Evolution of a liner through news Updates:



QUEEN MARY 2, at dawn on March 21, 2003 during "float out" operation, (PRNewsFoto)

October 15, 2003: QUEEN MARY 2 To Be Named by HRH Queen Elizabeth II British press reports that HRH Queen Elizabeth II has agreed to take part in the the naming ceremony for QUEEN MARY 2. The QM2 will sail from the shipyard at St Nazaire to Southampton where she is scheduled to arrive on the evening of December 19, (this date could change) proir to the January 8 ceremony (new date - changed to accomodate the Queen's schedule) before the liner embarks on her maiden transatlantic voyage.

October 3, 2003: Southampton Prepares for QM2

The Queen Elizabeth II passenger terminal in Southampton was reopened today with a ceremony presided over by Deputy Prime Minister John Prescotts wife, Pauline Prescott. The terminal has undergone a ?m modernisation programme to allow it to accommodate up to 50% more passengers. QUEEN MARY 2 is expected at the terminal in December with naming ceremony in January before her maiden voyage.

October 3, 2003: QM2 Gets Flying Colours

QM2 returned from her sea trials to Saint Nazaire in France at 7:00 AM Sunday September 28, after what was reported to be very successful sea-trials where the contractual top speed was achieved. One eye witness remarked, "The ship exceeded 29 knots and was amazingly steady and vibration-free. Amazing sea-keeping qualities..."

October 3, 2003: QUEEN MARY 2 Puts To Sea

As planned, the unfinished Cunard Liner, QUEEN MARY 2 pulled out of the dock at St. Nazaire, aided by tugs. With about 300 people gathered to watch, she headed out to sea on three days of sea trials. Captain Ronald Warwick, who served as master on QUEEN ELIZABETH 2 for 14 years, is overseeing the huge liner.

October 3, 2003: QUEEN MARY 2 Trials

QUEEN MARY 2, the largest passenger ship ever built, will set sail for the first time from Saint-Nazaire. Her sea trials begin at 5:00 pm local time on Thursday, September 25 as

the 150,000-tonne vessel will run between the French off-shore islands of Ile d'Yeu and Belle-Ile until Sunday. Shipbuilder Chantiers de l'Atlantique - a subsidiary of troubled engineering giant Alstom, which was saved from bankruptcy this week by a state-backed EUR 3.2-billion (US\$ 3.7-billion) rescue package - is counting on the QUEEN MARY 2 to be a huge success. Over 450 engineers and technicians will be aboard the Cunard liner during this weekend's tests to ensure that she meets the necessary standards for maritime certification.

October 3, 2003: A Royal Bigger than a the Queen?

Today the Kvaerner group announced that it has finalized a contract with Royal Caribbean Cruises to build the world's largest cruise ship, which will be constructed at the Masa Yard in Finland for delivery in May 2006 with an option for a second ship for 2007. Dubbed the Ultra Voyager, plans have her at 1,112-feet long and 18 stories high, accommodating 3,600 passengers with a crew of 1,400. Royal Caribbean estimated that the total cost of the project would be about US\$720 million. At the same time, Royal Caribbean decided not to exercise its options for fifth and sixth Radiance-class vessels at Meyer Werft.

March 21, 2003: QUEEN MARY 2 Floats!

Cunard's 1132-foot-long QUEEN MARY 2 was floated out of the building dry dock at Alstom's Chantiers de l'Atlantique at St Nazaire in France early today. The manoeuvre began at 5:43 am local time, assisted by 8 tugs the liner was moved to her fitting out berth for completion and by 7:20 am she was moored at her new location. The original "launch" date of March 16th was dropped after it was revealed that more dredging was needed at the fitting out dock to accommodate the ship. QM2 is expected to commence trials in September, with a her naming ceremony at Southampton in January 2004.

March 16, 2003: Floating The QUEEN

The planned "floating out" of the QUEEN MARY 2 was postponed until at least March 21. The completion dock is still being dredged to accommodate the 142,200-GT vessel. A "pre-shifting" ceremony will still take place today with 300 invited guests.

August 5, 2002: Clammering For The Queen

August 5: Cunard Line announced that sales for the new QUEEN MARY 2 have "exceeded all expectations". One day after bookings officially opened on August 1, the early booking discounts were closed for the proposed January 12, 2004, maiden voyage. The voyage is almost sold out. The highly anticipated, \$800-million ship is the largest, longest, ocean liner ever constructed. The QM2 maiden voyage is planned as a 14-day cruise from Southampton to Fort Lauderdale, Florida, calling at Madeira, Tenerife and Las Palmas in the Canary Islands, Barbados and St. Thomas. Summer voyages to Europe and New England/Canada and 15 crossings between Southampton and New York are planned.

July 20, 2002: Alstom May Sell Chantiers

In further fall out from the collapse of Renaissance cruises the energy giant Alstom is considering a restructuring move that could see it sell of its shipbuilding business. Alstom

owns the French shipbuilding yard of Chantiers de l'Atlantique. Following Renaissance filing for Chapter 11 protection last September, Alstom experienced weak financial performance, its first loss on seven years.

July 4, 2002: QM2 Keel Laid On Cunard Birthday

162 years ago to the day the first Cunarder, BRITANNIA, sailed from Liverpool for North America inaugurating a transatlantic dynasty, the keel of the new giant QUEEN MARY 2 was laid in a special shipyard ceremony. In what officially signals the start of construction on the 150,000 gt liner, workers and invited guests watched the traditional laying of two coins within the keel. A new British five pound Jubilee coin and a one hundred Franc coin were placed inside a portion of keel number 502 as it was lowered into the drydock at the French yard of Chantiers de L'Atlantique, in St Nazaire.

June 29, 2002: Rolls-Royce Ships QM2 Stabilizers

June 29: Rolls-Royce completed the last of four Brown Brothers 40-foot long stabilizers bound for the new QUEEN MARY 2 this week. The stabilizers, each weighing 100 tons, will be loaded onto a flatbed truck and driven with police escort from Dunfermline in Scotland to Rosyth, where it will then be put aboard a ship and dispatched to Chantiers de l'Atlantique.

June 11, 2002: QM2 Itineraries Announced

Cunard Line today announced the itineraries for QUEEN MARY 2's maiden voyage at a press conference held in New York. The new cruise ship, which is expected to be the largest ocean liner yet constructed at 1,132-feet (345-meters), will include the traditional six-day transatlantic crossing, Caribbean voyages from New York, Rio de Janeiro sailings to coincide with carnival. Bookings for QM2 will begin on August 1, for the vessel's maiden voyage scheduled to occur on January 12, 2004 from its homeport, Southampton, to Fort Lauderdale, Florida. QM2 will sail throughout the caribbean from both New York and Florida and due to the vessel's speed of over 30 knots, she has the ability to sail a Caribbean route from New York, which traditionally departs from Miami or Fort Lauderdale. A keel-laying ceremony is expect July 4 for the 150,000-grt vessel, at at Alstom Chantiers de l' Atlantique in St. Nazaire, France.

May 15, 2002: QE2 Reign To End in 2004

Today Cunard announced that after more than 30 years, the QUEEN ELIZABETH 2 will cease her trans-Atlantic crossings after April 2004. QUEEN MARY 2, currently under construction, will take over the Southampton - New York sailings and become the company's new flagship. QE2, will be based in Southampton and sail on shorter cruises. Built on the River Clyde in Scotland and christened by Queen Elizabeth II in 1967, the QE2 has sailed dozens of world cruises and made more than 500 trans-Atlantic crossings.

April 29, 2002: From QM To QM2, QE2 Carries A Tune!

Cunard Line announced that it has obtained the original whistle from QUEEN MARY (now retired in Long Beach, California). Once attached to the liner's middle stack, the seven foot-long, 1400 pound whistle is now on its way to Southampton where

representatives of the Swedish manufacturer will inspect and repair it before shipping it on to Chantiers de l'Atlantique in St. Nazaire, France where the new QUEEN MARY 2 is under construction. The steam-driven whistle is one of three built for the 1936 liner that could be heard for a distance of ten miles. The whistle, which will be being carried, most appropriately, across the Atlantic by QUEEN ELIZABETH 2, was lowered into QE2's forward cargo hatch in Ft Lauderdale, Florida, yesterday. After a Caribbean cruise and the transatlantic crossing, it will arrive back to Southampton on Saturday, May 18.

