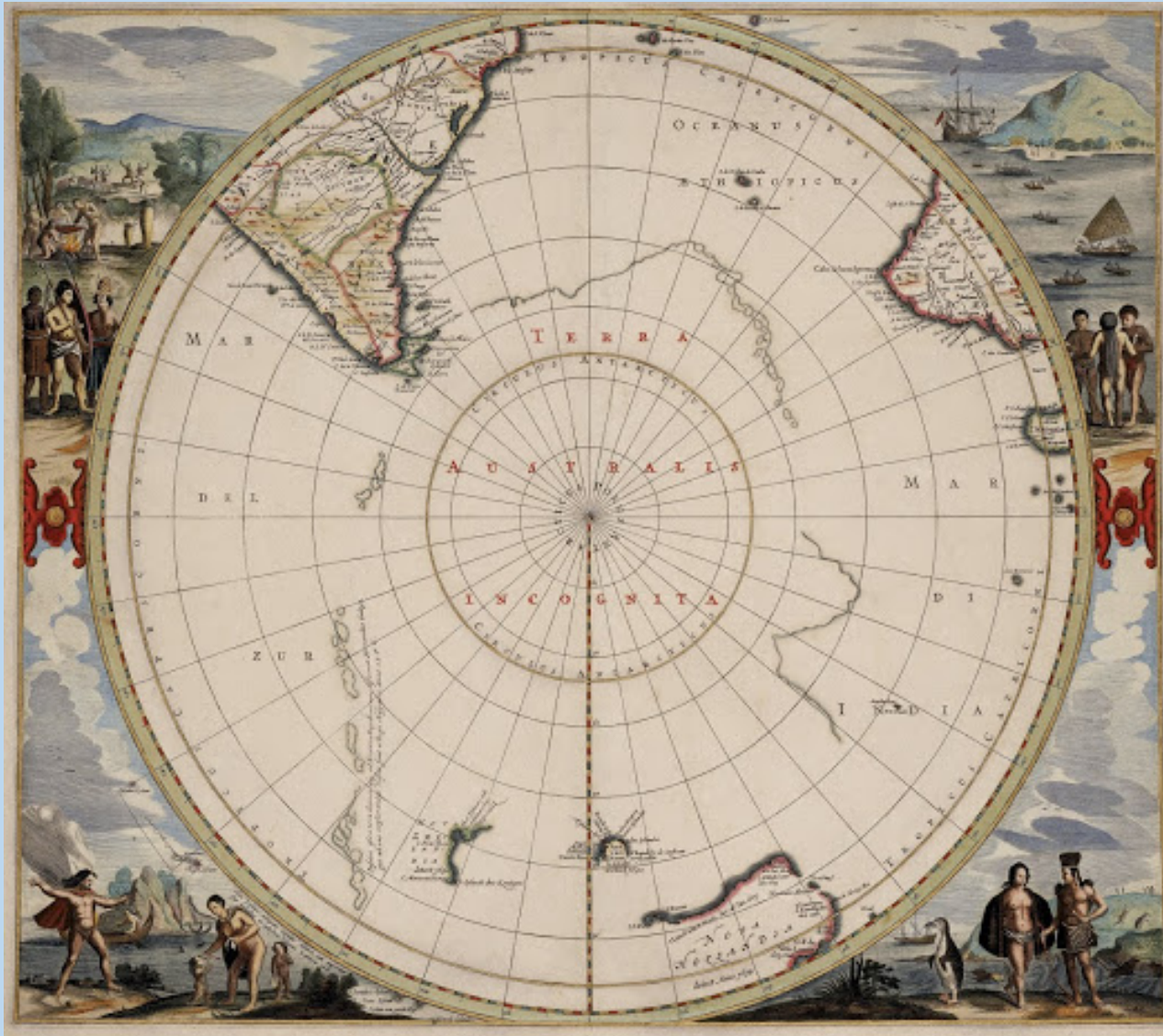


Antarctica: discovery and early human history



World Wall Map

2011 ©Copyright www.MapsNWorld.com



As soon as it was determined that the earth was round in the 6th century B.C., speculation began about frigid zones north and south.

Ptolemy (150 A.D.) was the first to state that there must be a southern continent, Terra Australis Incognita

**Ptolemy, Greek mathematician,
geographer, astronomer
100 – 170 A.D.**



Also said that it was separated by a land of fire, or torrid zone, so explorations south were discouraged for the next 1200 years

By 1400s, explorations began to pick up and the Cape of Good Hope was discovered in 1488, rounded in 1498, indicating there was more ocean and perhaps land south of Africa

Cape Agulhas is actually the most southern point in Africa and where the two oceans meet



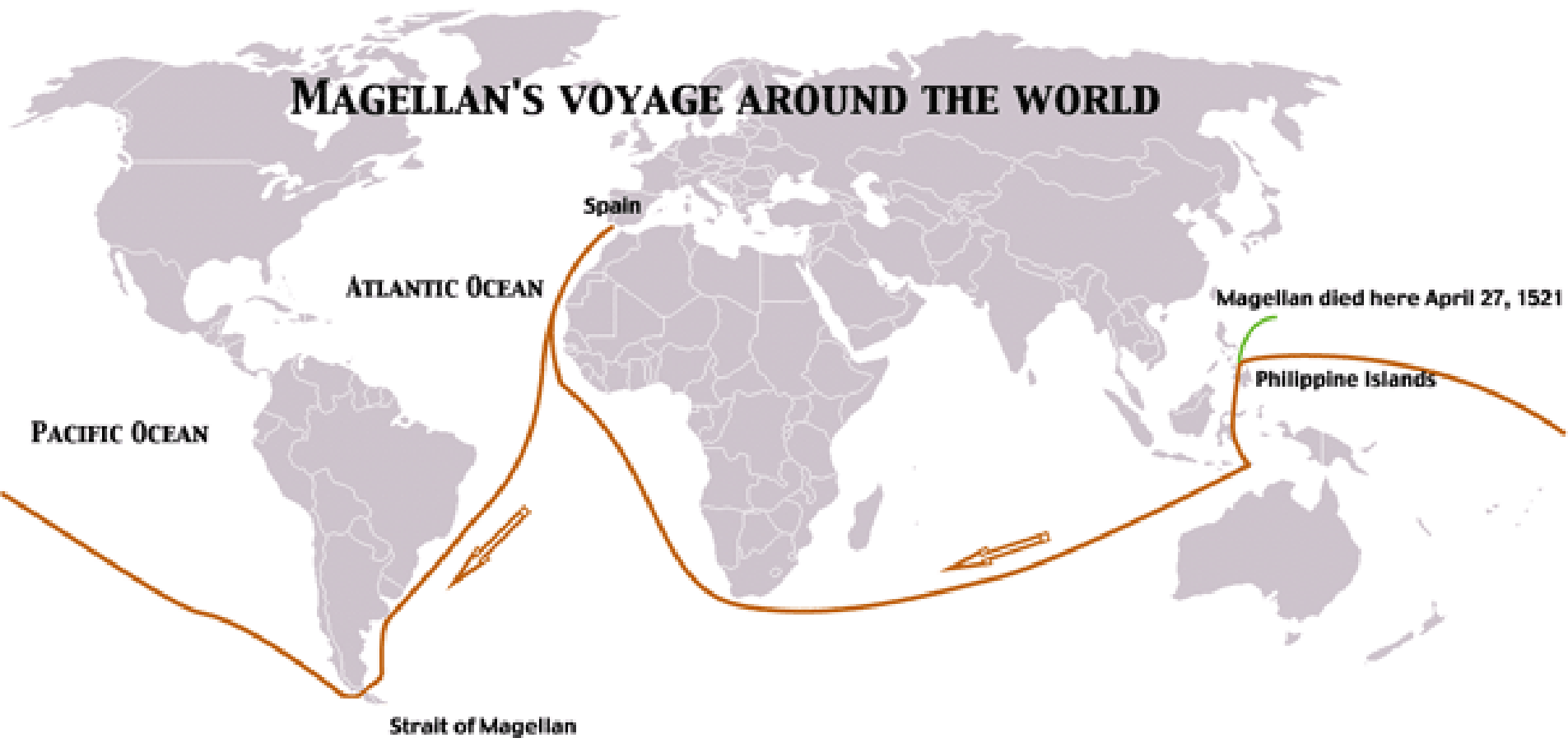
Bartholomew Diaz (Portuguese) was first to round the Cape in 1488, then Vasco da Gama in 1497 went around it to India

**Ferdinand Magellan, Portuguese explorer
1480 – 1521**

**Received support from the Spanish king to seek a
western route to the Spice Islands in SE Asia**



In 1519-1521 Magellan sailed around the world and discovered the Straits of Magellan at Tierra del Fuego, though it may have been discovered earlier



STRAIT OF MAGELLAN





ARGENTINA

CHILE

Tierra del Fuego

Océan

Paso de Drake

Here Magellan ordered two ships to explore the channel to the west while he took one ship to explore the bay

His officers thought it useless, the bay too shallow to have a passage to the west

Magellan persisted and his two ships succeeded in finding the route to the Pacific





Later, one officer wrote:



Martin of Bohemia
German mariner, 1459-1507

Had it not been for the Captain General, we would not have found that strait, for we all thought and said it was closed on all sides. But he himself knew full well where to sail to find the well-hidden strait, which he had seen depicted on a map in the treasury of the King of Portugal, which was made by that excellent man, Martin of Bohemia. He therefore sent the two ships, the San Antonio and the Concepción to discover what was inside the cape of the bay.

Presumed Tierra del Fuego, south of the straits, was part of the southern continent as was indicated on subsequent maps



Monument of the Discoveries



Lisbon, Portugal

Sir Francis Drake sent to Tierra del Fuego in 1577 to explore the coastline and enter the Pacific via the Straits of Magellan

Financed by merchants and ministers

Real purpose was to explore and take possession of the southern continent, in a way the first Antarctic expedition



Drake's circumnavigation of the world, 1577-1580





ARGENTINA

CHILE

Tierra del Fuego

Océano

Paso de Drake

The push south, though, did prove that Tierra del Fuego was not connected to a great southern continent, and Drake Passage was later named for Sir Francis Drake

Drake also recorded sightings of penguins:

“Wee found great store of strange birds which could not flie at all, nor yet runne so fast as that they could escape us with their liues; in body they are less than a goose, and bigger than a mallard, short and thicke sett together, having no feathers, but instead thereof a certaine hard and matted downe; their beakes are not much unlike the bills of crowes, they lodge and breed upon the land, where making earthes, as the conies doe, in the ground, they lay their egges and bring up their young; their feeding and provision to live on is in the sea, where they swimm in such sort, as nature may seeme to have granted them no small prerogative in swiftnesse.”

