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“CAPTAIN, THAR BE WHALES HERE”

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Slide 1

Five hundred years ago, Europeans were getting their first glimpse of the New World through the eyes of explorers and entrepreneurs and starting to feel a pinch.

Slide 2

Their readily available primary source of oil was showing signs of drying up. Before the discovery of petroleum in the mid 19th century, Europeans used the triglycerides or oils of whales for a variety of purposes including, lamp fuel, lubrication, paints, varnishes, soap, and in rope making. The sea mammal's baleen was used to stiffen corsets.

Slide 3

From the 11th century, the Basques, who inhabited the north coast of Spain and southwestern coast of France, had hunted right and bowhead whales in the Bay of Biscay, providing European markets with the much-needed whale by-products.

Slide 4

Both right and bowhead whales floated when killed; hence they were the “right” whale to hunt. However, by the late 15th century, their efficiency at whaling and an ever increasing demand for oil caused the whale population to dwindle.

Slide 5

The Basques enjoyed a good reputation for building fast and seaworthy ships and produced galleons for many other European nations. These entrepreneurs took note of the tales that explorers like John Cabot (Giovanni Caboto-1497) and Portuguese explorer Gaspar Cortez-Real (1501) brought back with them of western waters teeming with fish and whales. In the early 16th century, Basque whaling ships began making their way across the Atlantic to exploit the, as yet, untapped resource.

Slide 6

They came to the Strait of Belle Isle (Belle Isle shown here) a narrow passage between, what is now known as Newfoundland and Labrador on the mainland and through which humpback whale still migrate.

Slide 7

There they set up whaling stations in coves along the coast to process and render the blubber to oil for shipment to Europe. Butus, or Red Bay, was the largest of these stations.

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At its height of operation, the Basques had over a dozen shore rendering stations at Red Bay, supplying barrels of whale oil to perhaps twice that many ships.

Slide 9

The stakes were high. One whale could produce 50 barrels (barricas) of oil, each barrel being worth \$50,000 by today's standards. So profitable was the venture that in one voyage a ship's owner could pay off the vessel and crew and realize a sizable profit. Many of the ships, after a single whaling voyage, were sold to the Spanish Crown for the Carreras de las Indias.

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The enterprise was profitable for many, not so for some who did not survive. Last Will and Testaments and a Christian cemetery on Saddle Island attest to those unfortunate souls who did not realize their dreams.

Slide 11

The Basque whalers relied on arriving shortly after the ice pack had moved out of the harbour and departing before the pack ice moved back in, a window of perhaps late May to early November. One disastrous fall in 1575, the ice moved in early trapping the ships and crews in Red Bay until spring, which no doubt added to the population of the Saddle Island cemetery.

Slide 12

The fate that befell the whaling galleon *San Juan* was of a different nature. While the galleon, fully laden with close to 1000 barricas of whale oil, worth five million dollars) lay at anchor in the harbour, Captain Ramos de Arieta was no doubt planning what to do on his return to the homeland he had not seen for several months. During the night, a fierce wind developed coming from the only unprotected reach of the bay. The anchor cable parted, the ship was driven onto the rocks of Saddle Island, near the remains of this cargo ship that met a similar fate exactly 400 years later, in 1965. The *San Juan* sank, its hull resting on the three small boats it had taken down with it and its bow resting in 40 feet of water.

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In the 1970s, researcher Selma Barkam, wife of the late Aldous Huxley, identified the resting place of *San Juan* through insurance claims against the ship and cargo. The Basques were consummate bureaucrats and maintained scrupulous records. Records remained in Basque archives that attested not only to the 1565 insurance claim for total loss of ship and its contents, but Ms Barkam also found records that the captain returned to Red Bay the following year and salvaged some half of the cargo of barricas.

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From 1978 to 1985, the Canadian federal agency, Parks Canada, partnered with the Newfoundland government to conduct a joint archaeological project in Red Bay. Using the same criteria as the Basque whalers some 400 years earlier, the archaeological field season was dictated by when the ice came and went.

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Diving operation usually commenced in May (sometimes April) using dry suits in the 28 degree water. (Much of the actual excavation on the galleon was done using hot-water suits). After the obligatory checkout dive (describe), the first task was to assess the site for any damage caused by the moving ice.

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While we attended to submerged matters, archaeologists from Memorial University of Newfoundland began work on the numerous sites on the shore, including tryworks with their ovens for rendering the whale blubber, cooperage for re-assembling the barricas, pipas, and tubs that had been constructed in Basques cooperages and broken down for transport to Red Bay, wooden slipways the bring the dead whales ashore for butchering, and houses. Most of the sites were easy to locate owing to the prolific scatter of red roofing tiles. The Basques brought most of what they needed with them, notably the characteristic curved roofing tiles). Notwithstanding, several structures were roofed with baleen, a local resource.

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Dr. James Tuck making a model of a reconstructed tryworks.

Slide 18

While the land archaeologist (mostly university students) worked on shore and sacrificed their precious blood to the swarms of black flies that proliferated during the “warm season,” we underwater archaeologists worked and dived from a research barge anchored over the shipwreck some 200 feet offshore and out of the range of the swarms of flies. This fact alone contributed to a yearly influx of Memorial University students, applying to Parks Canada with newly acquired diving certificates in hand, to work on the underwater sites.

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Despite the frigid water, the visibility on the site was usually good, sometimes the entire 70-foot by 30-foot (23-meter X 10-meter) site being clearly visible from the barge some 30 to 40 feet above the site.

Slide 20

Early in the gestation of this million dollar project it was decided that, unlike other shipwrecks like Henry VII flagship, *Mary Rose*, and the Swedish, *Wasa*, which were raised intact and at tremendous cost, the hull of *San Juan* would be dismantled, each timber recorded and modeled to scale on the surface and then reburied. This was a unique concept at the time and was based on the premise that to understand how a ship is constructed one needs to take it apart. And so, over six field seasons, the approximately 3,000 timbers comprising what was left of the galleon, *San Juan*, along with the timbers of the three small craft pinned beneath the hull of the larger ship, and a pinaza found elsewhere in the harbour, were recorded in situ, recorded on the surface, and placed back in the excavation pit left by the galleon's hull.

Slide 21

In the 1980s archaeologists knew more about the construction of 15th and 17th century sailing vessels, not to mention ancient Mediterranean craft, than 16th century ships that were constructed during a period of radical transition in ship design laying the groundwork for true naval architecture a century later.

Slide 22

One way to understand how a ship is constructed, and why, is to look at the components in the order in which the shipwright assembled them. The lowest part of a ship is the keel. It is the backbone of the hull. The beech keel of *San Juan* is 48 feet long, T-shaped in cross section having carved garboards rising towards the ends to give it a canoe-like appearance. It was 2/3 of the overall length of the vessel which is considerably longer than the keels of later ships. Unlike the other two galleons examined in the harbour, which had square keels.

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Scarphed to the forward end of the keel at such an extreme rake that it actually extends the length of the keel.

Slide 24

Accepts the beveled hood ends of the hull planks.

Slide 25

Stern-Constructed like the Bremen Cog of A.D. 1380, other 16th century ships, and Portuguese sailing vessels of this century. Heavy stern knee holds the structure together spanning both scarphs between keel and zapata, and zapata and post. Note skeg on zapata to protect the rudder. Rising floor timbers notched into the knee. Very heavy and strong structure.

Slide 26

Transom-Heavily constructed with framing timbers notched over post and fastened to transom planks. Note single gun or loading port.

Slide 27

Transom 1:10 scale reconstruction. Heavy, but inefficient rudder hung on the post. Crew would have maneuvered the galleon with the sails.

Slide 28

Frames-“Floating” in three rows attached only to the hull planking with floor timbers fastened to the keel and 1st futtocks. However, a feature shared by all three galleons was that the 14 central frames were complete with floor timbers and all futtocks fastened together form each complete frame. Between the 13th and 16th centuries there was a transitional stage in shipbuilding from a hull-first construction, where frames were inserted only after the hull had been planked up and the hull shape determined, to frame-first, where the frames determined the shape of the hull. Note the watercourses to channel bilgewater from the ship’s extremities to the bilge pump.

Slide 29

San Juan and the other galleons in Red Bay were near the end of this transition whereby the shipwright constructed the 14 central frames which then determined the vessel’s hull shape. The components of these complete frames were fastened to each other using dovetails

Slide 30

The rising floor timbers in the stern with central watercourses.

Slide 31

Keelson-A single piece of oak, which ran from the stern knee to the stem. Lower surface notched to fit over each floor timber, individually marked for each floor location. The keelson was laid slightly on the diagonal, rather than straight down the centerline, possibly to compensate for a hull irregularity from one side to the other. The main mast step was part of the keel and located approximately midway along its length. Strengthened with eight timbers buttressed against thick stuff (ceiling).

Slide 32

Mast.

Slide 33

All ships leak. The sump for the single pump tube was carved out of the port side of the mast step at its aft end. A foot valve with leather flapper valve fed water into the base of the pump tube...

Slide 34

...which was just a hollowed out tree sharpened like a pencil at its lower end. The assembly was encased in a box (pump well) to prevent ballast, cargo, etc. from entering the foot valve and blocking the pump.

Slide 35

While *San Juan* had a single pump, the other two galleons each had a pair of pumps. (Perhaps Captain Juan had faith in the watertightness of his vessel). Not pump well on one of the other galleons.

Slide 36

Strakes made up of one-inch oak planks, fastened with some 6,000 to 7,500 pounds of nails and trenails (wooden dowels) with the heads countersunk in triangular and square recesses cut into the wood in a most economical manner. Note adze marks reminding us that humans fashioned these timbers and the ship of which they were a part.

Slide 37

Beams-Tied the hull together rather like the World Trade Center towers and supported the three decks of the galleon. They were spaced 5-feet, six inches high to provide for three rows of barricades, and spaced horizontally for the same purpose.

Slide 38

A short beam in the bow provided a step for the foremast, and one in the stern supported the mizzen.

Slide 39

Capstan-After raising, model location, and illustration of usage to haul anchor, raise and lower yards, bring cargo onboard, etc..

Slide 40

Hawse piece and hawse hole at bow for anchor.

Slide 41

Drawing of anchor, raised in 1979 (first sign of the wreck); Contemporary anchor from Molasses Reef Wreck in the Turks and Caicos Islands. One of four onboard, each of eight quintals or 1200 pounds.

Slide 42

We thought all the upper works and rigging had long since disappeared, carried off by the ice-Wrong. Upper works, rigging, and most incredible array of artifacts preserved beneath the hull, which had folded open like an orange peel after everything above the upper deck had collapsed to the harbor floor. Pictured here are two fiddle blocks, part of the running rigging, with rope attached.

Slide 43

More rope and heart blocks, part of the standing rigging that attaches the shrouds to the hull to hold up the masts.

Slide 44

Ballast stones-limestone from Ireland and France, many of them in wedge shapes to also be used as tonnage between the barricas to prevent movement of the precious cargo.

Slide 45

The cargo. Barricas-47 gallon (225 liters) staved containers. Approximately 500 found, confirming that Captain Juan (or someone) did return after the 1000 barrica insurance claim and recover some of the cargo. Many still had white greasy residue of the whale oil.

Slide 46

Many of the staves retained the re-assembly marks inscribed by the cooper in the Basques Country to guide the re-assembly of the barricas at the whaling station.

Slide 47

Navigation-Binnacle and sandglass.

Slide 48

Compass in situ, after excavation, and graphic reconstruction.

Slide 49

Originally thought to be a game board. Part of top for binnacle and probably a means of recording courses and course changes.

Slide 50

Astrolabe found on one of the other galleons, with contemporary working astrolabe. Used for celestial navigation to derive latitude, as well as other uses (or as touchstone while praying where one is) like determining the bottom of a cistern without climbing into it.

Slide 51

Variety of items attesting to shipboard life and reminding us once again that archaeology is more than recording artifacts. Containers and pots.

Slide 52

Wooden utensils and remains of a stowaway.

Slide 53

Shoes.

Slide 54

One of the crew carved a likeness of his ship...

Slide 55

which we now know was a heavily and well-built vessel with sharp lines, yet able to carry a large cargo.

Slide 56

The reason for them being in Red Bay-the whales. Several thousand whale bones recorded representing hundreds of individuals. Many flipper elements as these were discarded by the whalers.

Slide 57

The Boats-Batel. One of the boats crushed beneath *San Juan* when it sank. Basically a lighter, for servicing moored ships and for transporting cargo such as bundled barrica staves and roofing tiles to the shore stations, and carrying the full barricas back to the ship.

Slide 58

Pinaza. The remains of this 36-foot-long, two masted sailing vessel was found, upside down near one of the tryworks in the inner harbour. This craft, probably not unlike the 19th-century Lancha Calera, which was used in Spain as a coasting and fishing vessel.

Slide 59

Last, but not least, the business part and pride of the whaling fleet, the Chalupas or whaling boats. Shown here riding astern of *San Juan* and location of the two chalupas beneath the shipwreck.

Slide 60

Chalupas were central to the whaling operation and were worth one to two barricas of oil apiece (\$50,000 to 100,000). They were lightly-framed boats and pre-fabricated, shipped to Labrador aboard the galleons, and re-assembled on site.

Slide 61

Recovered virtually all the components of one Chalupa and built several scale models from scaled timbers in cardboard and wood to understand the construction of the boat before attempting to attempt a full reconstruction of the actual boat.

Slide 62

Full reconstruction-26 feet by 6 feet by 4 feet gunwale to keel. Timbers of hardwoods, mainly of oak and iron nails.

Slide 63

Names of the parts. Had six thwarts and a single mast for sailing out to the whales.

Slide 64

Likely carried seven whalers, including a steersman, rowers, and a harpooner. To give you some idea of the relative worth of the men on the operation, a harpooner was the highest paid, receiving 15 times the pay of a sailor. The cooper was the next highest paid individual.

Slide 65

Significance. Locally, the project certainly benefited the town of Red Bay-raised their awareness of their early history and importance of Red Bay during the 16th century; revenue with the building of an interpretation center and paved road to the town and visitation by cruise ships. Water safety with the use of pfd's after seeing us use them. It was also the first joint underwater/land archaeological project of this magnitude in Canada that partnered the Federal and provincial governments and teamed so many specialists from a diverse range of countries, including France, England, the United States, and the Basque Country.

Slide 66

Research. By dismantling the remains of *San Juan* we gained a more complete understanding of 16th century ship construction and evolution during a transitional period in shipbuilding and design than known before. Also, the project added to our knowledge of cooperage practices, ship rigging, navigation instruments and capabilities, and shipboard life...

Slide 67

... and, along with the data gathered from the terrestrial excavations, analysis of the bones of whales, cod, and humans and with the profusion of historical documents available, it has allowed us to get a fairly comprehensive glimpse of the whaling practices of the Basques during the 16th century. But perhaps more importantly we can look into the lives and connect with the men who sailed the ships and hunted the whales...the harpooners who recited this prayer at the moment of harpooning:

... Allow us, Mighty Lord, to quickly kill the great fish of sea; without injuring any one of us when he is bound by the line in his tail or his breast; without tossing the boat's keel skyward, or pulling us with him to the depths of the sea... The profit is great, the peril is also great; guard above all our lives.