April 27, 2002: QUEEN MARY 2 Exhibit

It was announced that the QUEEN MARY 2 will host an exhibition on the history of the River Clyde's shipbuilding past. Designed to become a permanent floating exhibition when it the liner is launched in 2004, the exhibit will chart 160-years of Clyde history. Cunard has made an appeal for stories, photographs and memorabilia from the John Brown-built original QUEEN MARY, as well as mementoes of the other great Cunard liners that began life on the Clyde, such as QUEEN ELIZABETH. QUEEN MARY 2 will be the first transatlantic liner to be built since the QE2. Anyone wishing to contibute to the exhibition should first send a brief note to: Cunard Researcher, The Open Agency, Mill House, 8 Mill Street, London.

January 16, 2002: Cunard President Cuts First Steel

Pamela Conover, Cunard Line's president and chief operating officer, made history when she pressed a button to begin cutting the first steel for QUEEN MARY 2, at the Chantiers de l'Atlantique shipyard in Saint Nazaire, France. The 694-day countdown for her delivery has begun.

January 16, 2002:

News from British press: The construction of the biggest passenger ship of all time has started at the Chantiers de l'Atlantique shipyards in France's western port of Saint-Nazaire.

With a length of 345 metres, the QUEEN MARY 2 will be 45 metres longer than the height of the Eiffel Tower and as tall as a 23-storey building. QUEEN MARY 2 will fly the United Kingdom's Red Ensign, with Southampton as its home port. It is the biggest contract ever signed by the company. Worth \$780 million dollars, the ship is not only the biggest of its kind ever built but also the most expensive. The QUEEN MARY 2 is due to be placed on the slipway in July 2002 and Cunard is expected to organize a big celebration in Saint-Nazaire to mark the event.

February, 2002:

British Ships Monthly Magazine announce itinerary: Introductory cruise from Southampton, QUEEN MARY 2 will sail for Florida in early January 2004 for Winter cruises from Fort Lauderdale until the Spring of 2004. From April the new liner will begin a full programme of six-night transatlantic sailings between Southampton and New York, replacing the QUEEN ELIZABETH 2 on this route. "On her initial departure from New York, she will sail Eastbound in tandem with the Queen Elizabeth 2, which will be making

her last regular crossing before becoming a full-time cruise ship, based primarily at Southampton, while maintaining her annual world cruise itinerary."

October 1, 2001:

Carnival Corporation chairman Micky Arison visits the Chantiers de l'Atlantique yard, and reafirms that he would not been seeking a delay in the liner's delivery, "Contrary to certain reports, the delivery of the US\$790 Million, 2,800 passenger capacity ship will take place in late 2003."

September, 2001:

Following terrorist attacks in the U.S. on the September 11 and the announcement of the bankruptcy of Renaissance Cruises rumours of QM2 project cancellation abound. Renaissance Cruises operated eight cruise-ships built by Alstom, which also has a liability for a part of the long-term loans of the financial institutions which financed the purchase of these cruise-ships. Alstrom is the parent to Chantiers de l'Atlantique.

August 21, 2001:

QUEEN MARY 2 engines announced: GE Marine Engines said that LM2500+ aero-derivative gas turbine has been selected for use aboard the liner. The turbines will be manufactured at GE Marine Engines' Evendale, Ohio facility. The LM2500+ gas turbine-generator sets were sold and will be packaged by GE Aero Energy Products, Houston, Texas. GE Aero Energy Products is a GE Power Systems business and a GE Marine Engines Marine Systems Supplier. "We faced strong competition for the Cunard order, but the LM2500+ prevailed with its unmatched experience in various marine applications," said Karl Matson, general manager of GE Marine Engines. "We are very excited to be an integral part of this important program," Matson added.

August 15, 2001:

A QUEEN MARY 2 model is announced, the Classic Ship Collection of Travem 焠 de, Germany produce a 1:1250 scale model of the new liner available when she enters service.

May 31, 2001:

Cunard announce that the Enterprise & Art consultancy of Amsterdam has been commissioned to provide more than five thousand works of art for the new liner. Cunard expects to award commissions for well over 300 original works, which will be created especially for QUEEN MARY 2 by renowned international artists. Works will range from free-standing bronze and glass sculptures to expansive murals, oil paintings, watercolors, mosaics, reliefs, models and many other works. Major elements of the liner's art collection will include a sculptural relief of some 450 square feet, a 300 square-foot tapestry, a number of oil paintings in the range of 250-300 square feet each, several groupings of oversized bronze sculptures and a trompe l'oeuil painted ceiling of 1,200 square feet. In addition, the company will supply some 4,000 limited edition prints for use in cabins and companionways on board.



QUEEN MARY 2, rendering issued May 2001

March 7, 2001:

Rolls-Royce announce that they have been selected to provide their Brown Brothers stabilisers for the QUEEN MARY 2. The liner will be fitted with four folding fin stabilisers, each with a fin area of 15.63 sq m. Cunard chose the same range of equipment for new flagship's prestigious sister ships, the QUEEN ELIZABETH, the QUEEN MARY and the QUEEN ELIZABETH 2. Since 1935 Brown Brothers have supplied stabilisers to passenger shipping worlwide.

February 22, 2001:

The Maritime Research Institute of the Netherlands conduct scale model tank tests on a 15-foot, self-propelled model of QUEEN MARY 2 to simulated hurricane conditions. The design was reported to react well with her raked prow splitting the waves perfectly and her wake straight astern. Designers, engineers and executives are all extremely pleased with the results of the testing.

February 12, 2001:

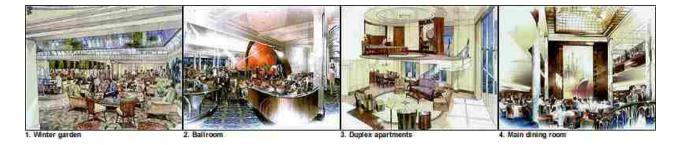
Following the resignation of Larry Pimentel, Pamela Conover of Key Biscayne, Florida, becomes president of Cunard line. Conover has served as the company's Chief Operations Officer since July 1998. Bangkok-born and British-bred, Pamela Conover former head of Citicorp's North American ship finance unit became the first female president of a major cruise line in 1994 to run Carnival's brief venture with the Epirotiki Line. Conover was vice president of strategic planning for Carnival Corporation and played a major role in the acquisition of Cunard by Carnival Corporation.



QUEEN MARY 2, passing QE2 (painting by Gordon Bauwens, Cunard commission) issued November 2000

Dimensions issued in 2000:

Length: 345 meters / 1131 feet Beam: 40 meters / 131 feet Beam at Bridge Wings: 45 meters / 147.5 feet Draft: 10 meters / 32 feet ten inches Height (Keel to Funnel): 72 meters / 236.2 feet Gross Registered Tonnage: Approximately 150,000 tons Passengers: 2620 Crew: 1254 Top Speed: Approximately 30 knots (34.5 mph) Power: 157,000 horsepower Environmentally friendly, gas turbine/diesel electric plant Propulsion: Four pods of 20 MW each. 2 fixed and 2 azimuthing Strength: extra thick steel hull for strength and stability for Atlantic trade Stabilizers: Two sets Cost: Estimated 700 million dollars



Interior renderings, QUEEN MARY 2

Design Highlights:

At 1,131 feet, QUEEN MARY 2 will stretch nearly four football fields in length. She will feature 17 decks and tower 200 feet above the waterline, equal to the height of a 23-story building. Several dining venues, all featuring ocean views, include Cunard's traditional "Grill Rooms" for the higher stateroom categories and a restaurant for the deluxe and standard categories. Recalling the classic dining salons of grand liners of the past, the magnificent three-deck-high main dining room will span the full width of the ship with a sweeping central staircase creating a dramatic showcase for those wishing to make the ultimate grand entrance.

Another classic feature will be a 360-degree Promenade Deck, recreating an environment which historically served as an important social venue aboard transatlantic liners. The spacious deck, whose total circumference exceeds one-third of a mile, will be lined with traditional steamer chairs while leaving expansive room for guests to stroll. Interior promenades circling several decks will provide attractive walking venues, as well. A large indoor swimming pool in the spa as well as four outside pools, one of which will

have a retractable glass roof. A planetarium on board will offer a variety of constellation shows, as well as other presentations. A unique educational center will feature seven flexible classroom venues for housing Cunard's College At Sea enrichment programs. Classes in everything from computer training, seamanship and navigation to cooking, art and wine appreciation, languages and photography will be taught by expert instructors within the various rooms which are capable of being separated or joined to adjust for varying class sizes. The ship's whistle will be an exact replica of the one on the QUEEN MARY so that her famous predecessor's voice will once more be heard on the ocean. A luxurious space ratio of 57.25 allowing for a variety of public areas of grand scale and some truly magnificent living spaces.

