German Maritime Museum

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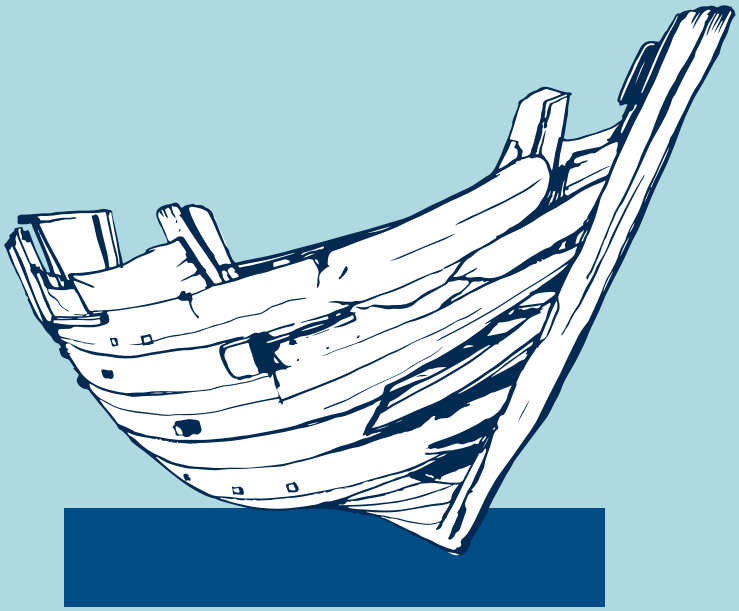

THE COG OF BREMEN

1962 – 2017

Found & Reconstructed

A Leibniz research museum

Leibniz Association

THE COG OF BREMEN

1962 – 2017

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A Voyage in a Time Machine

The Cog of Bremen works like a time machine. Its sheer size, its well-preserved wood, and its authenticity make it easy for us to imagine ourselves back in the fourteenth century. Back in the deep Middle Ages, when men put out to sea in vessels such as this one to engage in trade all over Northern Europe: in red wine from France, beer from Bremen, wool from England and pottery from the Rhineland. The big container ships are to the present – the age of globalization – what cogs were to the age of the Hansa. In its hold: room for 80 tons of goods. On deck: space for a crew of ten, plus merchants, craftsmen and/or pilgrims.

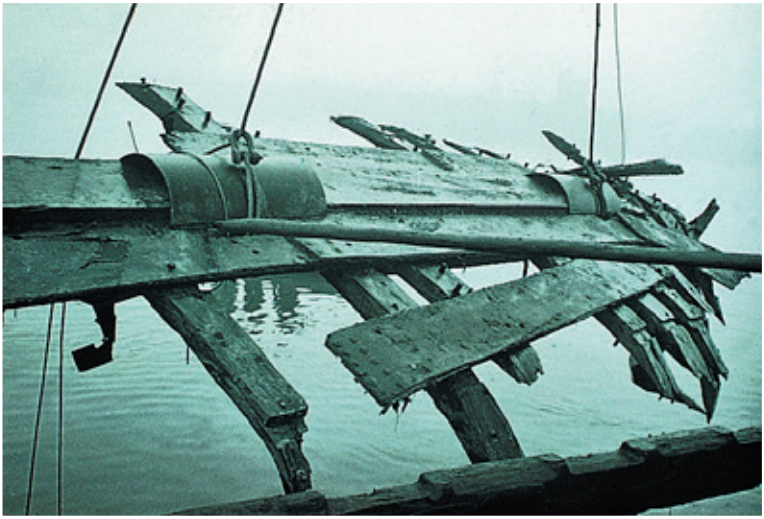
The Cog of Bremen works like a catalyst for the imagination. It gets visitors dreaming and gives scientists food for thought: How was the ship built? Who travelled on it? Did the crew venture out into the rough waters of the North Sea or did they hug the coast?

To this day, the Cog of Bremen is a sensation. Great scientific feats were required at every step of its preservation. It was discovered by chance in 1962 and was already putting experts to the test from the very start: all that was holding the ship together was the sand of the Weser. The consequence: each individual part had to be recovered separately. The undertaking required a special suction dredge, two emergency operations, and several years of painstaking work. Forty-five tons of wood, brackets, eyes, a dagger, a barrel of tar and a leather shoe were recovered from the silt and sludge at the bottom of the river.

