Biological classification

- Classification of organisms after civilization
  - → not scientific
  - → boone out of a need to use organisms for our own use – food, shelter, clothing.

Aristotle

- 1st person to classify organisms scientifically.
- classified both plants and animals

basis → height → morphology

Plants
- → herbs
- → shrubs
- → trees

Animals — basis (RBC / red blood)
- → enaima — +ve
- → anaima — -ve

Theophrastus

- father of botany
- classified plants

basis → morphology

Plants
- → herbs
- → under shrubs
- → shrubs
- → trees

Plants (basis - duration of life cycle)
- → Annuals (rice, wheat)
- → Biennials (Henbane)
- → Perennials (mango)

Kingdom classification system	Proposed by	year	Kingdom introduced
2	Linaeus	1758	plantae, animalia
3	Haeckel	1866	protista
4	Copeland	1956	monera
5	R.H. Whittaker	1969	fungi
6	Carl Woose	1990	→ EB eubacteria, archae bacteria (AB)

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2 KCs

Criteria	Animalia	Plantae
cell wall (CW) main criterion	-ve	+ve
(CV) contractile vacuole	+ve	-ve (exception Euglena)
locomotion	+ve	-ve
nutrition	eat	do not eat
response to external stimuli	fast	slow
Examples	Vertebrate invertebrate Protozoa (Amoeba, Paramecium)	Bacteria, BGA, Slime moulds, Euglena, Bryo, ptérido, gymno, angio, algae ↓ chlorella, chlamydomonas, Spirogyra, Ulothrix.

Drawbacks of 2 KCs

→ 2 KCs did not distinguish b/w
- PK and EK
- unicellular and multicellular organisms.
- Photosynthetic (green algae) and non photosynthetic (fungi) organisms

→ Position of fungi

→ large no. of organisms did not fall into either Kingdoms (categories)

→ organisms like Slime moulds, Euglena, etc have both plant and animal like features.

→ In Amoeba CV is present in fresh water.

→ did not considered characters like habitat, cell structure, phylogeny, etc. (but was based on gross morphological features)

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3KCs

- Haeckel included all organisms that were unicellular or multicellular under protista
  - multicellular → without tissue or with loose tissue
- Protistan members are primarily aquatic

Animalia	Plantae	Protista
Vertebrate	Bryo, pterido,	Bacteria, BGA, Euglena
invertebrate	gymno, angio	Slime mould, fungi,
		algae, protozoa
		algae → Chlamydomonas, Chlorella, Ulothrix, Spirogyra
		protozoa → Amoeba, Paramecium

4KCs

Animalia	Plantae	Protista	monera
Vertebrate	Bryo, pterido,	Euglena, Slime	Bacteria, BGA
invertebrate	gymno, angio	mould, fungi	
		algae, protozoa	
		algae → Chlamydomonas, Chlorella, Spirogyra, Ulothrix	
		protozoa → Amoeba, Paramecium	

5KCs → 5 main basis

1. Body organisation → unicellular/ multicellular
2. cell structure → PK/ EK
3. mode of nutrition
4. mode of reproduction
5. Phylogeny (evolutionary relationship)

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Animalia	Plantae	Protista	monera	fungi
vertebrate	Bryo,	Euglena,	Bacteria	fungi
invertebrate	Pteridо,	Slime moulds	BGA	
	gymno,	protozoa,		
	angio,	(Amoeba, Paramecium)		
	multicellular	unicellular algae		
	algae	(chlorella,		
	↓	chlamydomonas)		
	Spirogyra			
	ulothrix			

GKCS

Animalia	Plantae	Protista	AB	EB	fungi
Vertebrate	Bryo,	Euglena	Archae	Eubact-	fungi
invertebrate	Pteridо,	Slime mould	bacteria	eria	
	gymno,	Protozoa			
	angio,	unicellular			
	multicellular	algae			
	algae				

Carl woose divided monera into 2 kingdoms

Archabacteria (AB) Eubacteria (EB)

Basis	AB	EB
(CW) murein	-ve	+ve
PM → lipid	ether linkage	ester linkage
	branched	unbranched

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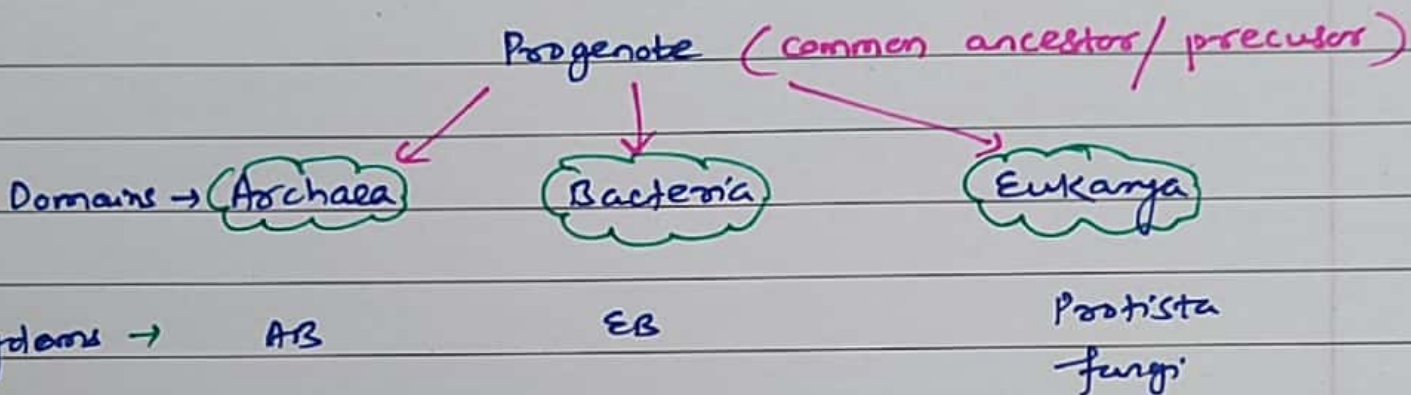
3 Domain System

- by Carl woese
- Basis → nucleotide sequence of 16S rRNA (nucleotide pair sequence of gene encoding 16S rRNA)



Kingdoms → AB EB

Protista
fungi
Animalia
Plantae

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