

News extra Cutty Sark rises from the ashes

£3.95

www.shipsmonthly.com

November 2012

Ships

MONTHLY

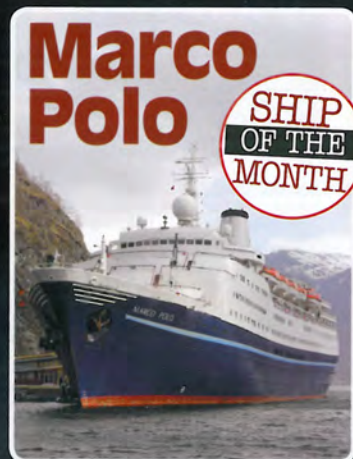
ROYALTY AT SEA

Famous ships
sponsored by
kings and queens

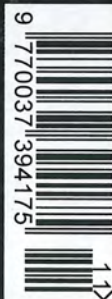
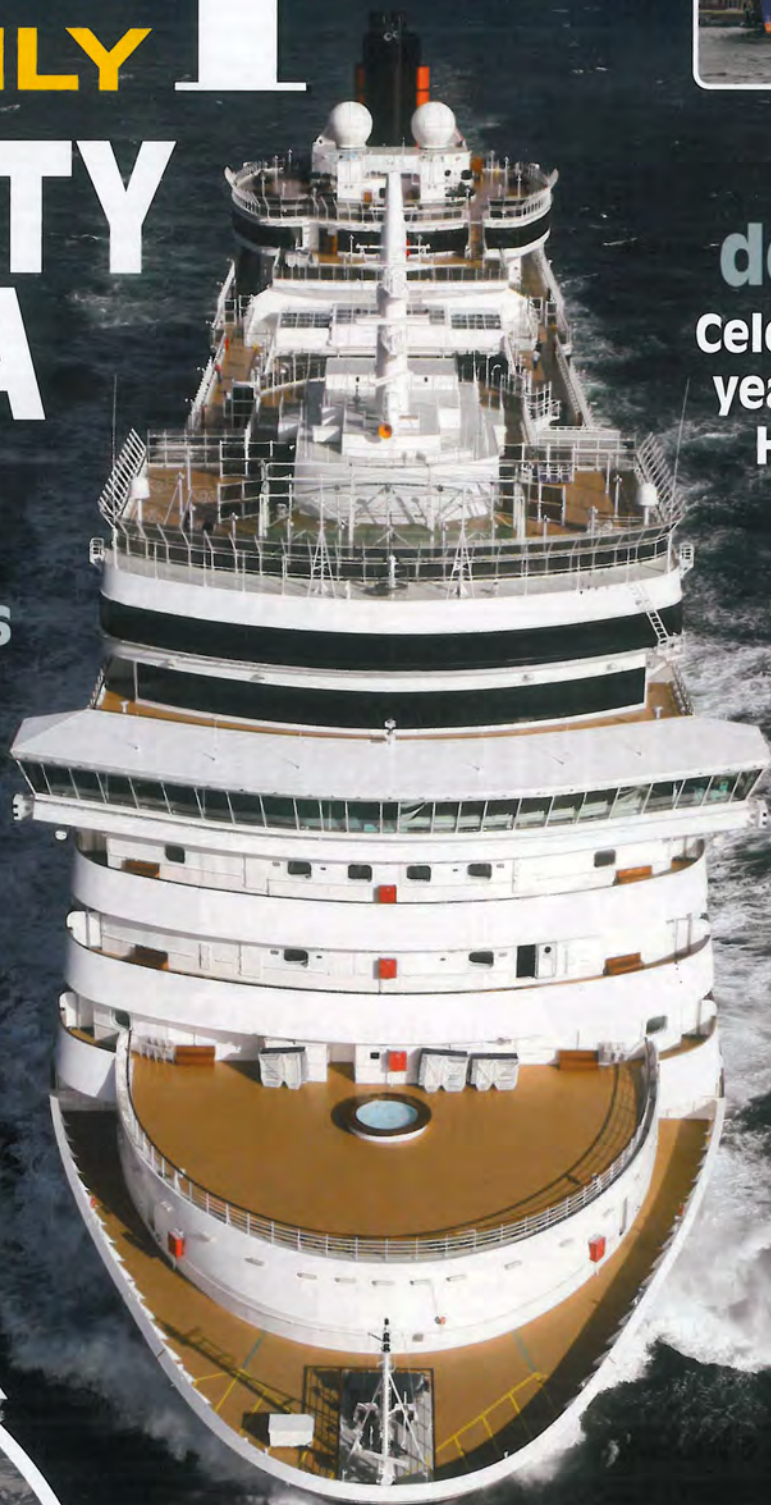


Port profile

Immingham
celebrates its
centenary



**Naval
designer**
Celebrating 75
years of Knud
Hansen ship
designs



November 2012

£3.95

Out of Africa Ferries across the Mediterranean



The three 'Royal Vikings' were among the most successful and highly-rated cruise ships of the 1970s. Their design resulted from a lucrative collaboration between Knud E. Hansen A/S and their builder, Wärtsilä in Helsinki.

