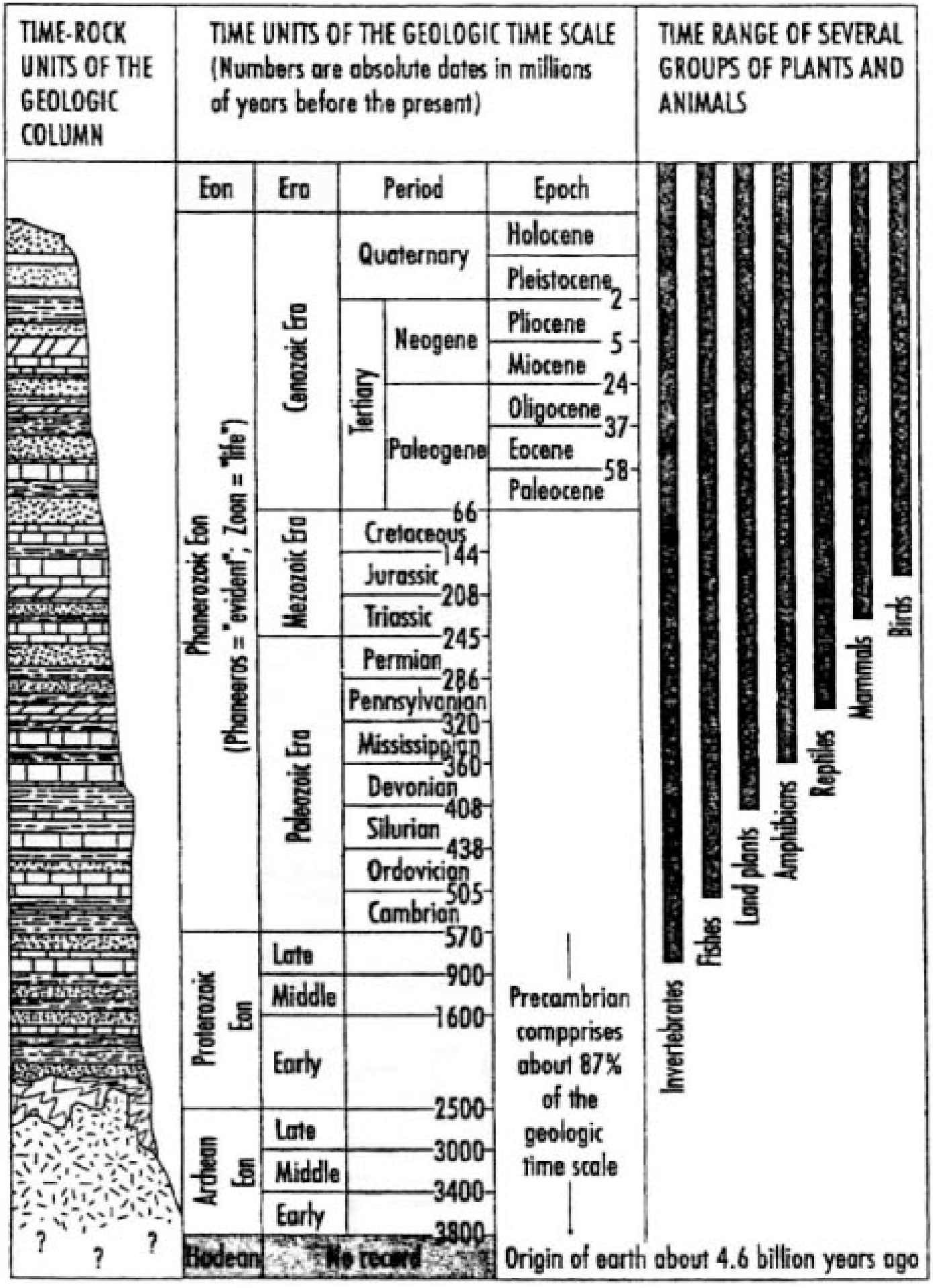
Geologic Time/Geologic Record

Relative Duration of Eons	Era	Period	Epoch	Age (Millions of Years Ago)	Some Important Events in the History of Life
Phanerozoic	Cenozoic	Quaternary	Holocene	0.01	Historical time
			Pleistocene	2.6	Ice ages; origin of genus *Homo*
		Neogene	Pliocene	5.3	Appearance of bipedal human ancestors
			Miocene	23	Continued radiation of mammals and angiosperms; earliest direct human ancestors
		Paleogene	Oligocene	33.9	Origins of many primate groups
			Eocene	55.8	Angiosperm dominance increases; continued radiation of most present-day mammalian orders
			Paleocene	65.5	Major radiation of mammals, birds, and pollinating insects
Proterozoic	Mesozoic	Cretaceous		145.5	Flowering plants (angiosperms) appear and diversify; many groups of organisms, including most dinosaurs, become extinct at end of period
		Jurassic		199.6	Gymnosperms continue as dominant plants; dinosaurs abundant and diverse
		Triassic		251	Cone-bearing plants (gymnosperms) dominate landscape; dinosaurs evolve and radiate; origin of mammals
	Paleozoic	Permian		299	Radiation of reptiles; origin of most present-day groups of insects; extinction of many marine and terrestrial organisms at end of period
		Carboniferous		359	Extensive forests of vascular plants form; first seed plants appear; origin of reptiles; amphibians dominant
		Devonian		416	Diversification of bony fishes; first tetrapods and insects appear
		Silurian		444	Diversification of early vascular plants
		Ordovician		488	Marine algae abundant; colonization of land by diverse fungi, plants, and animals
Archaean		Cambrian		542	Sudden increase in diversity of many animal phyla (Cambrian explosion)
		Ediacaran		635	Diverse algae and soft-bodied invertebrate animals appear
				2,100	Oldest fossils of eukaryotic cells appear
				2,500	
				2,700	Concentration of atmospheric oxygen begins to increase
				3,500	Oldest fossils of cells (prokaryotes) appear
				3,800	Oldest known rocks on Earth's surface
				Approx. 4,600	Origin of Earth

<<Over>>


TIME-ROCK UNITS OF THE GEOLOGIC COLUMN
TIME UNITS OF THE GEOLOGIC TIME SCALE (Numbers are absolute dates in millions of years before the present)
TIME RANGE OF SEVERAL GROUPS OF PLANTS AND ANIMALS
Eon
Era
Period
Epoch
Phanerozoic Eon (Phanerozoic = "evident"; Zoon = "life")
Cenozoic Era
Quaternary
Holocene
Pleistocene
2
Tertiary
Neogene
Pliocene
5
Miocene
24
Paleogene
Oligocene
37
Eocene
58
Paleocene
66
Mesozoic Era
Cretaceous
144
Jurassic
208
Triassic
245
Paleozoic Era
Permian
286
Pennsylvanian
320
Mississippian
360
Devonian
408
Silurian
438
Ordovician
505
Cambrian
570
Proterozoic Eon
Late
900
Middle
1600
Early
2500
Archean Eon
Late
3000
Middle
3400
Early
3800
Hadean
No record
Precambrian compprises about 87% of the geologic time scale
Origin of earth about 4.6 billion years ago
Invertebrates
Fishes
Land plants
Amphibians
Reptiles
Mammals
Birds
? ? ?