Interest in the great southern continent waned after this

In 1592, an English ship was driven off the coast of Argentina and discovered the Falkland Islands



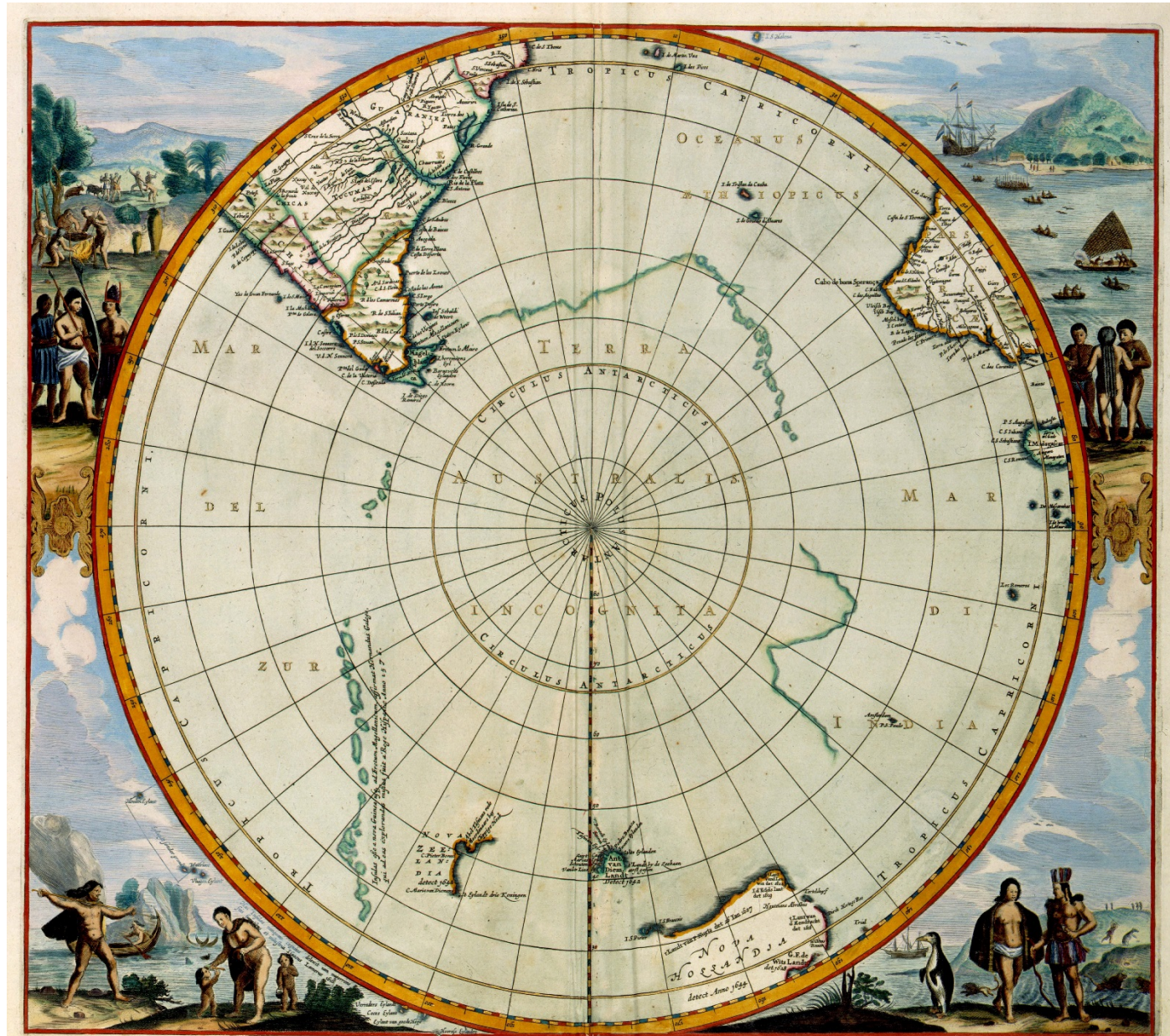


In 1599, a Dutch ship was forced south to perhaps 64° and reported a ‘high land with mountains covered with snow, resembling the land of Norway’

May have been first sighting of the South Shetland Islands



By 1620, maps were beginning to show some of Australia's south coast and tentative lines for Antarctica as 'terra australis incognita'



One other English merchant ship was blown south when trying to enter the Straits of Magellan in 1675.

Ended up at 55° south and took shelter in a bay of an unknown coast.

Stayed 14 days and found an end of the land and sighted another high snow-covered land to the south

This was probably South Georgia Island and they sighted another island just south of there, not the Antarctic continent.



French explorer, Jean-Baptiste Charles Bouvet, wanted to explore and search for southern continent after seeing a map with empty ocean there.

Obtained two ships and sailed south in 1738, first to Brazil, then southeast from there.

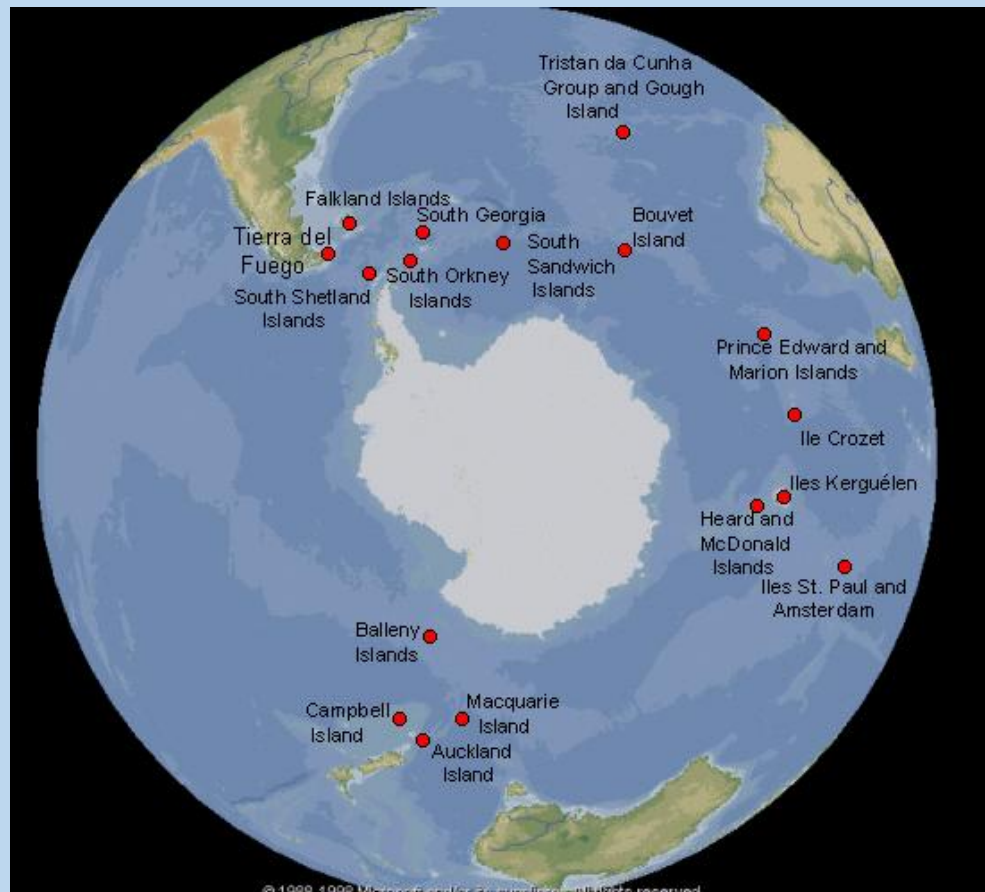
Eventually saw ice floes, penguins, and through fog stumbled upon an ice-covered land thought to be a cape off a continent, but now known as Bouvet Island, the most isolated island on earth.



Bouvet couldn't land on the island and could not see it was an island from the fog and his men were cold, wet, some with scurvy

Eventually forced to leave and it wasn't until 1808 before it was sighted again by whalers and 1822 when the first landing was made

Eventually claimed by Norway in 1929, it was named in honor of Bouvet



French map in 1763 showing a possible continent and ice-filled sea in the south



The next attempt to find the great southern continent was by the French, who sent Captain Yves-Joseph de Kerguelen to Amsterdam Island in 1771 to explore from there farther to the south based on rumors of a 'tropical paradise'.

In 1772 the ships found Kerguelen Islands, but not the tropical paradise as hoped. One boat landed, but Kerguelen returned to Madagascar and claimed they had found a lost continent.

Later, when proven false, Kerguelen was dismissed from the navy and imprisoned



Captain James Cook (1728-1779)



Considered the greatest navigator of his time

Self taught in math and astronomy, joined the navy and quickly rose in rank

In 1768, commanded an expedition to the south Pacific

Discovered New Zealand and the east coast of Australia and claimed them for Britain

After this success in the Pacific, Cook was given command of a new expedition to relocate Bouvet's 'lost continent'

Sailed from England in two ships, the *Resolution* and *Adventure*, in 1772

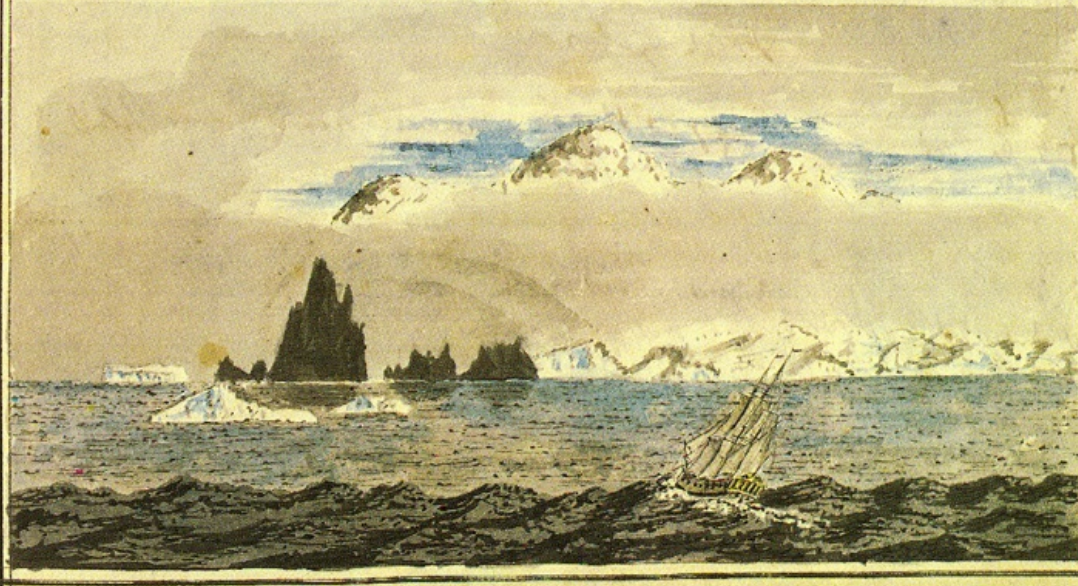


Did not find Bouvet Island, but went farther south and disproved Bouvet's claim for a southern continent there