November, 2000:

Gordon Bauwens, one of Britain's leading maritime artists, recently completes the official artist's impression of the new liner. The image was released to the media when the official signing of the contract was announced.

November 6, 2000:

Carnival Corporation confirms the order for Queen Mary 2 to be built at Chantiers de l'Atlantique, for US\$780 million dollars for Cunard Line. The order will lead to the construction of the largest passenger vessel ever built. At approximately 150,000 tonnes, the vessel will measure 345 metres (1,132 feet) in length, 41 metres in breadth (135 feet), and 72 metres (237 feet) in height, with a total of fifteen decks. The height of the ship above water will be 62 metres, equivalent to a 23 floor building. The ship will accommodate over 2620 passengers and 1250 crew with delivery scheduled for the end of 2003.?/FONT>



QUEEN MARY 2, photo: newscom.com

October 8, 2000:

The Nation Autumn meeting of the Steam Ship Historical Society took place aboard the historic RMS QUEEN MARY in Long Beach, CA. Stephen Payne, Project Manager and Senior Naval Architect for the Carnival Corporation and head of the Queen Mary project gave a detailed update on the project. Mr. Payne issues the following statistics: The new ship is expected to have an overall length of 1,170 feet. She will have a breakwater on her lengthy bow along with other traditional ocean liner features such as a wrap around

promenade deck. Balconies will also be featured. She is to be moved through the water by four propellers of the azipod type. The hull design is expected to reduce rolling to less than half that of Queen Elizabeth 2 and her plating will be thicker than that found in contemporary cruise ship construction. Powered by both diesel and gas turbines she will have twice the power of a 101,000 tonne Carnival Destiny class ship. During the talk in the Grand Salon, he raised an unreleased profile drawing over his head for about six seconds, but first insisting that no photographs be taken.

March 9, 2000:

Cunard Line announce that they has signed a letter of intent to build the super-liner at Chantiers de L'Atlantique shipyard in Saint-Nazaire, France. The liner is expected to be launched in the last quarter of 2003. The new ship will fly the British flag, with her home port being Southampton, England.

March 2000:

Chantiers de l'Atlantique in France and Harland and Wolff, in Northern Ireland become the final candidates in the race for the Queen Mary Project contract. The winner is expected to be announced by Cunard at a major conference in Miami, FL this week.



"Queen mary Project", artist rendering issued Fall 1999.

Late 1999:

Carnival's satisfaction with its own 100,000+ ton Destiny class cruise ships and the popularity of Royal Caribbean's \$500 million dollar, 137,200 ton VOYAGER OF THE SEAS, proved sufficient incentive to scale up the Queen Mary Project and push back the delivery dates.

October 20, 1999:

Carnival Corporation exercises an option to purchase the remaining 32% minority interest in Cunard Line Limited for \$205 million dollars.

May 2, 1999:

Preliminary details of new ship are announced - Cunard aims for a return to "glory days of atlantic travel" with liner bigger than QUEEN ELIZABETH 2 or NORWAY (ex FRANCE). The new ship known as the "Queen Mary Project" will be the first transatlantic liner built since the 1960's. Cunard line hopes the new liner will be in service by late 2002. The new

ship will make transatlantic voyages between New York and Southampton, and to other European ports.

June 8, 1998:

Cunard announces the "Queen Mary Project" to create what they claim will be the largest and most luxurious "true ocean liner" ever built. The original design called for an 84,000 ton, 2000 passenger liner.

May 18, 1998 Larry Pimentel, Seabourn President since 1992 named as head of Cunard Line Ltd.

April 1998:

Carnival Corporation buys Cunard Line and merges Seabourn Cruise Line with Cunard. Seabourn is owned 50% by Carnival and 50% by Norwegian entrepreneour Atle Brynestad, who founded Seabourn in 1987.

Additional information can be obtained via Cunard Line's Web site at Cunard.com

For more on QM2 click on this external link <u>QUEEN MARY 2</u>: by Marcus Castell hosted by the National Museum of New Zealand.

Length:	1,132 feet	
Beam:	135 feet	
Beam at Bridge Wings:	147.5 feet	
Draft:	32 feet 10 inches	
Height (Keel to Funnel):	236.2 feet	
Gross Tonnage:	Approximately 150,000 gross tons	
Passengers:	2,620	
Crew:	1,253	
Top Speed:	Approximately 30 knots (34.5 mph)	
Power:	157,000 horsepower, environmentally friendly, gas turbine/diesel electric plant	
Propulsion:	Four pods of 21.5 MW each; 2 fixed and 2 azimuthing	
Strength:	Extra thick steel hull for strength and stability for Atlantic crossings	
Stabilizers:	Two sets	
Cost:	Estimated \$800 million dollars	

Some comparisons:

- QM2 is five times longer than Cunard's first ship, Britannia (230 ft.)
- QM2 is **113 feet longer** than the original Queen Mary
- QM2 is more than twice as long as the Washington Monument is tall (550 ft.)
- QM2 is **147 feet longer** than the Eiffel Tower is tall (984 ft.)
- QM2 is more than 3 ¹/₂ times as long as Westminster Tower (Big Ben) is high (310 ft.)
- QM2 is only **117 feet shorter** than the Empire State Building is tall (1248 ft.)
- QM2 is more than three times as long as St. Paul's Cathedral is tall (366 ft.)
- QM2 is as long as 41 double-decker London buses (31 1/2 ft. each)
- QM2's whistle will be audible for 10 miles

Did You Know ..

Did You Know... The height of QM2's funnel, at 62 metres above the water line, has been limited in order for her to be able to pass under Verazzano Narrows Bridge in New York.

Did You Know...

Artists representing 128 countries have been commissioned to provide more than \$5 million worth of art.

Did You Know...

Approximately 250 tonnes of paint will have been applied using spray guns covering an area of 550,000 square metres.

Did You Know...

Cunard has entered into partnership with the University of Oxford to provide a programme of authors, historians, artists, scientists and celebrities to enrich the onboard experience.

Did You Know... QM2's power plant will produce sufficient electricity to light a city the size of Southampton with a population of 200,000.

Did You Know... A single joystick on the Bridge manoeuvres her sideways, at an angle or she can even remain stationary over a fixed spot on the earth by use of satellites and wind gauges.

Did You Know... QM2 is the only ship that can boast a Planetarium.

Did You Know...

There are one thousand, two hundred and fifty three officers and crew onboard QM2.

Did You Know... QM2's whistle is audible for ten miles and was originally on Queen Mary.

THE LARGEST, LONGEST, TALLEST, GREATEST, WIDEST, AND GRANDEST OCEAN LINER

IN THE WORLD.

Canyon Ranch SpaClub[®] It is not surprising that the most luxurious ocean vessel ever built features a Canyon Ranch spa. This highly acclaimed health resort company has elevated the spa experience to an entirely new plane with life-changing programs from stress-relief classes to workshops on diet, healthy aging and disease prevention. 51 Canyon Ranch health and wellness experts work in QM2's 20,000 square foot facility which includes 24 treatment rooms, a thalassotherapy pool with deluge waterfall, a whirlpool, thermal suite with both herbal and Finnish saunas, reflexology basins and an aromatic steam room.

Illuminations Take a virtual ride into outer space, view the stars and other visual spectacles or take a course on celestial navigation in Illuminations, QM2's full-scale planetarium. It also functions as a grand cinema, a 500-seat lecture hall and even a broadcasting studio.

Cunard ConneXionsSM

QM2's cultural enrichment program includes seven classrooms and a 500-seat auditorium where you can attend workshops, seminars and lectures presenting a fusion of perspectives from the world's premier cultural hotspots: New York and London. Classes range from fashion to foreign languages, watercolor techniques to period furniture. Try film making. Join a discussion of British comedy, or compare MoMA and the Tate.

Culinary Advisor Daniel Boulud

Stunning French-American cuisine and dedication to quality have made Cunard's culinary advisor one of the most famous chefs in the world. He has been the recipient of numerous awards from *Bon Appetit's* "Chef of the Year" to *Gourmet's* "Top Tables." People often wait months for a reservation at *Daniel*, his famous New York City bistro, ranked Number One for "Top Food" by the 2002 Zagat Survey. Guests can enjoy his cuisine aboard QM2.

History & Art Worth a King's Ransom

Renowned international artists were commissioned to produce over 300 original works of art valued at over \$5 million. For history buffs, the museum-quality Maritime Quest exhibit is a fascinating tour that takes you back to the golden era of transatlantic cruising.

