Geography Class 29

A BRIEF REVISION OF PREVIOUS CLASS (09:11 AM)

- Climatic regions of the world.

SIBERIAN TYPE OF CLIMATE (COOL TEMPERATE CONTINENTAL) (09:19 AM)

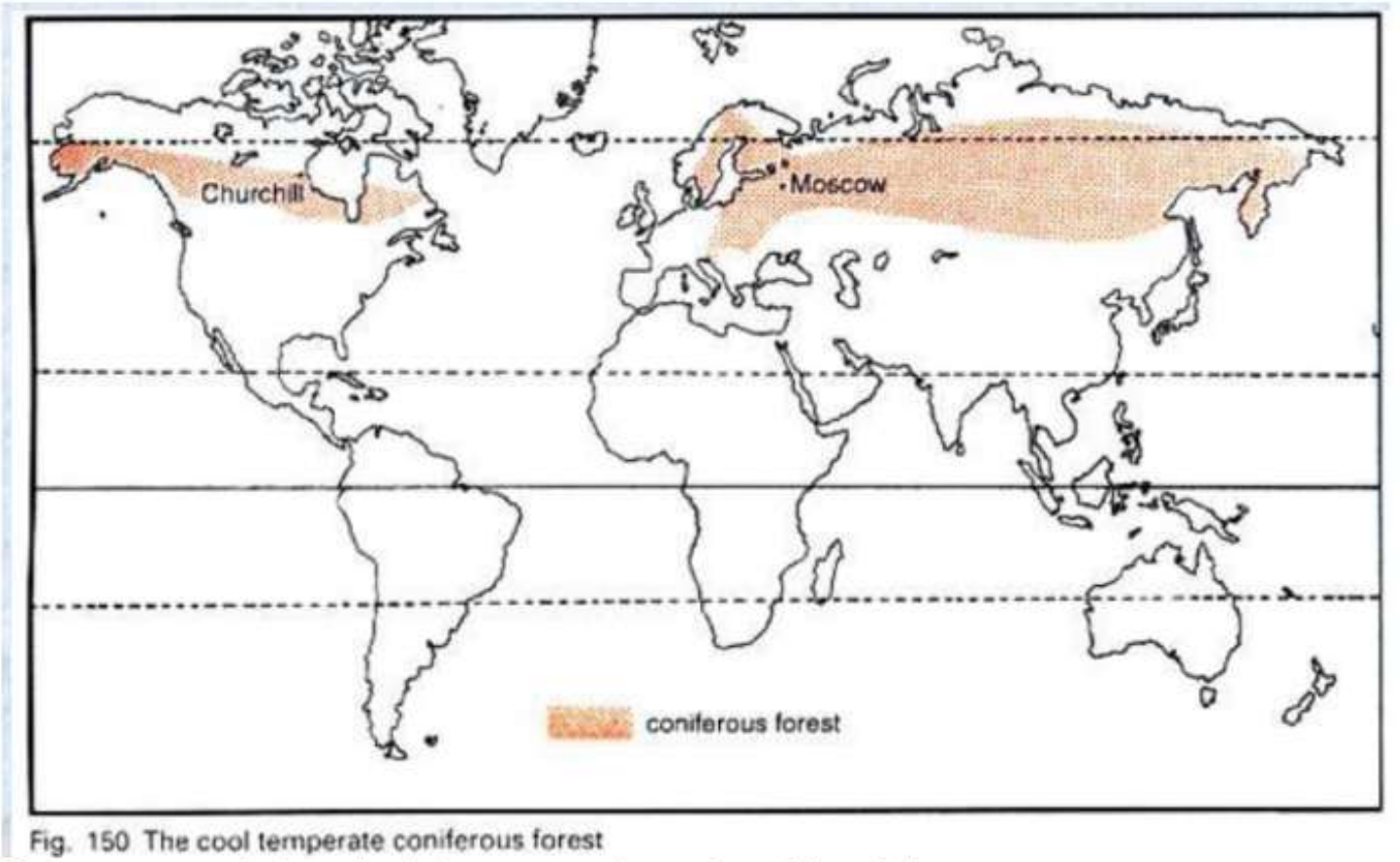
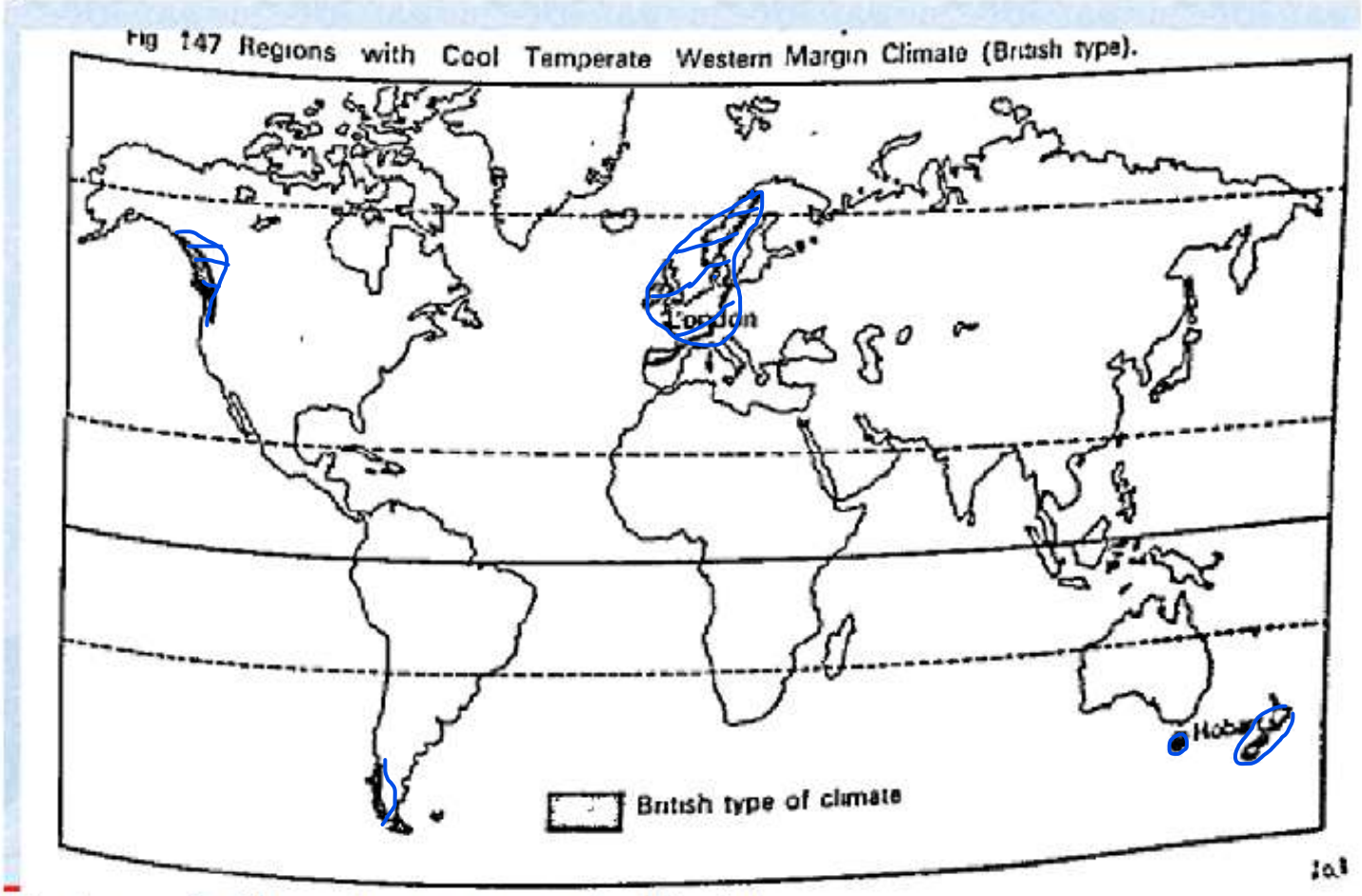


