

# Historic Ocean exploration

**Dr. V. YOGANANDAN**

*Associate Professor,*

*Department of Marine Science,*

*Bharathidasan University, Tiruchirappalli, Tamil-Nadu-*

# British ship HMS Challenger (1873-1876)

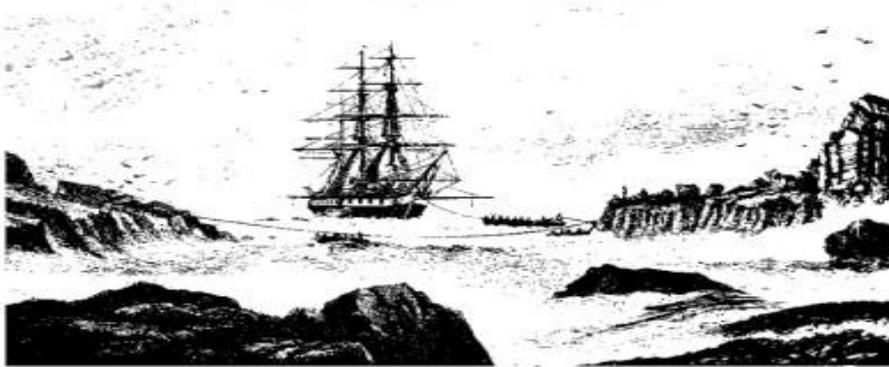
- Charles Wyville Thomson & John Murray
- Beginning of modern oceanography
- First time manganese nodules were discovered



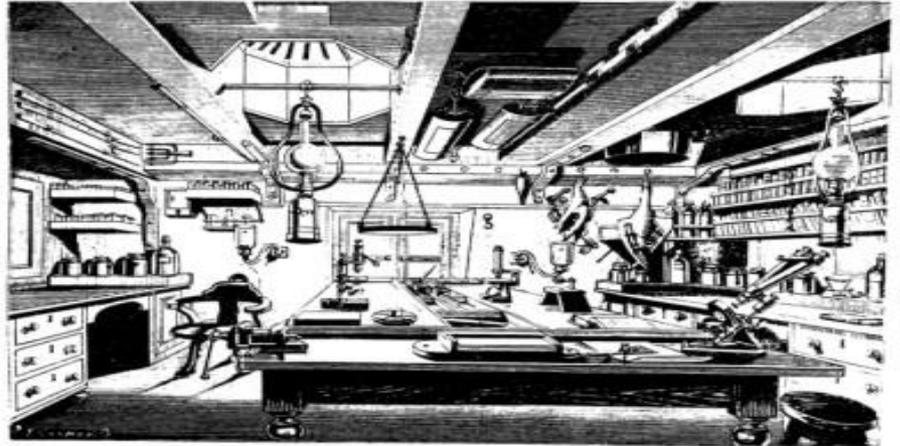
# following observations were made

- exact depth.
- bottom water chemical/physical examination.
- bottom temperature
- bottom fauna was procured by means of the dredge or trawl.
- fauna of the surface and of intermediate depths was examined by the use of tow nets variously adjusted.
- temperature observations was made at different depths from the surface to the bottom.
- At many stations, samples of sea-water were obtained from different depths.
- In all cases, atmospheric and other meteorological conditions were carefully observed and noted.
- The direction and rate of the surface current was determined.
- At a few stations, an attempt was made to ascertain the direction and rate of movement of the water at different depths.

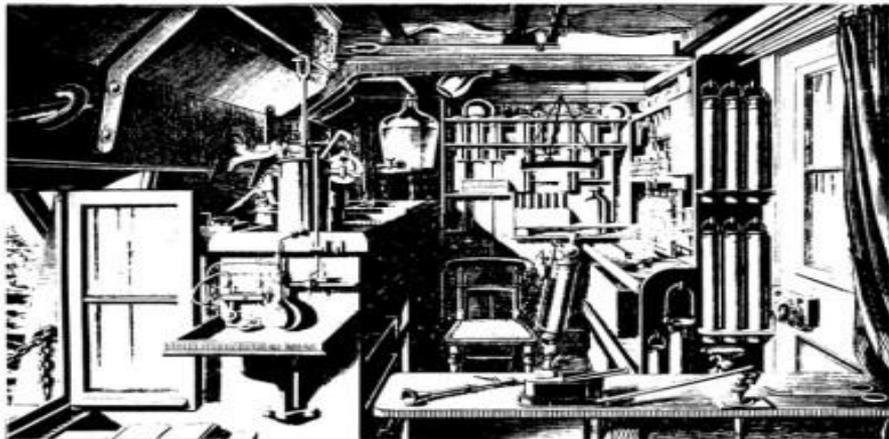
Copyright © The McGraw-Hill Companies, Inc. Permission required for reproduction or display.



