




Antarctica: At the heart of it all

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[Field work in Antarctica in 2017-18](#)

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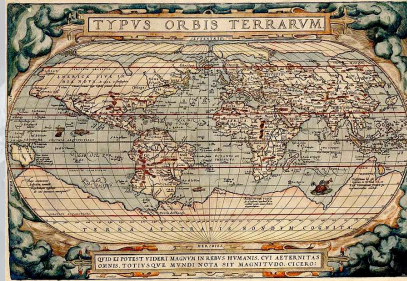


II: Discovery and early expeditions

- *Terra Australis*
- Cook
- Sealing, Whales, state of knowledge in 1800s
- 1820s: Bellingshausen, Bransfield, and Palmer
- 1840s: Ross, Dumont D’urville, Wilkes
- 1890 – 1900s: De Gerlache (Belgian), Borchgrevink (British)

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Terra Australis Incognita (Unknown South Land)

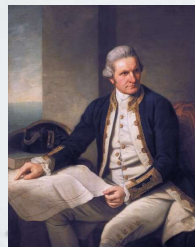


1570 map by Abraham Ortelius

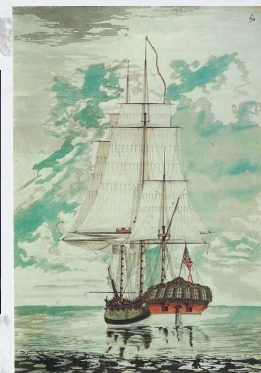
- *Terra Australis Incognita*
- Aristotle and Ptolemy hypothesized land in north should be balanced with land in south
- 15th -18th century maps have southern landmass
- 1804 British explorer Matthew Flinders names Australia after *Terra Australis*

Captain James Cook (1728 – 1779)

- Three combined Royal Navy and Royal Society expeditions to:
 - Observe the transit of Venus
 - Seek evidence of *Terra Australis*,
 - Circumnavigate as far south as possible
 - Find Northwest Passage



Portrait by Nathaniel Dance-Holland c. 1775



HMS Resolution by Henry Roberts

Terra Australis

- “Once and for all the idea of a populous fertile southern continent was proved to be a myth, and it was clearly shown that whatever land might exist to the South must be a region of desolation hidden beneath a mantle of ice and snow.” – Robert Scott, *A Voyage of the Discovery*

The following taken from Captain Cook's diary, 1772.

"Lands condemned to everlasting rigidity by Nature, never to yield to the warmth of the sun, for whose wild and desolate aspect I find no words; such are the countries we have discovered; what then may those resemble which lie still farther south ?. It is reasonable to suppose that we have seen the best, being the most northerly; Should anyone possess the resolution and the fortitude to elucidate this point by pushing yet farther south than I have done, I shall not envy him the fame of his discovery, but I make bold to declare that the world will derive no benefit from it."

Discovery of land mass

- Fabian Gottlieb van Bellingshausen (January 28, 1820) – Russian
- Edward Bransfield (January 30, 1820) - British
- Nathaniel Palmer (November 17, 1820) - US
- Mostly looking for seals



Bellingshausen by U. Schzeibach



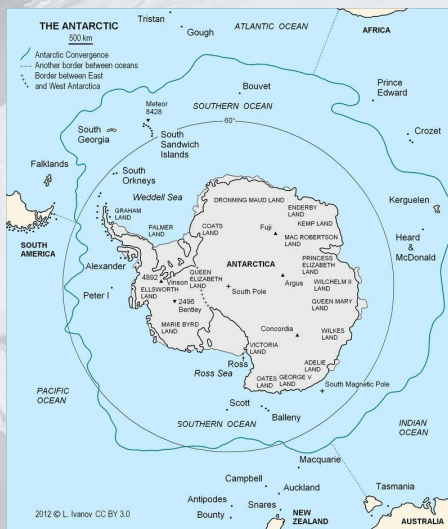
"Captain Nat"

Arctic and Antarctica

- Arktos or Ursa Major – the bear
 - Big dipper and the north star
- Antarctica – opposite the bear