Fig. 150 The cool temperate coniferous forest

- Summers are hot and winters are extremely cold and dry.
- **Precipitation** in summer is mainly due to convection and in winter in the form of snowfall.
- Strong anti-cyclonic circulations develop in this region during winter which sends out cold winds towards lower latitudes. (In the part of China and Mongolia but in India it can't be feel because of Himalayas.)
- **Vegetation** is coniferous and is the single largest stretch of vegetation on the earth.
- Vegetation is low in biodiversity but high in economic value. (Commercial logging)
- It is the only type of climate that is exclusively present in the Northern Hemisphere.
- **Regions-** Siberia, European Russia, Poland, Scandinavia, Canada, Alaska.

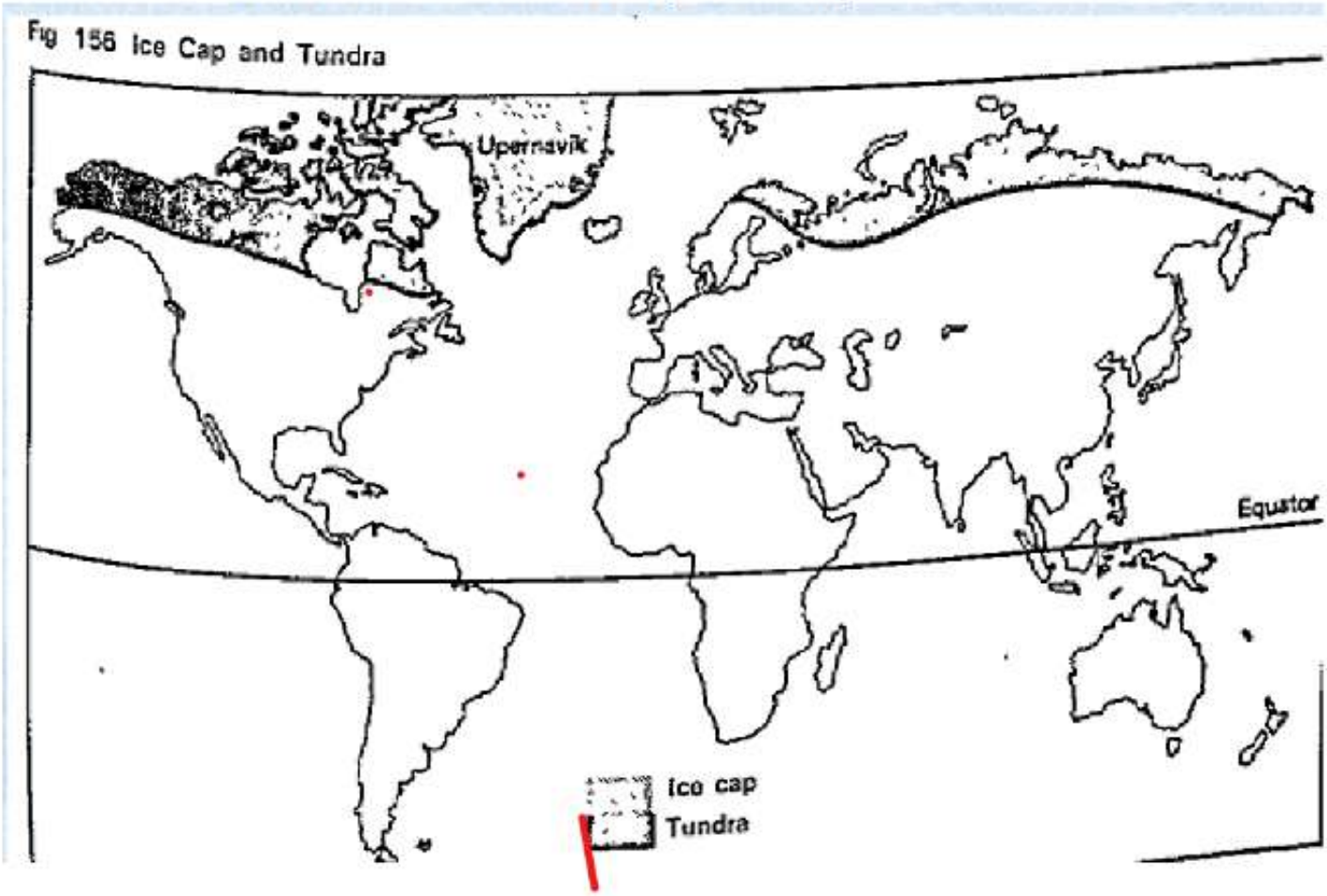
(Siberian type is the only type of climate which is absent in southern hemisphere because land are absent there.)

