

Text

12.4.2010

Entrance examination for degree programme in maritime management, 2010

Text comprehension test

Instructions

The entrance examination has three parts:

1. Read the given text carefully. You are given 30 minutes to read the text. You can take notes on the article.
2. Before doing the given tasks the text will be handed back. The tasks related to the text will be given simultaneously with the problems of the mathematics, logical deduction and physics/chemistry part, B. The duration of the text comprehension test and the problems is 2 h 45 min.
3. The third part is an interview in written, where you are asked to answer 11 questions. The duration of this part is 1 hour.

Do not turn the page until you are given the permission to do so.

Per-Henrik Sjöström (Shipgaz 2009 No 7)

The modern cruise vessel was born in Finland

The history of *Royal Caribbean Cruises* is very much the same as the history of building cruise vessels in Finland.

Royal Caribbean Cruise's latest addition to the fleet, the enormous *Oasis of the Seas*, is the ultimate masterpiece for Finnish shipbuilding. However, the *Oasis* is by no means an isolated phenomenon, created here and now. She is the result of a long evolution and a unique co-operation between Finnish naval architects and shipbuilders and one of the leading cruise ship owners in the world.

The modern cruise vessel, designed and purpose-built for leisure cruises in warm waters, was born in the late 1960s as a result of a Norwegian project at a Finnish shipyard. In those days Finnish shipbuilding was rather unknown in most of the world, having only a handful of passenger vessels on the reference list. In the beginning of the 1960s *Wärtsilä's Hietalahti shipyard* in Helsinki built the ferries *Skandia* and *Nordia* for *Silja Line*. With these vessels the shipyard got important references and as a result of the fast growing ferry business the shipyard received several more ferry orders from shipping companies both in Finland and Sweden.

The completion of the ferries *Finnhansa* and *Finnpartner* for *Finnlines'* service between Helsinki and Travemünde resulted in two orders of similar vessels from the Swedish company *Lion Ferry AB*. Of these, the *Prins Hamlet* was delivered to the owner as planned, while the second ship was cancelled and the contract was transferred to *Wallenius Bremen GmbH*, a subsidiary of *Wallenius Lines*. The design was modified into a cruise vessel – cabins were built on the car deck – and she was delivered as the *Bohème* in 1968.

The breakthrough for *Wärtsilä* as a builder of cruise vessels came with an ambitious order for the rapidly expanding Caribbean cruise market. The order also materialized the dream of *Edwin W Stephan*, an American who first came up with the idea of a cruise line, operating a fleet of high class, purpose-built newbuildings instead of old ocean liners, which was the common case in those days. He already knew the business, as he in the 1960s had joined *Yarmouth Steamship Company*, which operated old liners in cruise traffic from Miami. In 1968 Stephan travelled to Oslo to meet with Norwegian owners. He presented his idea and finally he enlisted the support of *IM Skaugen* and *Anders Wilhelmsen*. Together with a third partner, *Gotaas-Larsen*, they established *Royal Caribbean Cruise Line A/S* in 1969. A total of three sister vessels were ordered from *Wärtsilä* by the new company. They were to be named *Song of Norway*, *Nordic Prince* and *Sun Viking*. Back then, the salaries in Finland were still rather low. The cost of the first ship *Song of Norway* was USD 14.3 million, which was considered quite a bargain by the owner.

Naval Architect *Kai Levander*, who has held different leading positions in the development of cruise vessels in Finnish shipbuilding since the early 1970s, came to Wärtsilä when the *Song of Norway* was under construction.

“Lucky for us there were two more vessels in the contract. It is always difficult to make profit with the first vessel”, he says.

The *Song of Norway* made her maiden voyage from Miami on November 7, 1970. Introducing many interesting features, she drew much attention around the world. The vessel had an expansive pool deck and was the first ship in the world designed specifically for warm-weather cruising. It is not an understatement that she revolutionized the cruise industry as previous ships usually were built with far less open space. Stephan’s vision also included what was to become a distinctive feature on all Royal Caribbean ships – the glass-walled cocktail lounge cantilevered from the funnel. Had he not been quite headstrong this might not have been the fact today. When he first told the naval architects he wanted something like the Space Needle in Seattle, they were skeptical. A rival cruise line even predicted such a construction would shake right off the funnel.