Spent winter in New Zealand, then sailed south again and hit lots of sea ice and turned back to New Zealand

On third traverse, sailed to Tierra del Fuego, then relocated South Georgia Island and discovered the South Sandwich Islands before returning to England in 1775

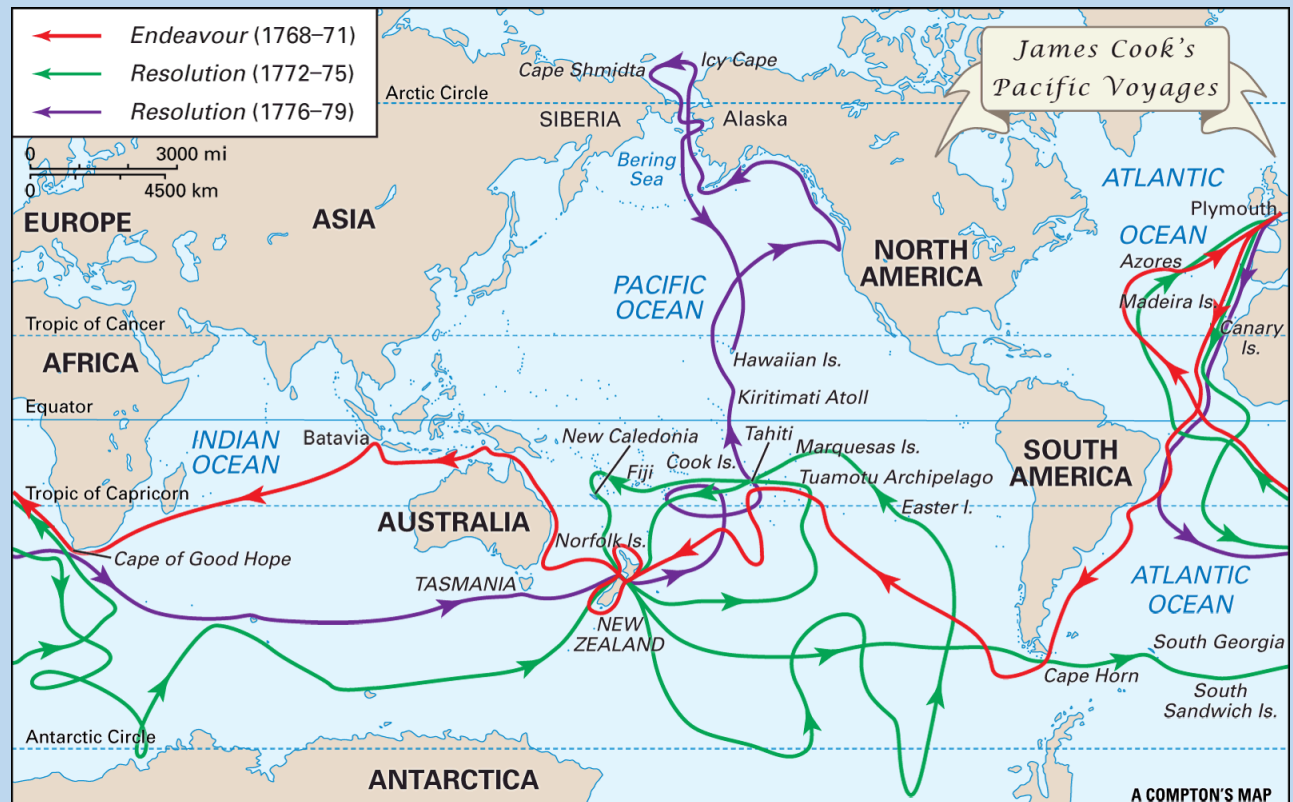
not a mile I think we must have past near some parts of the coast before we saw it. This country has the most dreary starved appearance that can be imagined like spiral rocks and craggy precipices from the shore in land are snowy mountains of tremendous height high raised above the clouds following is a perspective view



By now, Cook was famous in England and considered a great captain and navigator

Given command of a third expedition in 1776 to find the northwest passage in the north Pacific. Took the *Resolution* again, plus a new ship, the *Discovery*. If found, this passage would avoid the hazardous route around Cape Horn from Europe to Asia

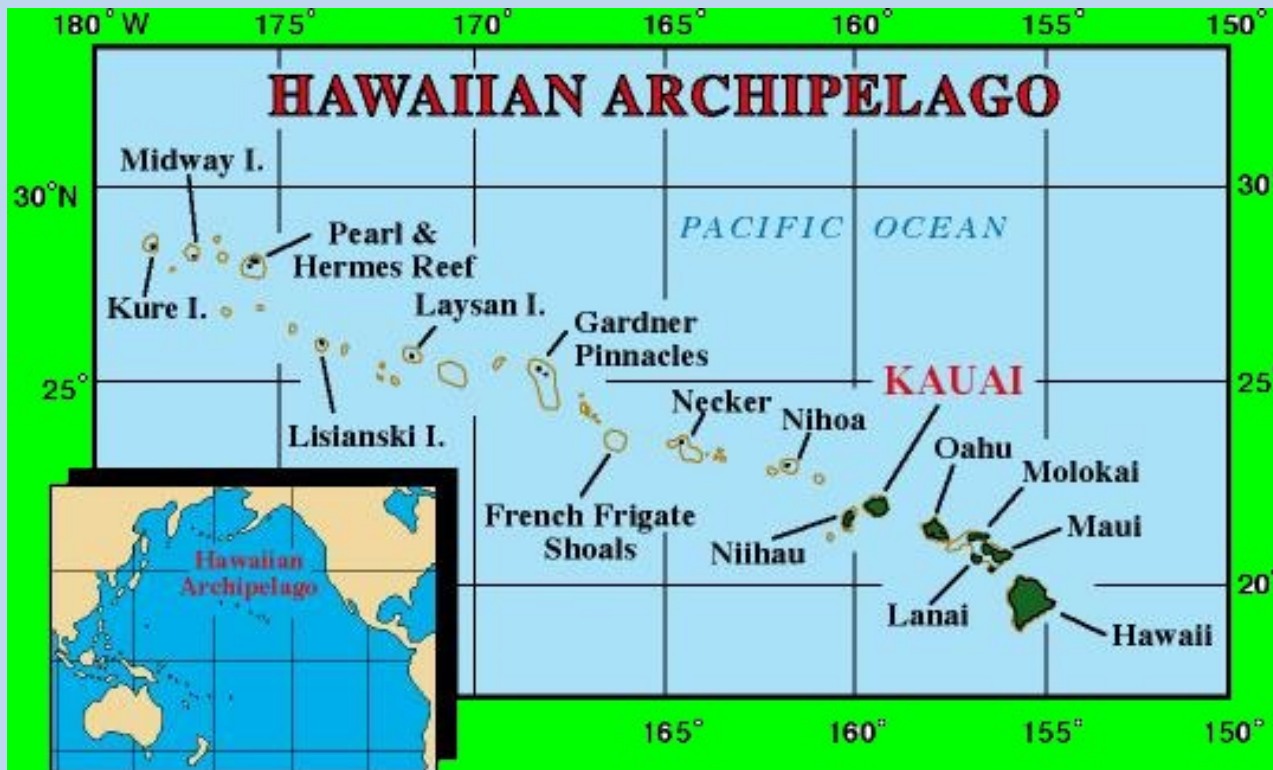
Went to Tahiti first, and decided to round Cape of Good Hope to reach the Indian Ocean



Weather worsened and pushed him south again. Relocated Kerguelen Islands and claimed them for Britain despite earlier French claim

Sailed to New Zealand, then north in the Pacific and discovered the Hawaiian Islands in 1778

Died there is a skirmish with natives on the beach of the Big Island on 14 February 1779



IN MEMORY OF
THE GREAT CIRCUMNAVIGATOR,
CAPTAIN JAMES COOK, R. N.,
WHO
DISCOVERED THESE ISLANDS
ON THE 18TH OF JANUARY, A. D. 1778
AND FELL NEAR THIS SPOT
ON THE 14TH OF FEBRUARY, A. D. 1779.

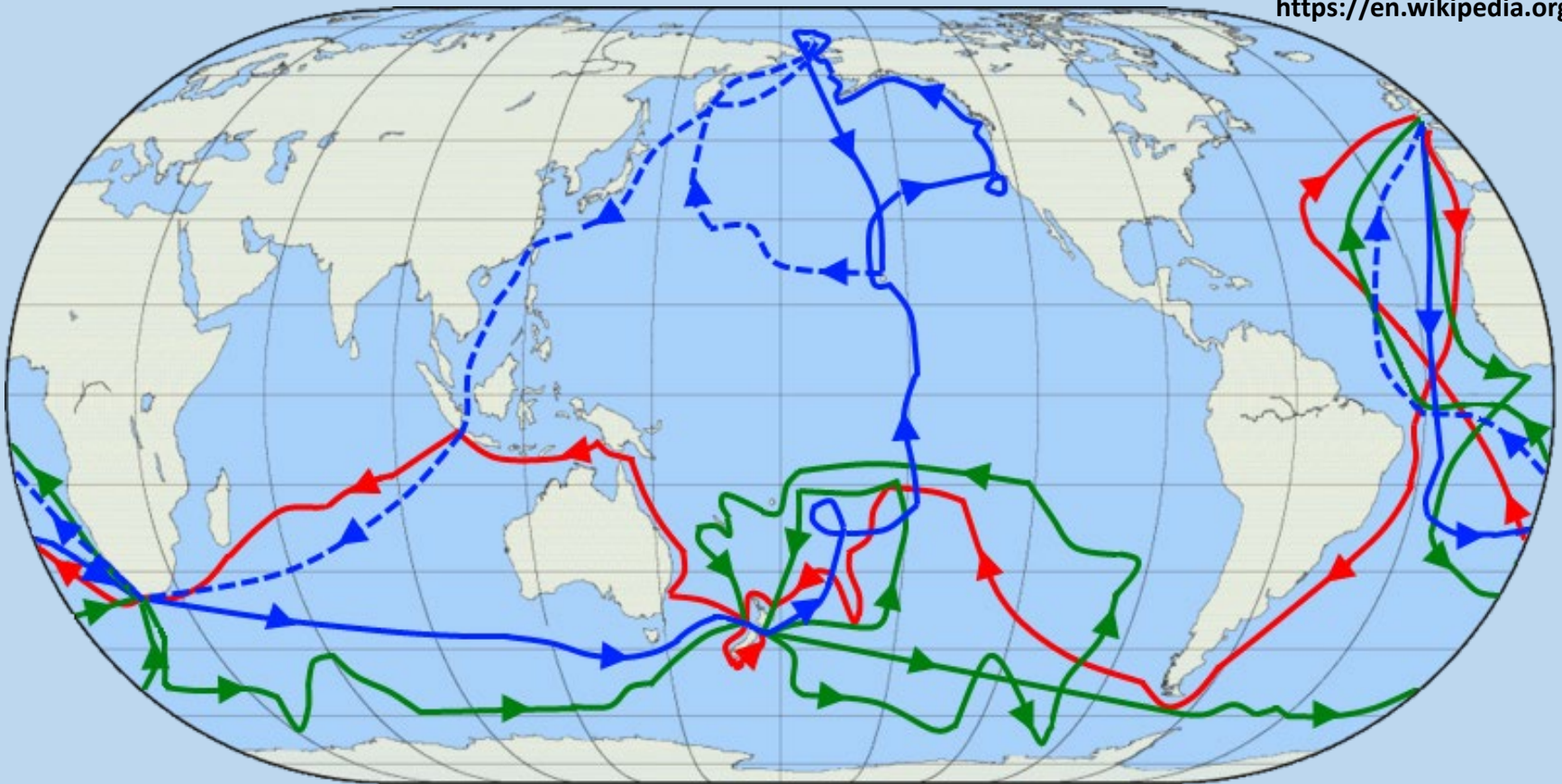
— • —
THIS MONUMENT WAS ERECTED
IN NOVEMBER A D 1874
BY SOME OF
HIS FELLOW COUNTRYMEN.