BRITISH TYPE OF CLIMATE (COOL TEMPERATE WESTERN MARGIN) (09:35 AM)



- It is known for its cool summers and mild winters.
- They are under the influence of onshore westerlies throughout the year.
- Rainfall is moderate throughout the year.
- They are under the influence of warm ocean currents which keep their ports ice-free even during winters.
- Vegetation is mixed type both broad-leaved deciduous and coniferous.
- **Regions-** UK, Western Norway, Western Canada, Southern Chile, Tasmania and New Zealand.

POLAR OR ARCTIC TYPE OF CLIMATE (09:50 AM)



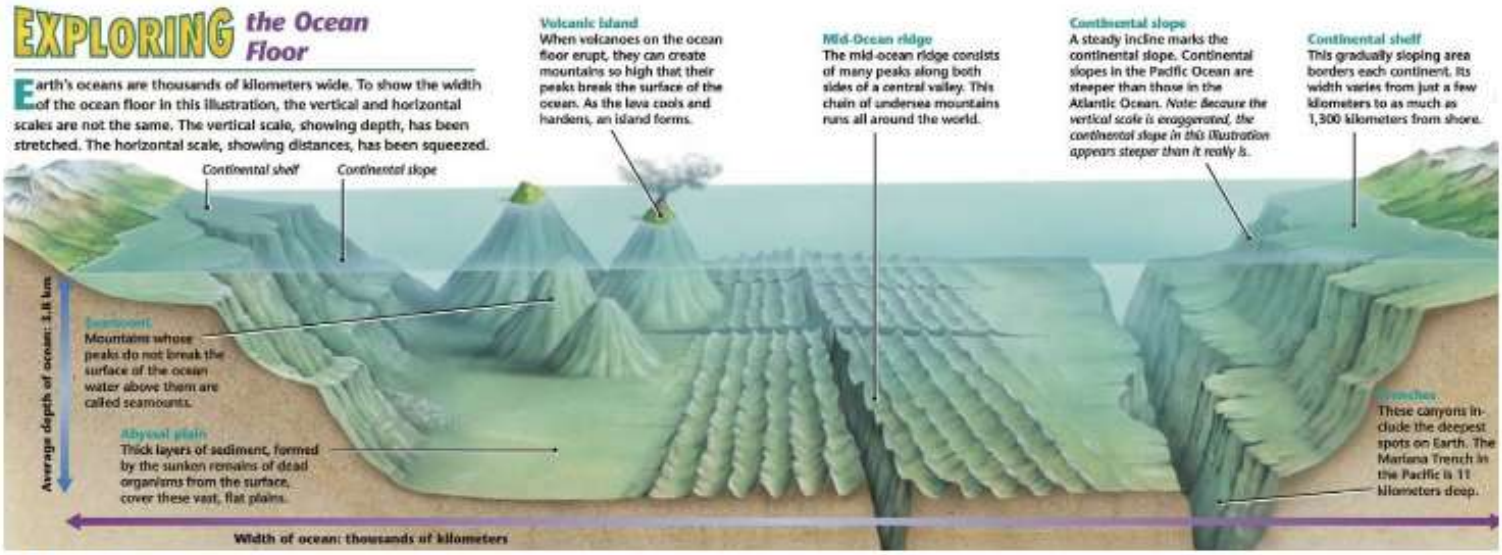
- This region is covered with ice throughout the year.
- It is also called a **Tundra climate.**
- During summers, when ice melts vegetation grows as stunted and seasonal mosses, lichens etc. which attracts seasonal insects and birds.
- The soil is permafrost in nature.
- **Regions-** All the regions beyond the Arctic and Antarctic Circle.
- The **cryosphere** is the region on the surface of the earth covered with snow throughout the year. It includes the Arctic type of polar regions as well as the Alpine type of Mountainous region.

Mosses and lichens are both small, non-vascular plants that grow in shaded areas.

Soil is present here in surrounding area and if soil is frozen for two consecutive years then it is known as Permafrost.

Polar bears are found in Arctic and Penguins are found in Antarctica.