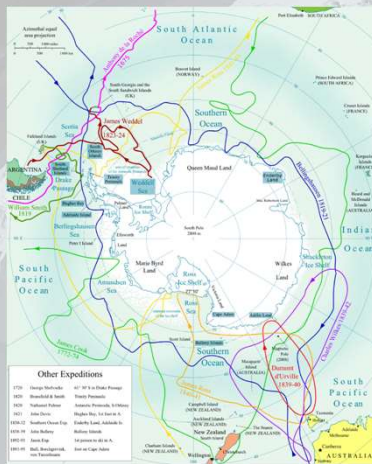
Antarctic Convergence



Whales and seals



Weddell, Balleny, Dumont d'Urville, Wilkes, Ross



- James Weddell, British, 1820-24
- John Balleny, English, 1838-39
- Dumont d'Urville, French, 1838-40
- Charles Wilkes, USA, 1839-42
- James Clark Ross, British, 1839-44

Sir James Clark Ross (1800 – 1862)



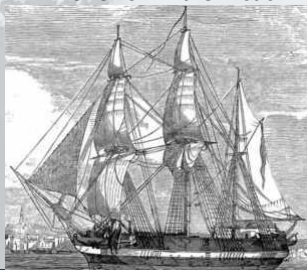
Sir James Clark Ross by John R. Wildman

- Nephew of Sir John Ross
- Experience in Arctic
 - Locates magnetic north pole, 1831
- Antarctic voyage 1839 – 1844
 - Well equipped voyage, scientific goals

HMS Erebus and HMS Terror

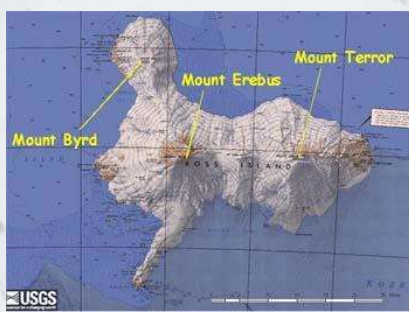


HMS *Terror* in the Arctic



- Bomb vessels, reinforced hulls for large mortars
- Terror used in war of 1812
- Able to ram and withstand collisions with sea ice
- Later outfitted with steam engines

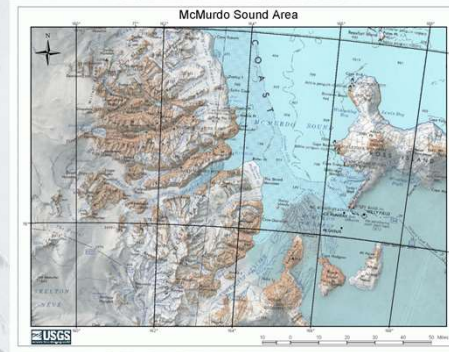
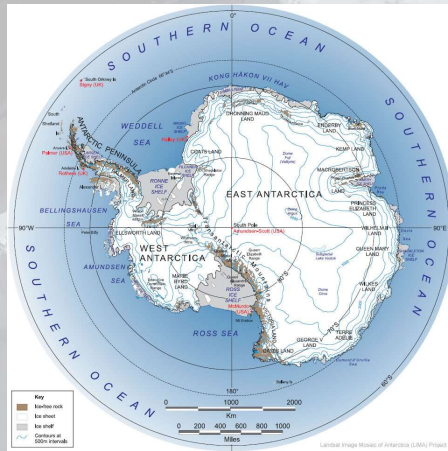
Mounts Erebus and Terror



Flying by Mt. Erebus with steam eruption!



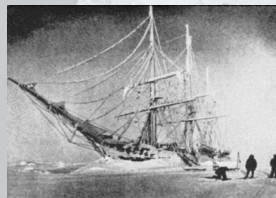
Sir James Clark Ross



Baron Adrien de Gerlache - Belgian (1866 – 1934)



De Gerlache



Belgica

Belgian Antarctic Expedition, 1897 – 1899

- Refits whaling ship Belgica
 - Sails and 35 hp steam engine
- Boat trapped in ice
February 28, 1898
- Free of ice March 14, 1899

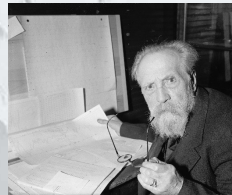


Belgian Antarctic Expedition

- Roald Amundsen
 - First mate
 - Takes command of ship after de Gerlache gets scurvy
 - Dig and use dynamite to create channel
- Henryk Arctowski
 - Head of scientific observations
 - “I never ceased to ask for more landings; I urged Leconte, de Gerlache, and others again and again...with a little good-will we could have landed in many other places and collected much more geological material...”