The next challenge: how do you preserve a merchant vessel that's been under water for six hundred years? There was no empirical data on how to deal with wood that had become fragile and threatened to shrink. The experts at the German Maritime Museum (DSM) had an idea: they put the cog in a huge steel vat filled with PEG, a synthetic wax. It was a conservation process of eighteen years before, in the year 2000, the museum could present the Cog of Bremen to the public.

Now the reconstructed "cog hall" is opening – and to this day, the cog is the heart of the museum built for it. There's no end in sight for the research work, and our visitors' curiosi-

ty likewise knows no limit. The Cog of Bremen is as much a world sensation as ever. We are delighted to be able to offer it a dignified, modern setting.



above: The salvage work in the harbour of Bremen was complex and painstaking. It was carried out with the aid of a suction dredge and a diving bell vessel.

“We can’t afford to make a mistake.”

Amandine Colson

Research for the Coming Generations

Amandine Colson

Since its discovery in 1962, the Cog of Bremen has presented challenges to research. A lot of what scientists do is spadework. That's also true of Amandine Colson. But she says that's exactly what makes it all so interesting.

My favourite place to live was Timbuktu, in the north of Mali. I was a member of a Yale University team carrying out excavations there. I liked life in Africa; I liked how friendly and open the people are. Thanks to my profession, I really got around: Turkey, Holland, Northern France. In Denmark, before construction on the Fehmarn Belt tunnel began, we found the wreck of the *Lindormen,* the onetime flagship of the Danish king. A sensation.

I applied to the German Maritime Museum (DSM) in Bremerhaven to do research on the cog, a vessel that enjoys a virtually magical reputation in scientific circles. Its significance is easy to describe: it's entirely unique. One of my responsibilities is to contribute to preserving the ship. How does the wreck "behave"? What can we do – on the one hand to support it, and on the other hand to present it to our visitors in the best possible way?

The wreck weighs almost 45 tons. In a number of places, there's a lot of pressure on the wood, which is, of course, hundreds of years old. Since 2016, part of my project as a doctoral candidate has been to develop a monitoring system. With the aid of 3D technology, this system will help us keep an eye on whether the material is changing, and how things are looking with the statics. In 2003, measurements were taken and compared with data dating back to 1980. The outcome? Several planks had shifted by as much as 20 centimetres. For us, that was an important indication of how we have to go about preserving the cog. In the museum, we use the latest technical methods, and monitoring plays a key role. With the help of a computer-aided air-conditioning system, we also keep the vessel's surroundings under tight control. The temperature and humidity in the cog hall are of decisive importance.

“The ship find that changed everything”, says the first information panel on the ground floor of the exhibition, and that’s no exaggeration. Construction workers discovered the cog in the Weser river during dredging work for the Europahafen. The port engineering authority was brought in; experts were summoned. Siegfried Fliedner, the head of the maritime department at the Focke-Museum and a PhD in art history, identified the wreck and recommended it should be lifted without delay. The event made the headlines worldwide. Thirty-eight years and eight months would pass before the find at the bottom of the Weser became an exhibition object in the German Maritime Museum.

What do we know about the construction of the Cog of Bremen? We assume that it was built on the southern bank of the “Grosse Balge”. Even today, shipbuilding is a sophisticated trade. Back then, there was no such thing as plans to work from. Technical knowhow was passed on by word of mouth.

A typical feature of late medieval cargo vessels is the plump form of the hull that made them excellently suited to transport large quantities of goods. The Cog of Bremen was built purely to serve that function. It had a holding capacity of 80 to 84 metric tons, or 80,000 to 84,000 kilograms. After the cog’s recovery, it was long thought that it had not yet been built to completion when it sank either in the harbour or during its maiden voyage. By way of evidence, scientists pointed to the missing coat of tar on the ship’s exterior, and missing ballast within. However, these factors may have something to do with the fact that it was under water for so long. Nothing is known for sure.

The wood from which the Cog of Bremen was built presumably came from the Weserbergland. The trunks would have been floated down the Weser from there and received in Bremen by ship’s carpenters. The chief material was oak. A plank on view in our exhibition shows that the wood used to build the cog was of inferior quality. Already during the construction, cracks in the hull were treated with a caulking compound. Thousands of wrought iron nails, wooden nails and bolts held the ship together, and moss was hammered into the seams to seal them.

In many respects, dealing with the Cog of Bremen has been spadework. That was already true of the ship’s salvage, which proved to be a logistical feat. It soon became clear that only sand was keeping it in one piece. It had to be lifted piece by piece – a complicated process that took several years. A suction dredge and a diving bell vessel provided the necessary technology for lifting the wood as well as the metal brackets, eyes, tool tips, an iron dagger – and a single leather shoe.