Cook was the first to circumnavigate Antarctica and the first to cross the Antarctic Circle (66° S)

He never sighted Antarctica, though, and his voyage 'proved' there was no southern continent

<https://en.wikipedia.org>



The routes of Captain James Cook's voyages. The first voyage is shown in red, second voyage in green, and third voyage in blue. The route of Cook's crew following his death is shown as a dashed blue line.

Cook can also be credited with developing sanitation and dietary rules that kept his men healthier than any other ship's crews up to that time.

He made them clean cooking vessels more thoroughly

He also gave them more fresh food and green vegetables, preventing scurvy which up to then killed more men at sea than any other single cause

Caused by Vitamin C deficiency, or going long periods without fresh fruits, vegetables, and meat

Symptoms include lethargy, gum disease, easy bruising, liver disease, and death

Poorly understood, even up into the early 20th century

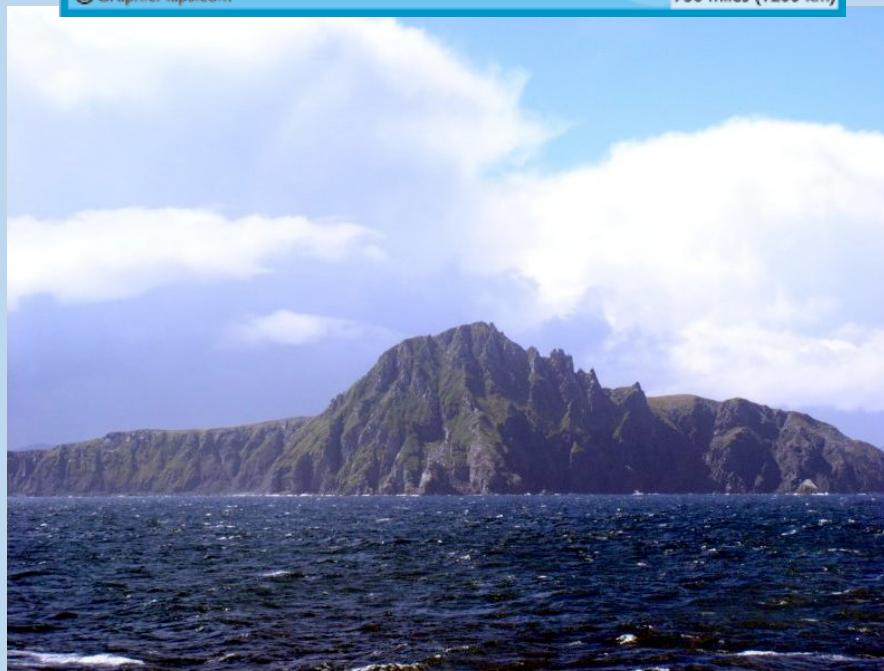


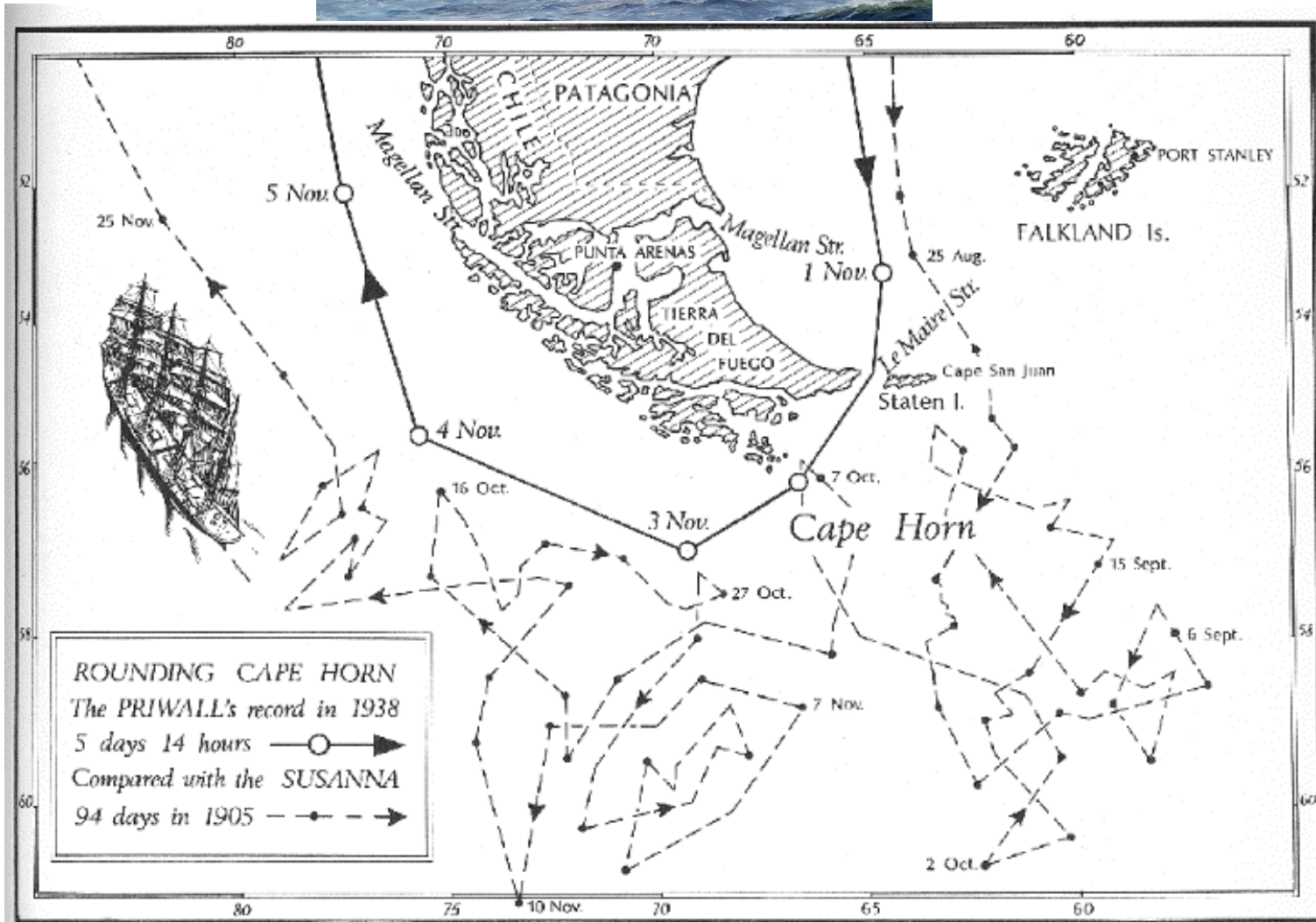
Cook's voyages limited any great southern continent to south of the Antarctic circle, which he crossed three times but never sighted the continent

Unfortunately, his reports opened the door for sealers to head south and take advantage of the rich resources there

Due to competition among the sealers, their discoveries and maps were kept secret







Rounding Cape Horn
Classic footage by Irving Johnson sailing on the *Peking* in 1929

[The Peking at Cape Horn](#)

Sealer captain William Smith (British) was able to relocate the South Shetland Islands and was the first to do a landing there in 1819

Followed by Nathaniel Palmer, an American sealer in 1821

More British ships followed to survey and map, search for new land, under Captains Weddell, Biscoe, Kemp, and Balleny



Nathaniel Palmer



Capt. John Davis, American sealer

Logbooks for ships found in 1950s and imply his crew may have landed at Hughes Bay, Antarctic Peninsula, the first known landing on the continent, on 7 Feb. 1821

He also wrote in the logbook:

'I think this Southern Land to be a Continent.'

This would be the first known reference to Antarctica as a continent as well.

Quiz

1. What were the major contributions of the early voyages by Magellan, Drake, Bouvet, and Kerguelen in the later discovery of Antarctica?
2. How did the voyages of James Cook change ideas about 'Terra Australis'.
3. What were Cook's contributions to sanitary and health conditions for men at sea?
4. Why is rounding Cape Horn in sailing vessels so difficult and dangerous?
5. What are the contributions of whaling ship captains William Smith and Nathaniel Palmer to the discovery of Antarctica?