OCEANOGRAPHY
OCEAN BOTTOM TOPOGRAPHY (10:17 AM)

- 

- **Major Features:**
- Continental Shelf
- Continental slope
- Abyssal plains
- Mid oceanic ridges
- Trenches
- **Minor Features:**
- Continental rise
- Submarine Canyon
- Sea Mounts
- Guyots
- Volcanic Islands

Most of (90 percent) marine life are found in Continental shelf.

Oil and Natural gas are found in Continental shelf as they are formed because of dead reman of marine animals.

- **Continental Shelf**
- These are submerged shallow parts of the continental crust.
- The average depth is between 200 and 250 feet.
- The width of the continental shelf is dependent on the slope of adjacent land.
- ~~It is narrow along the mountainous coast~~. It is wider along the coastal plains.
- It is rich in sunlight and oxygen which favours the growth of plankton.
- The region is rich in biodiversity.
- They are known for their rich fishing grounds.
- **Continental Slope**
- It is the boundary between Continents and Oceans formed by the outer edge of the continents.
- Slopes are much steeper than the continental shelf.
- **Continental Rise**
- It is the base of the continental slope with decreased steepness and continues into abyssal plains.
- It is absent along trenches.
- **Submarine Canyons**
- These canyons are formed along the continental shelf and slope because of turbidity currents of rivers entering the oceans. EX:- Ganga Brahmaputra canyons
- **Abyssal Plains**
- They are also called as oceanic basins.
- They are tectonically inactive oceanic floors with relatively smooth surfaces.
- The average depth varies between 3000-6000 meters.
- They are formed of sediments and other oceanic deposits.

They are under surface of water.

- **Sea Mounts**
- These are isolated volcanic mountains on the sea floor due to volcanic activity along subduction zones or hot spots.
- **Island arc archipelagoes-** Refer to Plate tectonics
- **Guyot**
- These are sea mounts that are flat-topped with a summit ~~below~~ below the sea level. They have become flat because of erosion and marine lives are found here.
- Compared to Guyots, Sea mounts are sharply pointed.
- **Mid oceanic ridges and Trenches -** Refer to Plate tectonics

OCEAN TEMPERATURE (11:31 AM)

- **FACTORS AFFECTING OCEAN TEMPERATURE**
- **Insolation** along lower latitudes- Higher insolation causes higher temperatures than in higher latitudes.
- **Winds-** They help in the distribution of temperature across the globe. Winds are faster over the oceans than land thus more effectively distributing the temperature. For example- In regions where Westerlies are active, the temperature remains higher than in the regions of Polar Easterlies.
- **Ocean Currents-** They help in heat distribution between tropical and polar regions. Warm ocean currents cause a rise in ocean temperature. Cold ocean current causes a drop in temperature.
- **Landmass-** Seas that are completely surrounded by landmass will have a higher range of temperatures than open ocean water.
- **Variation in**

upto 200m temperature should decrease but due to mixing it remains uniform.

Vertical distribution of temperature in Tropical regions.