Britannia Restaurant

Make the traditional grande descente in the stunning 3-story Britannia Restaurant, whose grand sweeping staircase creates a dramatic showcase for those wishing to make the ultimate entrance.

Personal Butler and Concierge Service

Concierges attend to guests in all of the Grill Accommodations, while the Queens Grill categories also feature private butler service.

Interactive TV

You can receive or send e-mails, choose from dozens of movies, review a seminar you might have missed or sign up for shore excursions - right from the comfort of your stateroom.

Internet Guests can surf the web, check e-mail or even transmit a video postcard to friends and family back home. They can take classes in the Computer Centre, or bring their own laptop; every stateroom has direct Internet access.

Play Zone/The Zone

QM2 was designed to accommodate all the ages. For guests who wish to take their children or grandchildren along, The Play Zone is like a well-run camp for children 2 - 7 years old. A separate facility, The Zone, provides hours of supervised entertainment and activities for children 8- 12 years old. The area includes the Minnows splash pool and real English nannies for the toddlers. And it's equipped with an array of toys and activities from board games to computer terminals with all kinds of learning adventures, so that while kids are doing their thing, adults have some quality time alone.

Staterooms - 75% with Balconies

80% of her accommodations are outside cabins and over 94% of these feature spacious private balconies.

	QUEENS GRILL ACCOMMODATION			
Q1	Grand Duplex	2,249 sq. ft.		
Q2	Duplex Apartment Queen Mary & Elizabeth Suites	1,471 sq. ft. 1,194 sq. ft.		
Q3	Royal Suites	796 sq. ft.		
Q 4	Penthouse	758 sq. ft.		
Q5	Suites	506 sq. ft.		
Q6	Suites	506 sq. ft.		
	PRINCESS GRILL ACCOMMODATION			
P1	Junior Suites	381 sq. ft.		
P2	Junior Suites	381 sq. ft.		
	BRITANNIA RESTAURANT			
B1	Deluxe Balcony	248 sq. ft.		
B2	Deluxe Balcony	248 sq. ft.		
B3	Deluxe Balcony	248 sq. ft.		
B4	Premium Balcony	248 sq. ft.		
B5	Premium Balcony	248 sq. ft.		
B6	Premium Balcony	248 sq. ft.		
B7	Premium Balcony	248 sq. ft.		
C1	Standard Oceanview	194 sq. ft.		
C2	Standard Oceanview	194 sq. ft.		
C3	Standard Oceanview	194 sq. ft.		
C4	Standard Oceanview	194 sq. ft.		
D1	Atrium	194 sq. ft.		
D2	Standard Inside	194 sq. ft.		

D3	Standard Inside	194 sq. ft.
D4	Standard Inside	194 sq. ft.
D5	Standard Inside	194 sq. ft.
D6	Standard Inside	194 sq. ft.

Sea Trials

Saint Nazaire, France, September 2003

Queen Mary 2 took to the sea for the first time on Thursday 25 September. Her historic departure from her fitting out berth at the Chantiers de l'Atlantique shipyard in Saint Nazaire marked a major milestone in the construction of the greatest ocean liner ever.

She returned from the sea after four days of trials off the Brittany coast – trials that she passed with flying colours.

Captain Ronald Warwick, master-designate, Queen Mary 2 said "The sea trials have been a tremendous success. It was great to finally take her out to the open ocean where she belongs".

Second Sea Trials, early November

The second sea trials were off the coast of France. These trials were undertaken during the first two weeks of November.

Southampton Arrival

The Magnificent Queen Mary 2 arrived in Southampton on Boxing Day, December 26 2003.

Hundreds of onlookers described the magical moment as this shipping phenomina broke through the mist for the first time before docking.

She is now tied up at Berth 38/39 which is known as the Queen Elizabeth II terminal and which has recently been refurbished at a cost of £2 million to accommodate QM2.

The public will not be allowed into the port whilst QM2 is berthed alongside. The port is accessible only to passengers and those immediately connected with them.

QUEEN MARY 2 OCEAN LINER, NO COUNTRY

Built at the Chantiers de l'Atlantique yard for Cunard, the Queen Mary 2 is the largest ocean liner ever constructed. It is 345.03m long and has a beam of 45m at the bridge wings. Its draught is 9.95m and the height from keel to the funnel is72m. The Gross Registered Tonnage is 150,000t.

SHIP'S ROOMS

944 of the ship's 1,310 staterooms have private balconies, and a further 66 have ocean views. The verandah cabins stretch over four and a half decks. There are also 300 inside cabins.

Standard cabins have a comfortable 194ft² of floor area, some with spacious 8ft-deep balconies. Deluxe cabins feature balconies and measure 291ft². 78 suites, including balconies, measure 388ft². Six, 570ft² penthouses feature butler and concierge service and private balconies. Four deluxe penthouses overlooking the bow measure between 861ft² and 1,076ft².

The five duplex apartments on Decks 8 and 9 are two stories high, with private elevators and more than 1,650ft² in floor area. Overlooking the stern is a two-storey glass wall. Each apartment features walk-in closets, it's own gymnasium, balcony and butler and concierge service. Duplex apartments can be connected with the 570ft² penthouse suite to create a 2,220ft² living space.

PUBLIC ROOMS

The passengers enter the ship in the grand lobby, where the stairways go up from the rotunda into the six-deck-high atrium, overlooked by inside cabins on either side.

The Chart room on Deck 9 will be one of the forward observation lounges.

There is also a British pub with its own on-board micro-brewery, a wine bar, a cocktail bar and a wood-panelled smoking room. In addition, there is a 5,200ft² shopping area.

The grand spa and winter garden cover an area of 17,000ft². On Deck 12 and adjoining the 21,097ft² sun deck, the spa and health centre compliment the five swimming pools: two outdoor, two indoor and one with a retractable glass roof. On the sides of the ship, a pair of exterior glassed-in elevators take passengers to the bridge deck, where they are able to watch operations on the bridge through a glass wall.

FACILITIES

The Queen's Room seats 1,100 and spans the full width of the vessel. On Decks 2 and 3 is a 570-seat cinema, while a planetarium offers a variety of constellation shows, as well as other presentations.

Via the Thuraya satellite system, in geo-synchronous orbit 22,300 miles above the equator, a 144kb/s service connects all of the liner's staterooms to the Internet.

The working decks are 3.5m (or 11.5ft) high, and the crew have their own bars, restaurant, cinema, gym and, like the passengers, a computer school. All crew cabins are equipped with en suite facilities and there are a maximum of two to a cabin.

PROPULSION

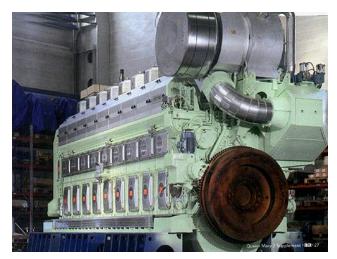
The vessel is powered by four Wärtsilä diesel engines, supplemented by two gas turbines. With a total output of 118MW, the power plant develops 157,000hp.

Propulsion is carried out by four 20MW MerMaid podded propulsion units, two fixed and two azimuthing through 360°. They incorporate an electric AC motor that directly drives a fixed-pitch propeller with highly skewed blades for low noise and vibration.

The mermaid pods were fitted in Basin C after the ship had been floated out of the building dock.



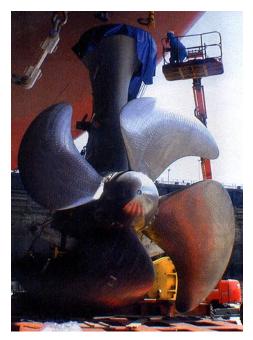
The Queen Mary 2 during seatrials in September 2003.



Nine-cylinder version of Wärtsilä's 16V46C EnviroEngine, of which there are four on the Queen Mary 2.



One of two GE LM2500+ gas turbines.



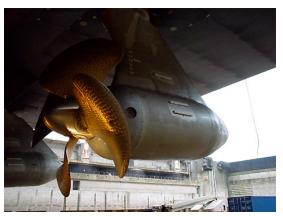
The mermaid pods were fitted in Basin C after the ship had been floated out of the building dock.



A power and propulsion package incorporating Mermaid pods was installed on the Infinity and Millennium for Celebrity Cruises.



Electric propulsion systems were engineered for the Mistral cruiseliner.



A typical Mermaid pod drive.



A diesel electric Mermaid propulsion system and dynamic positioning system was installed in Cunard's Queen Mary 2.



ALSTOM's vessel control and dynamic positioning console suite.

ALSTOM - MARINE PROPULSION SYSTEMS

ALSTOM is the leading supplier of power and propulsion packages and, as such, can tailor a package to meet your exact needs, from complete electrical turnkey solutions to simpler drive packages.