Slide 68

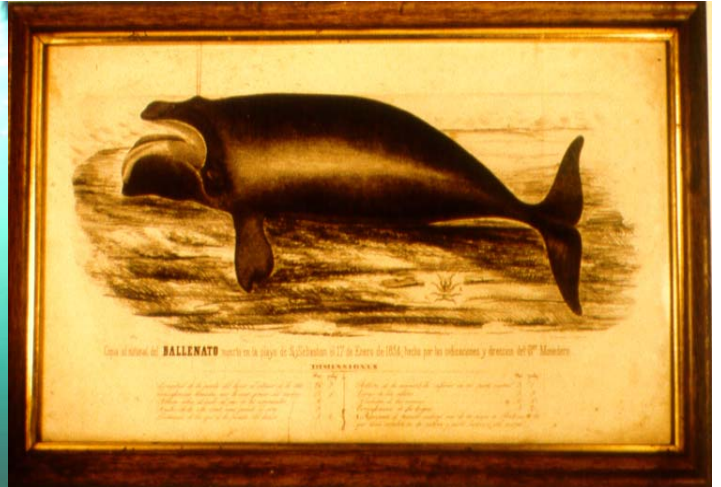
...the coopers who packaged the precious whale oil that would light the lamps of Europe...

Slide 69

...and the men who gave up so many months (some forever) away from their loved ones in the name of profit and adventure.

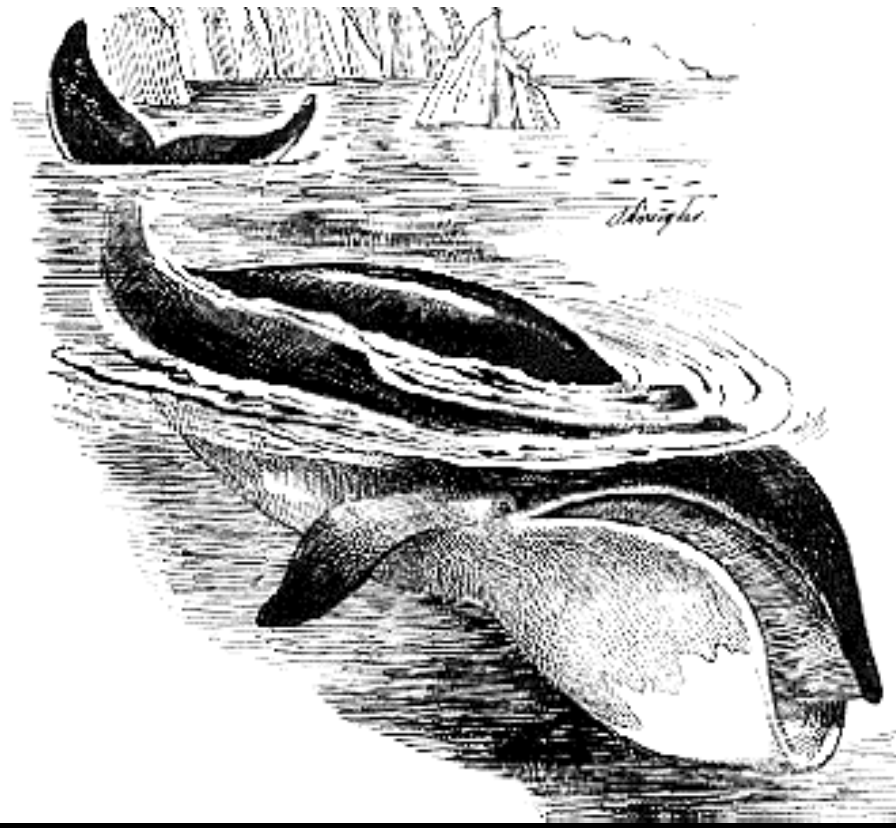
Slide 70

And we learn about the relationship between these 16th century people and their maritime environment, to which they were inextricably tied.



“CAPTAIN, THAR BE
WHALES HERE”





When the Whale comes above water & stands
rowes towards him and being within reach
of him the harpiner darts his harping iron
in him out, and being fast lance him to death.



When the Whale is killed he is in this mann-
er towed to the ships by two or three shallops
made fast one to another.



Basque Country





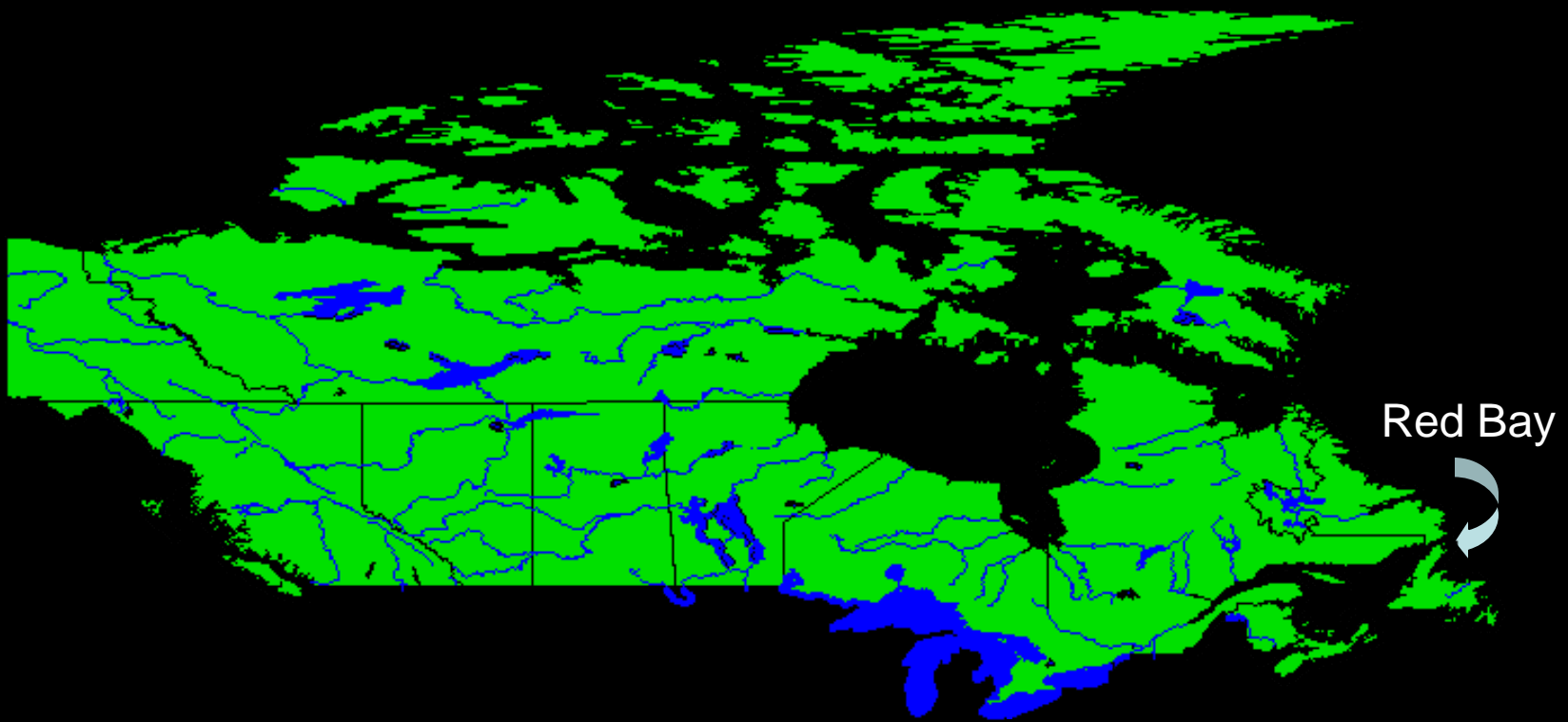
Copia al natural del **BALLENATO** muerto en la playa de St. Sebastian el 17 de Enero de 1854, hecha por las observaciones y direcciones del Sr. Monasterio

DESCRIPCION

Medida		Pulg.		Pulg.	
Longitud del cuerpo del animal en su mayor parte	15	5	1	1	1
Longitud de la cabeza	1	1	1	1	1
Longitud de la mandíbula	1	1	1	1	1
Longitud de la boca	1	1	1	1	1
Longitud de la mandíbula inferior	1	1	1	1	1
Longitud de la mandíbula superior	1	1	1	1	1
Longitud de la mandíbula inferior y superior	1	1	1	1	1