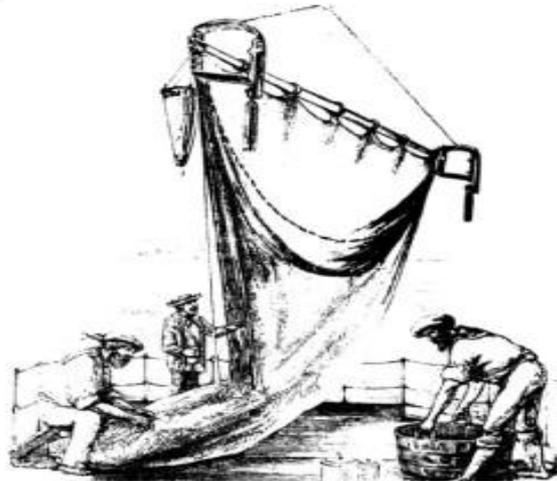
(f)



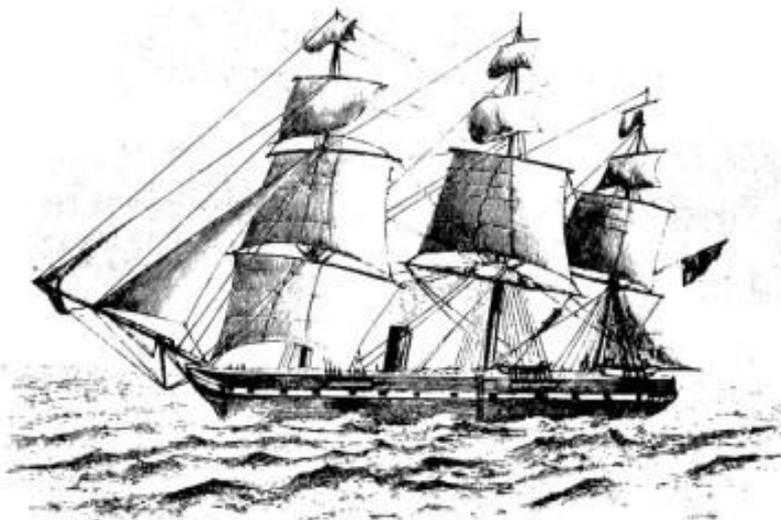
(g)



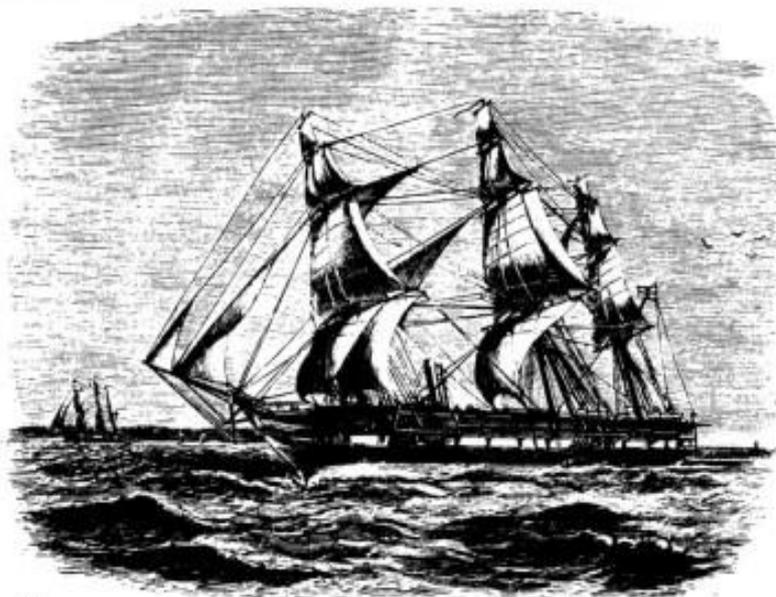
(h)



(i)



(a)



