swanson reported simply that he struck an uncharted rock, causing the total loss of the vessel and damage to $43,750 worth of merchandise. The insurance on the ship was $159,999.26, and $30,000 on the cargo. The weather conditions were stated as a strong WNW gale with the heavy sea in the same direction. The action taken by Swanson was to run the ship ashore to save passengers (Wreck Report Cat. No. 363. March 17, 1908, SFMM.). Some controversy surrounds the events that lead to the demise of the *Pomona*, however.

THE *POMONA*'S DEMISE

Soon after the *Pomona* wrecked, local papers ran stories of the accident based on official reports, court proceedings, and crew and passenger statements. The *Pomona* was carrying three classes of passengers on the day of her wreck. The first and coach classes were the only ones to be interviewed, and both noted the courage and ability of the ship's crew while also speculating as to the reasons surrounding the *Pomona's* wrecking.

In *Swanson's Testimony to Obed Bolles and John K Bugler* published in the March 19, 1908 *San Francisco Chronicle*, Swanson noted that he had steamed further inland than he normally would to avoid rough weather. Though he had reportedly done so many times before, he never had struck a rock. First Mate Robert E. Carey and Second Mate Fred I. Hamma were on the bridge with Swanson, and both testified in favor of the Captain. The chief engineer, John F. Clements, also supported the captain, but stated that the bulkheads had not been built all the way up to the main deck, which made the ship susceptible to sinking in a situation where the hull was compromised (*SF Chronicle*, No. 63, March 19, p.2 col. 4).

After setting course past the Russian River, Swanson retired to dinner, leaving instructions to the Second Mate to, "haul her out a little more if necessary" (*SF Chronicle*, No. 63, March 19, p.2 col. 3). At 6, Swanson returned to the bridge and at 6:15, the ship struck the "Ft. Ross Reef" (later considered to be a pinnacle rock and known today as a reef) at twelve knots an hour. Captain Swanson assumed all responsibility, and believed that the ship struck a rock which had been unearthed by the 1906 quake. The ship was approximately a mile and a half from the shore at the time.

Swanson judged the reef to be 3/4 of a mile further towards shore, and was confused that he had struck a rock so far out. With water gushing 'tween decks,' Swanson pulled the *Pomona* at nine and a half knots into Ft. Ross Cove in an attempt to beach the vessel. The chief engineer contradicted this speed, saying he had the ship running at 13.5 knots in order to make the beach as fast as possible (*SF Chronicle*, No. 63, March 19, p.2 col. 4). It was nearly a two-mile trip, and by the time the *Pomona* entered the cove, her hold had drawn four feet of water. Swanson complained also that a buoy had thrown off his reckoning, causing him to make the turn into the cove improperly.

When the *Pomona* hit the wash rock in the cove, the engine was shut off, but the electric lights were left burning. Women and children were given life jackets and ordered into boats by the chief stewardess, Mrs. Matthews, who also said, "It is amazing how quickly they forgot about their sea-sickness" (*SF Chronicle*, No. 63, March 19, p.2 col. 3).

Some passengers stayed on the beach and lit fires, hoping to stay warm during the night and to

attract passing ships. A few impatient passengers marched inland approximately 13 miles and caught a train back to San Francisco with nothing but the clothes on their backs. Others formed a human chain up the steep cliff, lifting people to the top. They then waited out the night in the house of local ranchers by the name of Mr. and Mrs. Call. Here they were fed and given fresh produce from the dairy located conveniently on the premises. One mother of five was quoted as saying: "It's a fine thing to be wrecked so close to a milk ranch."

In the Call house, passengers had a chance to tell stories of the accident, and to decide what to tell the press (*SF Chronicle*, No. 63, March 19, p.2 col. 6). L. F. Puter, a lawyer who had traveled the route from San Francisco to Eureka approximately 250 times stated:

> It was understood among us, as we sat around the fire in the house at Mrs. Call's place, that, in our telephone messages and telegrams we would give only that version of the wreck that would reflect credit upon the captain, crew and company (*SF Chronicle*, No. 63, March 19, p.2 col. 4).

At this point, however, the story takes an interesting twist. Puter admitted that as he had taken the route so many times, he had some experience and could comment on the incident. His opinion was that the boilers could not produce enough steam to make any progress against the strong headwind and current. He noted that even in poor weather, steam vessels normally kept ten to fifteen miles out from the shore. Boiler inspector John K Bulger agreed with Puter, saying that the *Pomona* had been making at least 11 knots before the accident, and ships steaming at 6 or 8 knots could make it against heavy winds. Puter believed that the *Pomona* went from a good mile to 300 yards from the shore: "We were so close that we could have told the color of a cow on shore" (*SF Chronicle*, No. 63, March 19, p.2 col. 3).

According to Puter and several other passengers quoted by the Chronicle, certificates had been placed in the engine room and in the cabins stating that the boiler pressure had been reduced from 150 to 130 pounds of capability. For this reason, Puter and other passengers believed the *Pomona* could not make headway against the heavy seas (*SF Chronicle*, No. 63, March 19, p.2 col. 4).

To add fire to the story, John Bulger, the Inspector of Boilers, had inspected the *Pomona*'s boilers less than a year before the incident on August 15, 1907, and they were successfully tested up to 150 lbs. On January 10, of 1908, the boilers developed a leak. The cost for repair was $6,800, and the work had been completed only twelve days before the *Pomona*'s fateful death at Fort Ross (*SF Chronicle*, No. 63, March 19, p.2 col. 1).

