M0006576: Wellcome Historical Medical Museum display: "Chart showing geological and biological history"

Publication/Creation

30 January 1940

Persistent URL

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CHART SHOWING GEOLOGICAL & BIOLOGICAL HISTORY

RECENT TIME (about 25,000 years) is too short a period to be shown accurately on this scale but is represented by a red line

GEOLOGICAL PERIODS

		Millions of Years
CAINOZOIC (TERTIARY)	PLEISTOCENE	
	PLIOCENE	25
	MIOCENE	
	OLIGOCENE Earth folding, Andes etc. Building of Alps, Himalayas. WIDE SPREAD IGNEOUS ACTIVITY	35
	EOCENE	
MESOZOIC (SECONDARY)	CRETACEOUS (CHALK AGE) MAXIMUM EXTENSION OF SEAS	60
	JURASSIC GREAT IGNEOUS ACTIVITY IN SOUTHERN HEMISPHERE	25
	TRIASSIC	25
PALAEOZOIC (PRIMARY)	PERMIAN MAXIMUM EXTENSION OF LAND Earth folding (Hercynian) and Mountain building. GREAT ICE AGE IN SOUTHERN HEMISPHERE	40
	CARBONIFEROUS WIDE SPREAD IGNEOUS ACTIVITY	75
	DEVONIAN WIDE SPREAD IGNEOUS ACTIVITY Earth folding (Caledonian) and Mountain building	40
	SILLURIAN	25
	ORDOVICIAN	60
	CAMBRIAN	90
	ICE AGE IN CHINA, AUSTRALIA, S. AFRICA, ETC.	

The TIME SCALE is taken from Schuchert's 'Outlines of Historical Geology,' 1931. Total 500

PLANTS

CAINOZOIC (TERTIARY)	PLEISTOCENE	
	PLIOCENE Vegetation still more modern in character. Indications of a climate different from the present.	Age of Flowering Plants
	MIOCENE	
	OLIGOCENE Vegetation of modern aspect; trees dominate over herbaceous plants. Indications that climates were very different from present ones in same regions.	
MESOZOIC (SECONDARY)	CRETACEOUS Development and spread of Angiosperms (Plane tree, Sycamore, Oak, Walnut, Willow, Fig, Palm, etc.) The other groups are also of modern type. Equisetites. Cycadeoidea.	Age of Cycadophyta and Coniferæ (Gymnospermous Trees)
	JURASSIC Incoming of Angiosperms Bennettitales: (Williamsonia, Cycadeoidea). Characeae.	
	TRIASSIC Equisetites. Ferns Ginkgo, Cycadophyta, Coniferæ.	
PALAEOZOIC (PRIMARY)	PERMIAN (UPPER) Ginkgo Walchia, Ullmannia. Medulloseae. Marked development of new and extinction of old forms. PERMIAN (LOWER) Carboniferous plants linger on.	Age of Ferns, Seed Ferns, Lycopods and Gymnosperms
	CARBONIFEROUS (UPPER & MIDDLE) Calamites, Sphenophyllum, Lepidodendron, Sigillaria, Ferns, Pteridosperms. (Seed Ferns). Cordaites. CARBONIFEROUS (LOWER) Archaeocalamites, Cheirostrobus, Sphenophyllum, Psilophyton, Pteridosperms.	
	DEVONIAN (UPPER) Club Mosses (Lepidodendron, Bothrodendron), Ferns (Archaeopteris etc) Pteridosperms (Calamopitys) Verticillitae (Sphenophyllum, Pseudobornia). Pteridosperm stems (Calamopitys) DEVONIAN (LOWER) Psilophytales. (Rhynia, Hornea, Asteroxylon).	
	SILLURIAN Incoming of Land Plants. Nematophycus — possibly a marine brown alga. Characeae ? — spirally marked oval bodies.	
	ORDOVICIAN Types preserved mainly calcareous, and reef building; possibly marine brown algae.	
	CAMBRIAN Algae. Types preserved mainly calcareous: many reef building.	

INVERTEBRATE ANIMALS

		Millions of Years
CAINOZOIC (TERTIARY)	PLEISTOCENE Present-day Animals dominant	
	PLIOCENE Appearance of Modern Molluscs (e.g. Cockle, Mussel, Periwinkle). Animals become more and more like modern types.	25
	MIOCENE	
	OLIGOCENE Dawn of Modern Life: Marine molluscs. Fauna of Britain resembles that of Indian Ocean.	35
	EOCENE	
MESOZOIC (SECONDARY)	CRETACEOUS Last of the Ammonites and true Belemnites. Spread of Modern Insects.	60
	JURASSIC Abundance of Ammonites & Belemnites. Spread of Sea Urchins. Incoming of Crabs.	25
	TRIASSIC Spread of Ammonites. Incoming of Lobsters, Belemnite and Corals of Modern Type.	25
PALAEOZOIC (PRIMARY)	PERMIAN Last Trilobites and Ancient Reef Corals.	40
	CARBONIFEROUS Spread of Early Insects. Abundance of Crinoids ('Sea Lilies').	75
	DEVONIAN Incoming of Spiders. Incoming of Goniatites.	40
	SILLURIAN Spread of Ancient Reef Corals. Incoming of air-breathing Land animals (Scorpions).	25
	ORDOVICIAN Incoming of Corals. Spread of Molluscs. Abundance of Trilobites and Graptolites.	60
	CAMBRIAN Dominance of Trilobites. Incoming of Shell-bearing Molluscs. First well-known marine fauna.	90

Total 500

VERTEBRATE ANIMALS

CAINOZOIC (TERTIARY)	PLEISTOCENE Appearance of Modern Man	
	PLIOCENE Land mammals attain greatest size. Man-ape changing into man. First one-toed horses, sheep, oxen.	Mammals Dominant
	MIOCENE	
	OLIGOCENE Incoming of Dogs, Cats, Deer, Rhinoceros. Last of Archaic Mammals. Incoming of Modern Groups of Mammals (Pigs, Horses, Camels, Elephants, Primates etc)	
	EOCENE	
MESOZOIC (SECONDARY)	CRETACEOUS Incoming of "Archaic Mammals" and true Birds. Spread of Modern Fishes. Extinction of Dinosaurs, Pterodactyls, Large marine Reptiles and toothed Birds.	Reptiles Dominant
	JURASSIC Incoming of toothed Birds. Spread of Reptiles to Land, Sea and Sky. Spread of Primitive Mammals.	
	TRIASSIC Incoming of Dinosaurs, large marine reptiles, turtles. Incoming of Primitive Mammals.	
PALAEOZOIC (PRIMARY)	PERMIAN Spread of Reptiles. Incoming of Mammal-like Reptiles.	Amphibians Dominant
	CARBONIFEROUS Spread of Amphibians. Spread of ancient Sharks.	
	DEVONIAN Incoming of Amphibians. Incoming of True Fishes.	Fishes Dominant
	SILLURIAN Spread of Ostracoderms.	
	ORDOVICIAN Incoming of Lampreys (Ostracoderm).	
	CAMBRIAN	