

# That Was Then, This Is Now...

## A Brief History of the Western World From the Perspective of Oceanography

Lesson by Mike Vollmert, Hueneme High School Oxnard, California

### Key Concepts

1. The history of European and Mediterranean civilizations is intimately associated with the seas.
2. Virtually all of the advances in western navigation and other ocean-related technologies satisfied pragmatic needs rather than scientific curiosity.



### Background

We are intimately tied to the seas. The histories of many cultures are closely related to how the people used the resources of the oceans. Until the development of the steam engine, for example, ocean shipping was the only efficient means to transport goods. Most major cities, therefore, have been located on seashores. Historically, the culture that controlled the sea was the dominant culture of that time. This was true for the Greeks, the Romans, the Spanish, and the British.

Until the mid-1800's, there was virtually no pure scientific research about the seas. Every discovery, every development was made to improve the catching of food, navigation, construction, or movement of ships. Boats were developed for efficient transportation. Navies were developed for protection of trade routes or for expansion of economic opportunities. Instruments, star catalogues, and newer types of sails were developed to make ship movement safer and more efficient.

## Materials

For each class of 32:

- A length of butcher paper, 10 feet long, prepared as described below.

For each team of students:

- 1 copy “That Was Then, This Is Now” student pages
- 1 copy Time Period assignment
- 10-15 3x5 index cards
- scissors, tape, glue
- colored pencils, pens, or crayons

## Teaching Hints

For this activity, you will need to divide the class into 7 groups. Each group will work on one of the 7 periods of history. Once the groups are selected, pass out to each group a copy of the “That Was Then, This Is Now” student pages and give each group their Time Period sheet. (Each group will have the same student pages that describe the project, but a different Time Period sheet.) You may wish to spend some time discussing various ways to organize the groups in order to foster constructive collaboration. This activity works best if each member of the group has a role, but no member winds up working in complete isolation. Remind your students collaboration is more than everyone doing a piece of the work then simply putting those pieces together at the end! You may wish to require each group to keep a log of what each individual did each day, how the group worked together to solve any problems that came up, and how the group decided to present each piece of material.

Emphasize to the students that they are not writing a report. Rather, they are to devise ways to present material in a **graphic** manner - that is, they are to present their information in pictures. If they must, a brief caption may be used to embellish the picture, but it should be no more than a couple lines. Many students have the most trouble with the summary, because they are tempted to write too much. The idea behind the summary is to provide a “30-second overview” of that period in history. It should be brief, almost cryptic, but should explain the dominant ideas and events during that time.

To prepare the timeline, draw a heavy line lengthwise down the middle of the butcher paper, and make vertical marks every 6 inches. Label the first mark “1000 B.C.” and each mark from there to the end at 150 year intervals. The last mark should be 1850. The final event on the time line will be dated 1851.

Note that there are three distinct pieces to each group’s task: the timeline events, a world map, and a one-page summary. Each group should put them together as shown in the diagram on the student pages.

This exercise is intended to do three things. First, it is hoped that after completing the exercise, students will have a view of western history that shows its relation to the oceans. Second, it will encourage students to search in different places in the library for several kinds of resources, a skill every student needs to acquire. Third, the activity will afford students the opportunity to deal with the problems associated with presenting information in a graphic form.

As a class, students construct a timeline, showing the history of western civilization as it relates to the sea. In groups, students locate specific pieces of information relating to that timeline and collaborate to devise the best way to present each piece of information. The success of the final project depends on the quality of individual initiative and group collaboration.

A key element of this activity is use of library resources in the library. Students will have to access several different resources besides books in the world history section, including magazines, historical atlases, and oceanography and sailing books (look for ones with chapters on the history of sail). Other good resources include books on maritime archaeology and the several "TimeLife" books in print. "Wooden Boat" magazine is excellent for information on construction and use of various kinds of ships throughout history and generally has excellent pictures and diagrams. "Oceans" magazine (which will be found in the magazine archives) has many outstanding articles on various aspects of maritime history.