Scientific Expeditions

While sealers were making incursions deeper into the Southern Ocean, the first scientific mapping and discovery expeditions were initiated

Russia finally joined exploration to the south with two ships sent to expand on Cook's findings and search for the southern continent in 1819

Under command of Captain Fabian Thaddeus Bellingshausen, the ships *Vostok* and *Mirny* sailed to the South Shetlands and, for the first time since Cook, across the Antarctic Circle

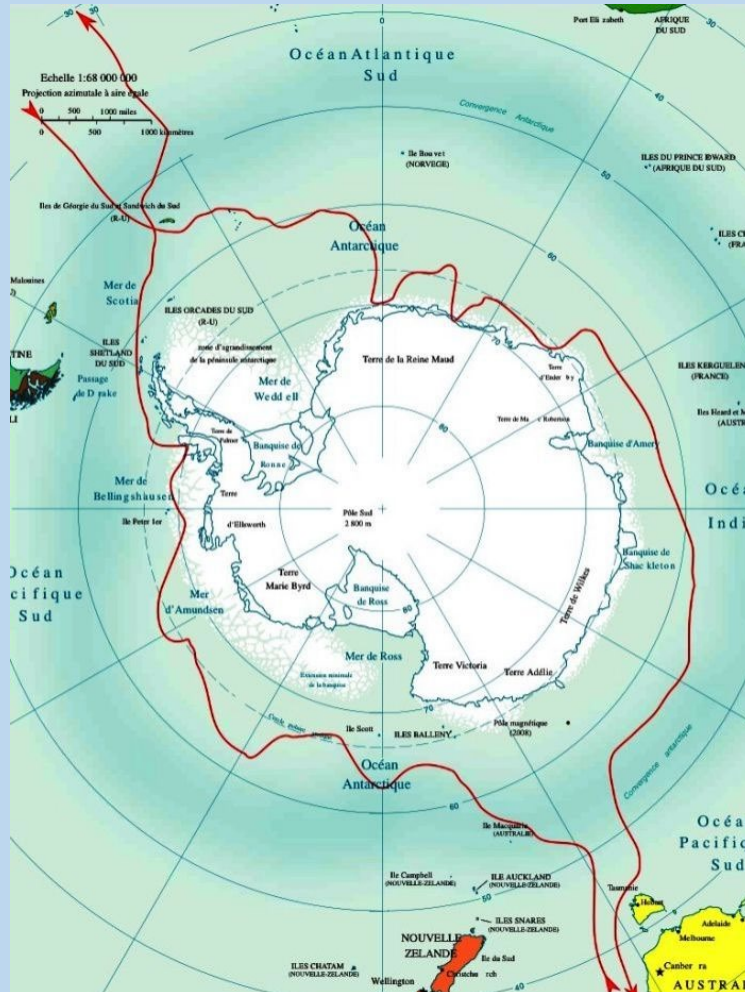
This was the first Russian Antarctic Expedition



In January 1820, Bellinghousen reached 69° 21' S and saw continuous hillocks of ice

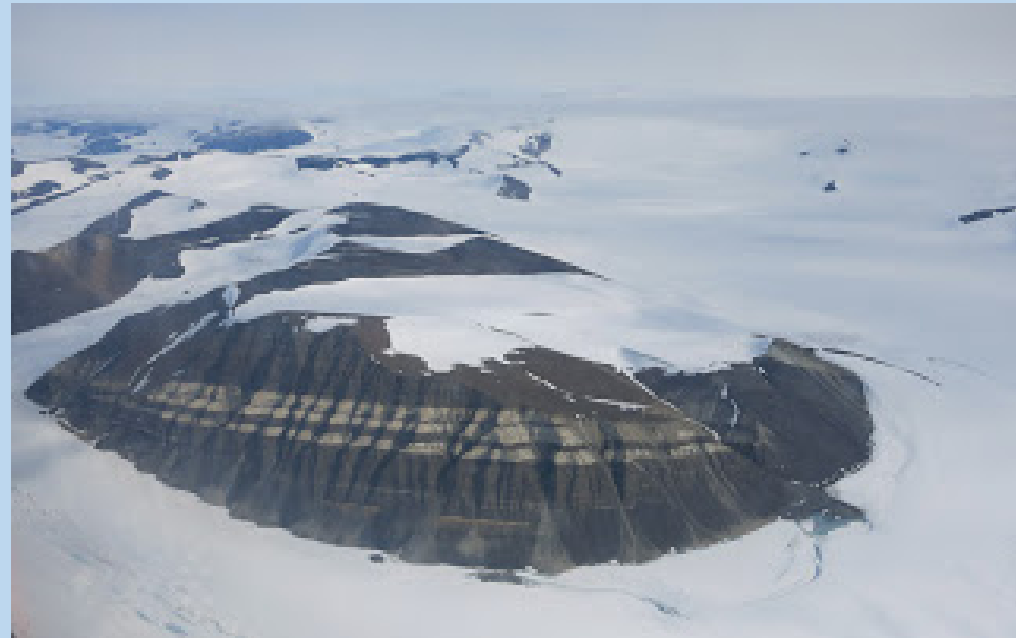
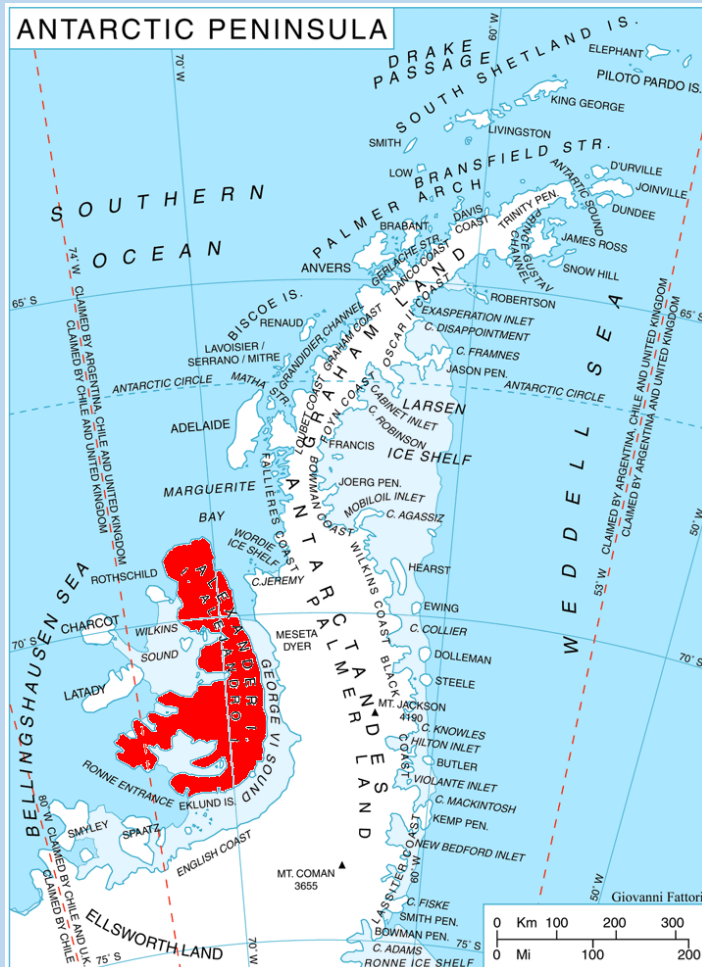
May have seen the continent, but mistook it for more icebergs?

They continued around Antarctica and then ended the voyage in Australia



Also in 1820, Bellingshausen left Sydney to continue his voyage and explorations

Went farther south again, across the Circle, and finally found land—**islands along the base of the Antarctic Peninsula including Alexander Island, which he named in honor of Tsar Alexander I.**



<http://hughvenables.blogspot.com/>

Also discovered and named Peter I Island which is so remote that very few people visit or even see it. The first landing did not occur for over 100 yrs after its discovery, in 1929.



Then he came across eight English and American sealing ships and met Captain Palmer who was commanding one of them

While Bellingshausen is credited as being the first to sight the Antarctic continent, some claim Palmer was

After this, Russia lost interest in the south except for whalers in the 1940s

During the IGY, Russia established their first scientific station in Antarctica in 1957, Mirny Station, in East Antarctica

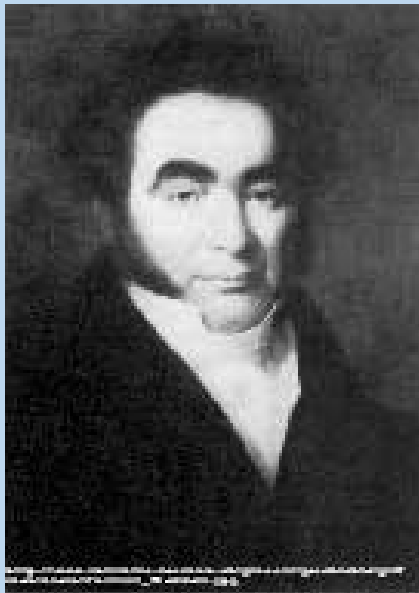


At the same time these exploration and mapping voyages were taking place the sealers continued their push south to new lands to exploit

Captain Palmer may have sighted the continent in 1819 or 1820, about the same time as Bellingshausen

Captain Weddell was able to go farther south than anyone before ($74^{\circ} 15' S$) in an unusually warm and ice-free year, discovering the Weddell Sea but turning back before sighting the continent

Captain Davis may have landed on the continent on 7 Feb. 1821

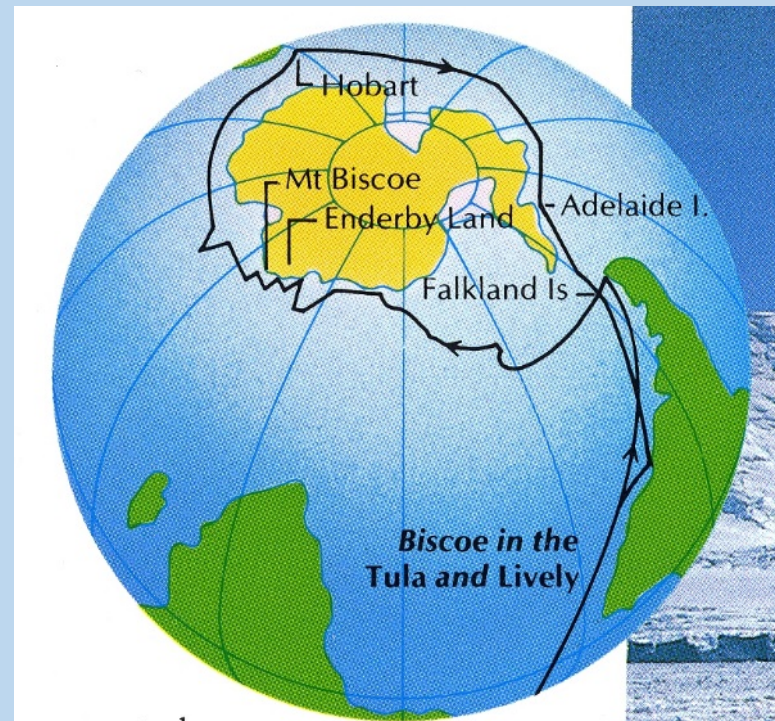


Weddell's ships entering the Weddell Sea

Captain John Biscoe (British) circumnavigated Antarctica in 1831-1832 and made landings on islands along the Antarctic Peninsula.