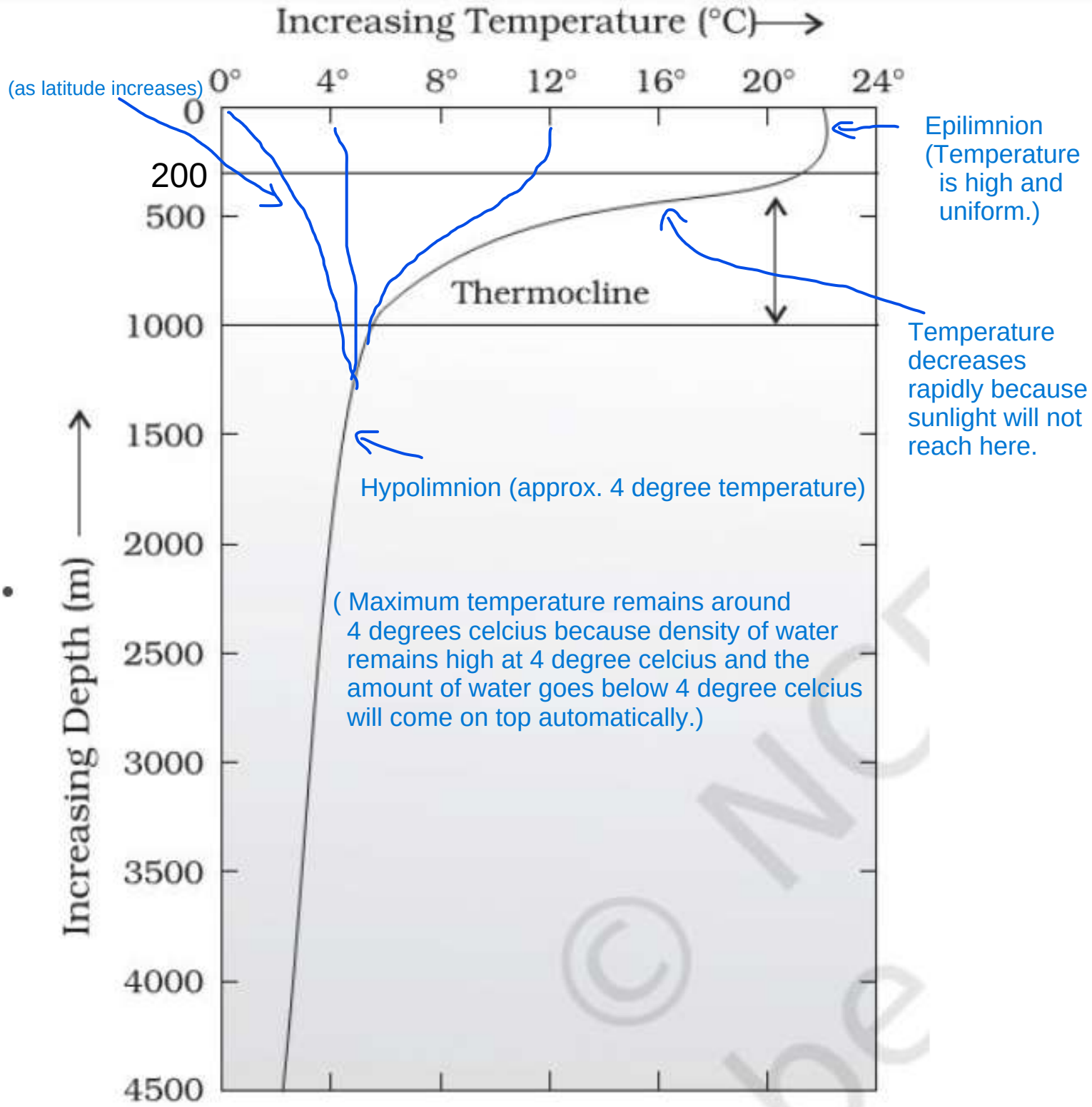


Figure 13.3 : Thermocline

Most of lives are found in Epilimnion but some species are found in Thermocline also which are transparent and goes on Epilimnion in night for food and comes back to Thermocline.

In Hypolimnion light generating species are found.

- **Epilimnion Zone** extends up to 200 meters in depth with an average temperature between 20-25 degrees Celsius.
- It is a zone of constant sunlight.
- Temperature remains uniform due to mixing by winds.
- It is a zone of life.
- **Thermocline** (It is also known as Metalimnion)
- The temperature decreases rapidly with depth.
- It is also called as the Twilight Zone.

"Twilight" refers to the period between sunset and nightfall, characterized by a soft, diffused light in the sky while the sun is below the horizon.

- **Hypolimnion Zone**
- It is a zone of uniform temperature and very cold waters.
- It is also called a dark zone.

The reason it's called the twilight zone is due to the following factors:
1. Light Levels:
2. Temperature Change:
3. Limited Visibility:

- The average temperature remains nearly 4 degrees Celsius as seawater attains maximum density at this temperature.
- **Horizontal Variation of temperature**
- The surface water temperature lies between 20 to 25 degrees Celcius along tropical regions and decreases gradually towards the polar region.
- The three distinctive layers are clearly identifiable along the tropical regions. However, along polar regions, there will be a single uniform layer of cold temperature.

TOPIC OF THE NEXT CLASS- SALINITY, OCEANIC DEPOSITS, CORAL REEFS