## Key Words

**carrack** - merchant vessel having various rigs frequently used by Mediterranean countries in the 15th and 16th centuries

**Carthage** - ancient city state in North Africa near modern city of Tunis, founded by the Phoenicians

**clinker style** - a style of boat building in which the shell of the boat is formed of planking in which each strake (course of planks) overlaps the next one below and is overlapped by the next one above

**culture** - a particular form or stage of civilization; the sum total of ways of living built up by a group of human beings and transmitted from one generation to the next

**lateen sail** - triangular sail set on a long, sloping yard used especially on the Mediterranean

**long boats** - largest boat carried by a sailing ship

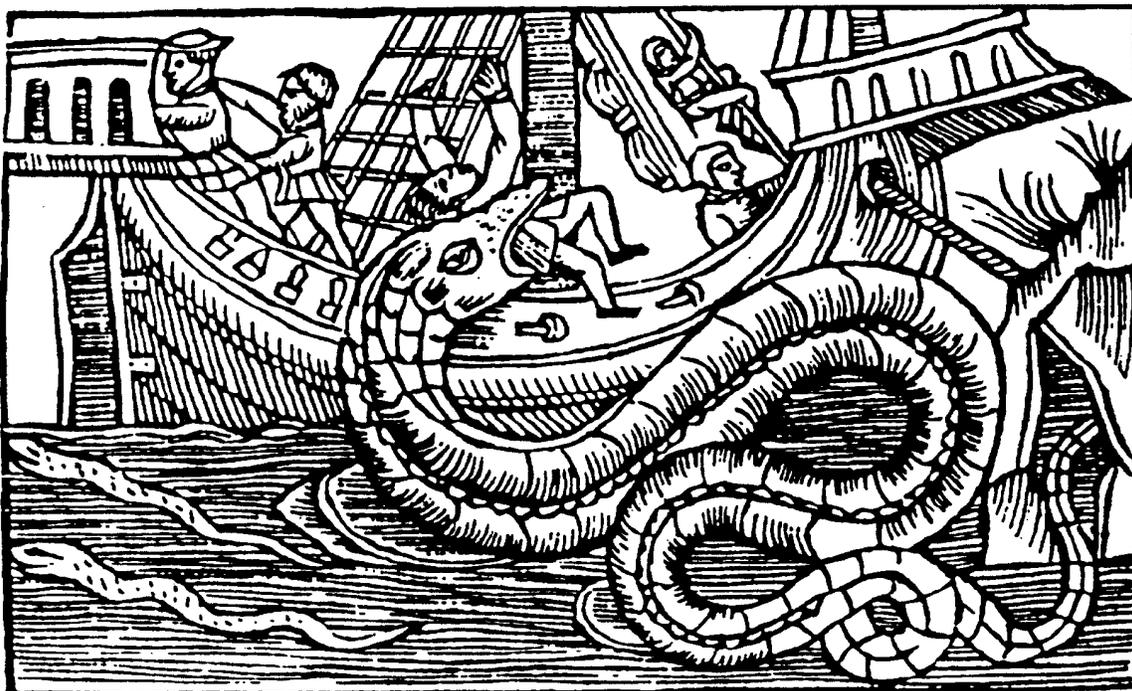
**Phoenician** - ancient kingdom on the Mediterranean in region of modern Syria, Lebanon, and Israel

**Extensions**

1. Have each group prepare a short presentation to the class on their period in history.
2. Have each group examine the periods just before and after their period and create Concept Maps showing how various developments or instruments depended on previous developments, or led to later ones. (For example, Magellan's voyage could not take place without the development of three things: the compass, the sextant, and the chronometer.)
3. Have each group contribute to a "mini-project" showing how ships have changed throughout history and describing the way they were used, how they worked, and how they were constructed.

# That Was Then, This Is Now...

## A Brief History of the Western World From the Perspective of Oceanography



Your group has been assigned a period of European history sometime between the height of Greek culture and the beginning of the 20th Century. Your task is to examine that period of history and glean all the information you can that relates to Oceanography.