The designing of the *Song of Norway* started more or less from scratch. Before her, all passenger vessels employed in cruise traffic had originally been built at least partially for transport of passengers over the oceans. Kai Levander, recently retired from *STX Europe*, where he was responsible for R&D, concept development, feasibility studies and new building projects in the Cruise and Ferries Business Area, stresses that many of the basic cruise ship solutions, which are still valid today, were introduced already with the *Song of Norway*.

“For example the concept with two seatings in the dining room was introduced. When half of the guests were in the dining room the other half were entertained in the show lounge. In this way the most important and largest spaces onboard were used two times a day, doubling their capacity.”

A competing group of Norwegian owners – *Bergenske Dampskibsselskab*, *Nordenfjeldske Dampskibsselskab* and *A F Klaveness* – ordered one vessel each to be operated under their newly founded upscale *Royal Viking Line* brand. The man behind this company was another cruise industry legend, *Warren Titus*, who in the 1960s was president of *P&O North America*. When *P&O* joined *Princess Cruises* Warren Titus became the founding president of *Royal Viking Line*. The *Royal Viking Line* vessels *Royal Viking Star*, *Royal Viking Sky* and *Royal Viking Sea* were slightly larger than the *Royal Caribbean* sisters although their hull lines and machinery solutions were quite similar. However the *Royal Viking Line* ships were more luxurious. The dining rooms were for example dimensioned so that all passengers could eat during the same seating. But it was *Royal Caribbean*’s concept with two seatings that became extremely successful and efficient. Virtually all later generations of cruise vessels are based upon this – including the *Oasis of the Seas*.

“Royal Viking Lines concept is indeed still in use in the most luxurious market segments while two seatings became standard in the huge segment that today is referred to as the contemporary market”, Kai Levander points out.

The cruise market grew steadily in the 1970s and a new milestone as well in Finnish shipbuilding as for Royal Caribbean was the *Song of America*, delivered by *Wärtsilä Helsinki shipyard* in 1982. With a gross tonnage of 31,000 and a contract price of FIM 400 million the *Song of America* was the most expensive single order for a ship ever received by a Finnish shipyard.

“*Song of Norway* was still kind of a conventional vessel. She had for example a typical car ferry machinery with four main engines and two shaft lines. *Song of America* was a cruise vessel of the second generation and in this project a lot of evaluation was made about what was right and what was wrong in the previous generation.”

Many different machinery alternatives were studied, especially the benefit of a diesel-electric power plant. Wärtsilä had good experience from this type of machinery from many icebreakers built at the Helsinki shipyard. But it was still decided to equip the *Song of America* with a traditional, well proven diesel-mechanical machinery. The power station type machinery, where propulsion and all other electrical systems on board were fed with power from the same generators, became the standard solution in the cruise vessels to follow. There are indeed alternative solutions for electric propulsion, including azimuth pods and conventional shaftlines and rudders with electrical propeller motors inside the vessel.

According to Kai Levander, the seamless co-operation between Wärtsilä and Royal Caribbean proved to be successful for both parts. The unique thing was that it combined the market knowledge of the owner with the shipbuilding know how of the builder.

“Royal Caribbean has always carried through very well structured newbuilding projects. They have put a great effort in developing vessels that are suitable for both their operating philosophy and their market. A strength of STX Europe and all its predecessors in Finland is that they have participated in the projects from the very beginning. It is a very long process to develop a new generation of cruise vessels, spanning through several years.”

“We have learnt a lot during this voyage and I think the owner has learnt something from us too, because we have been able to show what is technically possible to do.”

Kai Levander says that as a matter of fact the number of vessels designed is many times larger than the number of vessels actually built. They include projects where the orders finally went to other shipyards, but also many new ideas and solutions never realized in that form. The design work often resulted in quite futuristic designs, presented to potential customers during exhibitions and conferences.

“We have shown the owners that it would be possible to build such ships. Usually owners say that the next ship should be like the previous one but just a little bit larger. Extreme ideas are usually adapted

by an entrepreneur entering a new niche market.”

As examples he mentions sailing cruise ships or catamaran-type *SWATH*-designs like *Radisson Diamond*.

“At Royal Caribbean they know that we are able to present new and also radical designs and ideas. It also shows what a competitor could get if they don’t order such a vessel themselves.”

