

The Fossil Record



- The geological column consists of layers of sedimentary rock from the deepest being the oldest layer progressing upwards through successively younger layers.
- Fossils at the lowest levels are observed to be very simple and become progressively more complex as the strata become younger.

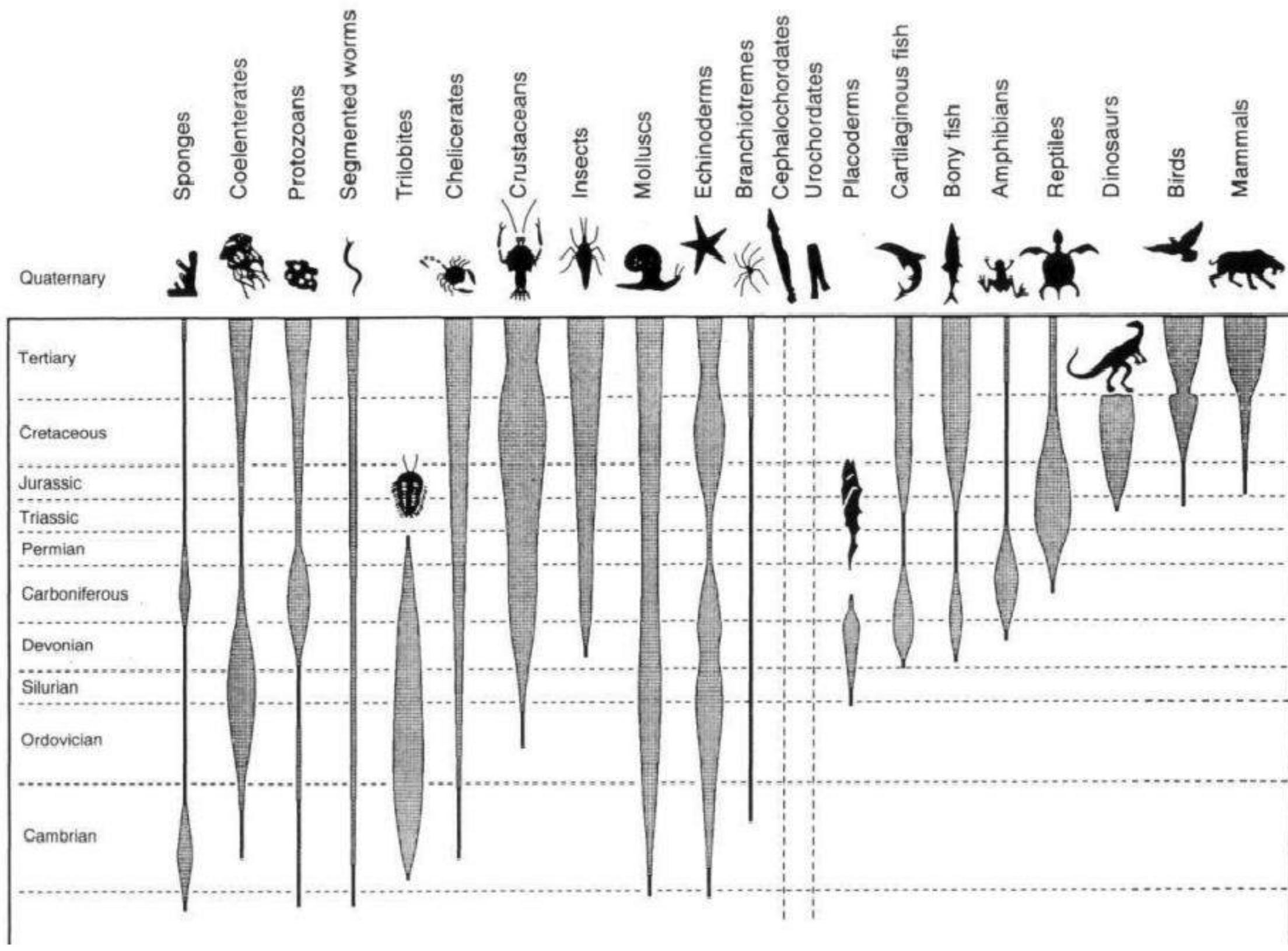
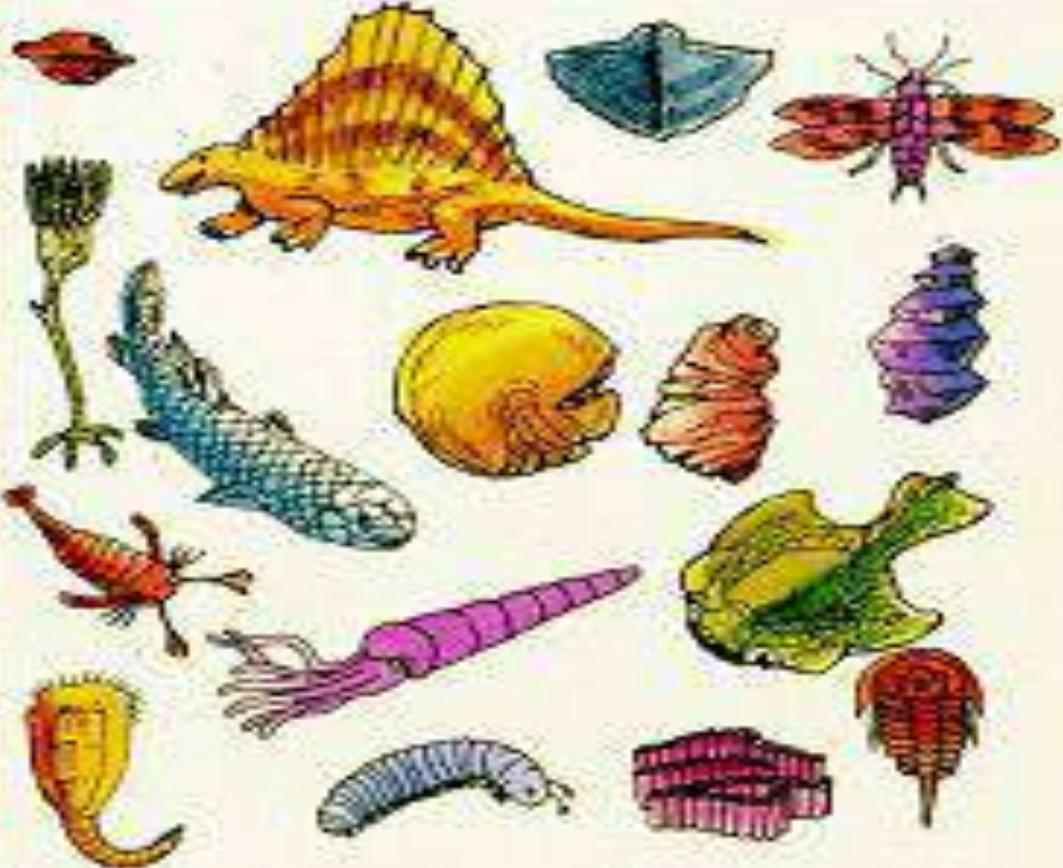