75 YEARS of ship design

The famous Danish naval architecture consultancy Knud E. Hansen A/S has been in business for 75 years, and has produced many very well known ships, as Bruce Peter explains.

On 1 November the respected Danish naval architecture consultancy Knud E. Hansen A/S celebrate their 75th anniversary. In the decades since their establishment in 1937 they have designed over 650 large merchant ships, plus many that never progressed beyond the planning stage, produced over 400 hull lines for model testing, designed and supervised more than 225 conversions and undertaken well over 1,000 surveys. Their clients have included most of the world's best-known shipyards and shipping companies. Yet, for many ship enthusiasts, their name may be unfamiliar.

Born in Denmark in 1900, Knud Emil Thorvald Henning

LEFT: The Copenhagen-Oslo liner *Kronprins Olav*, delivered in 1937, was Knud E. Hansen's final project for Helsingør Jernskibs og Maskinbyggeri before he set up his own consultancy. The partly streamlined vessel pointed the way ahead for post-war design.

Hansen was an energetic and refined gentleman with an inquisitive mind. He was the son of a skipper of coastal sailing ships. Hansen studied naval architecture at the Polyteknisk Læreanstalt in Copenhagen. Upon graduation in 1925 he gained experience in shipbuilding by working in a number of yards in Denmark and abroad, initially at Københavns Flydedok & Skibsværft. Thereafter, he travelled to Britain and the Netherlands to find out about ship design practices in these countries. From 1927 to 1929 he worked in the drawing office of Burmeister & Wain in Copenhagen before he joined the staff of the Helsingør Jernskibs og Maskinbyggeri, where he remained until 1937.

Hansen was particularly interested in traditional Nordic craft, such as Baltic schooners, fishing cutters and Viking longships, and thought that their designs embodied lessons for latter-day naval architects. For Hansen, naval architecture was not simply an engineering discipline. Instead, he believed that to design a ship was to

take part in the furtherance of a Nordic cultural inheritance dating back many centuries. Indeed, the Knud E. Hansen A/S logo was (and remains) a Viking longship.

On his appointment to the Helsingør Jernskibs og Maskinbyggeri, the first significant passenger ship design in which Hansen was involved was the Det Bergenske Dampskibsselskab's *Venus*, a sturdy 6,269gt motor vessel for North Sea service between Bergen and Newcastle. Upon completion in 1931, she was the largest of her type trading on the North Sea and her two Burmeister & Wain diesels gave her a service speed of 19 knots. As competition from Swedish Lloyd's Gothenburg-Tilbury route was intense, speed was very important, and *Venus* was one of the fastest motor ships of her era. Her performance reduced the passage time from 27 hours to 21 hours.

Almost from the outset of his career, Knud E. Hansen was involved in short sea ferry design. Helsingør Jernskibs og Maskinbyggeri built most of the train ferries for the



ABOVE: The bulk carrier *Gerore*, completed in 1969 for Johan Gerrards Rederi, Kristiansand by Norwegian shipyards, was one of a large number built by Haugesunds Mekaniske Verksteder to Knud E. Hansen A/S designs.



ABOVE: The launching of the cruise and trailer ferry *Freeport* at the Orenstein & Koppel und Lübecker Maschinenbau of Lübeck on 20 April 1968. The vessel, designed by Hansen, had a lengthy and diverse career, before finally being scrapped in Bangladesh in 2011.



ABOVE: Larvik-Frederikshavnfergen's third *Peter Wessel* was a typical Knud E. Hansen A/S ferry design of the early 1970s. Today, she is Jadrolinija's *Marko Polo*, sailing in Adriatic waters.



ABOVE: The Thoresen 'Vikings' were part of an armada of Scandinavian ferries to appear in British waters during the mid-1960s. The three vessels were of radically different appearance from the typically drab railway-owned turbine packet ships found in UK ports at that time.





ABOVE: The 'Searunner' class freighter *Stena Freighter* was one of a large series built for Stena companies in South Korea. Many still remain operational today.

BELOW: Norwegian Caribbean Line's *Skyward* of 1969 was one of a series of stylish and popular 'white ships' designed by Knud E. Hansen A/S for Knut Kloster's burgeoning Caribbean cruise operation from Miami. Today, she is a casino ship called *Leisure World*, anchored off Singapore.

Danish State Railway (DSB) and, although much of their planning was carried out elsewhere, he was involved in their detailed design.