Still most of the large cruise vessels in the world are of monohull design and they all tend to look the same.

“It has simply turned out by experience that this is the most profitable solution. The larger the vessel is, the less advantages are offered by for example a catamaran design.”

According to Kai Levander one of the most important things in a cruise vessels project is a well-functioning arrangement of all spaces on board.

“We talk about flow, and that means which routes the passengers use when they walk around in the vessel and how all service functions are arranged. In the beginning there were quite a lot of opinions about these matters. The arrangements of the first vessels were perhaps not as clear as in the newer ones. But there is no right or wrong, just different opinions.”

In the first cruise vessels there were also a lot of passenger cabins situated in the hull. When the vessels grew larger and wider the share of inside cabins increased, as most of the new space was won inside the hull. However the owners wanted as many outside cabins as possible, because they got a better price for these.

“We worked with this problem for quite a long time and finally solved it by moving most of the cabins up to the superstructure. To avoid stability problems with higher superstructures they were built narrower than the hull instead. We were able to get a row of outside cabins on each side and in the centre between them technical spaces such as air conditioning.”

This also enabled the construction of balconies in the outside cabins.

“In the hull we must use water-tight cabin windows but in superstructure the vessel did not have to be water-tight and balcony doors could be introduced.”

The first vessel in the world to include these new innovations was the *Royal Princess*, delivered by Wärtsilä Helsinki shipyard in 1984. After that virtually all cruise vessel newbuildings have featured cabins with balconies.

An important factor behind designing so many trendsetting inventions is knowledge about passenger preferences.

“We have been very active in this field since the 1980s and we have learned a lot during this period.”

Although a rapidly expanding business, there were still only a limited number of new and purpose-built cruise vessels on the market in the early 1980s. There were several new projects being developed and the operators carried through extensive surveys of the customers’ preferences and wishes to know what to go for. Kai Levander says that the very popular passenger reference groups sometimes turned

out to be unrealistic.

“The passengers asked could come up with almost any wishes. From this we learned a very important lesson. It was no idea to ask the passengers what they wanted from a cruise. A far more important question was how much they should be willing to pay for this.”

“Finally we realized that we should not ask the passengers at all. Instead we asked the travel agents, handling customer service. It turned out that they knew better what the customers wanted but also what they were willing to pay for this. Value for money was the key word, and still is in the cruise business.”

After the 1980s the cruise market simply exploded. The following ship development was to a great extent limited by the owners' demand that the vessels should be able to sail through the *Panama Canal*. Now an expansion of the Canal is due for completion in 2014, but until that the largest breadth is fixed to 32 meters. “The breadth is of course crucial for the ship stability and the next issue was to figure out how to include the largest possible number of cabins in the superstructure with this fixed hull breadth.” The result was the ultimate *Panamax* cruise vessel, with a gross tonnage close to 100,000. An example of such vessels is the *Costa Atlantica* class, built for *Carnival Corporation's* brands *Costa Crociere* and *Carnival Cruise Line*. The following step was the *Post-Panamax* vessel. The ship owner gave the naval architects free hands to present a solution, where the breadth of the hull no longer was the limiting factor. The first *Post-Panamax* cruise vessels were of the *Voyager*-class, built for Royal Caribbean by Wärtsilä's successor *Kvaerner Masa-Yards*, later *Aker Yards*, in *Turku*.

“We came up with a design with two parallel superstructures and an indoor promenade between them to obtain as many window cabins as possible despite the large breadth of the vessels. This concept was originally introduced in *Silja Serenade* and *Silja Symphony*.”

During the new millennium the trend towards a lower average age of the cruise passengers has accelerated. A new market is formed by families travelling with children. The newest generations of cruise vessels are designed to fit the expectations of a much more heterogeneous market than forty years ago when the *Song of Norway* was projected. Now there are cruise passengers of all ages and with many different social backgrounds.

“There are much more active people on board today and they want to decide themselves what to do during the cruise”, Kai Levander points out.

Instead of a standard programme the cruise passengers of today want multiple options.

“There must be different alternatives for dining and entertainment. In addition the passengers want a lot of other activities. A chapter of it own forms all the facilities for children of different ages. On a cruise with a vessel of the *Voyager*-class there may be 1,000 children on board. The cruise vessels are more and more becoming destinations themselves”, Kai Levander summarizes.