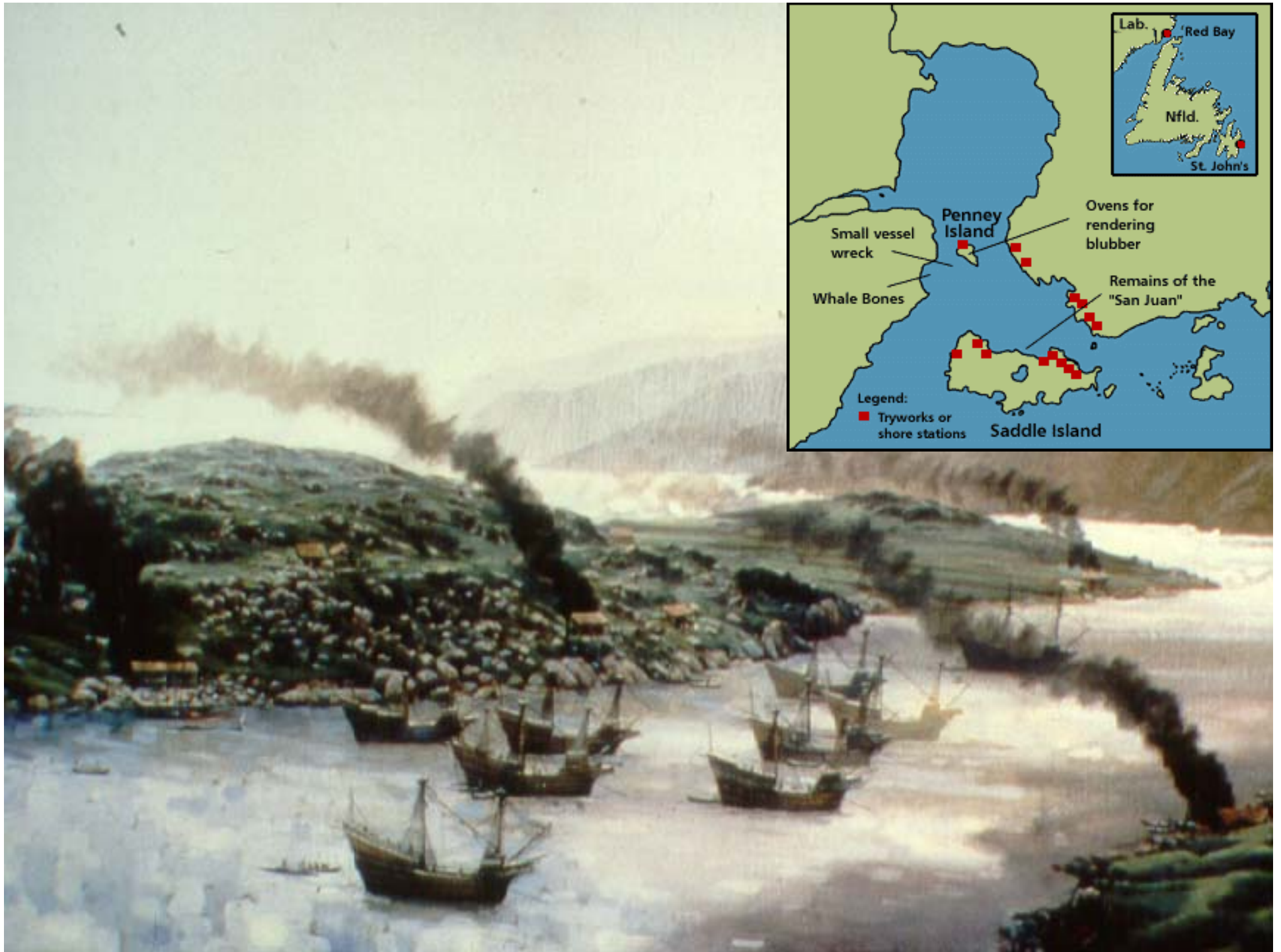






Red Bay





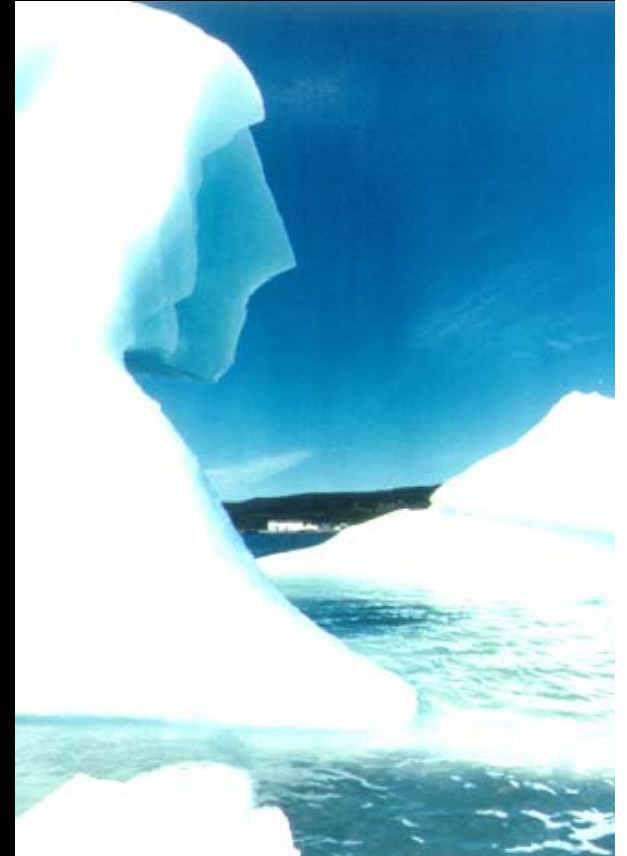










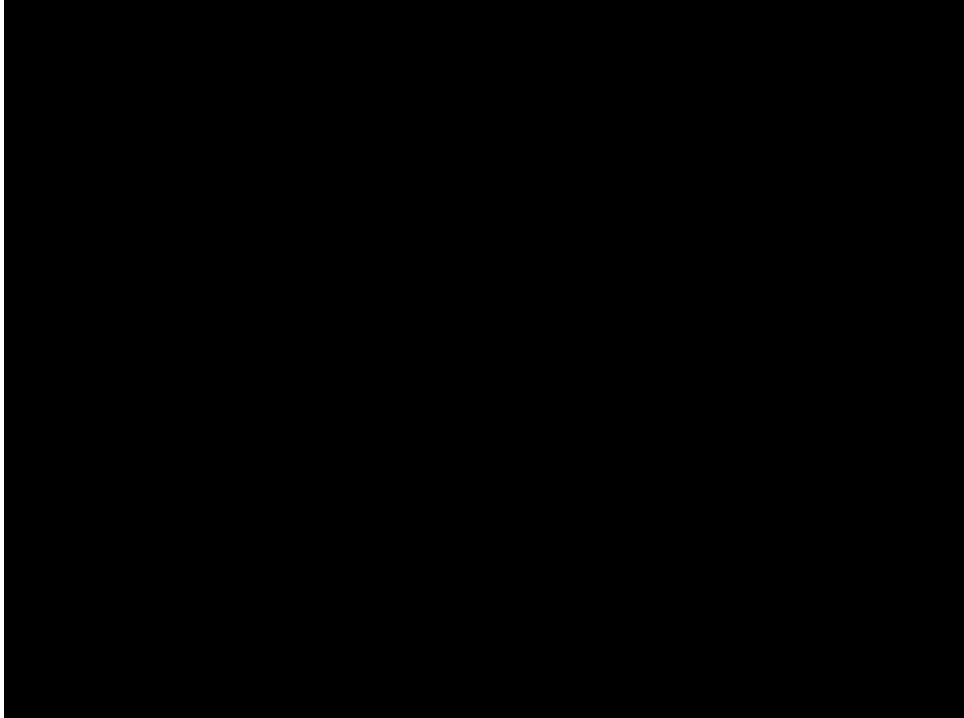
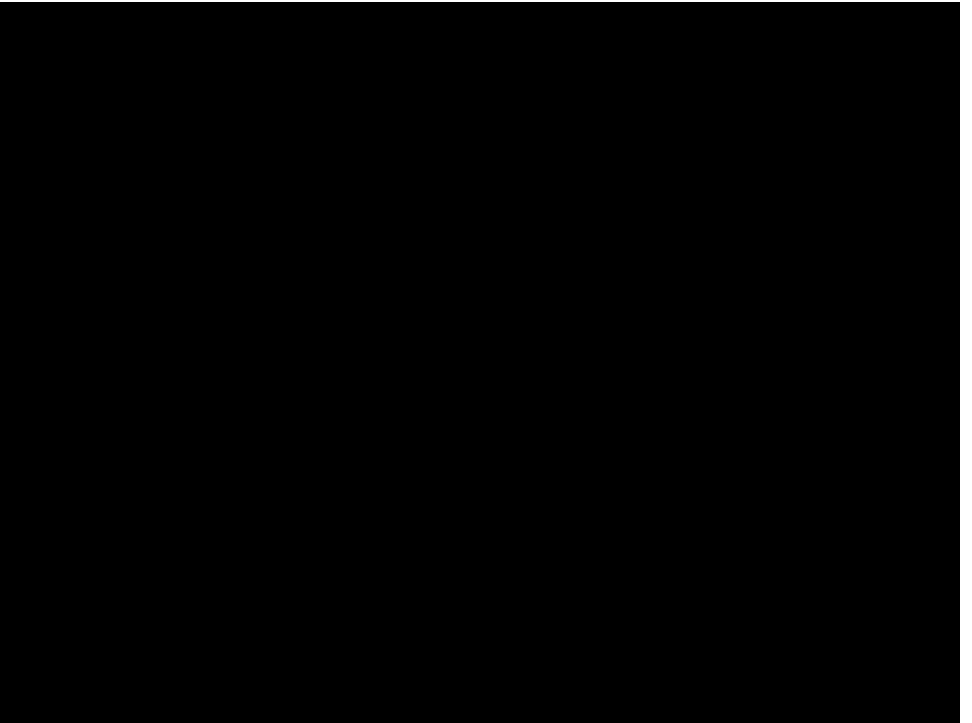
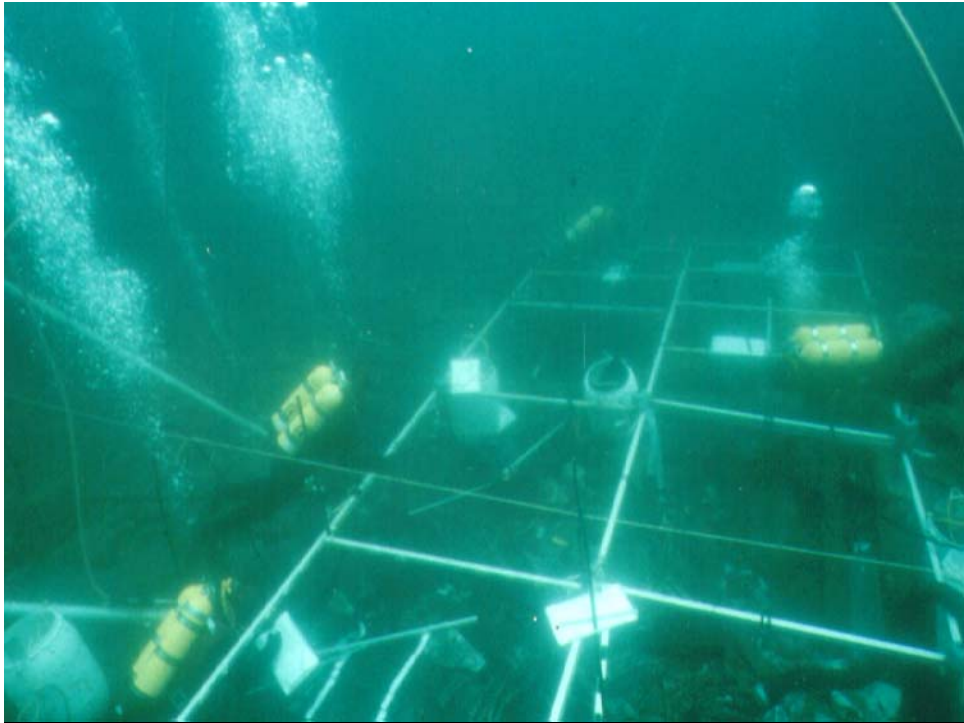