He was a prodigious worker who, outside office hours, began to take on private commissions to design vessels on a freelance basis. His first such project was in 1935, when he produced plans for a small excursion motor vessel, the 527gt *Sankt Ibb*, which was built at Frederikshavn Værft og Flydedok A/S for the Dampskibsselskabet Øresund's passenger-only service across the Øresund between Copenhagen and Helsingborg and Mölle in Sweden.

When DSB realised that car ferries was the growth area, and despite their loyalty to rail-connected shipping services, they decided to order a new

multi-purpose ferry to carry cars across the Great Belt, but with one track for trains (which was rarely used). Hansen designed this innovative new vessel, named *Freia*. Aalborg Værft built her hull, and she was outfitted in Helsingør. She served in the DSB fleet until 1975, and was then operated across the Bay of Naples as *Ischia Express*, being withdrawn in 2007, by which time her hull was over 70 years old.

Hansen's next major project was for DFDS, who wanted a new overnight passenger liner for their Copenhagen-Oslo service. The result, *Kronprins Olav*, was a highly advanced

motor ship with a modern streamlined silhouette and progressive interiors, designed by the architect Kay Fisker.

While she was under construction, Hansen decided to establish his own naval architecture consultancy. His first client was the newly-established ferry operator Larvik-Frederikshavn Fergen, who planned to open a route across the Kattegat from Norway to Denmark. They wanted a drive-through ferry with enough free height for commercial vehicles, like DSB's *Freia*. Hansen's design for *Peter Wessel*, which was built by Aalborg Værft and also completed in 1937, was revolutionary. She was the first major drive-through vessel for road vehicles in international service and set the pattern for nearly all North European ferries built since.

As well as ferries, Hansen designed several outstanding motor cargo vessels, initially for J. Lauritzen. He planned *American Reefer* and *Australian Reefer*, delivered from Nakskov Skibsværft in 1937, based on a hull form similar to *Kronprins Olav*. They were followed by the Helsingør-built *Indian Reefer* in 1939 and *Argentinean Reefer* from Aalborg Værft in 1941. Hansen also drew up plans for the broadly similar *Nora*, a 2,937gt general cargo liner, completed in Aalborg for

J. Lauritzen's West Coast Line service, linking ports on the Pacific Seaboard of North and South America.

During the war years, when Denmark was under German occupation, work was scarce. By the late 1940s, however, shipbuilding had picked up, and during the following decades Hansen's practice expanded considerably. To cope, Hansen moved his business to a large five-storey building in Copenhagen's Bredegade and employed several assistants, including Svend A. Bertelsen, Gerhard Erichs, Dag Rogne, Poul Erik Rasmussen and Tage Wandborg. Bertelsen and Erichs were experts at calculations, while Erichs oversaw most of the cargo liner projects. Rogne worked on steel construction drawings. Rasmussen's expertise was in hydrodynamic design, and he devised and tested hull lines.

Hansen's most talented and high-profile employee was Tage Wandborg, who not only coordinated the vast majority of passenger ship design work, but also styled vessel exteriors and gave the company's ship designs their recognisable and highly attractive appearance. Indeed, thanks to Wandborg's unique eye for detail, there was a saying in the shipping world that 'a Hansen ship is a handsome ship'.

From the late 1950s, Knud E. Hansen A/S began to



ABOVE: A fascinating Southampton scene, during the 1966 seamen's strike, featuring many famous though shortly to be withdrawn British liners from the fleets of Cunard, Union-Castle, Safmarine and Shaw Savill. Contrasting with the stately *Reina Del Mar* and *Queen Mary*, Sunward Car ferries' new *Sunward*, designed by Hansen, lies at her berth, immediately after delivery from her builder.

receive orders to design ferries. Car ownership was growing and, for entrepreneurs such as Sten A. Olsson, founder of Stena Line, and Otto Thoresen of Thoresen Car Ferries, there was money to be made. Wandborg devised a standard ferry design, which was built with numerous variations for a wide variety of operators during the 1960s. Sadly, Hansen did

not live to enjoy the fruits of these efforts because, in July 1960, he drowned in the Kattegat while on his yacht *Sollys*, after falling overboard. In his will, he left Knud E. Hansen A/S to his ten longest-serving employees, and Svend A. Bertelsen became the new managing director.

Shortly before his death, Hansen had visited Iraq, where, following the Revolution, the new Ba'ath Party government was keen to transform the nation's infrastructure. For the next 20 years Knud E. Hansen A/S worked there to design harbour facilities and dozens of ships, from tankers and cargo liners to pilot boats, harbour service vessels and pusher-tugs

and barges for the Tigris and Euphrates rivers.