Based on his observations, he was the first to believe that a large continent existed at the south pole instead of an icy sea



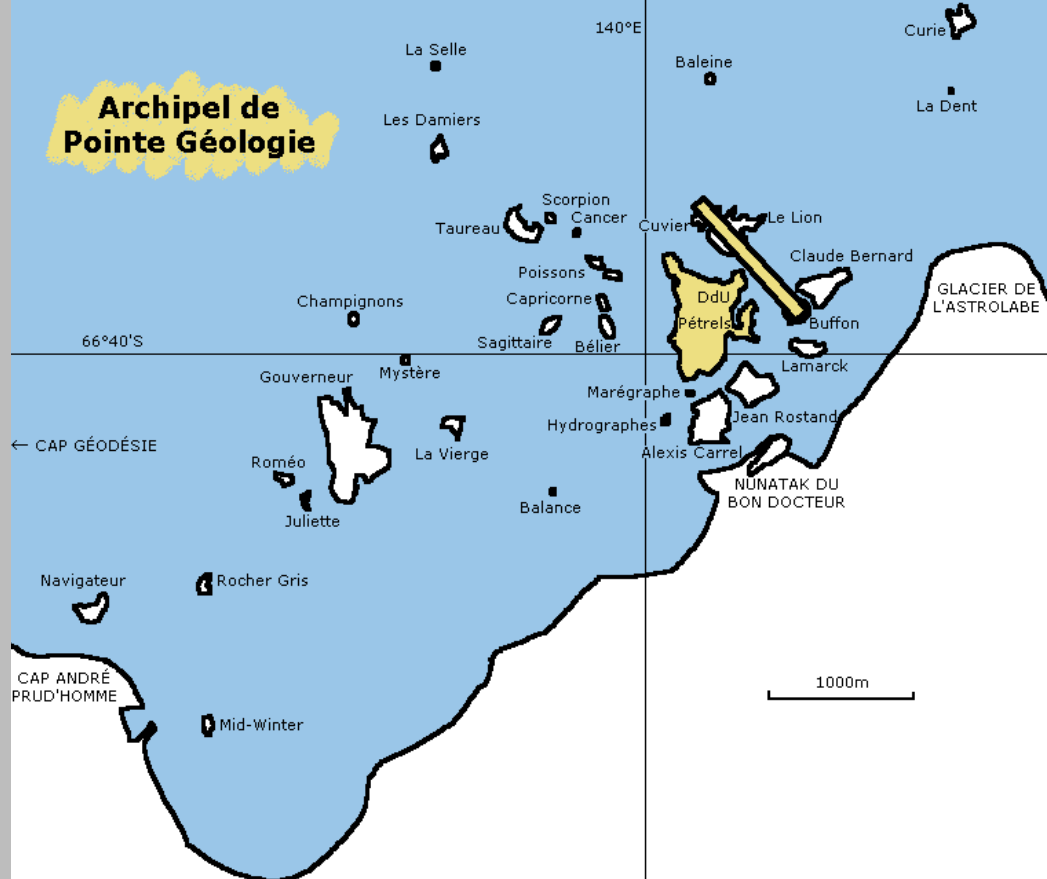
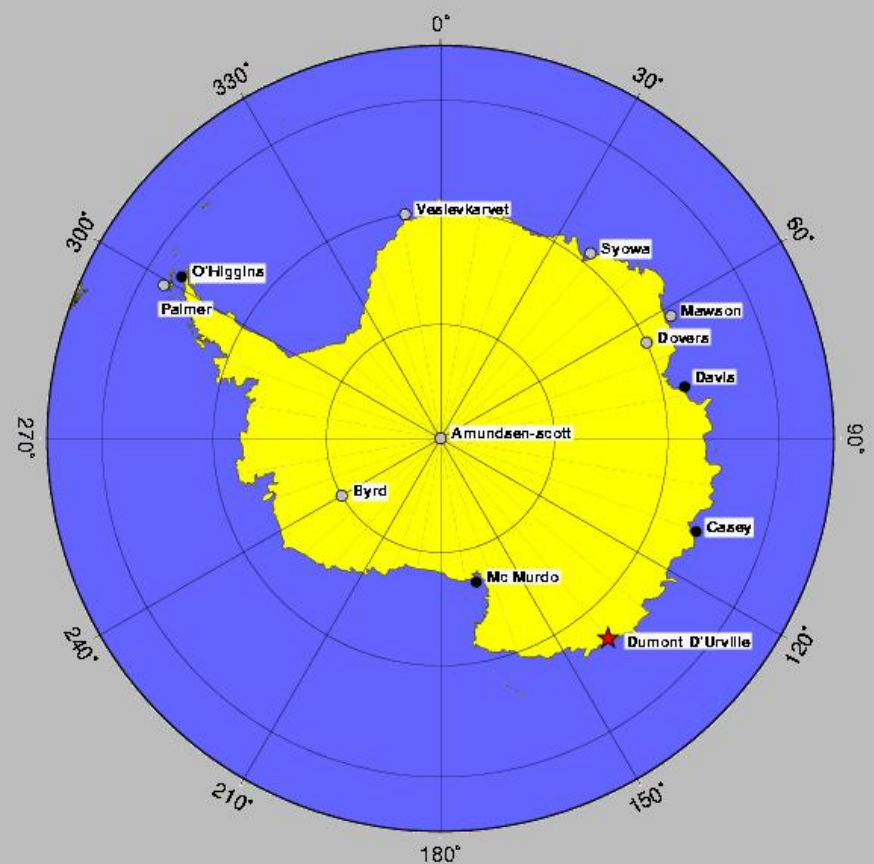
The next scientific voyage was by the French who sent Dumont d'Urville on a voyage of discovery in 1837 in the vessel *Astrolabe* and *Zélée*

Intended to follow the tracks of Weddell and go farther south and reached the Weddell Sea in summer 1838, but much more ice now

Turned back and explored South Shetlands, claimed some coastline for France

Tried again in 1840 and this time made landfall, but not on the continent, but on a rocky islet of few hundred meters from shore.





<http://www.gdargaud.net/>



Pointe Geologie is now where the French research station Dumont d'Urville was built in the IGY, 1957-1958

<http://acap.aq>

Charles Wilkes and the U.S. Exploring Expedition 1838-1842

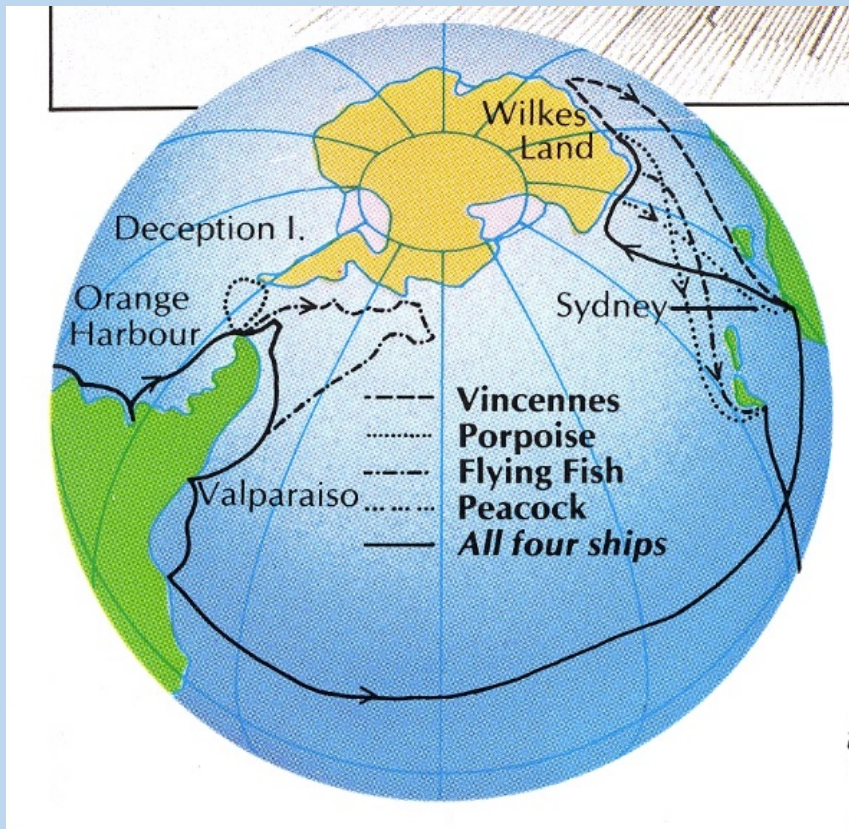
Four ships commissioned by the U.S. Navy to explore the Antarctic, map, collect specimens

Consisted of 82 officers and nine naturalists, scientists and artists



The ships split up on separate missions and one was able to make it to 70° 04' S near Cook's farthest south

One ship lost in a storm on the Chilean coast going back north, the rest spent the winter in the Pacific





Second voyage south they sighted land off the east Antarctic coast, but could not land, had to turn back north

One ship under Captain Ringgold, had a chance encounter with d'Urville's ship *Astrolabe*. Tried to make contact, but there was a misunderstanding and they went separate ways

Wilkes returned home, but his sightings had errors and he was subjected to a Navy Court of Inquiry.

He was the first to refer to the 'Antarctic Continent' and scientific results were later published in five volumes



Painting of a snow petrel by Titian Peale, the naturalist aboard the *Peacock*

James Clark Ross

1839-1843 British Expedition for the South Magnetic Pole



Ross was perfect for this expedition—the most experienced officer in Arctic navigation and an expert on terrestrial magnetism

Two ships sent south, the *Erebus* and *Terror*, in 1839

Part of mission was to establish magnetic observation stations at the Cape of Good Hope, Kerguelen Island, and Tasmania

Expedition also included a naturalist, Joseph Hooker

Ross headed south with his ships and encountered lots of pack ice as he neared the continent.

Plowed through the ice and reached open water, discovering the Ross Sea

As they continued south, they made landings and claims at what is now Possession and Franklin Islands.

They were first to see the Transantarctic Mountains and eventually reached Ross Island and named Mt. Erebus, the high volcano located there





Figure 2: The Ross Sea region of Antarctica.



Planting the flag on Possession Island



***Erebus* and *Terror* in the Ross Sea, unable to reach the mainland**

Ross continued south in the Ross Sea

James Cook had discovered
for Britain.