No sooner than the cog was on land than the next problem presented itself. The wood had become fragile over the years and threatened to shrink if it dried. The experts at the DSM adopted an idea that had been invented by the University of Hamburg and further developed by Dr Per Hoffmann. The *Vasa* in Stockholm and the Roskilde Ships in Denmark had already been preserved by very similar means. The cog was submerged in a huge tub filled with a synthetic wax called PEG, whose concentration was gradually increased to 70 per cent. The method was complex, but ultimately successful. However, it took its time – eighteen years, from 1981 to 1999.

In the field of wet-wood conservation, the DSM set international standards. It presented the ship to the public in 2000. At the time, there was no supporting frame, and it soon became clear that this was not a good solution for the wreck's long-term preservation: S-shaped protrusions began to form.

Our job is to ensure that the Cog of Bremen will also put the coming generations of museum visitors under its spell.

In the process, we have to consider each step carefully. We can't afford to make a mistake, because in our field

mistakes are rarely reversible. For many of the issues we face, there are no standards we can look to for orientation. We bear a great responsibility – we're aware of it.

But that's also something that appeals to me about this work.

Amandine Colson (b. 1982) grew up in Paris, where she initially studied archaeology and art history at the École du Louvre, and then earned a master's degree in the conservation and restoration of cultural heritage at the École de Condé. Her research focus is the conservation and restoration of archaeological objects. Ms Colson lives in Bremerhaven.

“When I stand in front of the cog, I can well imagine life on board.”

Dr Natascha Mehler

The Cog as a "Falcon Express"

Dr Natascha Mehler

Who used cogs – and how did they use them? And what was the nature of everyday life on board? Those are some of the questions the scientist Natascha Mehler is exploring. Her favourite objects in the exhibition: a precious bird and a place everyone is familiar with.

I'm often on the islands of the North Atlantic to take part in excavations and research projects – on Iceland, where I lived for a time, on Shetland, on the Faroe Islands. Once some fishermen on Shetland took me out to sea with them. I got seasick as soon as we left the harbour. The sensation of being on a relatively small vessel tossing among the great waves stayed with me for a long time afterwards. How was it back then, for the crew of a ship like our Cog of Bremen?

My research field seeks answers to questions such as how the Cog of Bremen was used, why it was needed, and what everyday life on it was like at the time. These are the matters I find so fascinating in my work; they're what make the cog approachable. Whenever I go into the hall, I'm pleasantly struck by how alive the cog seems.

Among the wealth of objects that make up our exhibition, I have two favourites. One is an Iceland gerfalcon. In medieval times, merchants from Hansa cities such as Bremen, Hamburg or Lübeck sailed to Norway, and later also to Iceland, to trade beer, tools and grain for fish and sulphur. Sometimes there were also falcons among the wares. Kept by the mighty and powerful as status symbols, falcons were one of the most precious commodities of the Middle Ages. The whiter their plumage, the higher the rank of their owner. White falcons were reserved for emperors and kings; greys like the example on view in our exhibition were for noblemen, princes and dukes.

In those days, gerfalcons were caught in Norway and Iceland and shipped to Northern Germany. The sources provide evidence of direct falcon transport between Iceland and Hamburg from the sixteenth century onward. At that time, however, cogs no longer existed. Could vessels like the Cog of Bremen also have sailed to Iceland?

That's something we're trying to find out in a research project. It's quite possible that cogs also sometimes took falcons on board, for example on their way from Bergen to Lübeck.

We know of a sixteenth-century journey by ship with forty-nine falcons. This ship, possibly a caravel, came to serve as a kind of "falcon express". The birds travelled below deck. The sight of the sky would have made them too nervous and stimulated their urge to fly. It must have been very confined under the hatches, and it certainly won't have been easy to get the valuable animals across the Atlantic in good health. It's difficult to estimate how many falcons set out on the involuntary voyage. The merchant Matthias Hoep of Hamburg, however, is known to have sold altogether 182 birds of prey in the year 1584 alone. And he carried out this trade all over Europe.

It's not entirely clear whether Norwegians and Icelanders themselves caught the falcons, or primarily fowlers from abroad. Probably it was a bit of both. Frederik II – the king of Denmark from 1559 to 1588, who also ruled over Iceland – introduced a license. From now on, foreigners who caught falcons had to pay a fee. Nevertheless, we can assume that the majority of the birds were caught by locals, because they had their habitats in out-of-the-way regions. Along with

patience and courage, you needed to know your way around to catch them.