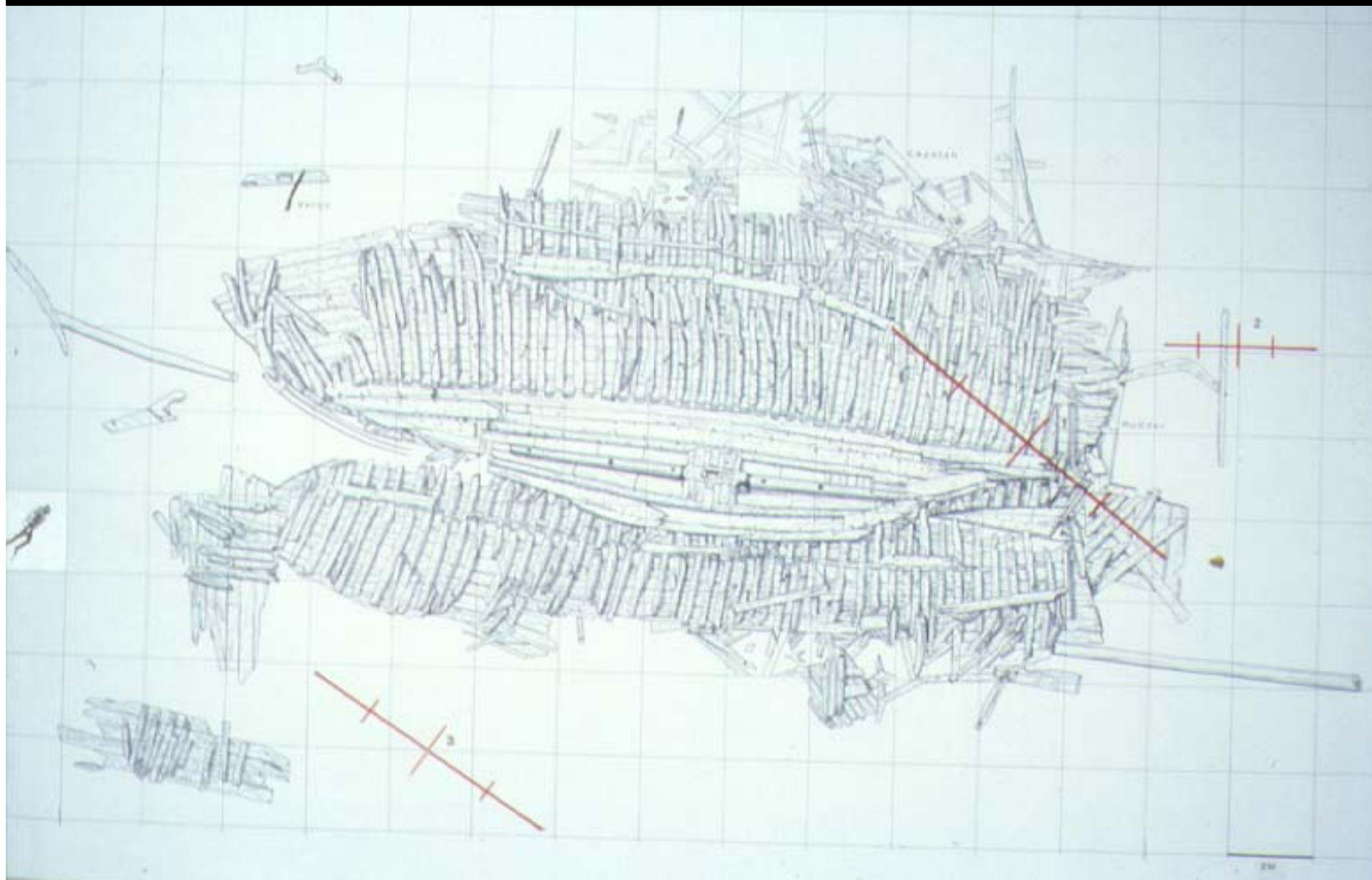


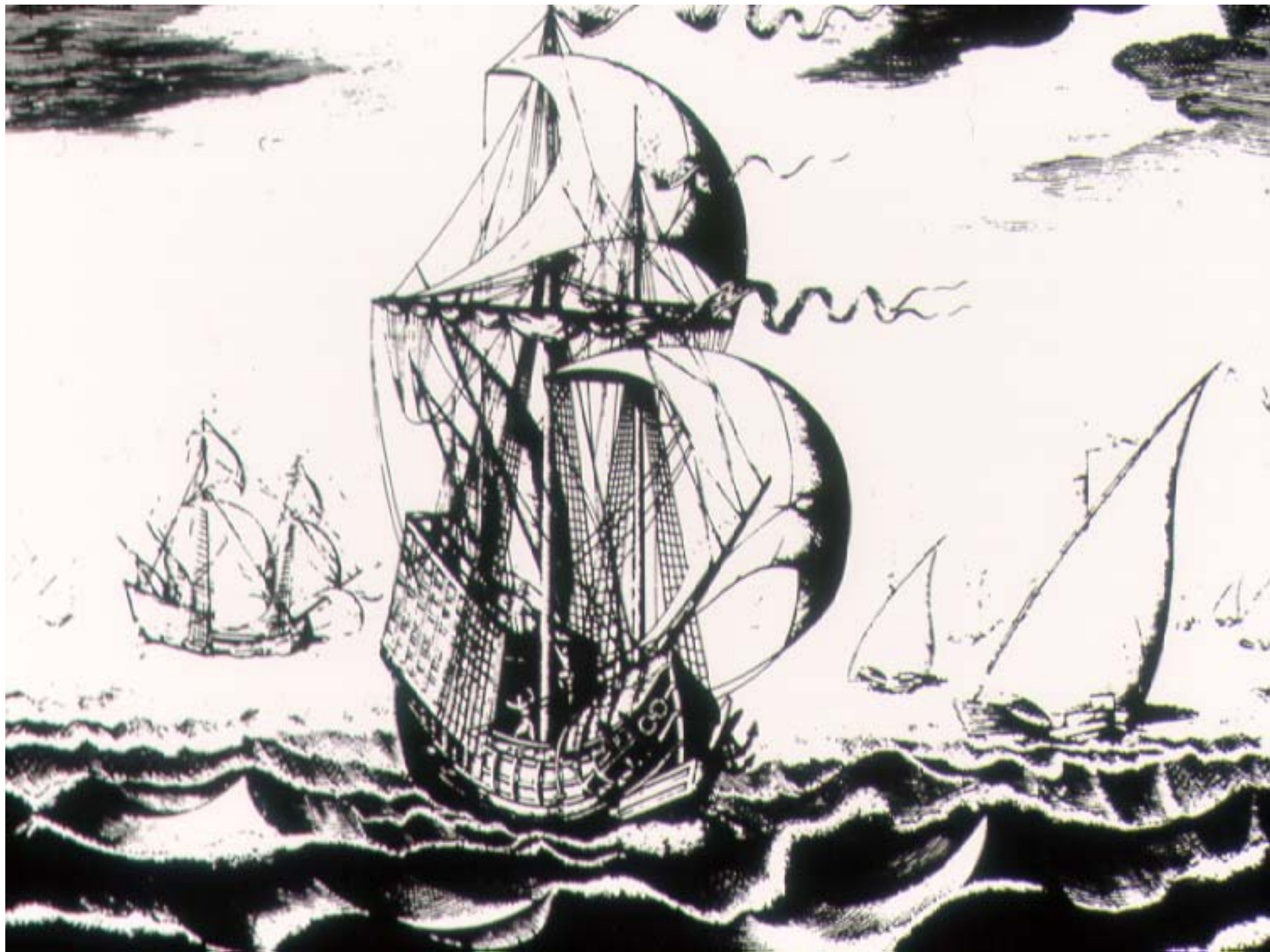




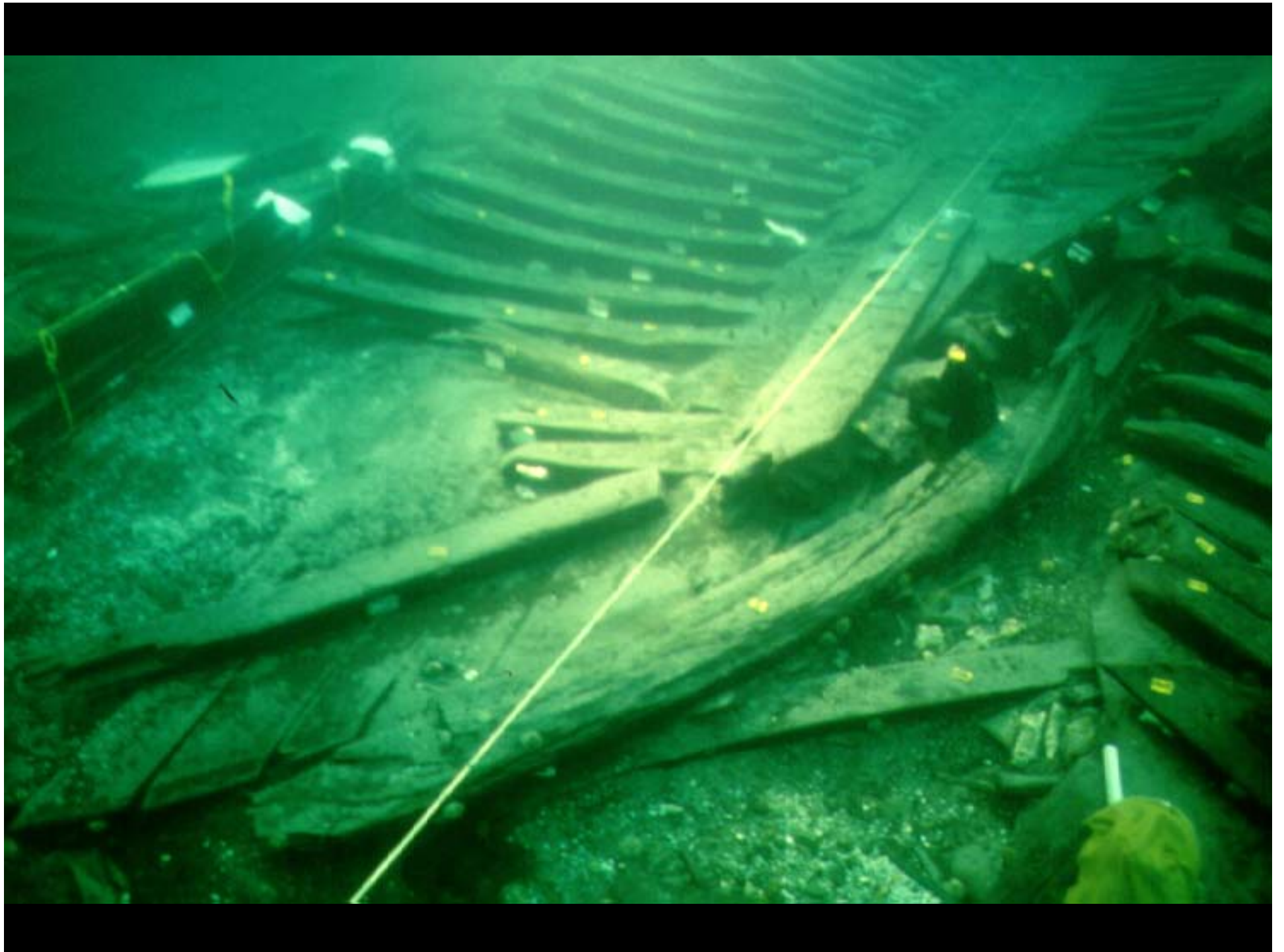




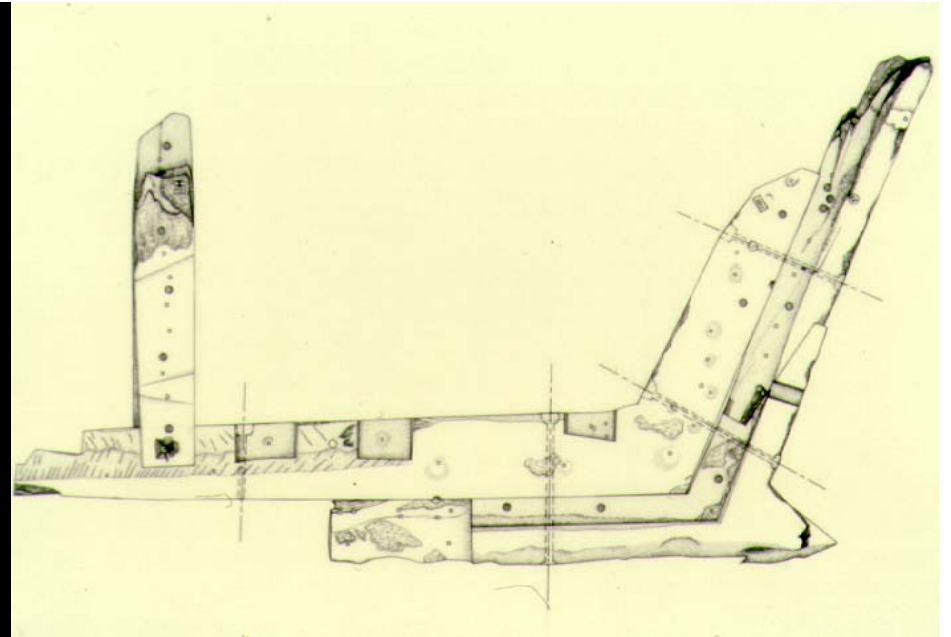


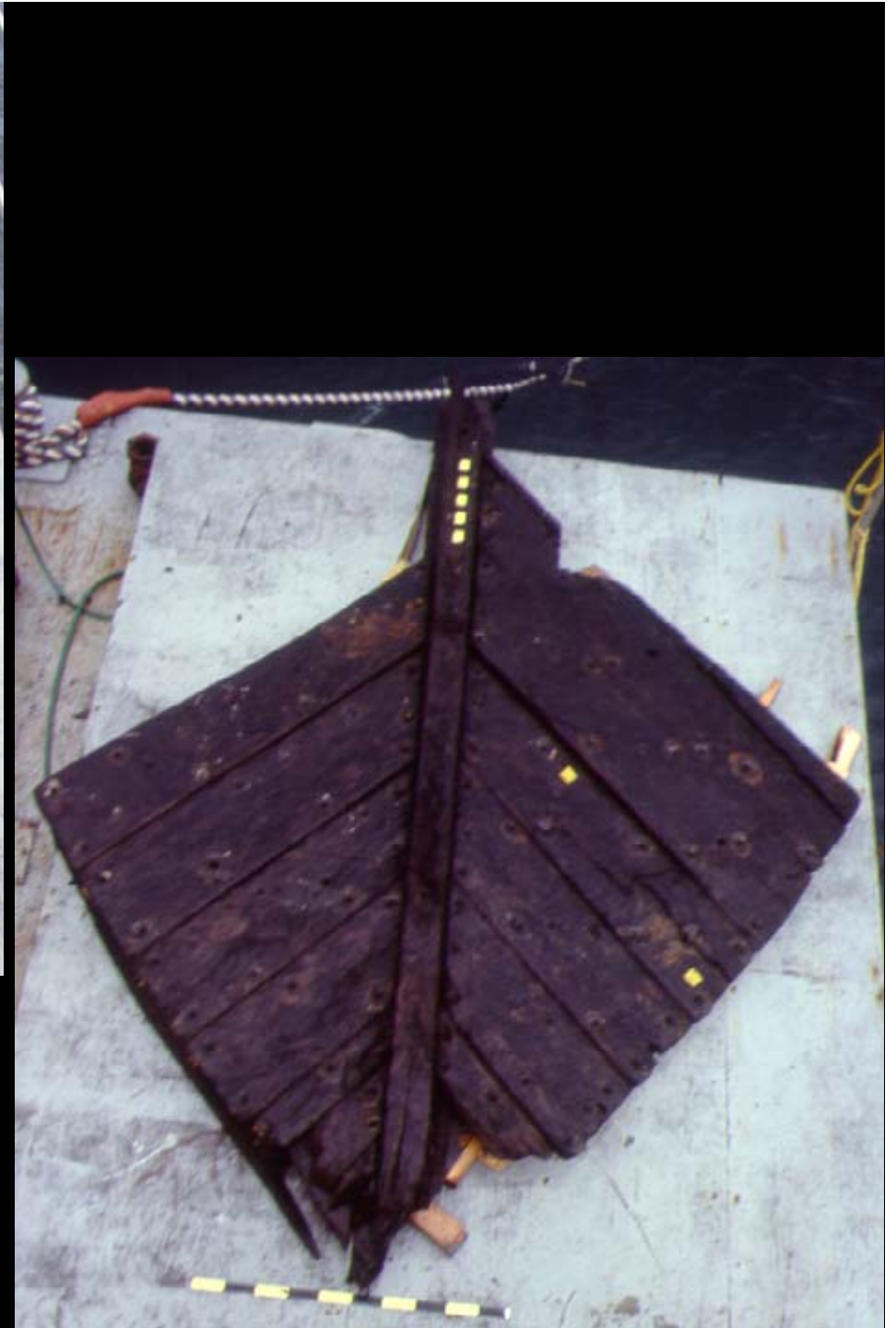






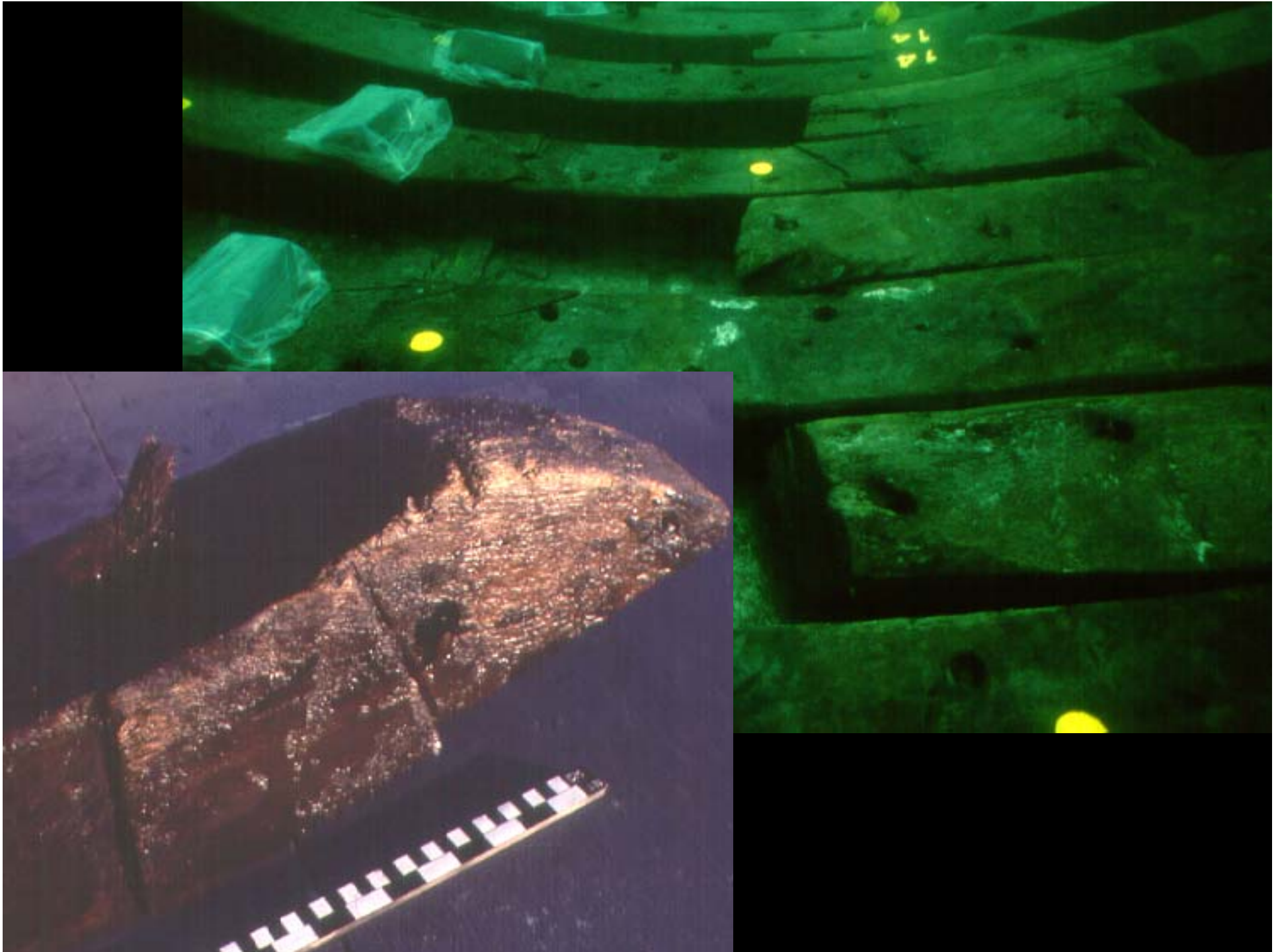