SALVAGE OPERATIONS

The Pacific Coast Co. immediately sent their insurance agent from Lloyd's of London to discover if the ship was a total loss. John C. Metcalf reported back that the fractures in the *Pomona*'s hull were large, and that the ship was indeed a total loss. He recommended that money not be wasted on trying to salvage the ship (Bennet 1908:4). The Pomona's insurer, Lloyd's of London, did not give up easily, however.

The Coast Wrecking Company made several attempts to raise the *Pomona*'s remains. Lloyd's of London gave them twenty days and a $10,000 budget to work with. Using canvas bags and compressed air, divers tried to float the ship off of the wash rock she was jammed on. The operation to float the *Pomona* was a failure, even though the company filed a $300 bond to extend the time for which they could work on the project (Bennet 1908:7).

Though the ship was not re-floated, the wrecking company was able to tear off $5,000 worth of equipment. Winches, anchors, windlasses, chains, steering gear, boats, davits, ventilators, compasses and blocks were all salvaged and sold to the highest bidder (Bennet 1908:11). On September 26, they filed a complaint that seven boxes full of expensive rugs from the ship had been stolen. When the *Pomona's* remains had been salvaged, the wreck was dynamited as a hazard to navigation (*Marine Digest*: 20-34).

CONCLUSION

The *Pomona's* steel remains now lie in the water around the wash rock she grounded on. She lives on as a habitat for marine life and as a monument to a vessel that set the standard of maritime commercialtechnology on the west coast at the turn of the 19th century. It is hoped that the work begun by Charles Beeker's team from Indiana and the employees of the Fort Ross monument will help protect the wreck site. The Pomona's remains are expected to become a protected historical site, open to history buffs, archeologists, and sport divers who may wish to learn more about west coast maritime history.

SPECIFICATIONS

Dimensions:
Length 230 ft. Waterline length: (Lloyd dimensions length: x breadth):
Breadth: 33 ft. 6 in.
Depth of hold: 16 ft.
Maximum displacement: 1545 tons
Area of immersed is mid-section at 10 ft. 6 in. at 216 square feet.
Drafts: forward: 7 ft. 11 in.; aft: 12 ft. 6 in. Loaded: forward: 10 ft. 8 in. aft: 13 ft. 6 in.
Average top speed (after installation of forced draught blower in 1894): 14.4 knots.
Tonnage: 1264 (gross); 951 (net)
Original loaded displacement: 1225 t.
Fuel:
Coal bunker capacity: At least 13640 lbs
Class of coal preferred: Franklin.
Coal burnt on average run from San Francisco to Eureka: 14,415 lbs.
Per hour: 2402 lbs.
Per inch per hour: 2.22

*After addition of Howden's forced draught blower in 1894, the coal used on the San Francisco to Eureka route was approximately 12,810 tons for the trip.

Engine:
Steam reciprocating engine: triple expansion, double acting, steam reversing, built at Union Iron Works in 1888. Like later triple expansion steam engines built by Union Iron Works, exhaust steam was condensed back into feed water and cleaned by passing through luffa sponges and fullers earth. The water was recycled to the boiler, and was supplemented by make-up feed for any lost by leakage. To supplement the lost feed, the *Pomona* was required to take on fresh water in port.

Cylinder sizes:
HP: 56" diameter
IP: 34" diameter
LP: 23" diameter

Ratio of HP to LP cylinder 3-26:1

Boilers:
Two single-ended Scotch boilers were installed in the Pomona, which the Indiana archeological team found in August of 1998. They were tested at 165 PSI, which was a massive improvement over boilers used by walking beam engines even a decade later in San Francisco. These were usually operating on steam pressures of 50-65 PSI.(Chuck Bencic:1999). Two donkey boilers were also included in the design, presumably to drive the capstans, anchors and steering gear, which is consistent with Union Iron Works designs.

Fireboxes:
Bricks supplied by Carnegie Brickworks from the San Joaquin Valley.

Steam driven auxiliaries:

Electric Generator: Edison. Installed at Union Iron Works. Powered ship's lights in main halls and staterooms. .
Main circulating pump.
Howden system forced draft blowers, double set, installed 1894 by Union Iron Works.
Auxiliary seawater pump
Main boiler feedwater pump.
Bilge pump.

Water filter and treatment: lufa sponges and fullers earth.

Average indicated horsepower when built:

Main engine: 1020
Auxiliaries: 58
Total: 1078

*After the Howden's forced draught system was added, the IHP increased to 1288 for the main, and 84 for the auxiliaries, making a total of 1372 IHP.

Propeller: composition built, right hand diameter is 10 ft. 8 in. The mean pitch was 16 ft. 6 in. and the whole took an area of 40 square feet.

Official number: 150444 KFHC

The Pacific Coast Steamship Company began in 1860 when Charles Goodall and Chris Nelson joined together to bring fresh water to ships anchored in San Francisco Bay. The drinking water was offered to customers via a barge the two men owned. The profits were enough for Goodall and Nelson to purchase a 100 ton steamer which was operated along the Monterey to San Francisco route. In 1872, US Senator Perkins joined the small firm, and a capital stock of 2,000,000 was used to purchase fifteen steamers and three sail-driven vessels. By the time that Charles Nelson retired in 1876, the Pacific Coast Steamship Company had become a strong rival to Anchor Line, the Oregon Steamship Company, and the Pacific Mail Steamship Company (Brown 1966:8).

Figure 1. Early photograph of Pomona.(Courtesy of the San Diego Maritime Museum).

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