Keep in mind that prior to the middle of the 1800's, about the time of the first western scientific expedition, people went to sea basically for two reasons: to acquire food or to acquire money. Sea voyages, in spite of all the problems with navigation, pirates, leaky craft and mutinous crews, were still the most efficient way to move lots of goods. Consider walking. With a heavy load, one can travel about 1 mile per hour and carry a tiny amount of goods. Camels, or other beasts of burden, can carry much more than a human, but carry much less than a ship. In addition, a camel train moves no faster than humans walking! Even ancient ships could carry tons of goods and easily travel 5 miles per hour. That's why, in general, major cultural centers were seaports. That's why, too, major oceanographic advances had to do with better boats, better navigation, and better protection of trade routes. And that's why, historically, the culture in power was the one that had the best navy!

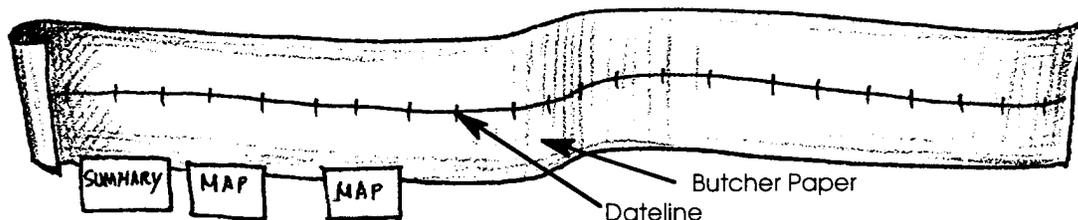
Once you have researched your period of history, your group (along with the other groups), will construct a Time Line of Oceanographic History. Pay close attention to the format described below, because if everyone follows the same format, the final product will be consistent and more presentable! Pay close attention, also, to the three parts of the project, and to where each part goes on the timeline.

**Part One:** Your group will be handed a sheet with several questions about your period of history. Find the information necessary to answer each of those questions and as much more information as you can about developments or events pertaining to Oceanography. Then, devise a way to present the information in a graphic way; that is, use pictures more than words. (Example: If so and so discovered the compass on such and such a date, why not show a small picture of the instrument, with a brief caption explaining its importance, rather than a paragraph describing the event?) Draw the picture (or copy and color it, or trace it, or work it up on a computer, whatever is easiest for you and produces the best result), and add the captions (carefully printed or typed!) to a 3" X 5" card. This card will be pasted onto the timeline at the appropriate date.

**Part Two:** Your group must provide a world map, measuring 11" X 8-1/2" (you may find it necessary to reduce or enlarge the map you choose to make it the required size). On this map, show all the major cities, countries, trade routes, and voyages of exploration relevant to your period of history. Ideally, you should use a map that was drawn during the period which you are studying, but if that proves too difficult, use a modern map of the world. Keep in mind that you may not fill in the whole map if the map you use is a modern one. (The Greeks, for example, most likely didn't even know North America existed, so you wouldn't fill in anything there!) Use color coding for items of importance to make the map presentable and clear enough so that a person not familiar with your period of history would understand what you are trying to show. This map will also be placed on the timeline, as shown below.

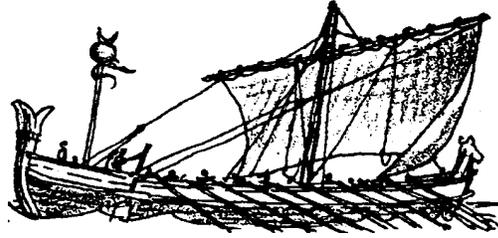
**Part Three:** Your group must develop a one-page, typed, double-spaced, one-inch margins all around, summary of your period in history. The hard part will be putting all of the information you found into a single page. (After all, whole books have been written about the same period!). Include what was happening socially, spiritually, artistically, scientifically, but make sure the focus is the sea! The idea here is to provide a 30-second overview of your period in history for someone who knows little or nothing about it. This one-page summary will also be placed on the timeline, as shown below. NOTE: when you print up the summary, the page goes SIDEWAYS (11" x 8-1/2") in the printer or typewriter, as shown below.