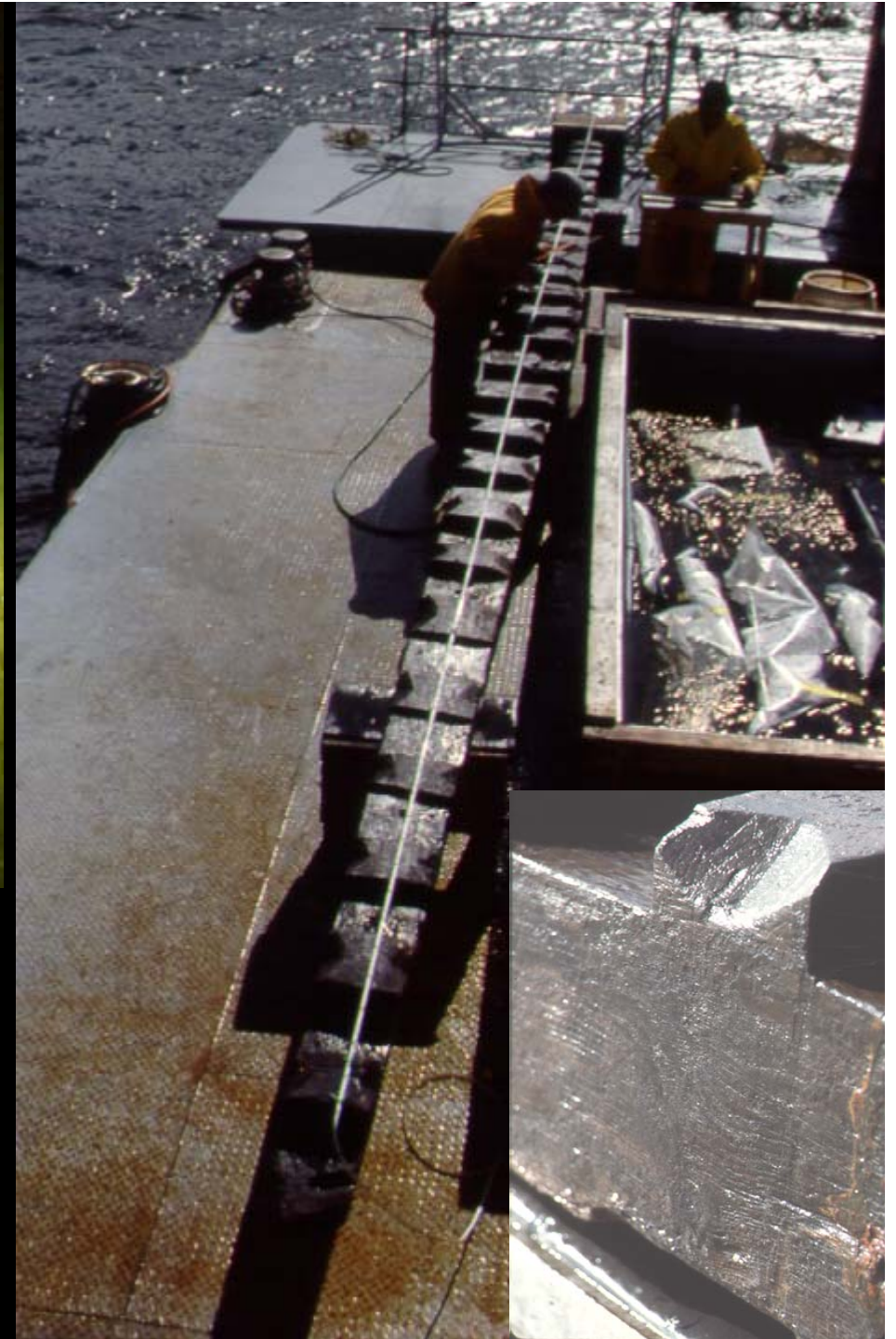






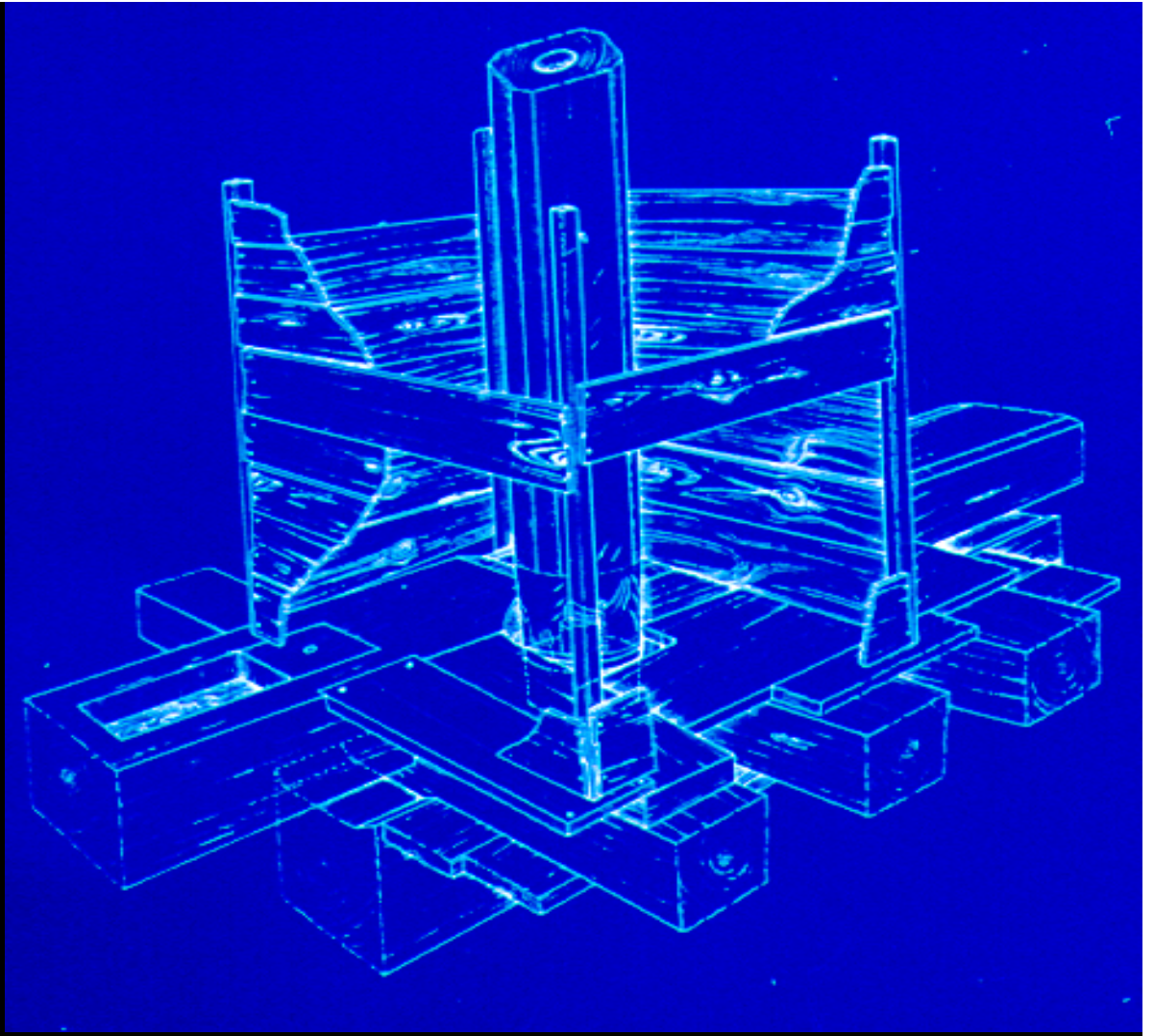




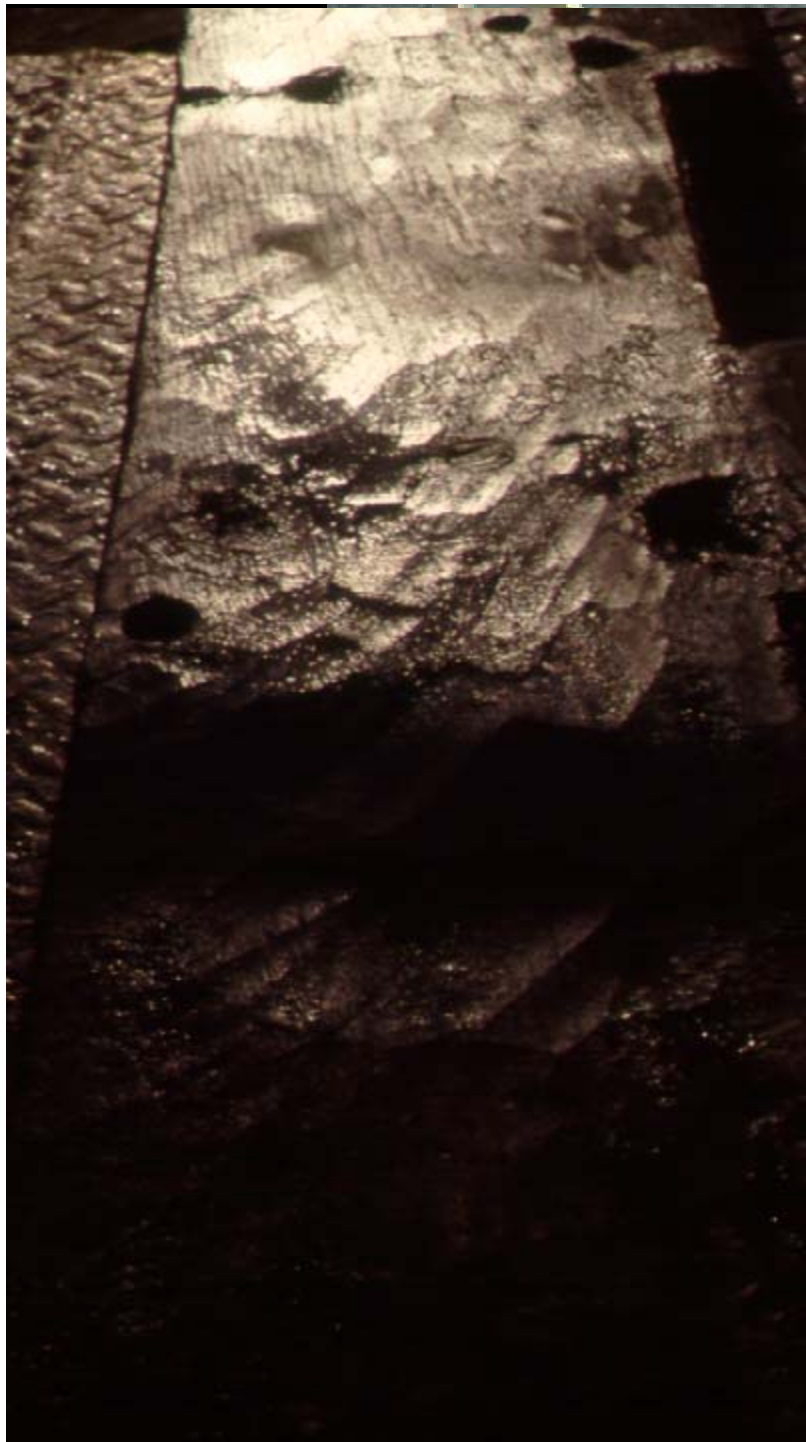






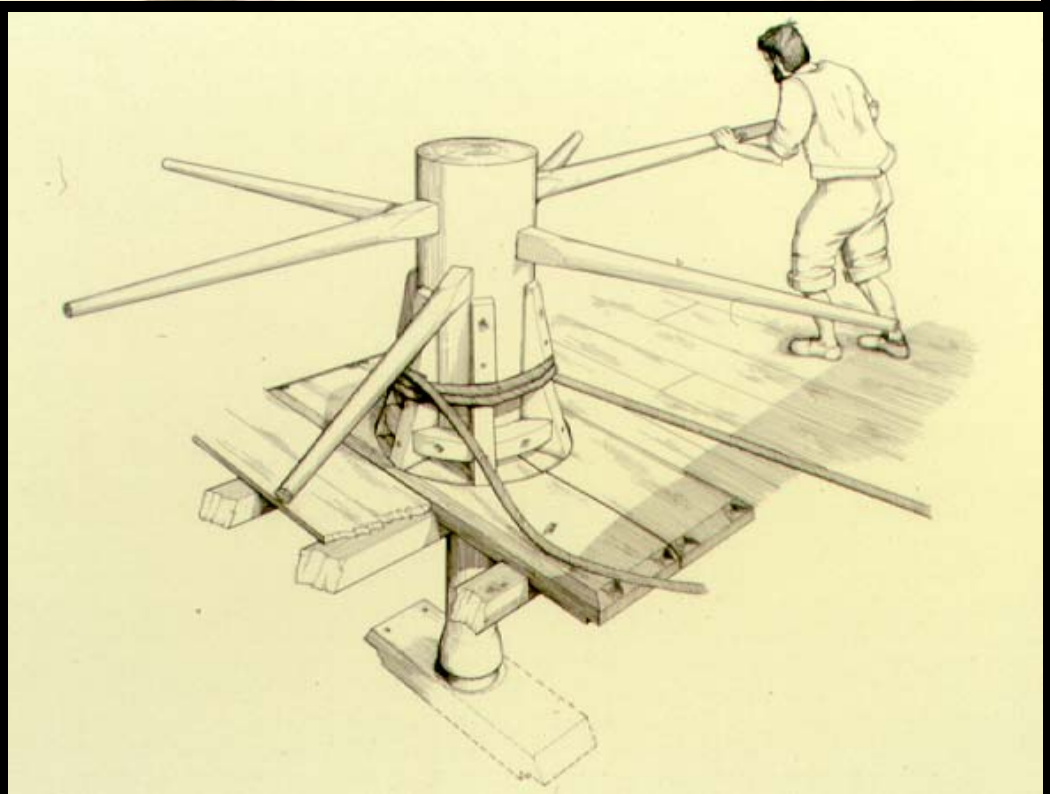


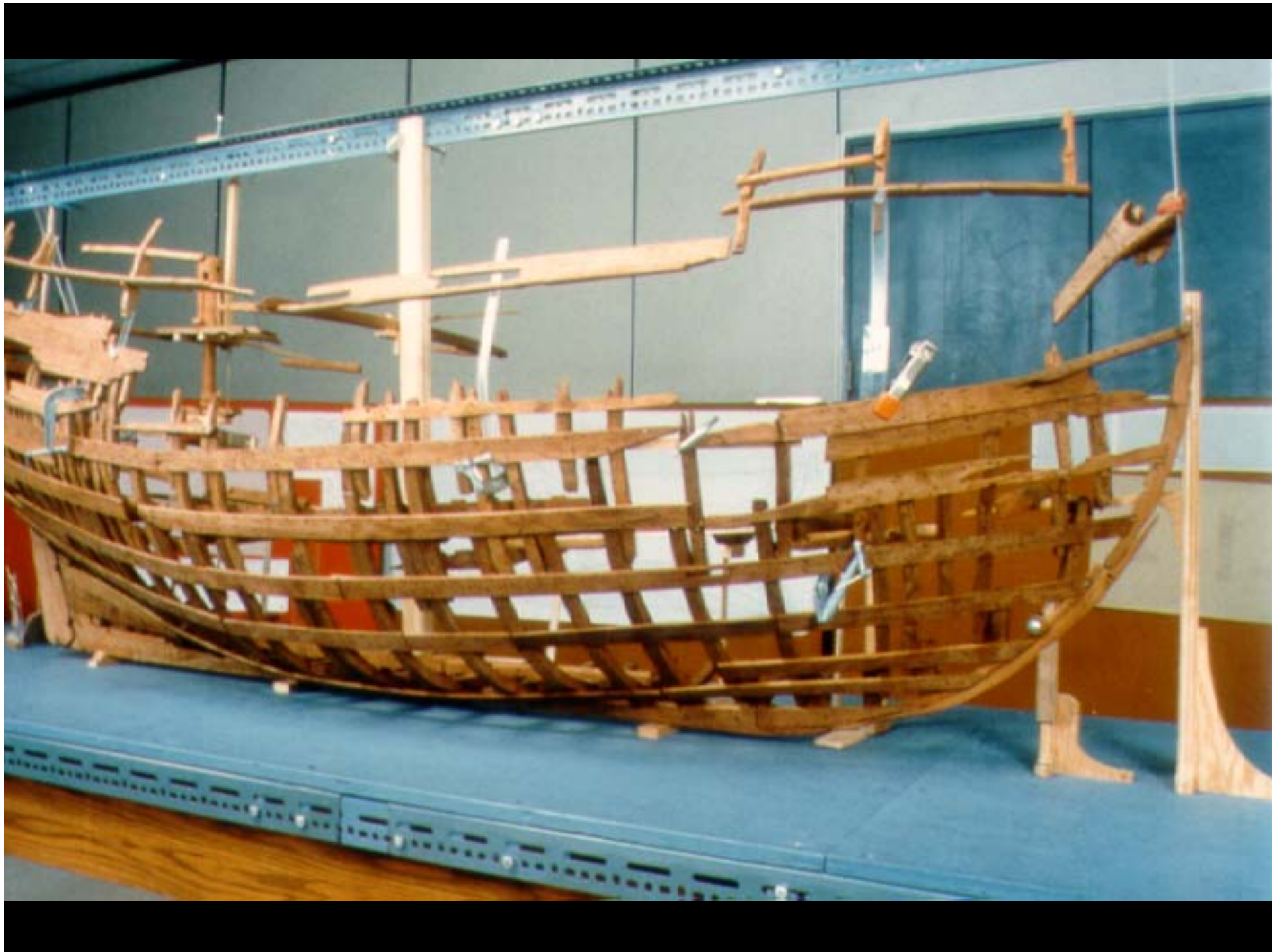


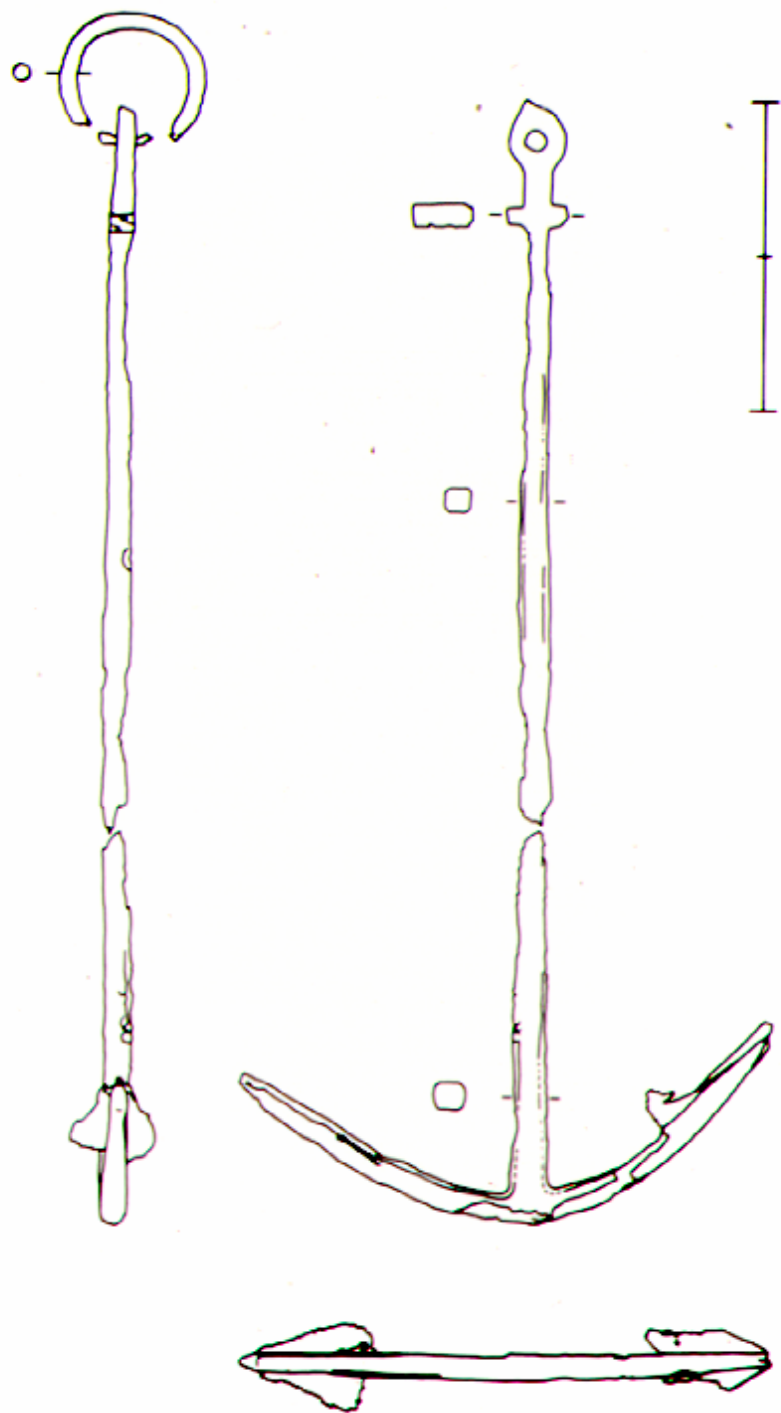