Ross then began seeing a white line across the horizon and soon realized that further progress south was impossible—the Ross Ice Shelf, which he called the Great Ice Barrier



**The shelf is about 100 feet high on the surface
Higher than his ship's masts, Ross was forced to turn back**

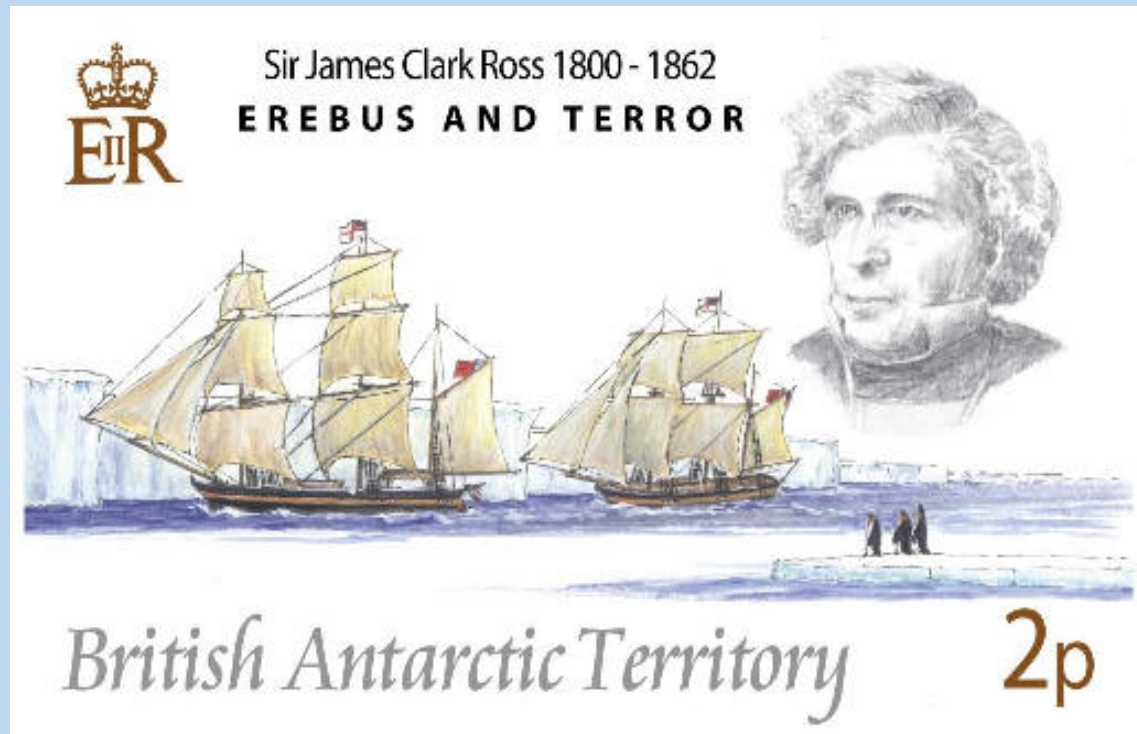


Ross made two more attempts to go farther south the next year and the year after

Both met with ice, storms, and near disaster

Returned home in 1843

It was still unknown if Antarctica was a continent or a series of islands and no confirmed landing had yet been made on the continent proper



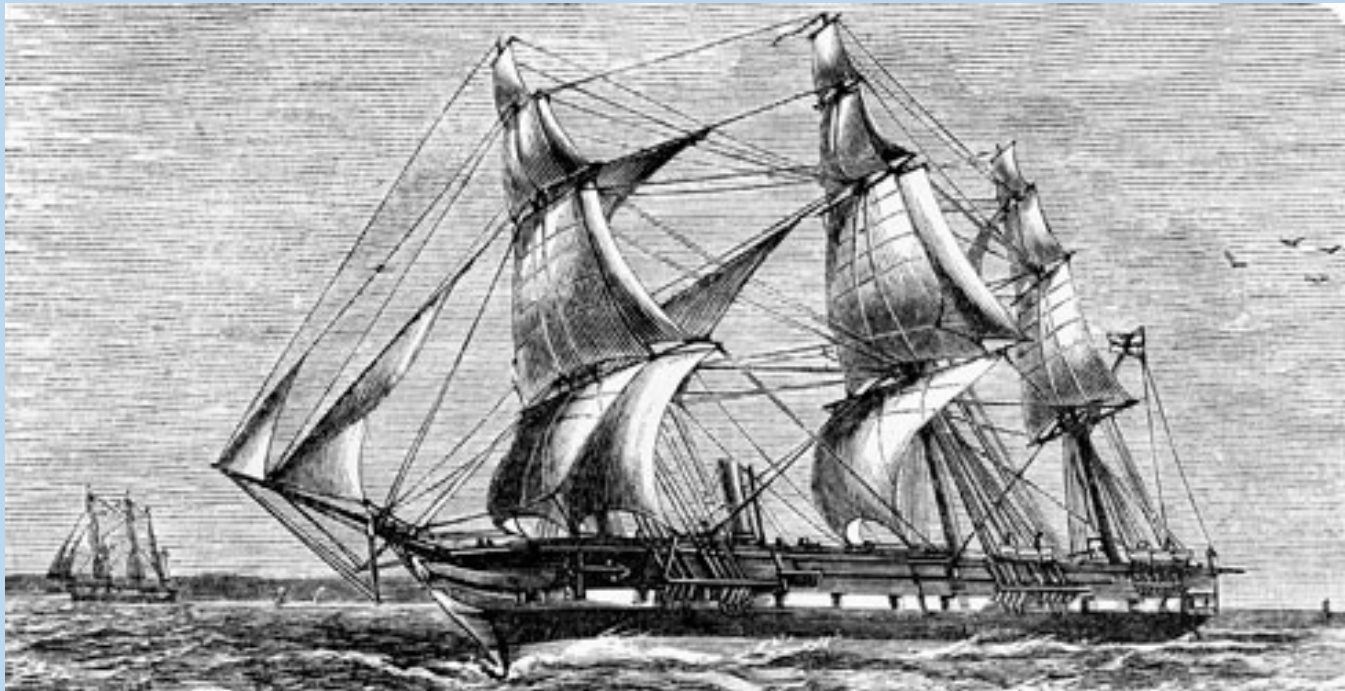


<https://www.nationalgeographic.com>

After serving Ross, the *Erebus* and *Terror* were part of the ill-fated Franklin Expedition to the Arctic and were lost in 1845, only recently discovered in excellent condition

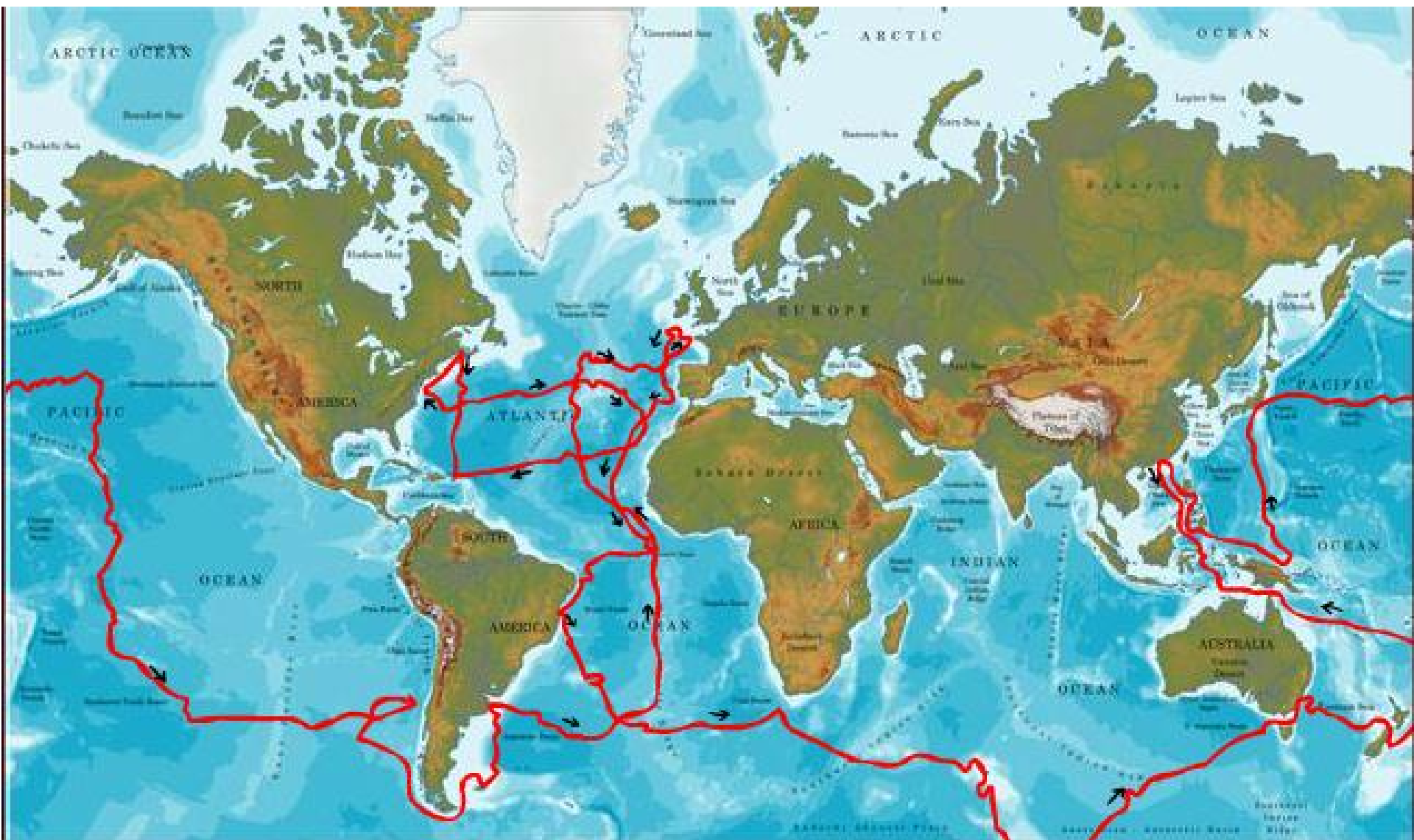
One other expedition from England from 1872-1876 with the ship *HMS Challenger* completed considerable scientific and oceanographic research—founded the modern science of oceanography

At the time of the voyage, no life was expected to be found in the sea below about 550 m in depth



The *Challenger* was a refitted naval vessel, sail and steam powered, and remodeled for scientific work with labs, dredges, etc.