Illustrated below is the format you are to use for preparing your section of the timeline. Note the positions of the map and summaries, hanging below the timeline. Some groups may be asked to find maps drawn by historical figures. These maps should be added below the appropriate date. It may be advantageous to reduce them some so they fit better.



## Time Period 1 The Greeks and the Phoenicians

I. On your map, make sure you show the trading routes, both land and sea based, for both the Greeks and Phoenicians! Show also the voyage routes and major cities for both cultures.

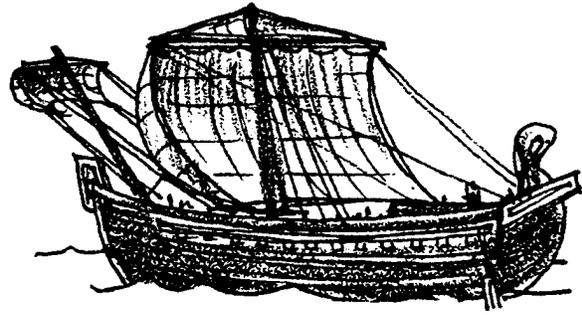


II. On your time line, show AT LEAST the following people and events:

1. In 550 B.C., a Carthaginian named Hanno led an expedition. Where did he go?
2. In 480 B.C., the Greeks fought a naval battle. With whom? Who won? Why was this significant?
3. In 405 B.C., there was a naval battle in the Peloponnesian War. Who fought? Who won? What was the key to winning the battle?
4. A sailor named Pytheas took a trip. When? Where?
5. A lighthouse was built at a place called Pharos. It was a big deal. Why?
6. Who was Aristarchus, and why was he significant to navigation?
7. Archimedes figured out why things floated. He also came up with the strategy for protecting the city of Syracuse. What was the strategy? Who was attacking?
8. Eratosthenes drew a map of the world and figured out the circumference of the Earth. What does the map tell us about the Greek view of the world? How did he figure the Earth's circumference? (Heck, how did he figure the Earth was round?)
9. Jason sailed the *ARGO* on a voyage. When, where, and why? (Show the voyage route on your map). Clue: Homer wrote two poems about the trip: the "Iliad" and the "Odyssey".

## Time Period 2 The Romans

I. On your map, make sure you show the trading routes, both land and sea based, for both the Roman Republic and the Roman Empire! (Can you describe the difference?) Show also the voyage routes and major cities for both cultures. It may be helpful to color-code your map.

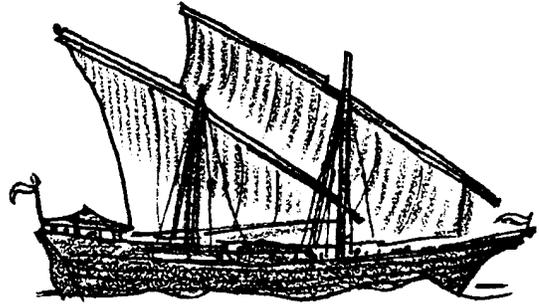


II. On your time line, show AT LEAST the following people and events:

1. There were three Punic Wars. (Why? When?) During the first, Rome built a navy (Why?). During the second, Hannibal crossed the Alps (How? Why would he go that way?) During the third, Rome conquered two key cities and gained control of the Western Mediterranean (What two cities? Why were they important?) How did control of the sea lanes affect the development of the three Punic Wars?
2. A geographer named Strabo (he was actually Greek) did something of significance in oceanography. What? When?
3. An astronomer named Hipparchus did something of significance in navigation. What? When? (He also was the first to assert that it was millions of miles to the sun, not just a short distance!)
4. Claudius Ptolemy made a map that remained influential through the Middle Ages. (Show the map below the time line.) When did he make the map? What did this map show about the view of the world at that time?
5. By the mid 200's A.D., boats were built clinker-style. What is clinker-style? Why is this boat style significant?
6. Rome fell. When? Why?

### Time Period 3 The Arabs

I. On your map, make sure you show the trading routes, both land and sea based, for the Arabs **and** the Europeans during the period from about 400 A.D. to about 900 A.D. This was a time of scientific and cultural growth for Arab cultures, but was a time of stasis (little change) in Europe. It is a time period known in European history as the “Dark Ages”. Show the voyage routes and major cities for both cultures. It may be helpful to color-code your map.