Our product range includes generators, switchboards, variable speed main propulsion systems driving either induction / synchronous motors or Mermaid[™] pod propulsion drives, induction or synchronous motors, dynamic positioning systems and vessel automation.

Drawing on a century of experience, ALSTOM is able to provide complete support, through project management, feasibility studies, system calculations and analysis, system integration, installation and training.

ELECTRIC POWER AND PROPULSION

A modern electric propulsion system consists of a centralised power plant (supplying propulsion and services requirements) and a variable speed drive system connected to fixed pitch propellers. A comprehensive power management system (PMS) ensures that each prime mover operates at its optimal load.

Main advantages:

- Operating flexibility safety reliability
- Improved efficiency at low speeds and when manoeuvring
- Increased maneuverability
- Reduced noise and vibrations
- Reduced maintenance and reduced NOx emissions
- Optimization of ship architecture

MERMAID PODDED ELECTRICAL PROPULSION

A Mermaid^{\mathbb{M}} pod drive is a hydro dynamically optimized body, housing an electric motor, providing 360 azimuthing propulsion. Jointly developed by two world leaders in marine propulsion, ALSTOM and ROLLS-ROYCE (formerly KAMEWA), Mermaid^{\mathbb{M}} is the most powerful and flexible marine propulsion system in the world. Mermaid^{\mathbb{M}} can be designed to reach up to 30MW.

Main advantages:

- Maximum maneuverability with minimum noise and vibration levels
- Improved overall efficiency
- Space saving
- Reduced installation time and costs

The Millennium Class ships are equipped with two Mermaid^M propulsion drives rated 20.1MW each, the most powerful ever fitted. The future transatlantic cruise ship Cunard's Queen Mary 2 will feature four even more powerful Mermaids^M, totalling approx. 85MW.

VESSEL CONTROL

The Integrated Alarm Control and Monitoring System (IACMS) controls the automation for the whole vessel and features two main parts:

- The Power Management System (PMS)
- The Vessel Management System (VMS)

The main features of IACMS are:

- High performance utilising distributed outstations and networked architecture
- High level of reliability (single fault tolerance)
- Ergonomic Human-Machine-Interface
- Common hardware platform saving on spares, training and maintenance

DYNAMIC POSITIONING

ALSTOM has a strong reputation in Dynamic Positioning (DP), with more than 30 years experience and over 300 references. The current A-Series combines the best attributes of previous generations of DP systems with the benefits of continuous technological advancement and has proved highly successful in both the offshore and cruise ship markets.

REFERENCES

Recent examples include:

- Cruise liners for the Carnival Group, RCI, Celebrity Cruises, Festival, Princess Cruises, Renaissance Cruises, Radisson, AMCV
- A LNG carrier for Gaz de france, crude oil carriers for BP, ro-ro trailer ships for TOTE, chemical tankers for Stolt, an 8,500m hopper dredger for Dragages-Ports, platforms for Sedco Forex, cable ships and research vessels
- Cruise liners for MSC with two 10MW Mermaids[™] per ship and for Crystal Cruises (NYK) with two 13.5MW Mermaids[™]
- Queen Mary 2 for Cunard Line by Chantiers de L'Atlantique with four Mermaids™ totalling more than 85MW



ALSTOM's Advanced Induction Motors, built to the exacting requirements for naval propulsion, are smaller and lighter than the traditionally used synchronous motors, making them particularly suitable for naval vessels where space is at a premium.



ALSTOM's A Series dynamic positioning console.

ALSTOM - DYNAMIC POSITIONING, VESSEL CONTROL AND POWER AND

PROPULSION SYSTEMS

ALSTOM is the leading supplier of dynamic positioning, vessel control and power and propulsion packages. Drawing on a century of experience, ALSTOM is able to provide complete support, through project management, feasibility studies, system calculations and analysis, system integration, installation and training.

DYNAMIC POSITIONING (DP)

Since the early 1970s ALSTOM has been at the forefront of Dynamic Positioning technology, with over 300 systems installed. The current A-Series range fulfils the exacting requirements for vessel operations, from basic joystick systems through to full triple voting/Class III systems.

Standard control modes have been developed over the years to cover most scenarios, including cable ships, dive vessels, PSVs, AHTS, drilling vessels, shuttle tankers and FPSOs, to name a few.

Interface and supply of a broad range of position measurement devices can be provided, including ALSTOM 抯 laser-based position measurement system, CyScan.



CyScan aids and controls the automatic manoeuvring and docking of vessels in deepwater areas.

CYSCAN MARINE LASER POSITIONING SYSTEM

CyScan not only controls and aids automatic docking of vessels, but it also enables vessels to manoeuvre in deepwater where hydro-acoustics or taut wire systems would not be practical. It is easy to use, highly accurate and low in maintenance and cost. Unlike other systems, CyScan ensures that retro-reflective targets are continuously tracked even under some of the most adverse weather conditions.

See also:

<u>Naval Technology - ALSTOM - Complete Electric Power and Propulsion Packages</u> <u>Offshore Technology - ALSTOM - Dynamic Positioning, Vessel Control and Power and</u> <u>Propulsion Systems</u>

ALSTOM

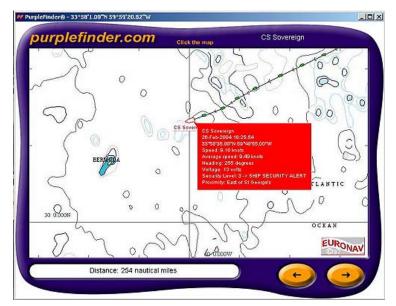
Boughton Road Rugby Warwickshire CV21 1BU United Kingdom Tel: +44 1788 563563 Fax: +44 1788 563774 Email: <u>info.marine@tde.alstom.com</u> URL: www.powerconv.alstom.com/marine/index2



PurpleFinder - world map view showing extent of P&O Nedlloyd global fleet / automatic position report.

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PurpleFinder - zoom map view showing 'polling' function in vicinity of Port of Long Angeles / Long Beach.



PurpleFinder - zoom map view showing ship security alert in vicinity of Bermuda.

POLE STAR SPACE APPLICATIONS LIMITED - SHIP SECURITY ALERT SYSTEM (SSAS) AND LONG-RANGE IDENTIFICATION AND TRACKING (LRIT) MARITIME SOLUTIONS

Pole Star Space Applications Limited is the proprietary provider of PurpleFinder?the leading web-based solution for maritime fleet management, maritime security and maritime domain awareness operations. Our specific products include: *DSAS* a SOLAS XI-2/6 compliant Ship Security Alarm System (SSAS), and *Reporter* - a ship/vessel tracking and emerging SOLAS XI-2/14 compliant Long-Range Identification and Tracking system (LRIT). Our extensive client list includes many 'blue-chip' shipping companies including Barber, BP, Brostrum, Cunard, Hanseatic, Oldendorff, P&O Nedlloyd, Univan, and V.Ships, as well as several major naval entities, port-state control and flag administrations. It is utilised by over 350 major ship owner/manager/chartering organisations and national maritime administrations operating more than 5,000 ships.

PURPLEFINDER?MARITIME FLEET TRACKING APPLICATION

PurpleFinder?is a web-based maritime fleet tracking application. Access is controlled by secure privilege-based username/password sets using a secure encrypted protocol. The web interface provides a marine chart-level mapping system with full zoom in/out, distance calculator, global ten-day meteorological forecast including tropical storm warnings, in addition to a range of supporting management logistics tools.

Fleets can be sub-grouped down to an individual vessel with each sub-group having a unique username / password set. Any authorised user can access PurpleFinder?from any internet-enabled computer.

PURPLEFINDER?DSAS SHIP SECURITY ALERT SYSTEM (SSAS)

DSAS is a self-contained unit consisting of a compact integrated Inmarsat/GPS transceiver, power management unit and back-up batteries constructed within a ruggedised polycarbonate enclosure, in turn protected by a stainless steel casing, and having multiple external alert activation points.

Of portable dimensions, the DSAS unit is easily installed. With no visible external antenna, the unit does not resemble typical Satcom equipment and so is likely to escape hijacker/terrorist attention. All functionality is controlled using the PurpleFinder?maritime fleet tracking application (see above).

The system is fully compliant to SOLAS XI/2-6 and associated MSC.147(77) performance standards accepted by flag administrations, is IACS Unified Requirement E10 certified and is fully Type Approved to IEC60945.

