

Wednesday, Sept 8, 2021

Pick Up: ■ Science project paperwork

Quiz Friday

Test next Fri 9/17

Today
you
will:

- Finish History Cornell notes
- Explorer Profile due tomorrow
- Start thinking of what you are interested in for your project
 - Idea Due Sept 17
 - Project Due Nov 30

Focus on the learning, not the grade!

Stage 4: Scientific Explorations Modern Marine Science

Science – Using observation
and experimentation to find
answers (empirical evidence).

Scientific Exploration

■ James Cook: Mid 1700's

- Figured out how to prevent scurvy (A crippling disease caused by vitamin C deficiency)
- <http://dl.nfsa.gov.au/module/1318/>
- 1st to use **chronometer (accurate clock or watch)** to determine longitude.
- Mapped many islands in the Pacific including Australia and New Zealand.



- James Harrison: Invented the chronometer.
- The chronometer is a clock invented to be used specifically at sea. This allowed sailors to accurately comparing Greenwich Mean time to the local time.



- Cornelis Drebbel- 1620 1st submarine

- http://www.dutchsubmarines.com/specials/special_drebbel.htm

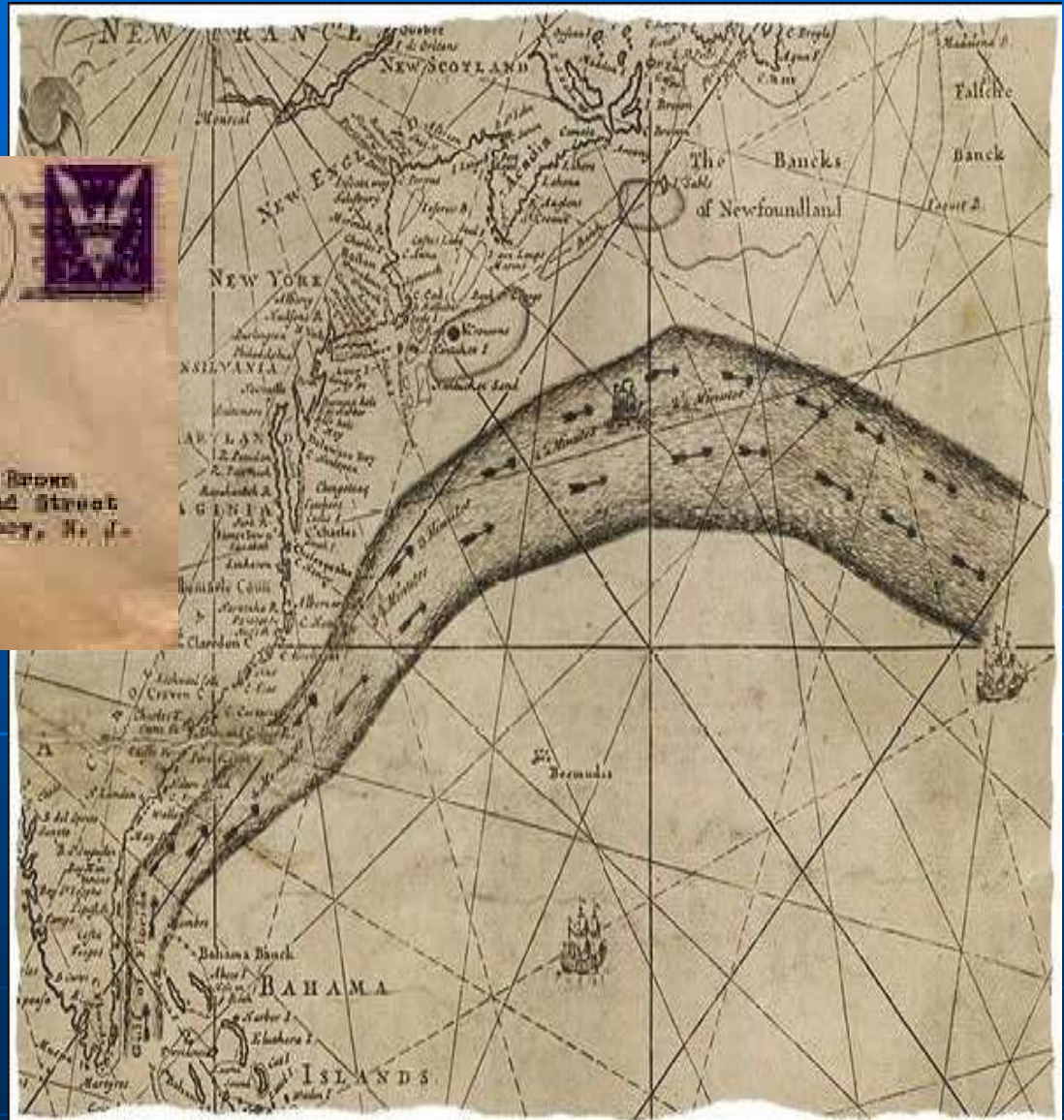
- Benjamin Franklin, US postmaster, wanted to know why it took longer for mail to come from Europe to America than vice versa
 - Later he drew an accurate map of the Gulf Stream