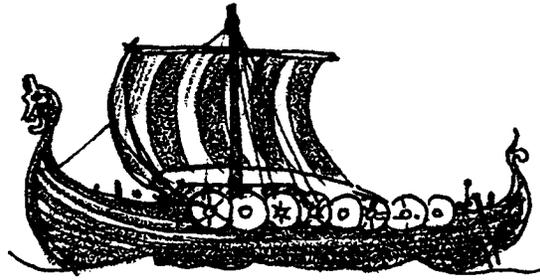


II. On your time line, show AT LEAST the following people and events:

1. During a time of incredible cultural and scientific stasis in Europe, the Arab cultures were flourishing. Show some of the scientific and cultural advances made by the Arab cultures that are significant in oceanography.
2. In the 6th century, a map maker named Cosmas drew a map. (Show the map below the time line). What did this map say about the view of the world at the time?
3. Who were the Vandals, and what did they do? Where did they come from?
4. Who were the Huns, and what did they do? Where did they come from?
5. Control of the sea lanes was of little importance in Europe during this time. What information can you find about the Europeans’ involvement with the sea?
6. In contrast with Europeans, Arab involvement with the sea was extensive. What can you find about the Arab’s sailing abilities and trade routes?
7. The Greeks (still around!) drove a Moslem fleet from Constantinople in around 675. How did they do it, and why was this battle significant?
8. In 762, Baghdad, on the Tigris River, became a great commercial center for shipping and trade. What is the significance of this event?
9. In the late 9th century, the Arabs introduced the lateen sail to the Mediterranean area, the Red Sea, and the Indian Ocean. What is the significance of this? (Hint: Prior to this, all sails were square. Check in some books on the history of sailing!)
10. A priest named Gerbert (who later became Pope Sylvester II) brought something from Cordoba back to central Europe. The item was significant in oceanography. What was it, and what culture did he bring it back from?

## Time Period 4 The Vikings

I. On your map, make sure you show the trading routes, the voyage routes, and the major cities of the Viking culture.

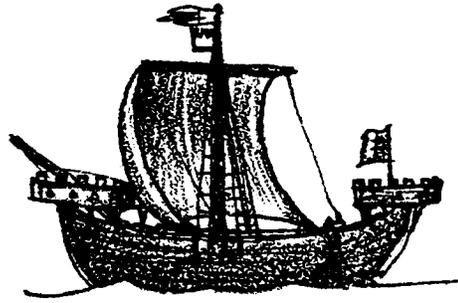


II. On your time line, show AT LEAST the following people and events:

1. In 911, a Viking, named Rollo, struck a one-sided deal with the King of France. What did Rollo get? Why was the “deal” so one-sided?
2. Who was Eric the Red, and what did he do?
3. In 986 A.D., Bjarni Herjulfsson, according to Norse sagas, sailed from Iceland heading for Greenland. He was driven by bad weather too far south to hit Greenland. What did he discover before turning around and heading back to Iceland?
4. Eric’s son, Leif Ericsson, did something in 1000 A.D. What was it?
5. What did William the Conqueror do in 1066 A.D. using longboats? (What are longboats?)
6. Pressures of overpopulation and prevailing good weather led the Vikings south. How far south did they exert their influence?
7. The Vikings used two basic kinds of ships, one for exploration and carrying cargo and one for battle. How were they propelled? What were the differences in the two designs?

## Time Period 5 The Middle Ages

I. On your map, make sure you show the trading routes, the voyage routes, and the major cities of European culture at this time.