PURPLEFINDER?REPORTER LONG-RANGE TRACKING AND IDENTIFICATION (LRIT)

REPORTER utilises a ship's Inmarsat-C GMDSS system (or DSAS ship security alert system) to provide near-global, two-way, real-time ship tracking information and logistical messaging. Integration is undertaken remotely without the need for extra hardware, software, or boarding. All functionality is controlled using the PurpleFinder?maritime fleet tracking application (see above).

REPORTER significantly contributes to commercial maritime operations and customer service groups through performance improvement and cost reduction. The system is compliant to the emerging SOLAS XI/2-14 LRIT regulation and associated MSC. Conference Resolution 10.

For national maritime administrations it aids maritime domain awareness and enhances maritime security through the ability to:

- Locate and track the positions of vessels that the national maritime administration intends to provide additional protection due to the nature of trade, cargo, or intelligence received
- Readily identify vessels that have a "shared commitment" to help maritime security initiatives by providing near real-time information on their positions
- Focus security resources and measures on vessels for which limited information is available
- Aid emergency response and port mobilization in the event of terrorist events

Pole Star Space Applications Limited Suite 301-303 Whiteleys Centre Queensway London W2 4YN United Kingdom Contact: Julian Longson, VP Business Development Tel: +44 20 7313 7400 Fax: +44 20 7313 7400 Fax: +44 20 7313 7401 Email: <u>info@purplefinder.com</u> URL: <u>www.purplefinder.com</u> URL: <u>www.purplefinder.com/demo.html</u>

RHODIA ORELIS SA - PLEIADE?ONBOARD WASTEWATER TREATMENT FOR SHIPS

Rhodia is one of the world's leading manufacturers of specialty chemicals, offering tailor-made solutions based on the cross-fertilization of technologies, people and expertise. Rhodia subscribes to the principles of sustainable development, communicating its commitments and performance openly with stakeholders. Orelis, a wholly owned subsidiary of Rhodia, is the world 祖 second largest provider of clean technology. It offers clean technologies and effluent treatment systems to help its customers to find the right solution to treat their domestic or industrial wastewater. Cruise ship operators and shipbuilders chose Rhodia's Orelis PLEIADE® membrane bioreactor as the onboard wastewater treatment system for the world's largest cruise liner, Queen Mary 2. The Orelis PLEIADE® releases clean wastewater into the sea without harming coral reefs and ocean ecosystems. Rhodia Orelis membrane bioreactor is highly compact and easy to use.

ORELIS PLEIADE®: MEMBRANE ULTRAFILTRATION AND BIOLOGICAL TREATMENT

The combination of membrane ultrafiltration and biological treatment yields a biological purification solution that is more effective, better controlled and less expensive. This solution corresponds with shipbuilders?cost and technical requirements. For this reason Orelis has developed a dedicated service offering full installation of biological treatment units that combine PLEIADE® membranes with a biological reactor.

With its 700m?filtration area, the PLEIADE® system can treat the 1,100m³ of wastewater produced every day by approximately 4,000 passengers and crewmembers of a ship. In fact this is a real floating city of approximately 8,000 people. However, these modulable units can also exist for smaller capacities (around 15 passengers).

WASTEWATER SEPARATION, PURIFICATION, EXTRACTION AND RECYCLING

Rhodia Orelis' technology improves process quality (separation, purification, extraction, recycling) by reducing pollution at the source and by optimising the water cycle in shipbuilding, buildings or industries (water treatment and recycling). Orelis' turnkey solutions use a combination of techniques such as membrane separation, physico-chemical and biological treatments.

PLEIADE® TECHNOLOGY ADVANTAGES

Orelis PLEIADE® technology offers numerous advantages including the ultracompact installation, high level of purification, low operating costs and the external loop membrane bioreactor ensuring the system is user friendly. Additionally, it is low maintenance, environmentally friendly equipment and reduces output of biological sludge (volumes reduced by 30 to 50% compared with a conventional biological treatment).

ORELIS' ACTIVITIES:

Orelis' activities include:

- Sale of products and systems for domestic water and industrial effluent treatment
- Clean membrane separation processes (ultrafiltration, microfiltration, nanofiltration, reversed osmosis)
- Engineering, process development and installation resources
- Installation maintenance and audit services

APPLICATION MARKETS

Orelis' systems find applications for domestic markets (shipbuilding, building) and also most industrial markets (automotive, surface treatment, food processing, bio-industries, chemicals, paper, textile, nuclear, etc.). The company grosses over 65% of its sales in international markets.

CORPORATE CULTURE

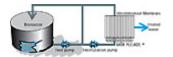
Rhodia Orelis strives to provide customers with a cost effective approach to environment protection, optimising investment and reducing operating costs.

Rhodia Orelis SA

5 chemin du pilon Saint Maurice de Beynost 01708 Miribel France Tel: +33 472 012 848 Fax: +33 478 553 833 Email: <u>orelis@eu.rhodia.com</u> URL: www.orelis.com



Orelis membrane bioreactor on the Queen Mary II.



Biological treatment units that combine PLEIADE?membranes with a biological reactor.



Ultracompact installation.



Orelis PLEIADE?membrane.

SCANDINAVIAN BOILER SERVICE INC - BOILER SERVICE AND REPAIR SPECIALISTS

Scandinavian Boiler Service, Inc. (SBS) was founded in Florida in 1995 and today is one of the world 扭 leading boiler service and repair specialists with central offices in the US, Denmark, Italy and Singapore. SBS 抯 Mission is to satisfy the need for effective marine boiler service, support and systems.

The worldwide marine industry needs effective technical service and support.

SBS is committed to help satisfy these needs by promoting service, support and systems that assist customers in the operation of their boiler and heating plant installations in a safer and more efficient way.

MAKING A GLOBAL APPROACH

With an international service network and a complete range of boiler related products,

SBS offers its customers a comprehensive package of modern marine boilers, burners, and control systems.

In addition the company is a leading player within the following areas of activity:

- NOx and Smoke Density Monitoring systems for boilers and diesel engines
- Thermal Boiler Protection and Burner Upgrade Systems
- Over 15 service engineers located worldwide from Los Angeles to Singapore
- Massive stocks of boiler and burner spare parts, strategically located worldwide
- Boiler repair workshops and experienced repair teams for onboard voyage repairs
- Manufacture of pin, fin and ready bent tubes

SERVICES PROVIDED

The scope of our services includes:

- Inspection
- Burner adjustment
- Commissioning
- Safety checking
- Maintenance
- Repairs
- Upgrading
- Control systems
- Combustion systems
- Training
- Supply of new burners and control systems
- Supply of feedwater systems, etc.
- Spare parts
- SBS NOx systems
- SBS Smoke Density Monitors
- SBS Oxygen Monitors
- SBS Thermal Impact Systems
- TPK NOVA Marine Boilers

PRODUCTS OF IN-HOUSE DESIGNS

Design and manufacture of all products are carried out in-house. SBS 抯 product program combines innovation and proven technology to focus on areas where the company can make a difference.

Core business activities are based in three major areas:

- Combustion monitoring and recording
- Intelligent Boiler Protection Systems and control
- Standard and custom-defined upgrades and solutions

SBS Technology A/S is constantly exploring new ways to look at Combustion monitoring and Boiler safety by combining proven technology with state of the art science.

REPAIR TEAMS

Our repair teams consist of boilermakers from Denmark, Poland and Singapore with experience in repairing most type of boilers. Our quality repairs are well known both by the major classification societies and ship owners. Our list of references includes some of the largest ship-owing companies in the world.

BOILER INSPECTIONS

Complete boiler inspections include the use of fiberscope, ultrasonic and magneflux testing to detect and verify problem areas in your boilers. Although these

sophisticated instruments are rather expensive our experience has shown that defects discovered in time can greatly reduce the cost of future repairs.

SPARE PARTS AND SUPPORT

SBS provides spare parts for various boiler types such as Aalborg, Sunrod, Osaka, Mitsubishi, Miura, and burner plants, such as Saacke, Weishaupt, Volcano, Sunflame, Vesta (KB), Petrokraft (Nu-way) - and many others.

The company stocks many types of spare parts to suit almost every requirement and request, including:

- Gaskets / Packings
- Valves / Safety valves
- Pumps
- Gauge glasses / Cocks / Level indicators
- Pressure gauges / Thermometers
- Control boxes / Photo relays / Photo cells
- Transmitters
- Controllers
- Pressure switches
- Oil pumps
- Ignition electrodes / Ignitor parts
- Transformers
- V-belts
- Relays / Contactors / Timers
- Servomotors
- Solenoid valves

Scandinavian Boiler Service Inc

512 S.E. 32nd Street Ft. Lauderdale FL 33316 USA Email: <u>sbs@sbs-us.com</u> URL: <u>www.sbs-us.com</u>



SBS provides spare parts for various boiler types such as Aalborg, Sunrod, Osaka, Mitsubishi, Miura, and burner plants, such as Saacke, Weishaupt, Volcano, Sunflame, Vesta (KB), Petrokraft

(Nu-way) - and many others.



