

0:00 – 0:39

## OPENING CREDITS

Narrator:

A small settlement in the middle of a swamp became the largest and most impressive city of the ancient world: Rome. 2,000 years ago the people, who named themselves after this city, set out to conquer the world – including large parts of Germany, which they called Germania. They got as far as the Rhineland to the west and up to the Danube in the south. And they left their mark. Many clues have already been deciphered, but others still remain a mystery.

0:41

Narrator:

Treasure sinks to the bottom of the Rhine River. Precious vases, plates and silverware. Today, 1,700 years later, they bear witness to a dramatic event in the north of the Roman Empire.

1:00

Narrator:

Roman soldiers patrolling the Rhine River – on the border of free Germania. Every now and then the Germanic people would cross over into the area occupied by the Romans. The Romans always had to be on the lookout.

1:16

Narrator:

The Rhine and Danube rivers formed a natural border. Additionally, a 550 kilometre fortification line, the limes, was built right through the middle of present-day Germany: Stone walls and warships to protect the border of one of the largest empires in the history of the world.

1:42

Narrator:

Could the Romans really defend their “wet borders” with ships? An extensive shipbuilding experiment took place in the (Palatine) town of Germersheim.

1:55

Narrator:

For an entire year, there was hammering and drilling as shavings fell and boards were aligned. They wanted to build their ships like the Romans built them, using old techniques and based on historic models. It was a massive challenge since the antique shipbuilders didn't leave behind any plans.

2:19

Narrator:

A sense of proportion and intuition are needed if the ship is to stay afloat. But the objectives were even higher:

2:28

Gerrit Wagner:

*The goal of the experiment will be to determine the efficiency of the "navis lusoria" type of ship, but also to determine the general efficiency of the border defense system on the Rhine and Danube rivers.*

2:43

Narrator:

Thousands of pitch-coated nails, all forged by hand, held the "navis lusoria" together.

2:58

Narrator:

The oak planks were placed next to each other without overlapping. The highest level of precision was required to ensure that the hull was watertight.

3:10

Narrator:

The 18-meter-long and 2.7-meter-wide Roman ship is an exact scientific reconstruction of the "navis lusoria," based on the shape and measurements of sunken Roman shipwrecks.

3:34

Narrator:

A group of experts created a construction plan from the recovered pieces of the shipwreck. Together archaeologists, historians and shipbuilders deciphered the secrets of the Roman navy on the Rhine and Danube rivers. It's like a puzzle, a great challenge and a journey back in time....

3:58

Narrator:

This is approximately what Roman shipping looked like in Germania. Warships and barges cruised down the untamed rivers of a predominantly wild landscape.

4:17

Narrator:

Back to the experiment. The tree trunk for the 9 meter mast was delivered and cut on location.

4:30

Narrator:

The Romans needed a lot of muscle and a good eye. Ultimately they produced precisely aligned masts. Every day in Germersheim, the respect grew for the antique shipbuilders. The Romans mass-produced a great number of narrow flat boats in their shipyards. After all, there was a long border to defend.

5:00

Narrator:

With the right wind, a square sail could be used to relieve the oarsmen or to increase speed. Speed was a decisive factor for defending the border.

5:15

Narrator:

The rivers of Germania were difficult waters, not like the developed and regulated waterways of today. Gerrit Wagner, the team leader of the experiment, sails down the Rhine, searching for the former landing-places of the Romans. Their ships were vulnerable when took to the shore and

could easily be attacked and destroyed, so that's why they built fortified harbors.

5:43

Narrator:

Foundation walls only a few hundred meters away from present day's course of the river.

5:53

Narrator:

You can clearly see where the corner towers once stood. They protected the expensive military equipment of the Roman fleet. The legionnaires would leave the ships behind the thick walls. And this is what the docking area looked like.

6:09

Narrator:

Walls and watchtowers defended the large building where troops and materials were protected against surprise enemy attacks.

6:23

Narrator:

The large legionary camps Strasbourg, Mainz or Cologne were also located along the wide river - for one important reason: the ships provided constant supplies to the outposts of the empire.

6:42

Narrator:

The Roman army was a perfectly organized fighting machine. Its superiority ensured long stretches of peace. "Pax Romana" meant secure borders and inner peace, built with the shields and swords of soldiers. "If you want peace, prepare for war" was a Roman maxim.

7:10

Narrator:

Legionary camps were built identically everywhere in the empire. Up to 6,000 men lived here - and they had to be taken care of. Transporting

large supplies quickly was best done on the rivers. And the transport ships were well protected by the fast patrol boats.

7:39

Narrator:

Coins were placed under the foot of the mast to bring good fortune to the ship and its crew. It was a common Roman tradition that the shipbuilders in Germersheim also gladly adopted. Then the crucial day came for the experiment: attaching the final board.