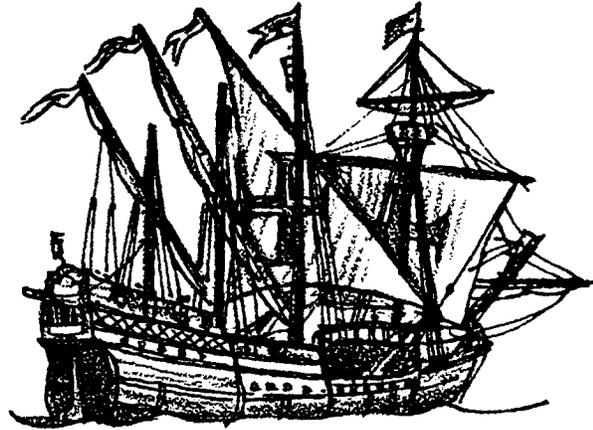
II. On your time line, show AT LEAST the following people and events:

1. There were eight crusades of major importance. Some were by land and some were by sea. When did they occur, what was their purpose, and what did they accomplish? ( Which were by land, and which were by sea?)
2. When was the first use of stern-fitted rudders on European ships, and why is this a significant advantage?
3. When did the use of navigational charts first become significant?
4. What was the Hanseatic League (late 1200's), and what did they do?
5. Levi ben Gerson popularized a very important navigational tool. What was it, and why was it important?
6. What did Edward III do in 1340, and why was it significant?
7. In 1372, who controlled the English Channel?
8. In 1416, the Dutch introduced a new tool for catching herring. What was it? (Hint: It's still in use today!)

## Time Period 6 The Age of Discovery

I. On your map, make sure you show the trading routes, the voyage routes, and the major cities of European culture at this time.

II. On your time line, show AT LEAST the following people and events:

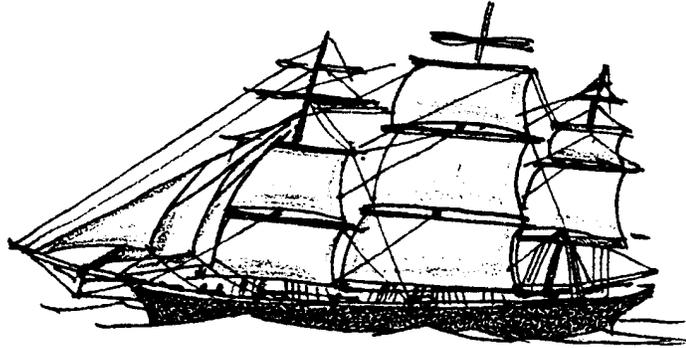


1. Who was Prince Henry the Navigator, and why was he significant?
2. Johann Muller was a German astronomer in the 17th Century. What did he do of significance to navigation?
3. In the mid 1600's, boat builders designed ships called carracks. What are they, and why was this ship design significant? (Hint: Carracks evolved into galleons!)
4. Who reached Sierra Leone in 1460, and why is this significant? (Here's a tough aside for you: Why didn't they go farther south than Sierra Leone?)
5. Venice defeated the Turks, gaining control of the Mediterranean. When? Why is this significant?
6. Explorers to add to the time line: Christopher Columbus, Vasco de Gama, John Cabot (and a cast of many looking for the Northwest Passage. Why did they want to find the Northwest Passage?), Pedro Cabral, Ferdinand Magellan.

## Period 7 The Age of Colonization

I. On your map, make sure you show the trading routes, the voyage routes, and the major cities of the “major players” during this period.

II. On your time line, show AT LEAST the following people and events:



1. Who were Sir Hugh Willoughby and Richard Chancellor, and what did they do?
2. Who was Sir Francis Drake, and what did he do?
3. What happened between the British and Spanish in 1588, and why was this significant?
4. What did La Salle do in 1679-1689, and why was this significant?
5. The British East India Company and the Dutch East India Company were founded in the early 1600's. Why were there **two** East India Companies? What did these companies do?
6. In 1726, John Harrison developed something of critical importance to navigation. What was it, and why was it significant?
7. What did John Hadley invent in 1730, and why was it important?
8. In 1758, John Bird improved Hadley's invention. What was it called, and how was it an improvement?
9. Who was James Cook, and what did he do?
10. What did James Clark and his uncle do in 1831?
11. A ship was launched in 1851, characteristic of a class of ships that played a significant role in American history. The boat was built by Donald McKay and was called *Flying Cloud*. The ship later went on to great fame. What is significant about *Flying Cloud*, in particular, and this type of ship in general?