Roald Amundsen

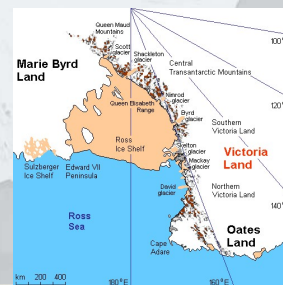


Henryk Arctowski



Carsten Borchgrevink – British (Norwegian born) (1864 – 1934)

- Norwegian father, English mother, born in Oslo
- Lived in Australia
- Commercial whaling in 1890s
 - Lands at Cape Adare on mainland
 - Collects rock and lichen specimens




“British Antarctic Expedition,” 1898-1900 “Southern Cross Expedition”

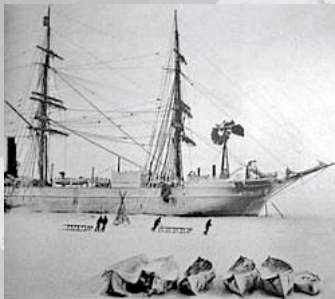


- Financed by Sir George Newnes, publisher
- First to over-winter on mainland, Camp Ridley, use dogs
- Land on ice shelf, make traverse to 78°50'S

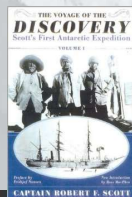


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British National Antarctic Expedition, 1901 – 1904, “Discovery Expedition”



- Scientific research and geographical exploration
 - Scott is in command
- First national expedition since Ross
 - Great international interest
 - Lack of experience
- Half funded by government, half raised by societies



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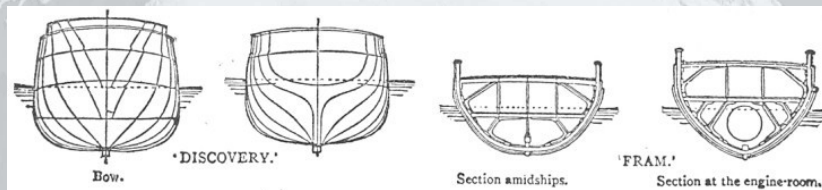
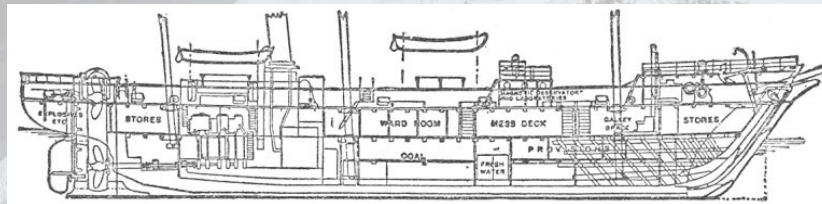
RRS *Discovery*

Built 1900-01

- Royal Research Ship
- Sails and steam engine
- Reinforced hull to withstand being frozen into the ice
- Ram ice, ride over it, crush with weight of ship
- Sailed poorly, rolled terribly



RRS *Discovery*

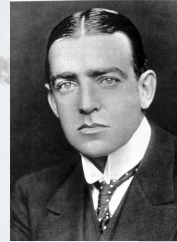


Discovery expedition

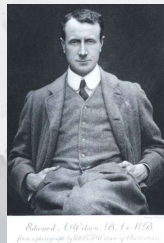
- [Gear](#)
- Personnel
 - Louis Bernacchi – only member with Antarctic experience
 - Ernest Shackleton – Third Officer: in charge of holds stores provisions, entertainment
 - Edward Wilson – junior doctor, zoologist
 - Frank Wild - explorer