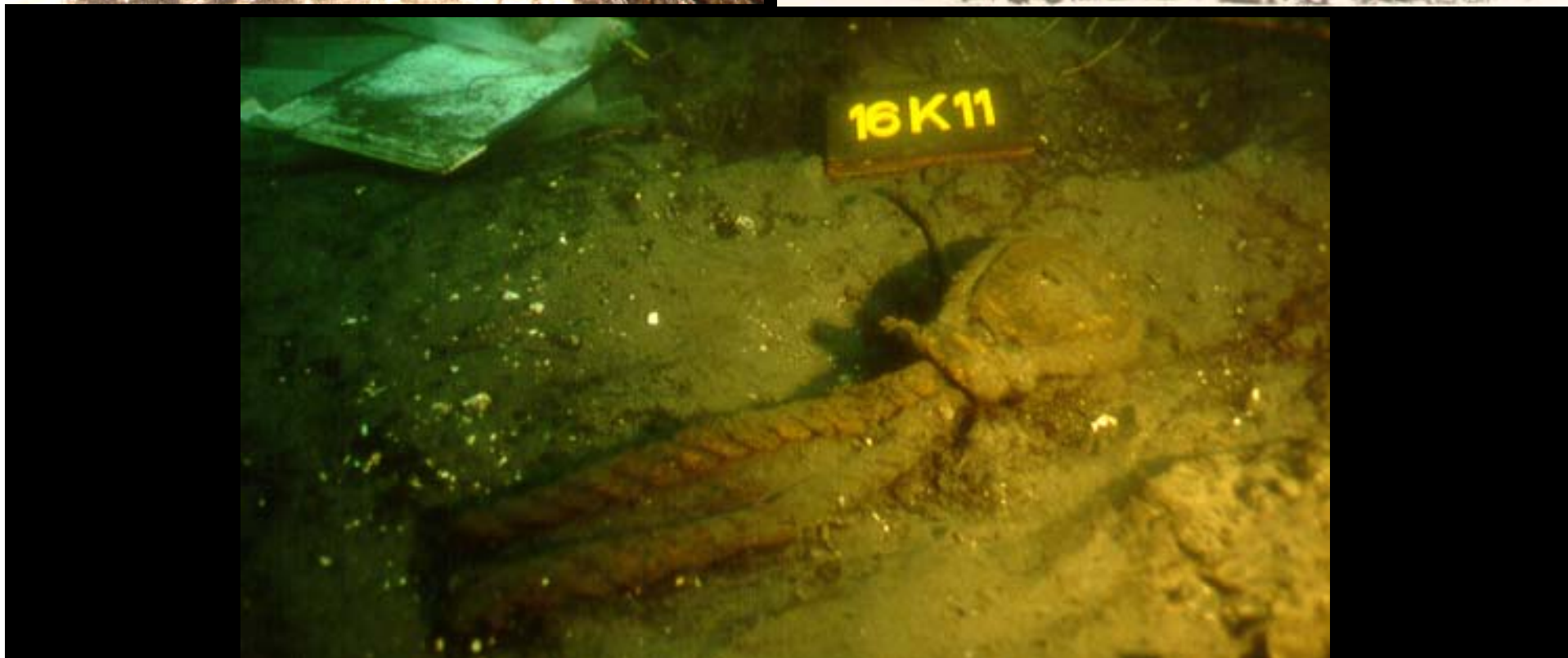




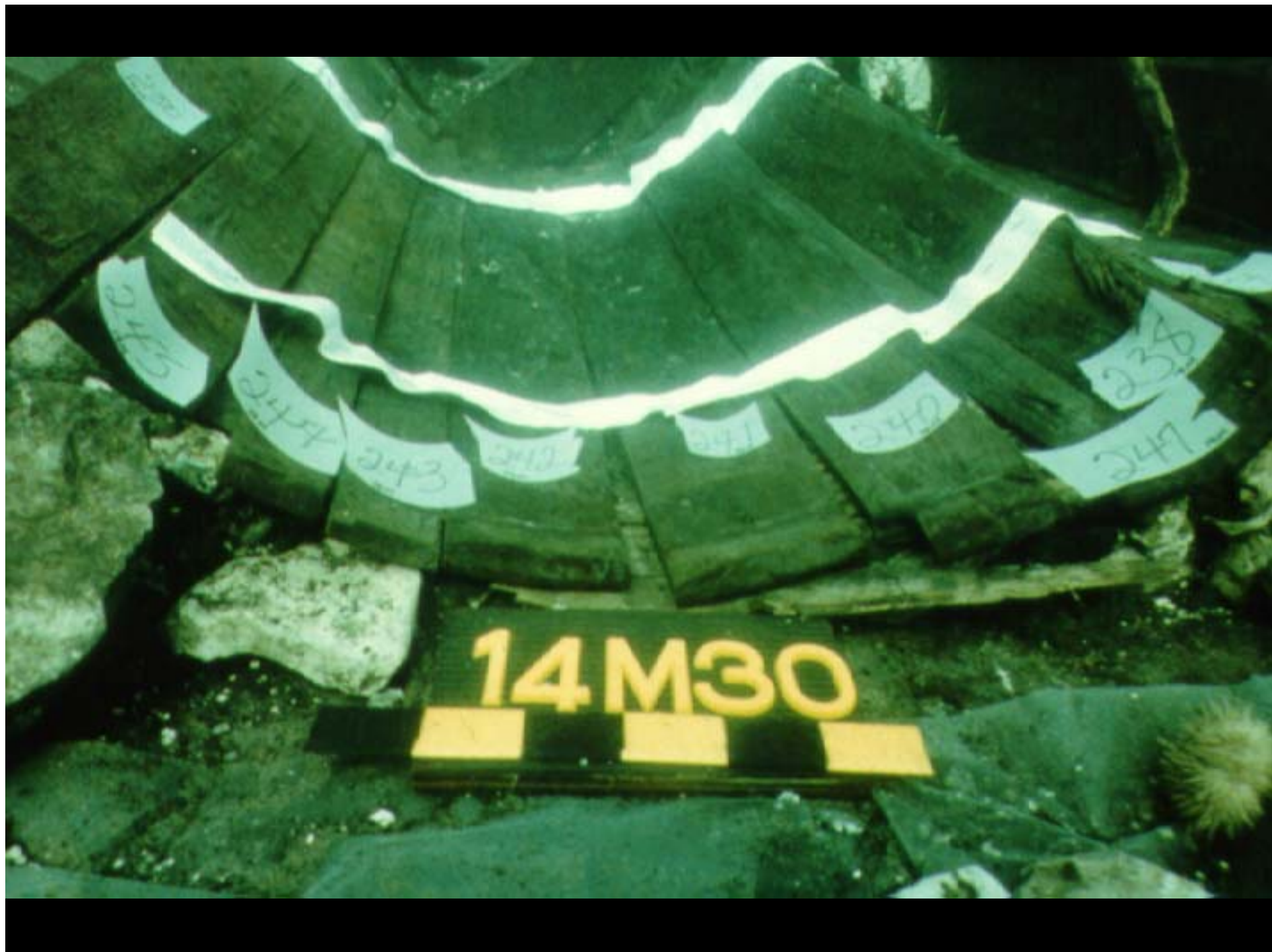




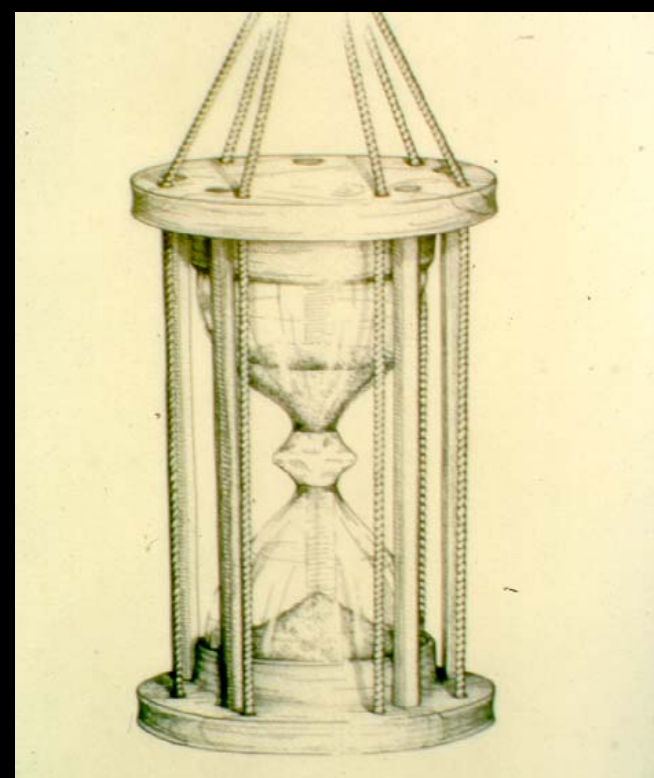
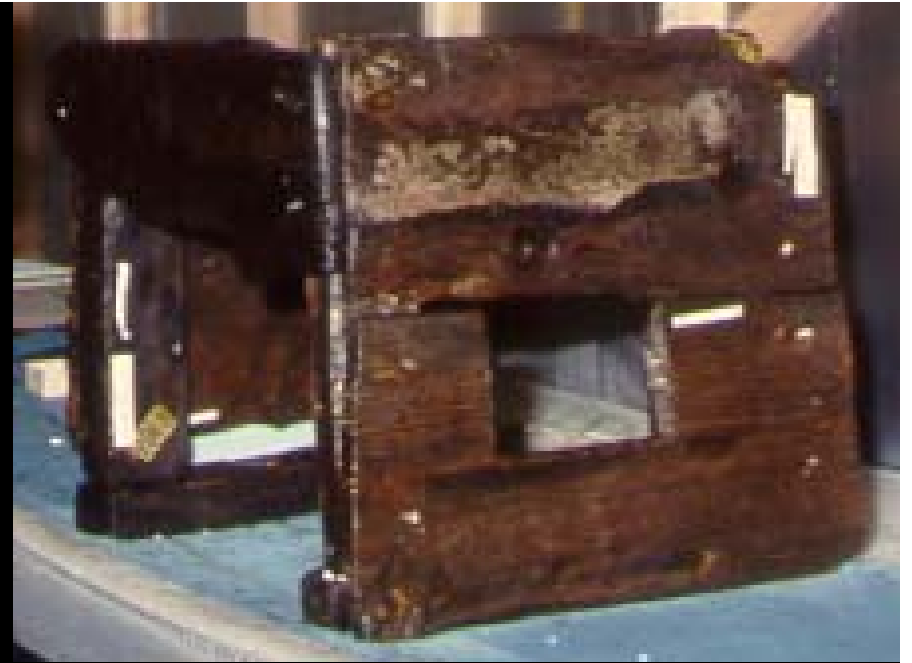


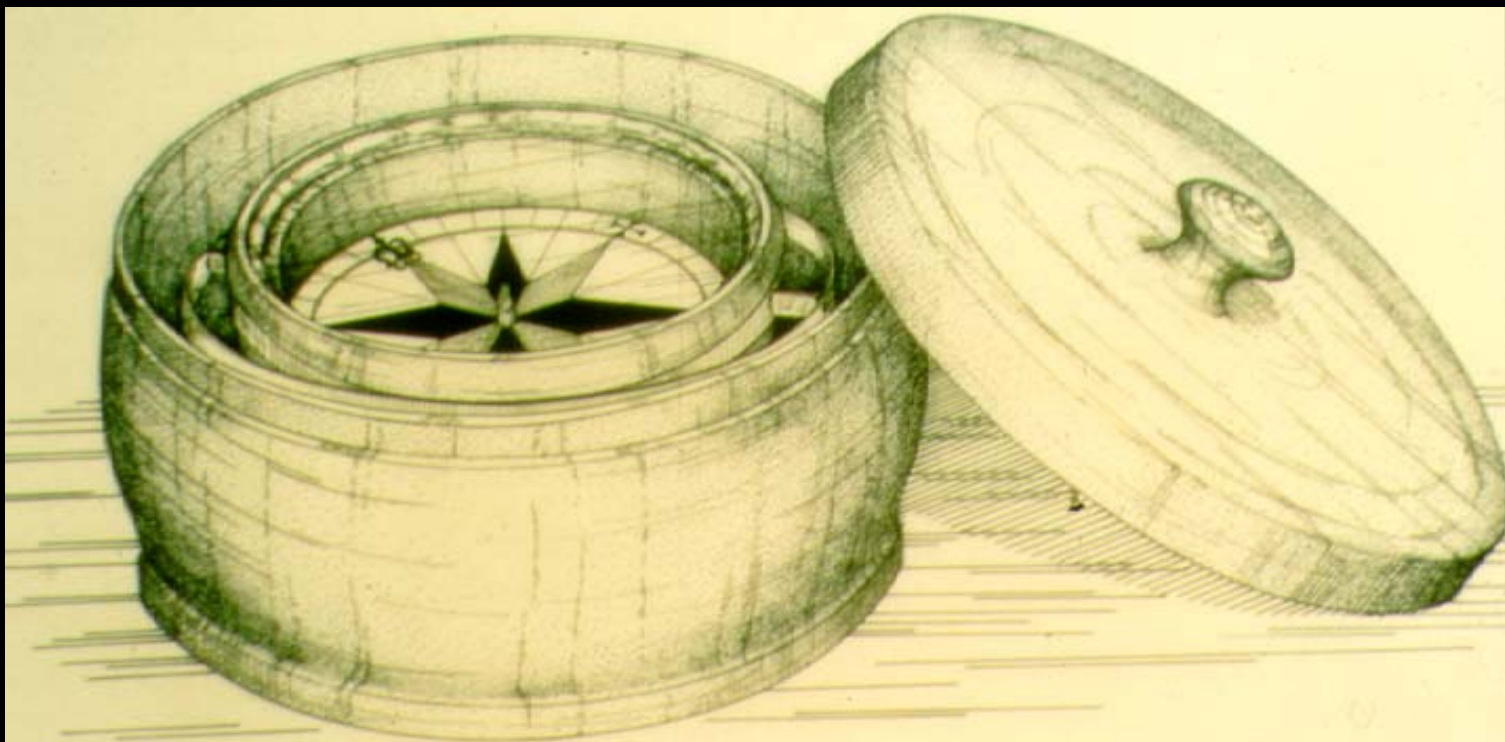
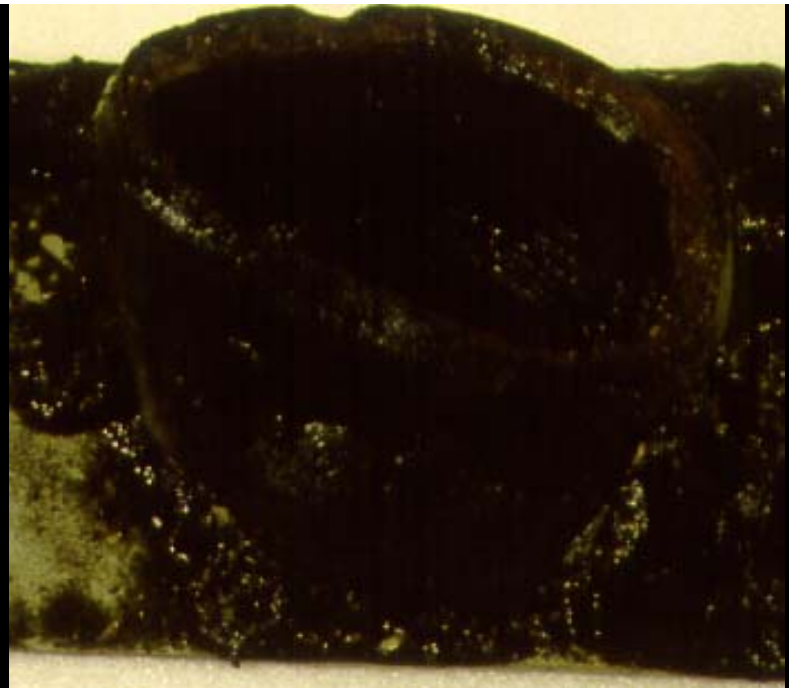