In Hamburg, Lübeck and London, the falcons passed through the hands of middlemen before finally reaching the royal courts of Europe and even the Near East. The falcon business of those days was basically a preliminary form of globalization, and a lucrative one at that. The fowler got 20 thalers for his efforts, but it was the merchants who made the real profit, by selling the falcons to the end customers for significantly greater sums.

But to return to the cog. What was life on board a cog like? As is still very much the case on ships today, the most important person was the shipmaster. He needed well-developed nautical knowhow to get the ship safely to the port of arrival. No two cogs were alike: in the Middle Ages, they didn't build ships on the drafting table yet, but individually. Certain construction traditions played a role, as did the experience of the shipbuilder. A shipmaster had to know how his vessel behaved in the water, exactly how great was its draught, and how it coped with changing winds. He sailed close to the coast, taking orientation from hills, conspicuous buildings or the like. Seamarks had already been erected at danger spots as far back as the thirteenth century. The master followed the detailed sailing instructions set forth in his so-called rutter (a marine guide to sea routes, tides, etc.). Distances were given in units of time (hours, days). He used hand leads to determine the depth of the water.

From sixteenth-century sources we know that a clearly regulated hierarchy prevailed on board. Presumably that was also the case in the days of the Cog of Bremen: the highest in rank was the commander – a shipmaster, helmsman or boatswain –; then came the crew of about ten sailors, including a cook and sometimes a cleric. There were also merchants. The crew were divided into two watches and worked around the clock. They were signed on for one voyage. Their work was hard: setting the sails, heaving up the anchor and bailing out sea water were par for the course. At the port of arrival, the crew often had to help make repairs. Other tasks included observing the sea from the mast and moving and airing perishable goods.

There was no room for comfort on a medieval cog. As soon as the ship was out at sea, monotony set in, and the people on board had virtually no privacy. The food lacked variety – partly to save costs, and partly because there was no way of preserving it en route. Not only storms and heavy seas but also vermin made life hard. Rats got into the provisions and transmitted diseases; corn weevils made grain, lentils, peas and the like inedible. Mussels on the hull made the cog sluggish and reduced its speed.

ie viele Koggen hat es insgesamt im Mittelalter gegeben?
Wie kann man die Kogge sehen?

From laboratory experiments and sailing trips on replicas of the Cog of Bremen, we know that, with its rectangular sail, the ship performed the best when the wind came diagonally from the aft (the back). The fastest it could travel was 6 knots (equivalent to 10.8 kilometres per hour). The cog could also use wind from the side, but that caused it to drift leeward – that is, away from the wind. When fully loaded, the Cog of Bremen reacted very slowly to movements of the rudder.

My second favourite object in the exhibition is one that, at first sight (and also on closer inspection) looks quite unspectacular. It is the world's oldest surviving ship's toilet. It was mounted under the deck of the after-castle. The excretions fell directly into the water. This guaranteed a certain standard in terms of hygiene – at least for the shipmaster and the merchants on board. The toilet was reserved for their use, as were the cabins at the stern. For the sailors, there were no such "luxuries": the men slept in amongst the barrels – the containers of yore – in the hold.

When I stand in front of the cog, I can well imagine life on board. I hope the exhibition visitors can too.

Dr Natascha Mehler (b. 1970) is not a northerner, but comes from the Chiemsee, a lake at the southernmost edge of Germany. She studied in Vienna and has been working on aspects of the Hanseatic League since as far back as 1997. Her main research fields encompass the material culture of the Middle Ages and the modern period, the methodology, theory and research history of historical archaeology, and the archaeology of the North Atlantic islands. Her two children are also big cog fans and love the German Maritime Museum's "Miniport".

“The cog became a symbol of the North.”

Dr Marleen von Bargen

From Symbol to Brand
Dr Marleen von Bargen

Whether as an oil painting for the emperor's politics, a motif on a tobacco tin, or the logo of a football club: the cog has sailed for many causes. Marleen von Bargen takes a look at how the vessel has been politicized, romanticized and exploited as a symbol.

I've been familiar with the museum and the Cog of Bremen since I was a kid. I already have a special relationship to seafaring simply from growing up in Hamburg, but also because of my family. My father is a licensed captain for oceangoing vessels, and we've always travelled a lot by water.