Route of the *HMS Challenger*, 1872-1876



While still not locating the Antarctic continent, their dredges and geological samples from the ocean floor (granites carried by ice) convinced them that there was a continent

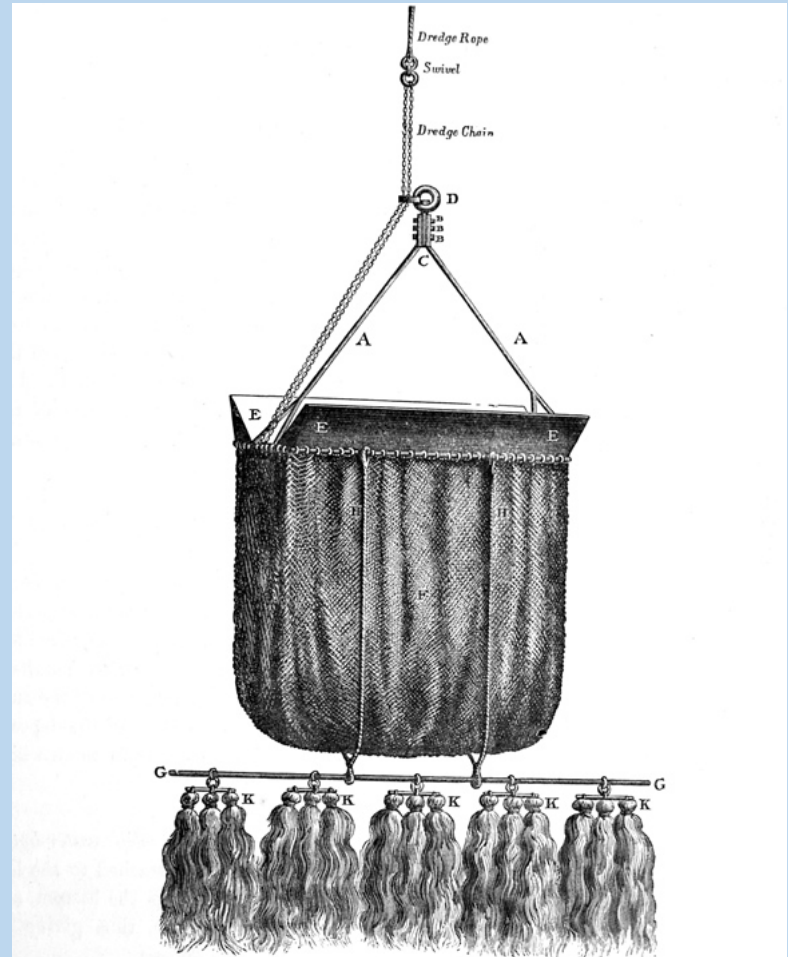
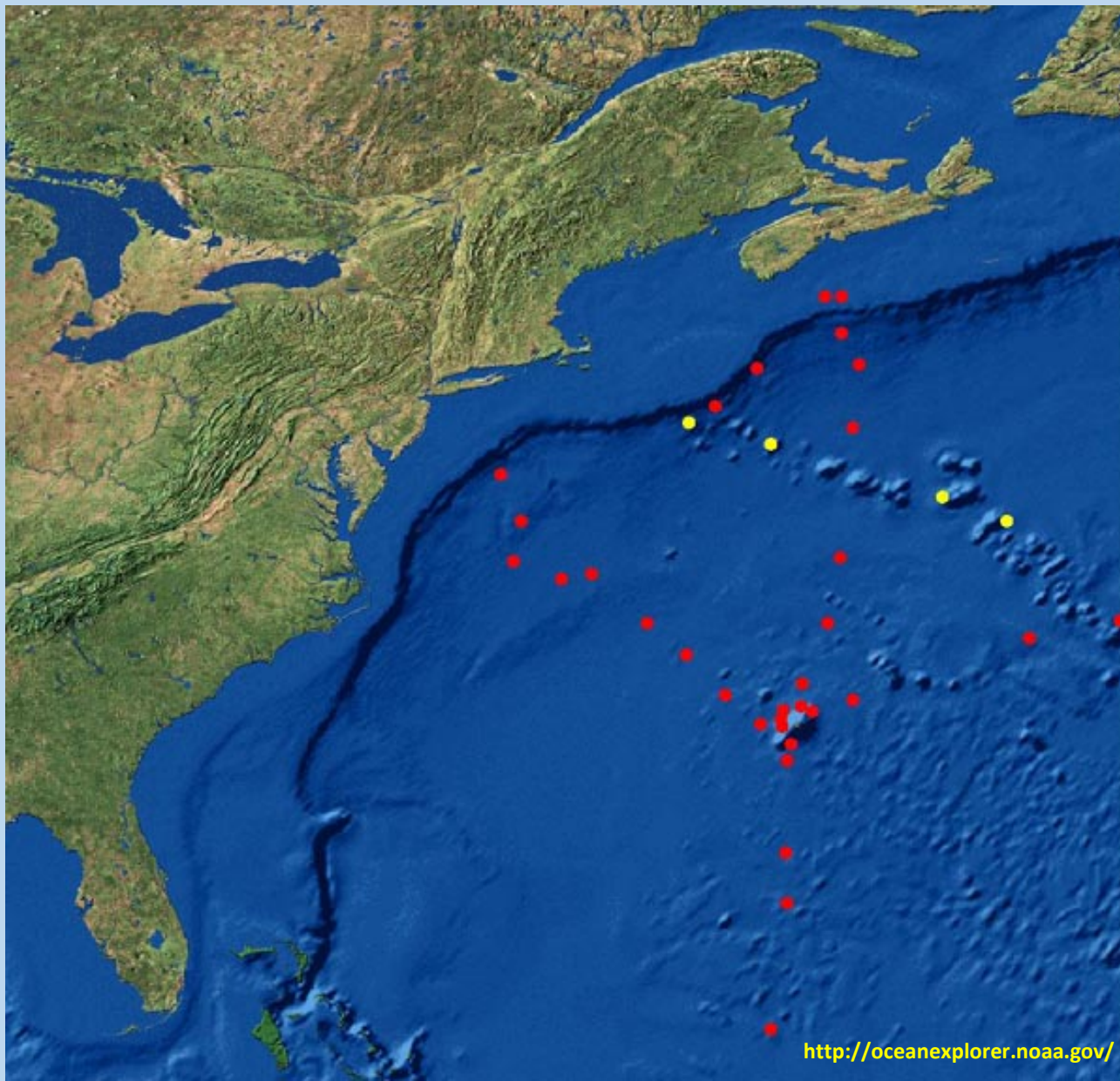


FIG. 12.—The Dredge.
A, A, arms of the dredge, connected together with iron screw bolts B, B, B, and between them an iron tongue C, with a swivel-ring D at its upper end, to which the dredge-chain is fastened; E, E, E, two knife-edged pieces of iron on the long sides of the framework, having an outward inclination of about 10° from the perpendicular; F, sack of the dredge made of network of soft line, and lined inside with cotton cloth; G, G, iron bar, suspended by the ropes H, H, to the framework, and supporting the flat-headed swabs K, K, K, K, K.

Some of the 133 total dredges taken by the Challenger (in red) that for the first time located deep sea trenches and the mid-Atlantic ridge from soundings



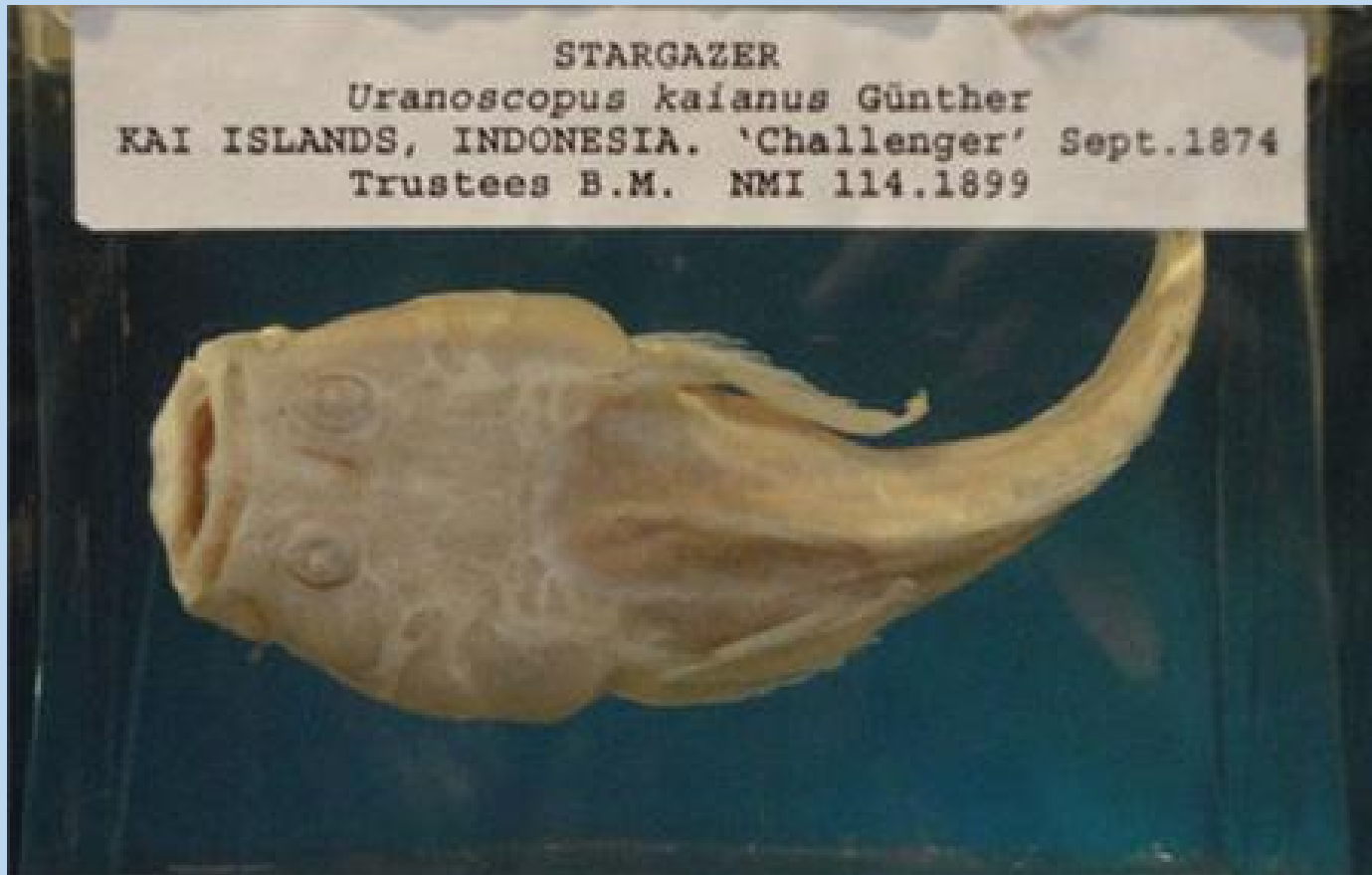


**Sir John Murray, naturalist aboard the HMS Challenger
Father of modern oceanography**

One of over 4700 new species discovered on the *Challenger* expedition

It took 23 years to compile and publish all the scientific work, in 50 volumes

This work set the stage for the beginning of the 'Heroic Age' of Antarctic exploration



Quiz

1. What was the first truly scientific expedition to the southern ocean and its main findings?
2. Who likely sighted the Antarctic continent first and in what year?
3. What and when was the U.S. Exploring Expedition and what were its main findings?
4. What is the significance of the voyages by James Clark Ross to Antarctic discovery?
5. What was the Challenger expedition and its major contributions? Why is Sir John Murray considered the father of modern oceanography?