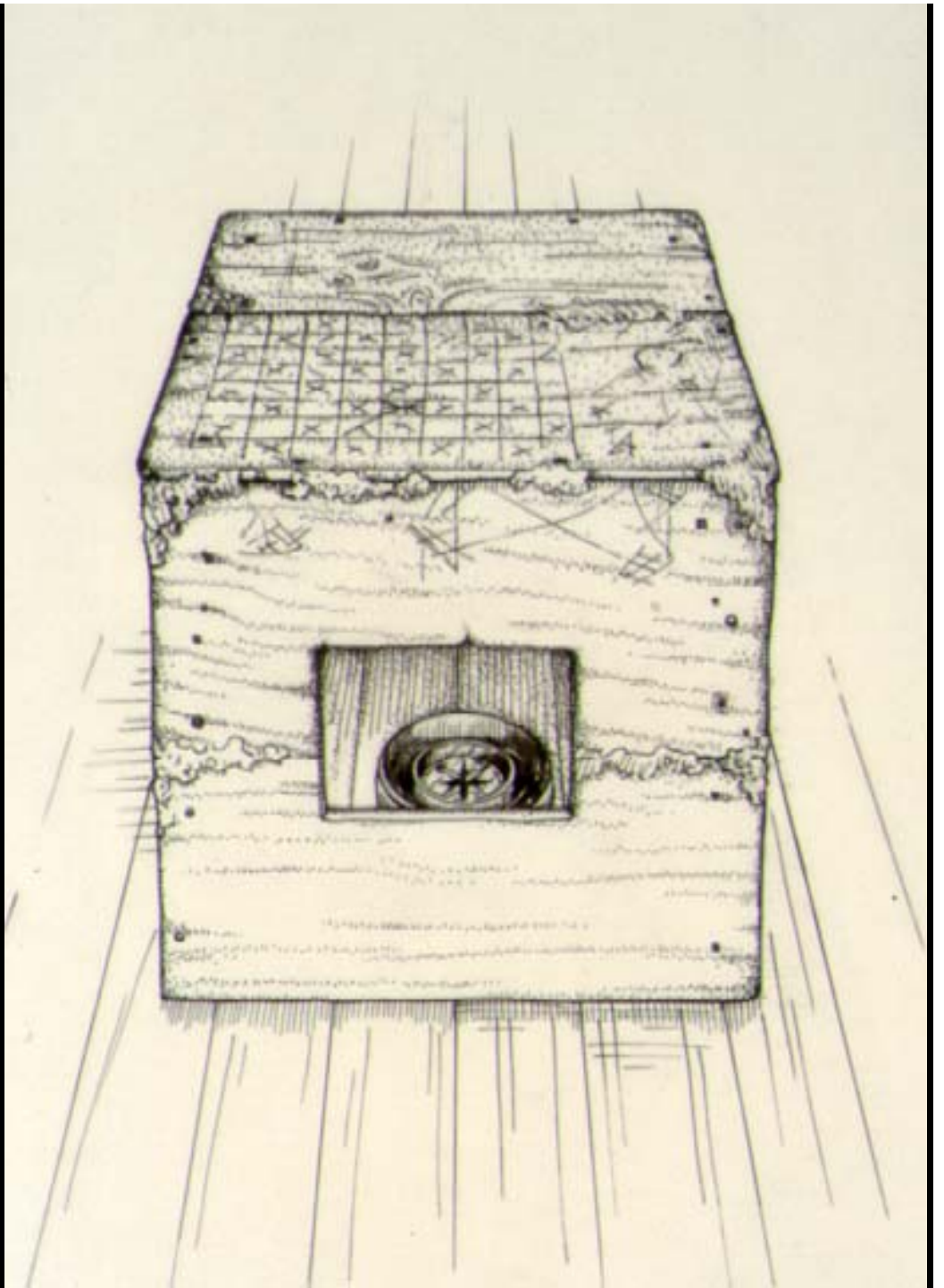


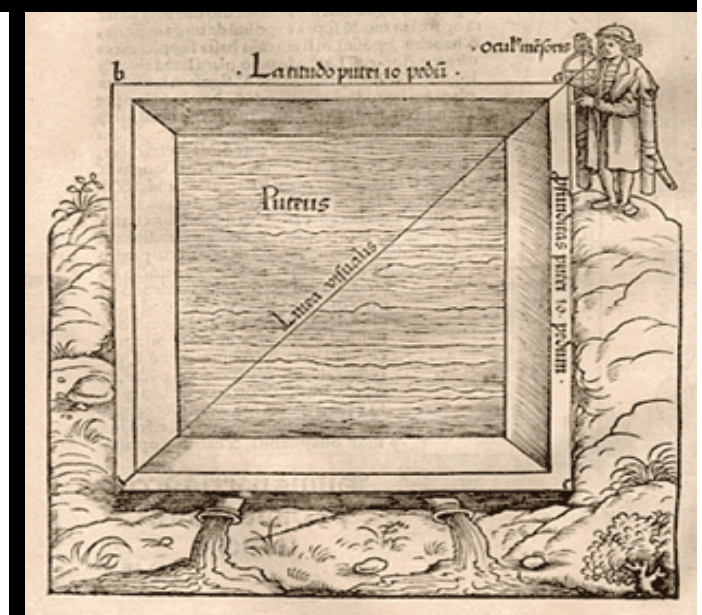






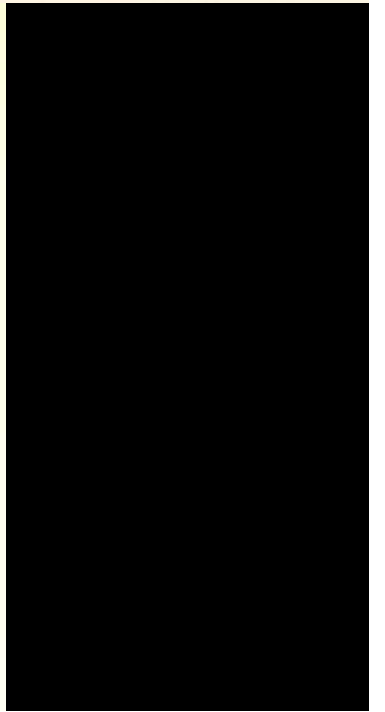
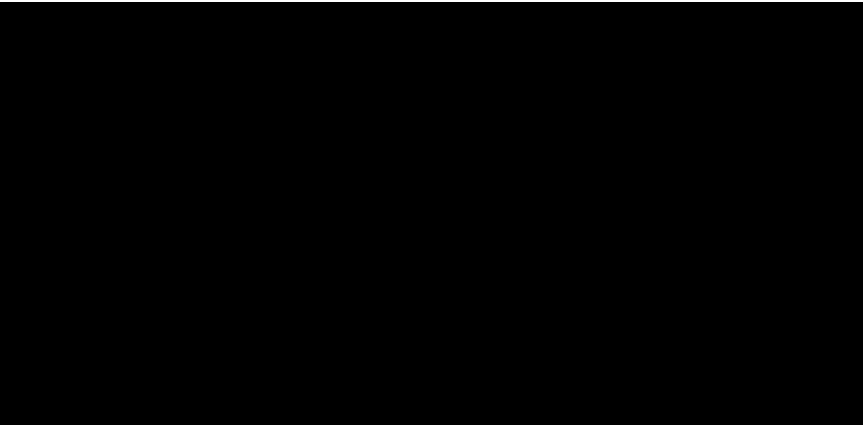




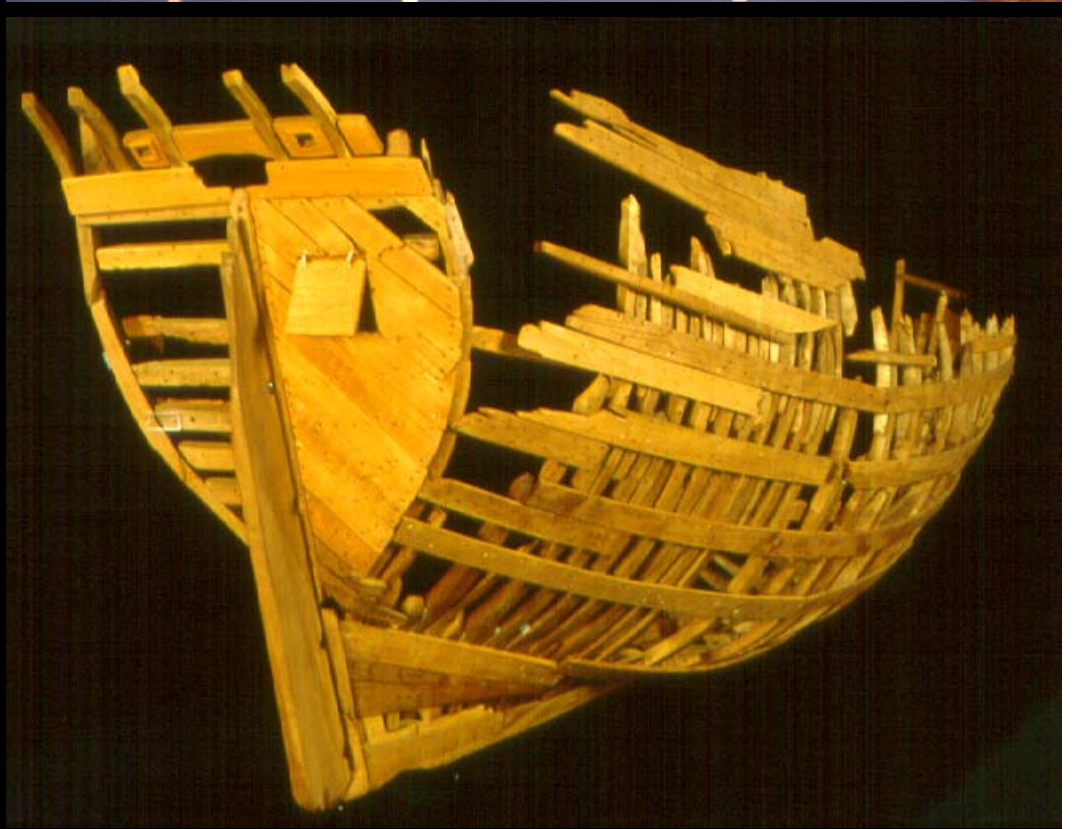
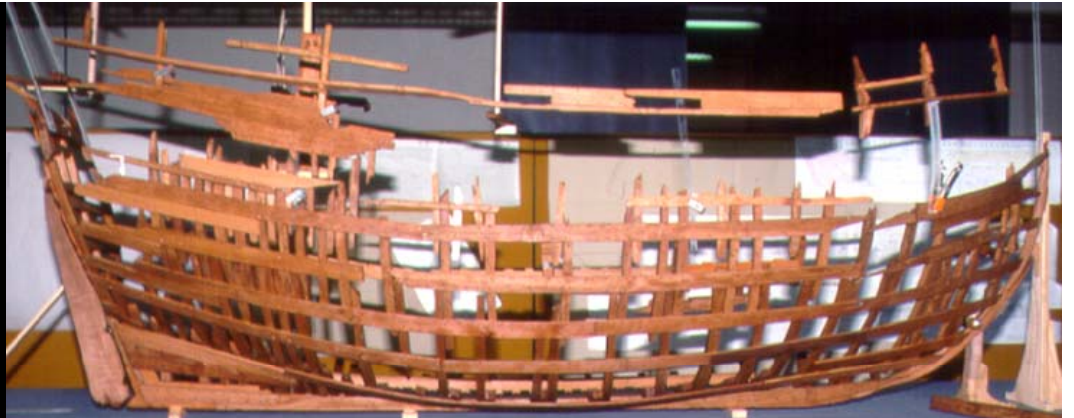