The first submarine was constructed by Cornelius and Oliver of Holland, in the secret King James I of England. It was assumed by 17 inches and submerged to a depth of twelve feet. This occurred in 1615.



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Drebbel's 1st Submarine

Ben Franklin's Gulf Stream- Image 1

- Matthew Fontaine Maury:
American Naval Officer
 - “The Father of Oceanography”
 - Studied currents and other physical aspects of the sea
 - 1855 analyzed the logbooks of navy ships and published the first books on oceanography called
 - *The Physical Geography of the Sea*

More Exploration

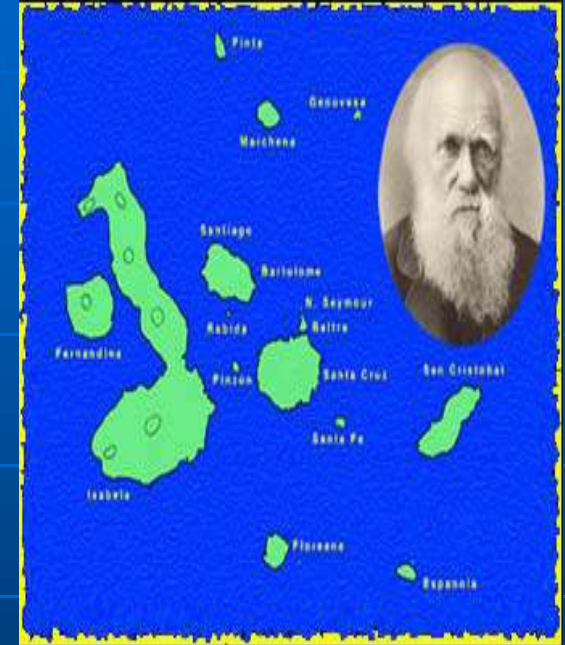
- Thomas Jefferson: 1807 authorized *Survey of the Coast* (the predecessor to NOAA)
 - NOAA- National Oceanic and Atmospheric Administration
- Charles Wilkes: 1836 the Wilkes Expedition (U.S. Exploring Expedition) proved the existence of Antarctica.

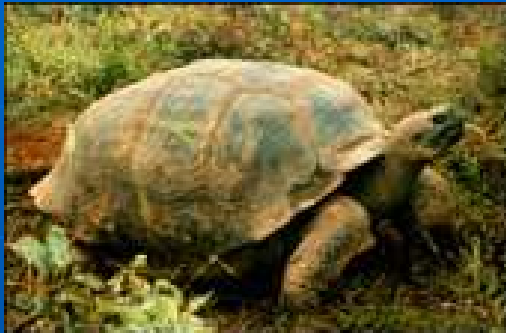
Charles Darwin

Marine Contributions

■ naturalist

- 1831, sailed on the HMS *Beagle*
- Studied coral reef construction and theorized that corals build upward as the seafloor receded (this is still accepted today)
- Found new species of plants and animals.
- Proposed Theory of Natural Selection in his publication the "Origin of Species"





vandenburghi



porteri



chatamensis



abingdoni



hoodensis



unknown

Galapagos Tortoise

http://www.youtube.com/watch?v=Qd-1_CjgGCQ&safe=active



Marine Iguana

<http://www.youtube.com/watch?v=VfZQfCkKuKM&safe=active>

■ HMS *Challenger*- 1873-1876

- First exploration mission devoted entirely to marine science
- Led by Sir Charles Thompson
- Collected water, sediment, and temp data
- Identified more than 4700 new species of marine organisms
- Challenger II expedition discovered the "Challenger Deep" in the Mariana's trench. (over 35,000 ft. deep, deepest known point in the ocean)