We are the Authorized Sales, Service and Spare Parts Agent for the well-known range of burner systems from Germany祖 Saacke Gmbh. & Co. Kg., and TPK NOVA Marine Boilers.



Examples of development efforts and trend-setting technologies include Fiber Optic Smoke Monitor, Compact Oxygen Analyzer, Compact NOx Monitor and Thermal Impact Protection System TIP.



Our repair teams consist of boilermakers from Denmark, Poland and Singapore with experience in repairing most type of boilers.



Scandinavian Boiler Service, Inc. is also manufacturer of pin, fin and ready bent tubes.

Queen Mary 2 Sails the High Tech Seas

Luxury cruise ship offers the latest in digital amenities.

Todd R. Weiss, Computerworld Monday, January 19, 2004 From the moment they step onto the gangplank of the new luxury cruise ship Queen Mary 2, passengers will be served by a unique and all-encompassing IT network designed to cater to their every whim.

The \$800 million QM2, which recently set sail from Southampton, England, on her 14-day maiden voyage, to Fort Lauderdale, Florida, is packed from bow to stern with digital amenities, from in-room, on-demand movies to interactive television, Internet access, and a security system that keeps track of passengers getting on and off the ship and their passport information.

Every one of the 1310 cabins aboard the QM2, which includes five duplex apartments, four suites, six penthouses, 706 sea-view staterooms with balconies, and 281 interior staterooms, are wired so passengers can easily make shore excursion reservations and dinner plans.

The elaborate system is controlled with plastic bar-coded credit-card-like cards issued to passengers as they board the ship. The cards, which are scanned as people board or leave the vessel, feature photos of each passenger and are used everywhere. They are also designed to help the QM2 staff track any onboard charges incurred by passengers.

Behind the Scenes

Frank Finch, director of global technical services at Miami-based Cunard Line, which owns the QM2, says the massive data network aboard the liner is built with redundancy to guard against potential system failures. Back-office functions are built around Novell's NetWare 6 system, as well as Oracle and SQL databases.

The Ship Partner property management system used to track security, billing, telephone service, onboard television, and many other key operations comes from Discovery Travel Systems (DTS) in Alexandria, Virginia. The Ship Partner application is built using the OpenEdge business software platform from Progress Software in Bedford, Massachusetts.

The integrated network and property management system "became a key component of the vessel," Finch says.

John Broughan, president of DTS, says his company has a long-term relationship with Cunard and has been building property management systems for ships for about 12 years. The IT needs of cruise ship operators differ from those of typical hotel property management companies, so specialized systems had to be created to better serve cruise companies, he says.

"There were enough nuances that they needed improved systems," Broughan says.

Ship Shape

The QM2, which at 1132 feet long is only 117 feet shorter than the height of the Empire State Building, can carry up to 2620 passengers and 1253 crew members. Room prices range from \$2869 per person for an interior stateroom on the maiden voyage up to \$37,499 for a grand duplex apartment.

The ship is the largest, longest, tallest, widest, and most expensive cruise liner ever built, according to Cunard. It includes the first planetarium on a cruise liner, as well as what Cunard says are the largest ballroom, library, and wine collection at sea. There are five indoor and outdoor swimming pools as well as a two-story theater, a casino, boutiques, and children's facilities with British nannies.

Cunard is a division of Carnival.

From Discovery:

- The QM2 is the first new liner to be launched since her sister ship, the QE2 in 1969.
- She is twice the size of the QE2 the boat she's been built to succeed.
- During her 40-year lifetime, she's expected to sail the equivalent distance of travelling to the moon and back 12 times!
- Her engines produce enough power to run a city with a population of 200,000.

On January 8th, 2004, Queen Elizabeth II smashed a jeroboam of champagne smartly against the hull of Queen Mary 2. Blessing it with the words, "May God bless her and all who sail in her," the largest, grandest ocean liner ever, embarked on the first of its predicted 1,200 Atlantic crossings.

Taller than a 23 storey building – this modern luxury liner dwarfs the Statue of Liberty, the Tower of London and the Colosseum in Rome. However, the ship's designers deliberately built it to pass beneath New York's Verazzano Narrows Bridge – by a clearance of only 3 metres!

The QM2 has 10 individual restaurants, cafes, and bistros on board. The opulent Britannia dining room seats 1,300 diners. In fact, there are more gourmet meals served on board each night than in the entire city of Manchester.

Of course, there's also a karaoke pub (The Golden Lion) selling draught lager and bangers and mash, should passengers tire of the good life.

Brain power

For any passengers wanting to elevate their spirits with culture, there's a library with 8,000 books at their disposal, a theatre, or cinema, and an art gallery with £3m worth of work. There's even an education programme devised by

Oxford University. Lectures cover subjects including history, art, literature, business, politics, philosophy, and sociology.

Should anyone need a little retail therapy during the 6-night passage from Southampton to New York, luxury brands like Dunhill, Gucci, and Hermès all have concessions on board. Or alternatively, passengers could rid themselves of their hard-earned money in the casino.

The price doesn't come cheap. A basic transatlantic passage starts at around £999 and rises to £20,000 per person for the best suite - which includes marble bathrooms, private balconies, a separate living room, and it's own butler. Now, that is life on the ocean wave!

"I name the ship Queen Mary 2. May God bless her and all who sail in her." --Queen Elizabeth II

Her Majesty **Queen Elizabeth II** (Elizabeth Alexandra Mary Windsor) (born April 21, 1926) is the Queen regnant and head of state of the United Kingdom of Great Britain and Northern Ireland and 15 other Commonwealth Realms, including Australia, Canada, New Zealand, and Jamaica. She has reigned since February 6, 1952. Her coronation took place in Westminster Abbey on June 2, 1953.

Titles

Main article: List of Titles and Honours of Elizabeth II of the United Kingdom The Queen Mary 2 is a Cunard Line The Cunard Line is the British cruise line that operates the RMS Queen Elizabeth 2 (QE2) and RMS Queen Mary 2 (QM2) cruise ships.

History

Cunard had its beginnings in 1838 when Canadian shipping magnate, Samuel Cunard, along with engineer, Robert Napier, and businessmen, James Donaldson, George Burns, and David Maclver formed the **British and North American Royal Mail Steam Packet Company**. The company successfully bid on the rights to run a transatlantic shipping company between England and America. Later, it would change its name to **Cunard Steamships Limited** becoming the greatest name in ocean travel in history. A **passenger ship** is a ship whose primary function is to carry passengers.

An ocean liner is the traditional form of passenger ship, apart from smaller craft used for coastal voyages and as ferries. In the latter part of the 20th Century ocean liners gave way to cruise ships as the predominant form of passenger ship.

Although some ships have characteristics of both types, the design priorities named for the earlier Cunard liner <u>Queen Mary</u>

The **R.M.S.** Queen Mary was a Cunard Line ocean liner that sailed the Atlantic Ocean from 1936 to 1967. The ship was named for Mary of Teck, the consort of George V of the United Kingdom.

The Queen Mary was constructed on the River Clyde in Scotland from 1930 to 1934. When it made its maiden voyage in 1936, the Queen Mary was the second largest passenger ship ever built, at a length of 1,020 feet (311 meters) and a displacement of over 81,000 tons. In comparison, the RMS *Titanic* was 883 feet (270 meters) long and had a displacement of over 46,000 tons. The Queen Mary and the *Titanic* were both steamships (R.M.S. stands for Royal Mail Steamer), which was in turn named for Mary of <u>Teck</u> **Queen Mary**, Princess Victoria Mary of Teck (May 26, 1867 - March 24, 1953), known popularly as "*Princess May*," was the Queen consort of King George V of the United Kingdom. She officially used the names "Victoria Mary" until her husband ascended the throne in 1910.

Born Her Serene Highness Princess Victoria Mary Augusta Louise Olga Pauline Claudine Agnes of Teck at Kensington. At the time of her construction in 2003

The *Queen Mary* 2 was in every dimension the largest passenger ship ever built. Her luxuries include 15 restaurants and bars, five swimming pools, a <u>casino</u> A **casino** is a building designed to accommodate gambling, usually maintained by a business that profits from the gamblers by offering games in which customers must make disadvantageous bets (e.g., craps, roulette - for more see casino games), or, in statistically even games, by charging a commission on bets customers make against each other (e.g., poker, pai gow, baccarat, sports betting). Casinos are often combined with or near hotels, restaurants and other vacation attractions to encourage long stays, a ballroom, and a <u>planetarium</u>

A **planetarium** is a theatre built for presenting shows about astronomy and the night sky.