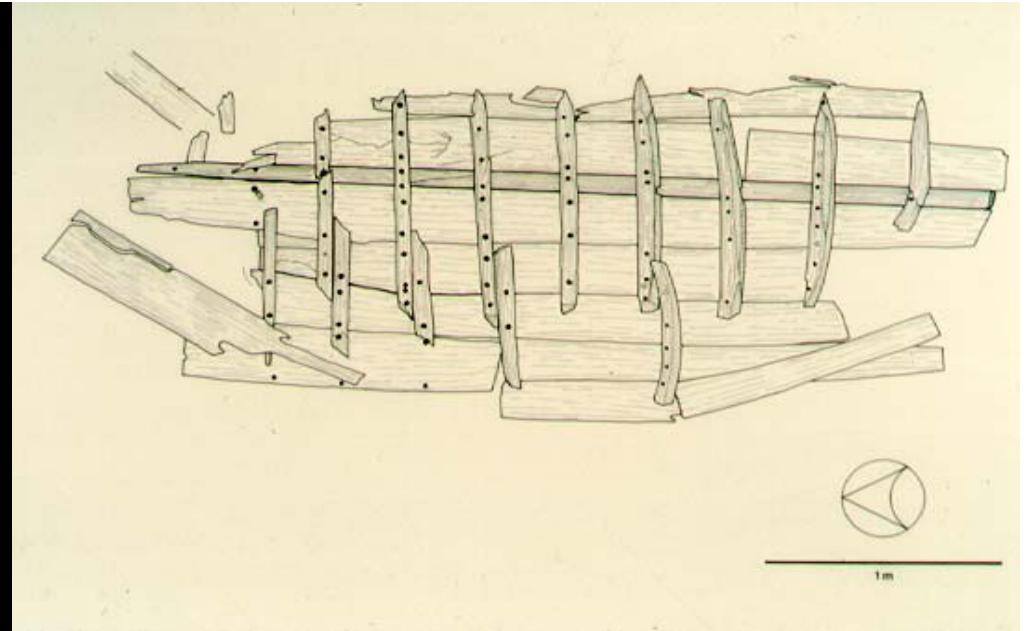




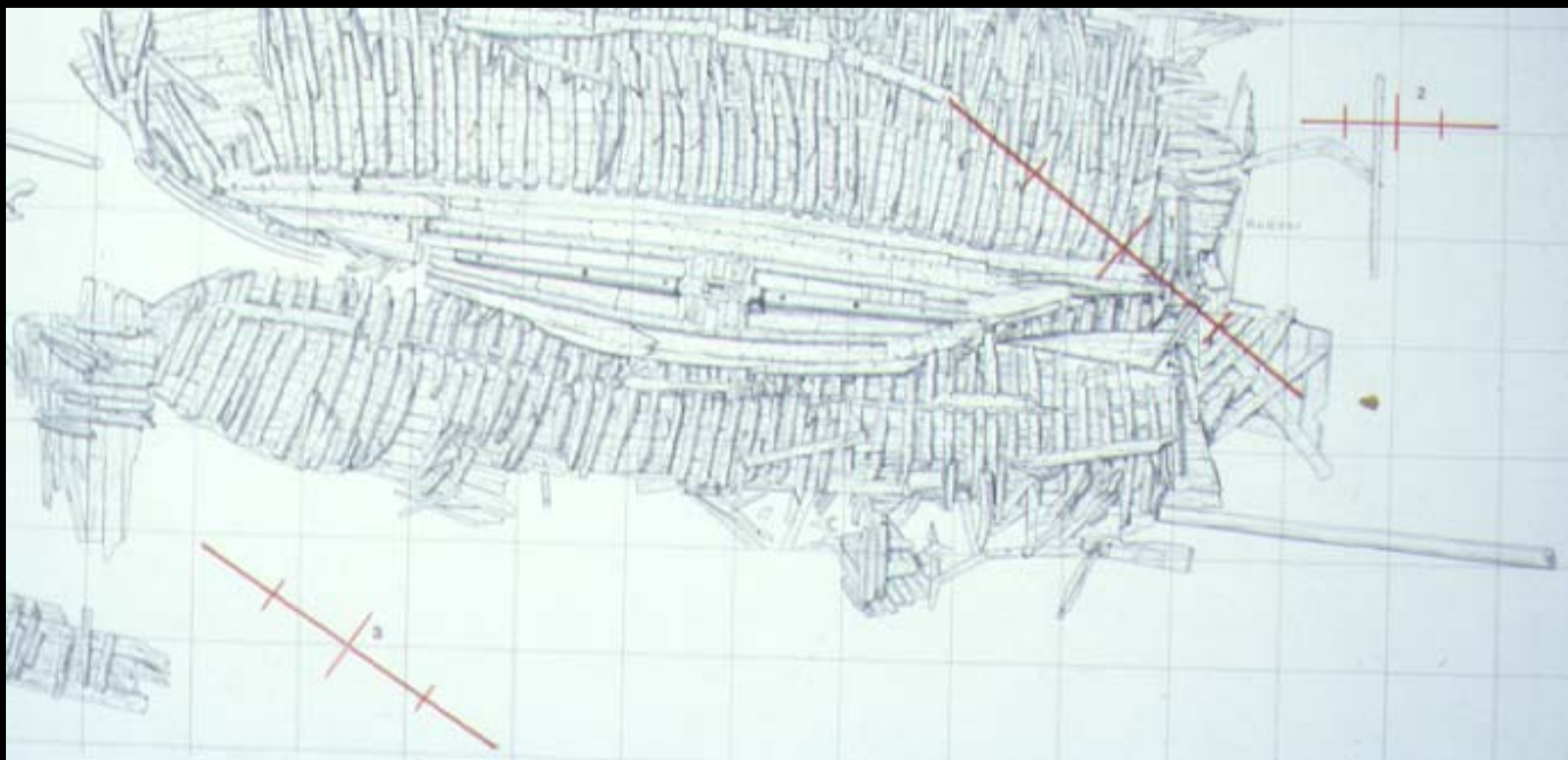
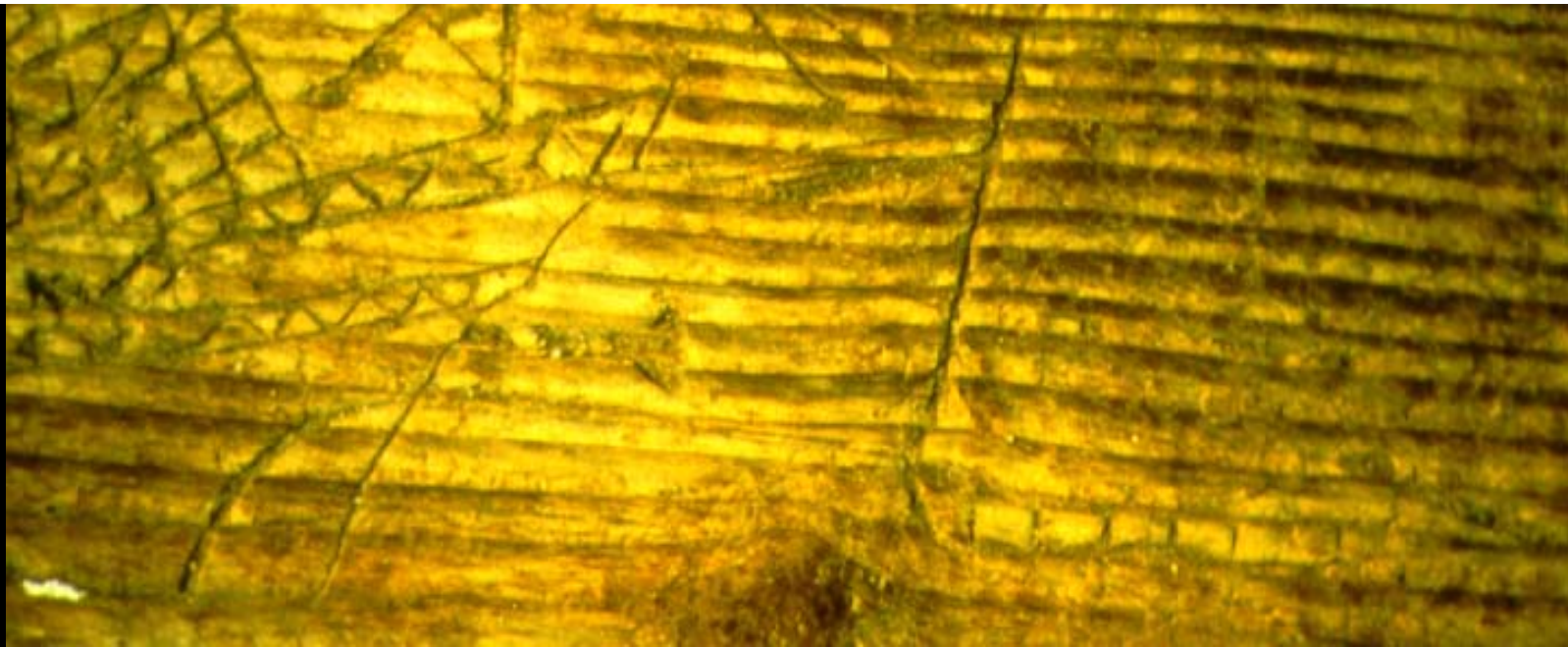


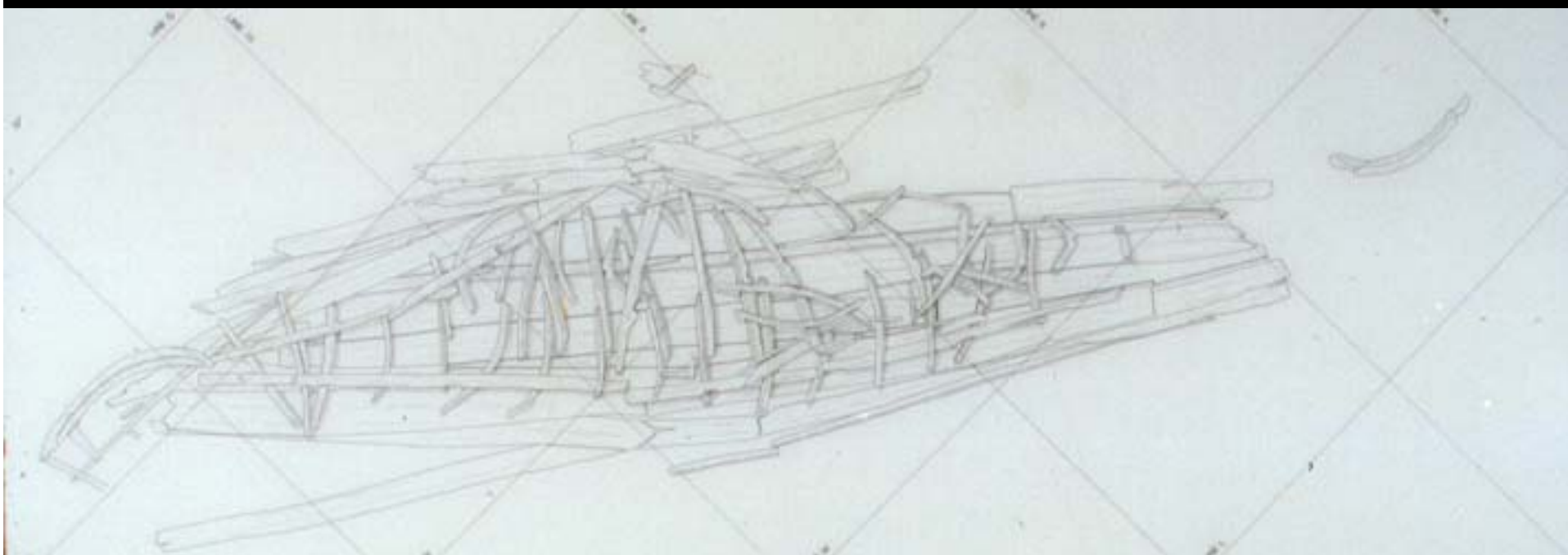
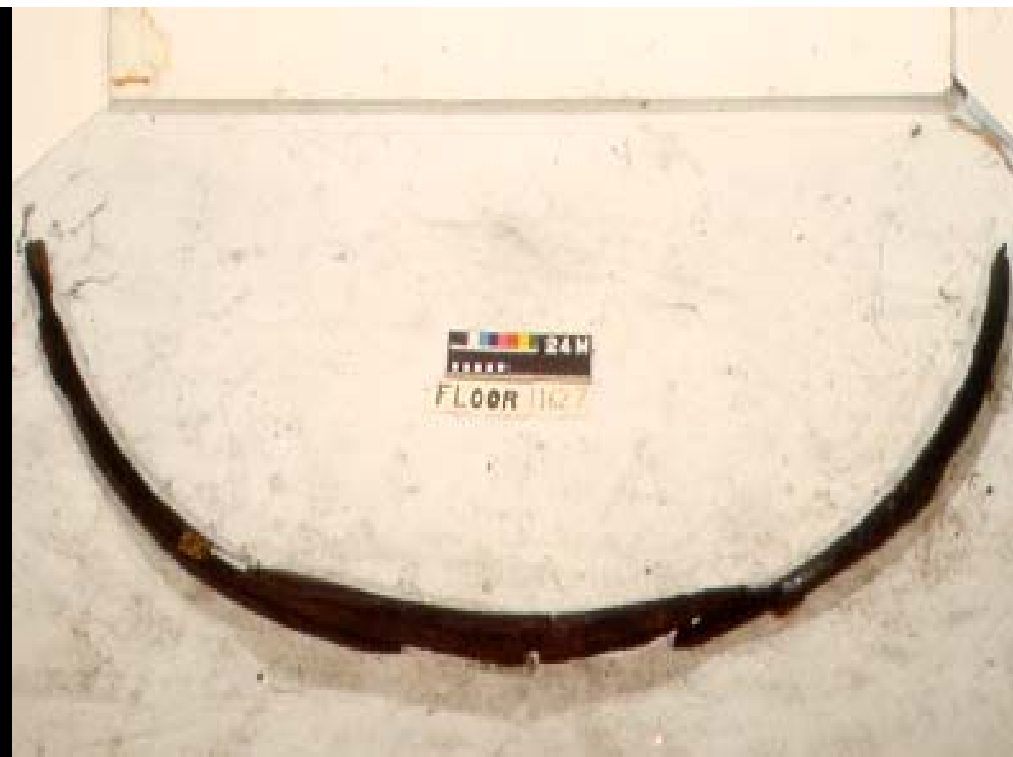






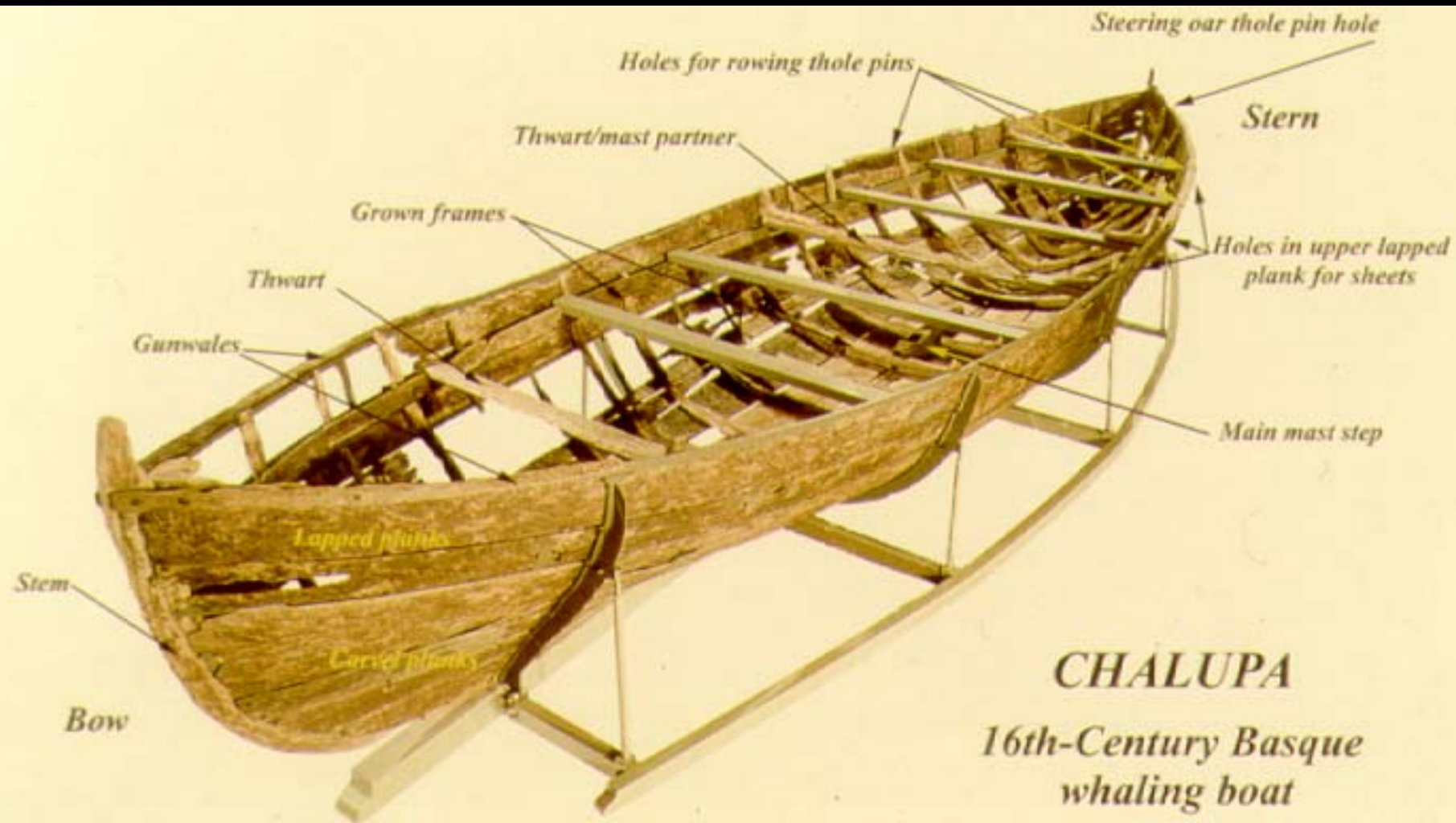










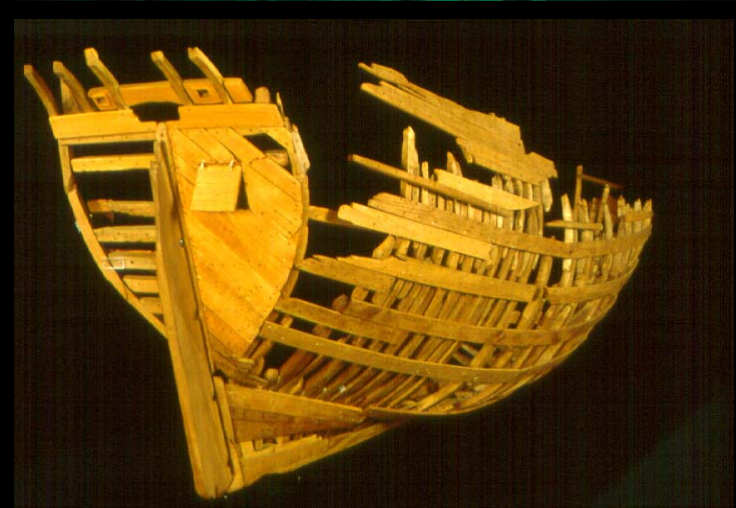


CHALUPA

*16th-Century Basque
whaling boat*









*When the Whale is killed he is in this mann
towed to the Ship by two or three shallops
made fast one to another.*





