

Medieval Watercraft:

a Dargon Summit Whitepaper

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As is the case with every technology developed by humans, form follows function. Such is the case with medieval watercraft. This whitepaper will explore such topics as uses of watercraft, life onboard a medieval watercraft, methods of propulsion, and types of watercraft.

Uses of watercraft

Transportation

The most common forms of transports were either cargo ships or ferries. Because transporting large quantities of goods is more efficient than smaller quantities, you want your ships to be as big as possible. On the other hand, it doesn't make sense to sail a big ship with just a tiny cargo. Therefore the size of the cargo ships depended on the traffic in the area. A large port will have large ships coming in – a smaller port will have smaller ships coming in. Ocean-going ships have a minimum safe size, also, so ports that can only be reached by ocean will see ships start at a certain size. Ferries would equally be bound both by economies of scale and the local economy. A lightly used crossing will have a smaller ferry than a heavily used one.

Fishing

Much fishing was done with nets. Fish would have been caught and brought to shore quickly, to be sold or salted. There would not have been the huge refrigerated freezer ships of today. Fishing would have been done mostly on smaller ships by families. Coracles were often used for river fishing – the technique was to have two boats and string the net between the two boats. Ocean-going fishing boats would have ranged from longboats to two or three-masted ships. Ocean-going ships would have been lost on a very regular basis.

Warfare

The point of water-based warfare was to either transport troops, prevent the shipping of goods to aid the enemy, and very rarely as an attack in and of themselves. Most ship-based combat was based on the idea of boarding an enemy vessel. A few larger ships would have had catapults, and Greek Fire may have been available. Ramming was an option only if your ship was designed specifically to do that, as most ships were a bit too fragile to survive such an impact. If you were shooting at another ship you were likely trying to kill the crew rather than destroy the ship, unless you had Greek Fire (or maybe some exotic chain-linked projectile), in which case you would try to disrupt the rigging and slow or stop the enemy ship – but even then you probably would then board and kill the crew. Greek Fire was an oil-based liquid that would be pumped through hoses or poured into pots and thrown. It would burn even when wet, and was rumored to burn even under water.

Life onboard a medieval watercraft

Many people did not live on their ships. They sailed until they got where they were going and stopped (ie. fishing boats, ferries, etc.) If you did live on the boat it was pretty miserable, unless you were real rich, in which case it was just uncomfortable.

Food

Food was seldom cooked – typically it was hardtack, dried veggies (and salted meat, if you brought your own). Larger ships on longer voyages might have animals to slaughter. Drinking water was hard to come by, was stored in barrels, and often went bad fast. That’s why you drank beer or wine. Not every body knew what foods would prevent scurvy or beriberi. If you did cook food, it was typically over an open stove on deck.

Sleep

Sleep, if it happened, would happen in shifts because someone always had to be running the ship. Hammocks allowed you to sleep even when the ship was swaying.

Hygiene

No one washed anyway, and there would have been fleas and rats. The head was usually the nearest gunwale, or if you were lucky some open thing nailed to the bow. The ballast was often just harbor sand, and you KNOW what that was laced with. Imagine that festering on a hot day.

Discipline

Discipline could occasionally be very harsh, just like everywhere else. For example, a pilot could be beheaded for getting the ship lost in the harbor. Caning or lashing was a popular punishment. Usually, though, discipline was actually looser and more informal than ships today. The Code of Oleron was often followed, which protected the captains from lawsuit if the cargo or ships were lost, and which provided for a rude form of democracy among the crew. Most folks were there to get the job done, just like at work.

Navigation

Most ships would never leave sight of land. Therefore you had a simple map of the land (a ‘rutter’) with bearings, soundings (and bottom type) and landmarks (‘kenning’) and you would just sail until you got there. If you did leave sight of land you would use dead reckoning – ie. you knew how far you had to go, you knew how fast you were traveling, and you did the math. Some folks could figure out longitude by celestial navigation (based on the angle of stars off the horizon), but that required being able to see the stars and measure their angles accurately.