8:10

Narrator:

Perfect. The shipbuilders really did a great job. The last nails, wrapped with woollen threads, were hammered and sealed into the oak boards. Just like the Romans did it.

8:27

Gerrit Wagner and his men discover something new every day about how well their predecessors knew their trade (over 1,700 years ago).

8:37

Gerrit Wagner:

*You get a good idea, and above all great respect, for the skills. We're working with precision tools here, but the Romans worked with crude tools. So we definitely have great respect for how they did it with basic resources in comparison to what we use today.*

8:58

Narrator:

Not only did the Rhine and Danube rivers function as borders, but they were also important transportation and trading routes. Supplemented by an excellent road network in the back country of the limes, these lifelines of the empire connected every province to Rome.

9:17

Narrator:

People, goods and news could be delivered on the roads faster than ever before.

9:28

Narrator:

Milestones were posted at regular intervals to help with the orientation on the complex network. The roads made the Roman world accessible, even in Germania.

9:40

Narrator:

High officials arrived in comfortable wagons in the provinces north of the Alps. They brought Roman administration and what is these days called "bureaucracy" to Germania.

9:54

Narrator:

This is a copy from the Middle Ages of a Roman street atlas. It compasses all the roads and important cities of the Roman Empire.

10:05

Narrator:

To prevent their coaches from running into potholes, the Romans built their roads using a multi-layered construction technique - still the ideal model today.

10:15

Narrator:

Over an anti-freeze layer of large stones, finer and finer layers of filling were poured and then finally covered by flat stone slabs. In some places these roads have survived hundreds and thousands of years.

10:33

Narrator:

After over a year of construction work, the big day draws closer....

10:41

Gerrit Wagner

*Of course the most exciting moment is putting the ship in water. How well was the ship built? Will water leak in?*

10:54

Narrator:

The “most exciting moment” has arrived at the harbor in Würth. This is what the launch of a Roman ship looks like in the 21<sup>st</sup> century: A gantry crane carefully lifts the 5-ton, 18-meter ship into the water of the harbour.

11:15

Narrator:

The tension is palpable. Will the ship with a ram’s head on its bow actually float?

11:20

Gerrit Wagner

*Okay, gentlemen, the ship’s in the water!*

11:24

Narrator:

But it’s not completely watertight. Still the bravest of the men embark on what is the maiden voyage to the pier on the other side. Hopefully they’ll make it after all that work....

11:37

Narrator:

And more water has leaked into the ship. But the project leaders Schäfer and Wagner are not troubled.

11:44

Gerrit Wagner

*The ship needs to sit in the water for a couple of days so the wood can expand and it becomes completely watertight. And then we’ll prepare it for the trial run.*

11:56

Narrator:

After only a few days the ship's ready for action. 12 pairs of oarsmen and a helmsman will test how well this "experimental Roman ship" really sails. Modern instruments will measure speed, wind and current conditions, the number of strokes and much more.

12:18

Narrator:

Will the "navis lusoria" really be able to manoeuvre as "playfully" on water as its Latin name suggests?

12:26

Christoph Schäfer

*The ship's more flexible than we previously thought. After a day you can already work well with it. After two or three days, things really get good if the crew trains regularly several hours a day. Above all, the sail really works incredibly well and you might even call it a second engine.*

12:53

Narrator:

Unfortunately the wind's not blowing much, so the "first engine", the oarsmen, suffers a few calluses on the hands. But the Romans most certainly struggled with that as well....

13:07

Narrator:

Many craftsmen and merchants came along the rivers and were protected by the large Roman military camps. These tradesmen also gave rise to many new German cities. Shipping companies were organized to carry out commercial transport on the water. The military also made a lot of money off this booming trade, since escorting the ships wasn't free.

13:31

Prof. Christoph Schäfer

*Rivers were the highways of the ancient world, at least for the transportation of heavy loads such as large amounts of grain, wine, oil*



*and building materials. Of course there were also dangers involved because wherever you have a large exchange of merchandise there's also the possibility of conflict.*

13:54

Narrator:

The Romans kept constant and careful watch along the border of the rivers, also called the "wet limes". In addition to the threat of attacks on transport ships, raids were also carried out by Germanic people inside the Roman Empire. After a successful raid, the stolen items were taken back to the homeland on the other side of the Rhine River. But the primitive Germanic rafts had no chance against the speedy Roman ships.

14:20

Narrator:

Panicked escapes resulted in some treasures sinking to the bottom of the Rhine River where they lay for hundreds of years - a fortunate occurrence for today's archaeologists who attempt to reconstruct the lives of the Romans in Germania piece by piece.

14:39

CLOSING CREDITS