Planetariums typically use a large dome shape for the projection screen, with inclined chairs for comfortable viewing "straight up". A large projector in the center of the dome creates the scene, using a number of movable projectors projecting the images of stars or planets onto the screen. The various projectors are geared to provide an accurate relative motion of the sky, and the entire system can be set to display the sky at any point in time.

The *Queen Mary 2* (*QM2*) is the current Cunard flagship and makes regular <u>transatlantic</u> **TransAtlantic** were a progressive rock supergroup formed in 2000 by vocalist/keyboardist Neal Morse of Spock's Beard and drummer Mike Portnoy of Dream Theater.

Originally intending to include Fate's Warning guitarist Jim Matheos, Morse and Portnoy tapped Flower Kings guitarist/vocalist Roine Stolt when Matheos was unable to participate. The band completed their lineup by adding bassist and progressive rock veteran Pete Trewavas from the group Marillion. crossings. The ship was constructed to replace the <u>RMS Queen Elizabeth 2</u> The Queen Elizabeth 2, often called "the QE2," was the flagship of the Cunard Line from 1969 until she was succeeded by RMS Queen Mary

2 in 2004. The QE2 is considered the last of the great transatlantic ocean liners and was the last oil-fired passenger steamship to cross the Atlantic in regularly scheduled liner service before she was refitted with a diesel power plant. During her service as the Cunard flagship, QE2 traveled all over the world, but now operates as a cruise ship based out of Southampton, England (QE2), which was the Cunard flagship from <u>1969</u> Centuries: 19th century - **20th century** - 21st century

The first RMS Queen Mary

The **R.M.S.** Queen Mary was a Cunard Line ocean liner that sailed the Atlantic Ocean from 1936 to 1967. The ship was named for Mary of Teck, the consort of George V of the United Kingdom.

The Queen Mary was constructed on the River Clyde in Scotland from 1930 to 1934. When it made its maiden voyage in 1936, the Queen Mary was the second largest passenger ship ever built, at a length of 1,020 feet (311 meters) and a displacement of over 81,000 tons. In comparison, the RMS *Titanic* was 883 feet (270 meters) long and had a displacement of over 46,000 tons. The Queen Mary and the *Titanic* were both steamships (R.M.S. stands for Royal Mail Steamer).

..... Click the link for more information. sailed the <u>Atlantic</u> The **Atlantic Ocean** is Earth's second largest ocean, covering approximately one-fifth of its surface. The ocean's name, derived from Greek mythology, means the "Sea of Atlas."

This ocean occupies an elongated, S-shaped basin extending in a north-south direction and is divided into the North Atlantic and South Atlantic by equatorial counter currents at about 8° north latitude. Bounded by from <u>1936</u> Centuries: 19th century - **20th century** - 21st century

The ship prefix "RMS" is affixed to the *QM2*, which used to stand for "Royal Mail Steamer," but which now stands for "Royal Mail Ship." The *QM2* is not a <u>steamship</u>

A **steamship**, or less commonly **steam ship**, is a ship that is propelled by a steam engine driving through a propeller. It usually carries the ship prefix SS before its name. Although paddle steamers are generally driven by a steam engine, they are normally counted separately and carry the prefix PS.

The term is often used interchangeably with "steamboat", although vessels called "steamboats" tend to be smaller and travel on rivers, while "steamships" are larger and travel on the open sea. The distinction is not so definite as the distinction between "boat" and "ship".

.... Click the link for more information. like her predecessors, but is powered by <u>gas turbines</u> A **gas turbine** is a turbine that extracts energy from a flow of gas, typically air. Intake air is heated by burning after being mixed with some fuel source, then directed out an expanding nozzle, flowing past the turbine on the way.

The most familiar form of gas turbine is the jet engine. Jet engines typically use the power extracted from the turbine to drive the compressor and fuel systems. However another common use is not so obvious. Gas turbines running directly on compressed fuel are used throughout the power generation industry. This is particularly efficient because the heat from the gas turbine can be used to drive a conventional steam turbine in a process known as a combined cycle. This can give efficiencies of 60% of power (electricity) from primary energy and <u>diesel</u>

This article is about the fuel. For other uses see diesel (disambiguation).

--- Diesel is a product used as a fuel.

Petrodiesel

One can obtain diesel from petroleum, which is called **petrodiesel**. As a hydrocarbon mixture, it is obtained in the fractional distillation of crude oil between 250°C and 350°C at atmospheric pressure.

Biodiesel

One can obtain **Biodiesel** from vegetable oil and animal fats (bio-lipids, using transesterification. Biodiesel is a non-fossil fuel alternative to petrodiesel engines. In addition, her predecessors were all transatlantic <u>ocean liners</u> An **ocean liner** is a large passenger ship, most typically a motorized vessel that undertakes longer voyages on the open sea.

Ocean liners were the primary mode of intercontinental travel for over a century, from the mid-19th century to the 1960s, when they were finally supplanted by airliners.

In the "Golden Age" of ocean liners in the early part of the 20th century, many offered extremely luxurious travel for a wealthy few; although even the finest ships carried large numbers of poorer passengers in cramped quarters on the lower decks. Older ships were often given over to carrying immigrants at low prices but the *QM2* is considered a transatlantic <u>cruise liner</u>.

While the *QM2* is the largest passenger ship, there are larger ships. A 461 m <u>supertanker</u>, the <u>Jahre Viking</u>, built in <u>1979</u>, currently holds the record for sheer size.

Chronology of Construction

Cunard completed a design for a new class of 84,000-ton, 2000-passenger liners on <u>8</u> <u>June 1998</u>, but upon comparing those specifications with Carnival Cruise Line's 100,000-ton *Destiny*-class cruise ships and Royal Caribbean's 137,200-ton *Voyager of the Seas*, immediately enlarged them.

Six months later, on <u>10 December</u>, Cunard released details of "Project Queen Mary," the project to develop a liner that would complement <u>Queen Elizabeth 2</u>. Aker Kværner of <u>Norway</u>, Fincantieri of <u>Italy</u>, Meyer Werft of <u>Germany</u>, and Chantiers de l'Atlantique of <u>France</u> were invited to bid on the project. If construction began immediately, the liner could be in service by <u>2002</u>. However, it wasn't until <u>6 November 2000</u> that a contract was signed with Chantiers de l'Atlantique, a subsidiary of <u>Alstom</u>.

Her keel was laid down in July 2002 in <u>Saint-Nazaire</u>, <u>France</u>. The QM2 was launched on 21 <u>March 2003</u> and began her sea trials on 25 <u>September 2003</u>, sailing between <u>Saint-Nazaire</u> and the off-shore islands of Ile d'Yeu and Belle-Ile. The final stages of construction were marred by a fatal accident on <u>15 November 2003</u> when a gangway collapsed under a group of shipyard workers and their relatives who had been invited to visit the vessel. About 30 people on the gangway fell over 15 m (50 ft); 22 were injured and 16, including a child, were killed.

Construction was completed on schedule. Cunard took delivery in <u>Southampton,</u> <u>England</u> on <u>26 December 2003</u>, and on <u>January 8 2004</u>, the liner was christened *Queen Mary 2* by <u>her eponym's</u> granddaughter, Her Majesty, <u>Queen Elizabeth II of the United</u> <u>Kingdom</u>.

On 12 January 2004, the QM2 set sail on her maiden voyage from Southampton,

General Characteristics		
Tonnage:	150,000 gross tons	
Displacement:	76,000 tonnes (approx)	
Length:	345 m (1,132 ft)	
Beam:	41 m (135 ft) waterline, 45 m (147.5 ft) extreme (bridge wings)	
Draft:	10 m (32 ft 10 in)	
Height:	72 m (236.2 ft) keel to funnel (includes 17 passenger decks)	
Power:	157,000 horsepower (117 MW) gas turbine/diesel electric plant	
Propulsion:	Four 21.5 MW pods: 2 fixed and 2 azimuthing	
Speed:	approximately 30 knots (56 km/h)	
Complement:	2,620 passengers, 1,253 officers and crew	
Armament:	none currently fitted	
Cost:	UK£550 million (US\$800 million)	

England to Fort Lauderdale, Florida in the United States, carrying 2,620 passengers.