Another important 1960s client was the Haugesund Mekaniske Verksteder in Norway, a shipyard specialising in tankers and bulk carriers. They decided that it would save money to close down their own drawing office and employ Knud E. Hansen A/S as a designer, so every ship built there from 1960 to the late 1970s was KEH designed.

In the mid-1960s, Tage Wandborg designed a large ferry for Norwegian shipowner Knut Kloster, who wanted to establish a route from Southampton to Gibraltar and Lisbon to take British holidaymakers to Spain's Costa



The recent Chinese-built ro-pax ferries *Visby* (pictured) and *Gotland*, owned by Rederi AB Gotland, operate between the island of Gotland and mainland Sweden. The two vessels have a high capacity for passengers and freight, yet are distinguished by their striking and clean-lined appearance – modern ship design at its best.



Del Sol and to the Algarve in Portugal. The ship, *Sunward*, entered service shortly after General Franco closed the border with Gibraltar and so she was quickly laid up and offered for sale or charter.

In Miami, meanwhile, entrepreneur Ted Arison, who successfully ran short cruises to the Bahamas and Jamaica, had his chartered vessel arrested when her owner went bankrupt. Kloster and Arison then struck a deal, and *Sunward* was sent to Miami, launching the Norwegian Caribbean Line. Her success kick-started the Caribbean cruise revolution, and soon Kloster asked Wandborg to design further, bigger vessels – *Starward*, *Skyward*, *Southward* and *Seaward* (which was sold to P&O while under construction and became *Spirit of London*).

Shortly after *Starward* was completed, Wandborg began to collaborate with the Wärtsilä shipyard in Helsinki in the design and construction of the first cruise ships for Royal Caribbean and for Royal Viking Line. He was also involved in planning vessels for Overseas National Airways (delivered to Cunard as *Cunard Ambassador* and *Cunard Adventurer*) and for Øivind Lorentzen and Fearnley & Eger (*Sea Venture* and *Island Venture*).

The 1973 Oil Crisis created difficulties for the entire shipping industry as fuel costs quadrupled. The ensuing recession caused a lull in orders for most vessel types, but soon a new generation of bigger and more efficient ferries was needed. Knud E. Hansen A/S pioneered the 'jumbo ferry' type, and Bertelsen and

Rasmussen devised a new kind of stern configuration called a 'twin skeg' in which the propeller shafts were enclosed in air-filled steel volumes protruding from the hull's underside to create extra internal volume and, thus, a bigger deadweight capacity.

A carefully designed twin-skeg arrangement could also lessen the transfer of vibration caused by the propellers to a vessel's aft superstructure and so it was possible to extend the passenger accommodation all the way aft. Four Knud E. Hansen A/S-designed ferries for Stena Line and built by Rickmers Werft in the mid-1970s employed this concept.

The 1980s brought renewed growth and fresh cruise ship orders. Tage Wandborg planned and oversaw a radical conversion, transforming the mothballed transatlantic liner *France* into *Norway*, at the time the world's biggest and most glamorous cruise ship. He then proposed a new vessel that would be even bigger, *Phoenix World City*, with four apartment blocks, rather than a conventional superstructure.

Meanwhile, his colleagues collaborated with shipyards building *Tropicale*, *Holiday*, *Royal Princess* and *Homeric*, all of which benefited from Knud E. Hansen A/S's input. Significant ferries were also designed for Stena Line, Rederi AB Gotland, North Sea Ferries, Marine Atlantic, BC Ferries and other operators. Others were radically rebuilt, including a succession of secondhand

purchases from Japan for ANEK Lines, beginning with *Lissos* in 1987 and ending recently with *Elyros*.

In the 1990s Knud E. Hansen A/S was involved in designing many of the large Mediterranean ro-pax ferries ordered by ANEK, Minoan Lines, Superfast and Moby Lines, as well as Smyril Line's unique *Norröna*. More recently they have tackled a range of complex and diverse projects to design specialised ship types for the offshore wind energy and oil extraction industries. Currently they are refining a design for a new generation of ro-ro container ships for Atlantic Container Line to replace the G3 class vessels.

Today, Knud E. Hansen A/S's headquarters are in Helsingør, where the current managing director, Finn Wollesen, oversees a company with around 60 employees of all ages and nationalities. Knud E. Hansen A/S also have offices in London, Piraeus, Perth, Fort Lauderdale and Torshavn in the Faroe Islands. During the past 75 years their achievements have been remarkable and their influence on ship design considerable. **SM**



ABOVE: The smart adventure cruise ship *World Discoverer*, completed in 1975, was designed for a Danish owner to visit some of the world's less touristic areas. Her end came when she grounded in 2000 in the Solomon Islands.

New book

In this article it has only been possible to mention briefly a small fraction of the ships designed by Knud E. Hansen A/S, but a new book 'Knud E. Hansen A/S: 75 Years of Ship Design' will be available in November.