One focus of my research has been to examine how cogs have been perceived over the centuries. The image of a cog sail has long fuelled people's imaginations – and still does today. The cog became a symbol of the North, and in that function has been both politicized and romanticized.

It was in the German Empire that interest in the cog first spread. Historians of the time saw the empire in the tradition of the Hansa, an expansive maritime and economic power. They looked for parallels – the Hansa League was to serve as an example for maritime and foreign policy. The ships of the Hanseatic merchants accordingly took on a special role as a symbol of political and economic influence.

The problem was, there was no evidence of what a cog actually looked like. That's one of the reasons the Cog of Bremen is such a sensation for research. Until its find, there was nothing that could be identified as a cog. Previously, ships whose form resembled the Bremen vessel had been known only from medieval seals. Historians sifted through medieval texts and pictorial depictions, for example drawings in books. Building on research by other historians, Paul Heinsius defined the cog as a vessel type with specific characteristics. His deliberations of the year 1956 served as the basis for identifying the ship found at the bottom of the Weser six years later.

Our exhibition begins with medieval seals. In north-western Europe, depictions of ships began to appear on town seals around the year 1200. Scholars used to think the seals of Lübeck displayed an early form of the

cog. This conception has meanwhile changed: researchers now believe that the depiction can't be associated with any specific shipbuilding tradition. Ships like the Cog of Bremen weren't found exclusively in the Hansa cities. Similar-looking vessels were widespread in the Middle Ages.

One of the objects on view shows a wall painting dating back to the beginning of the fifteenth century. It depicts the legend of King Olaf II, who competed for the Norwegian throne in a sailing contest with his brother Harald. The ship had a form similar to the Cog of Bremen. Next to this exhibit is a mid-fifteenth-century altarpiece from the Church of St John in Rostock. It shows the Magi returning home: having left Bethlehem, they sail towards Rostock. An interesting geographical localization.

An oil painting in the show holds special significance: *Die Bunte Kuh* of 1901 by Hans Bohrdt. The title is the name of a Hamburg ship that, as legend has it, sailed under the command of Simon von Utrecht, who is famous for having defeating the notorious pirate Klaus Störtebeker. Bohrdt exploited the popularity of the Störtebeker saga and painted the cog as a massive, warlike vehicle with two projecting castles, three masts and the emblem of Hamburg on its square sail. He staged the *Bunte Kuh* as a symbol of the expansive, bellicose Hansa. By this logic – if it can be called that – the emperor's expansive fleet policy was interpreted as a continuation of the Hanseatic tradition.

Our exhibition also features objects that show an idealized, romanticized image of the cog, for instance a porce-

lain medallion from the Meissen manufactory or a silver brooch studded with quartz stones. Obviously, the ships of the Hansa held great symbolic value.

The cog was also considered suitable as a symbol of the North, and in that capacity found use in advertising. Appearing on beer mugs, in the logo of a well-known beer brand, on a tobacco tin of the “Welt-Kogge” (“World Cog”) tobacco company, etc., the cog gradually made its way into everyday life. As a name for pubs or the emblem of a Rostock football club, it sails for the self-image of the region or for the Hanseatic tradition. Either way, the “original” is on view at the German Maritime Museum (DSM).

After **Dr Marleen von Bargen** finished high school, she trained as a bookseller, and then went on to study history in Hamburg. She earned her doctorate in 2015. From 2015 to 2016 she was a research assistant at the DSM, and since 2017 she has served the museum as a curator. Marleen von Bargen lives in Bremerhaven.

The Cog of Bremen

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Editing: Erik Hoops, Deutsches Schifffahrtsmuseum

Concept and idea: Ankerherz Verlag GmbH

Texts: Stefan Kruecken

Title illustration: Hans Baltzer

German-English translations: Judith Rosenthal, Frankfurt a.M.

Photos: Axel Martens, Hamburg, except p. 6/7: DSM Archives

Design: Daniela Greven, Berlin

Corporate Design: GfG / Gruppe für Gestaltung

ISBN 978-3-947235-01-8

VOLUME 01 /
THE COG OF BREMEN
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In a state of change: the German Maritime Museum – Leibniz Institute for Maritime History – is presently redesigning its exhibition in close correspondence with the research and exhibition programme “Man & The Sea”. A number of important objects play a key role here and are also featured in a series of booklets.

In each booklet, experts take a look at the respective object from three research perspectives – “Interests – Materiality – Perception” –, ask it questions and shed light on its fascination.

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Supported by
Förderverein Deutsches
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