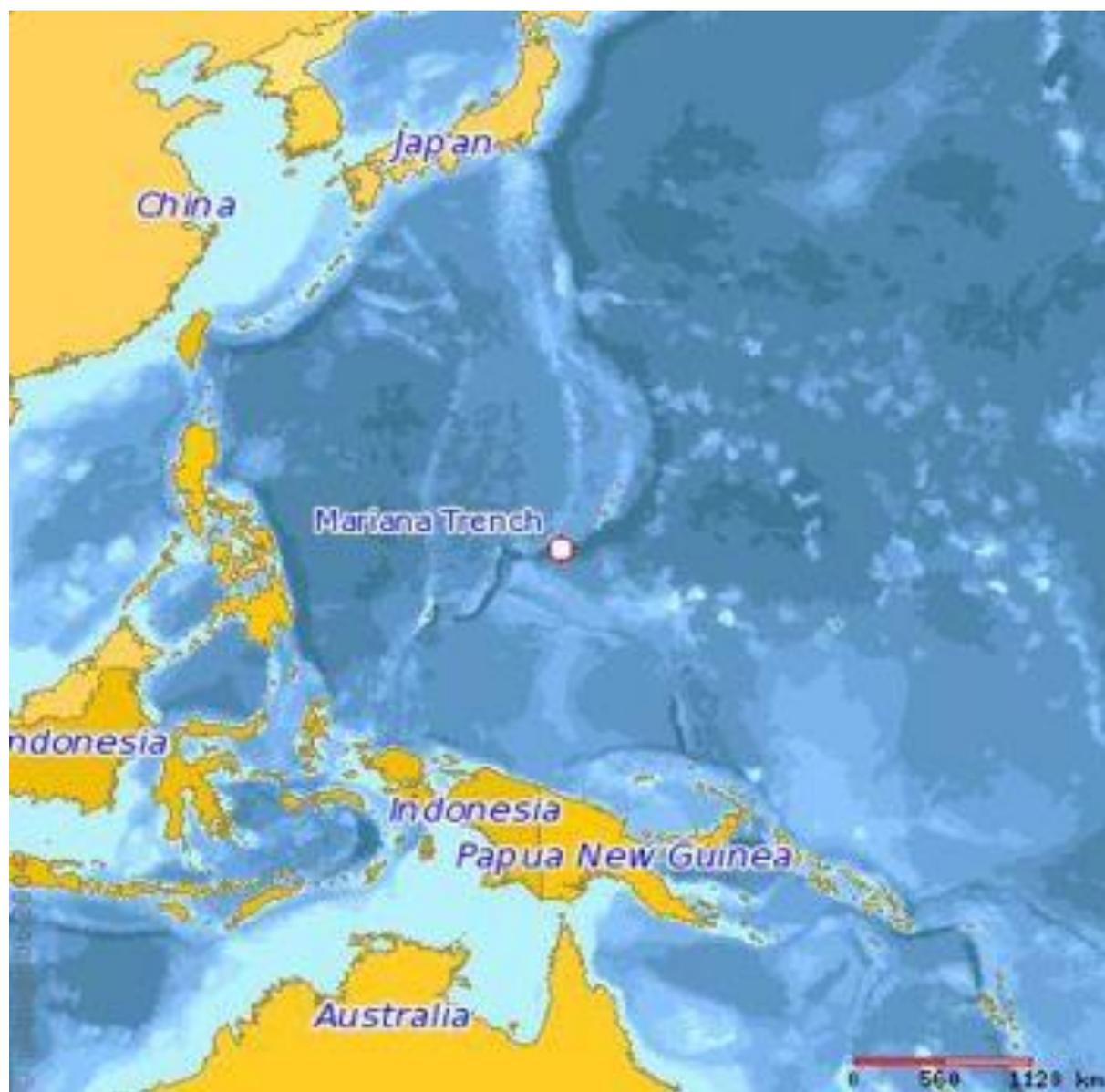
(b)



(c)



(d)



- After Second World War
- International geophysical year (1957-1958), 37 countries, 80 ships

# Deep Sea Drilling Project

- ocean drilling project operated from 1968 to 1983
- Number of sites investigated 624
- Number of expeditions completed 96
- Deepest penetration beneath the ocean floor 1,741 meters

# Glomar Challenger



# ODP began in 1983

- ODP began in 1983
- explore and study the composition and structure of the Earth's ocean basins
- The program used the drillship *Joides Resolution*
- JOIDES=Joint Oceanographic Institutions for Deep Earth Sampling
- collected about 2000 deep sea cores from major geological features located in the ocean basins of the world
- new disciplines [paleoceanography](#) emerged in earth sciences

# JOIDES Resolution



# IODP

- Integrated Ocean Drilling Program
- Japanese Center for Deep Earth Research
- It's designed to bore seven kilometers beneath the seabed and into the Earth's mantle
- Collect samples from the seismogenic zone
- look for the presence of undiscovered life in the Earth's crust and deep-sea resources.

# Godzilla-Maru



Monster  
Machines

- Ridge and Inter ridge program -1980
- 1984 ORV Sagar Kanya –mainstream multidisciplinary oceanographic investigation by India

# ORV SAGAR KANYA

Ministry of Earth Sciences  
Government of India



**MANAGED BY**  
**NATIONAL CENTRE FOR ANTARCTIC & OCEAN RESEARCH**  
**Headland Sada, Vasco-da-Gama, Goa 403 804.**