Louis Bernacchi



Ernest Shackleton

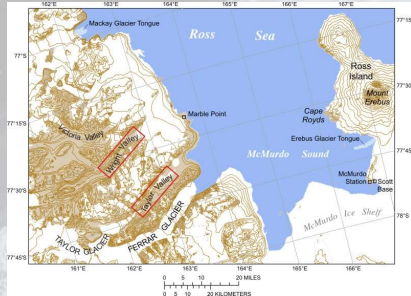


Edward Wilson

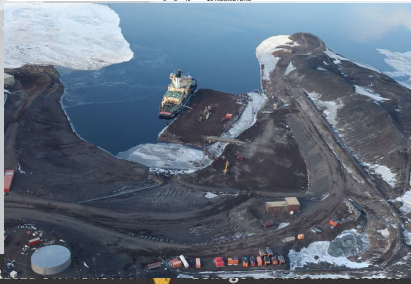


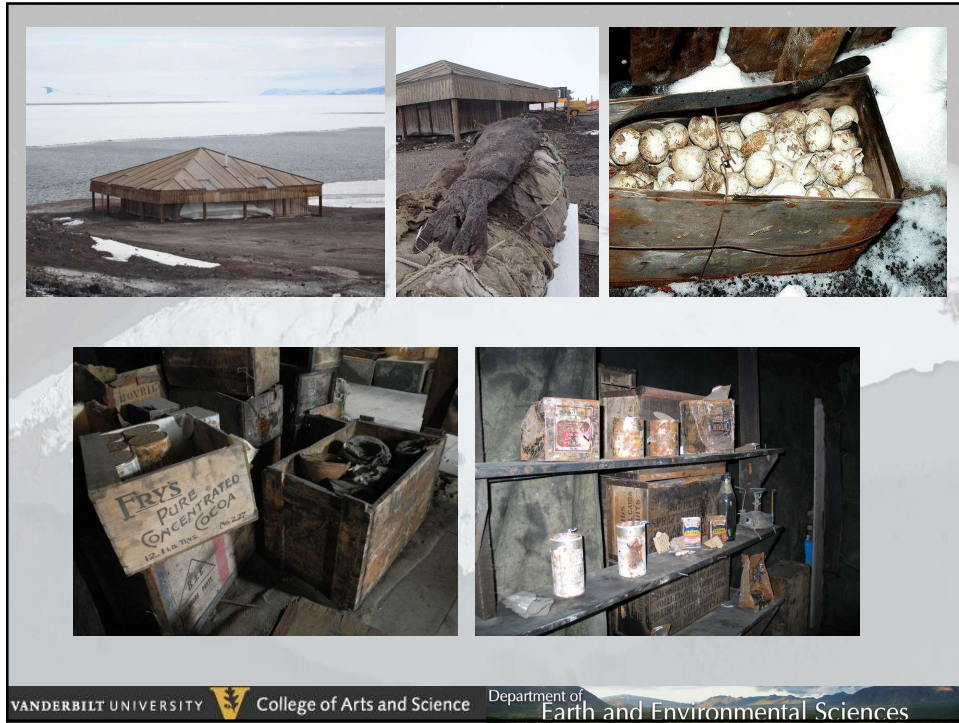
Frank Wild

Hut point and Winter Quarters Bay



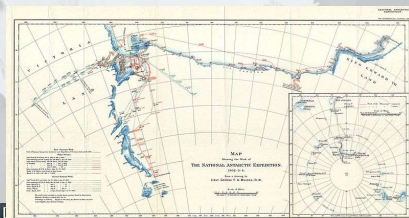
- Discovery arrives Jan/Feb 1902
- Build hut by March 1902
- Cold!





Southern Journey

- Scott, Shackleton, and Wilson
- Nov 2, 1902 – Feb 3 1903
- 960 miles
- 82°17' South
- Snow blindness, frostbite, scurvy
 - Shackleton collapses



Western Journey



- Oct 26, 1903 – Dec 24, 1903
- No dogs, just “man-hauling” sledges
- Discover polar plateau and dry valleys
- 700 miles in 59 days



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