Methods of propulsion

Rowing

Medieval water travel involved a LOT of rowing. The galley (a ship with one or more banks of rowers) was used until the 1800’s. Galleys were often rowed by convicts or slaves, but since prisoners in regular prisons were not always fed, being a convict on a galley was often better than regular prison because you DID get fed. Further, the convicts often stayed on the ship over the winter (when there was no travel), and even

when you were traveling the rowing was not often frenzied, but was almost leisurely. In Roman times galleys were crewed by freemen, as they were more loyal and more motivated.

Drifting

Barges and rafts were often just floated down a river. Lumber could be transported by just tossing it in the water and collecting it downstream, or could be lashed into rafts.

Poling / cables

Ferries at fixed crossings sometimes had ropes or cables strung across the river, and the crew would pull the ship from one side to the other. Punts and other small boats could be poled if the water was shallow enough.

Animals

Canals would sometimes have animal paths running beside them so that mules or oxen could pull the boats along.

Sail

Sailing was the main method for long-distance travel. Different locales used different sorts of sails. Sails were made of canvas, flax, cotton, or even leather. Like anything made of fabric and exposed to the sea air for a long time, sails had problems with rotting.

The earliest and simplest sails allowed the wind to drive a ship before it. A spinnaker sail is an example of a sail used for sailing downwind. Fairly early on sailors realized that if the wind blew across the face of a sail it would pull the boat perpendicular to the wind as well as drive it before the wind. This allowed a ship to sail across the wind. If a keel were added to the ship (a fin, often weighted, that projected down from the bottom of the ship) it would not only prevent the ship from slipping sideways when the wind blew, but could also be shaped to generate a sideways force that would allow a ship greater freedom when sailing across the wind (this could also be done by adding a leeboard, a fin mounted on the side of the ship). By sailing across the wind, first to one side and then to the other, a ship could actually move in an average direction into the wind. This is called tacking into the wind.

Types of watercraft

Ships had two basic forms of construction – clinker and carvel. Clinker construction is sometimes called lapstrake and is often associated with Viking ships. Planks are overlapped and bear the majority of the load on the hull. Clinker construction hangs planks on a frame. Carvel construction looks smoother, but a clinker boat is stronger per unit weight and could carry more cargo. The problem with clinker construction is that as the boat gets bigger it risks having the planks split along the nail holes.

Coracle

These were tiny boats, one or two man, made of sewn leather or pitched fabric over a wooden frame. They were often paddled with one hand, while a second hand would work a net in partner with another person in another coracle. They were usually light enough that a man could carry them.

Longboat

These were basically a big rowboat, used either for fishing close to shore or for transport between ships. These often had removable sails.

Coble

A coble was a flat-bottomed, open-decked, high-bowed, clinker-built fishing boat. Locally built without plans, they were difficult for a novice but fast and safe for an expert. The high bow was necessary for sailing in the rough waters of the North Sea.

Sailing Barges

Up to 80 feet long and 20 wide, a sailing barge was a flat-bottomed ship with two masts (typically). The hull was mostly one big hold, with small living quarters on either end.

Punt

A punt is a flat bottomed boat with square bow, for shallow waters. These small fishing boats were often poled and had a ladder-style frame. Long planks would be fastened to this frame from bow to stern. Gaps would be left between the planks to allow them to swell, and the gaps would be filled with caulking,

Carrack

This was a three- or four-masted ship with a high, rounded aftcastle and a forecastle. Square-rigged, they were ocean-going vessels – roomy and stable.

Cog

These ships were the workhorse cargo ship of the middle ages. They were usually clinker-built with one sail and a steering oar instead of a rudder. They had open hulls at first, then later decks were added with platforms at bow and stern. An interesting feature was cross-beams that protruded through the ship's sides. These ships could be anywhere from 10 tons to 120 tons.

Galley

These were long, slender craft with banks of oars. They were very quick and maneuverable, with one mast and a lanteen sail (a sail hung from an asymmetrical spar). In a short distance they were faster than a sailing ship, and even for longer journeys they could sometimes be faster than a sailing ship.

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