Fig. 1. An impressionistic representation of the fossil record, showing the frequency of occurrence of most animal groups.

GEOLOGIC TIME SCALE

ERA	PERIOD	EPOCH	SUCCESSION OF LIFE
CENOZOIC recent life	QUATERNARY 0-1 Million Years Rise of Man	Recent Pleistocene	
	TERTIARY 62 Million Years Rise of Mammals	Pliocene Miocene Oligocene Eocene	
MESOZOIC middle life	CRETACEOUS 72 Million Years Modern seed bearing plants; Dinosaurs		
	JURASSIC 46 Million Years First birds		
	TRIASSIC 49 Million Years Cycads, first dinosaurs		
PALEOZOIC ancient life	PERMIAN 50 Million Years First reptiles		
	Carboniferous		PENNSYLVANIAN 30 Million Years First insects
			MISSISSIPPIAN 35 Million Years Many crinoids
	DEVONIAN 60 Million Years First seed plants, cartilage fish		
	SILURIAN 20 Million Years Earliest land animals		
	ORDOVICIAN 75 Million Years Early bony fish		
	CAMBRIAN 100 Million Years Invertebrate animals, Brachiopods, Trilobites		
	PRECAMBRIAN Very few fossils present (bacteria-algae-pollen?)		



Fossils

- "The history of most fossil species includes two features particularly inconsistent with gradualism: 1. Stasis. Most species exhibit no directional change during their tenure on earth. They appear in the fossil record looking much the same as when they disappear; morphological change is usually limited and directionless. 2. Sudden appearance. In any local area, a species does not arise gradually by the steady transformation of its ancestors; it appears all at once and `fully formed.'" (Gould, Stephen J. [Professor of Zoology and Geology, Harvard University, USA], "Evolution's Erratic Pace," *Natural History*, Vol. 86, No. 5, May 1977, p.14).

Transitional Fossils

- The extreme rarity of transitional forms in the fossil record persists as the trade secret of paleontology. The evolutionary trees that adorn our textbooks have data only at the tips and nodes of their branches; the rest is inference, however reasonable, not the evidence of fossils.
- (Gould, Stephen Jay [Professor of Zoology and Geology, Harvard University, USA], "Evolution's erratic pace," *Natural History*, Vol. 86, No. 5, pp.12-16, May 1977, p. 14).



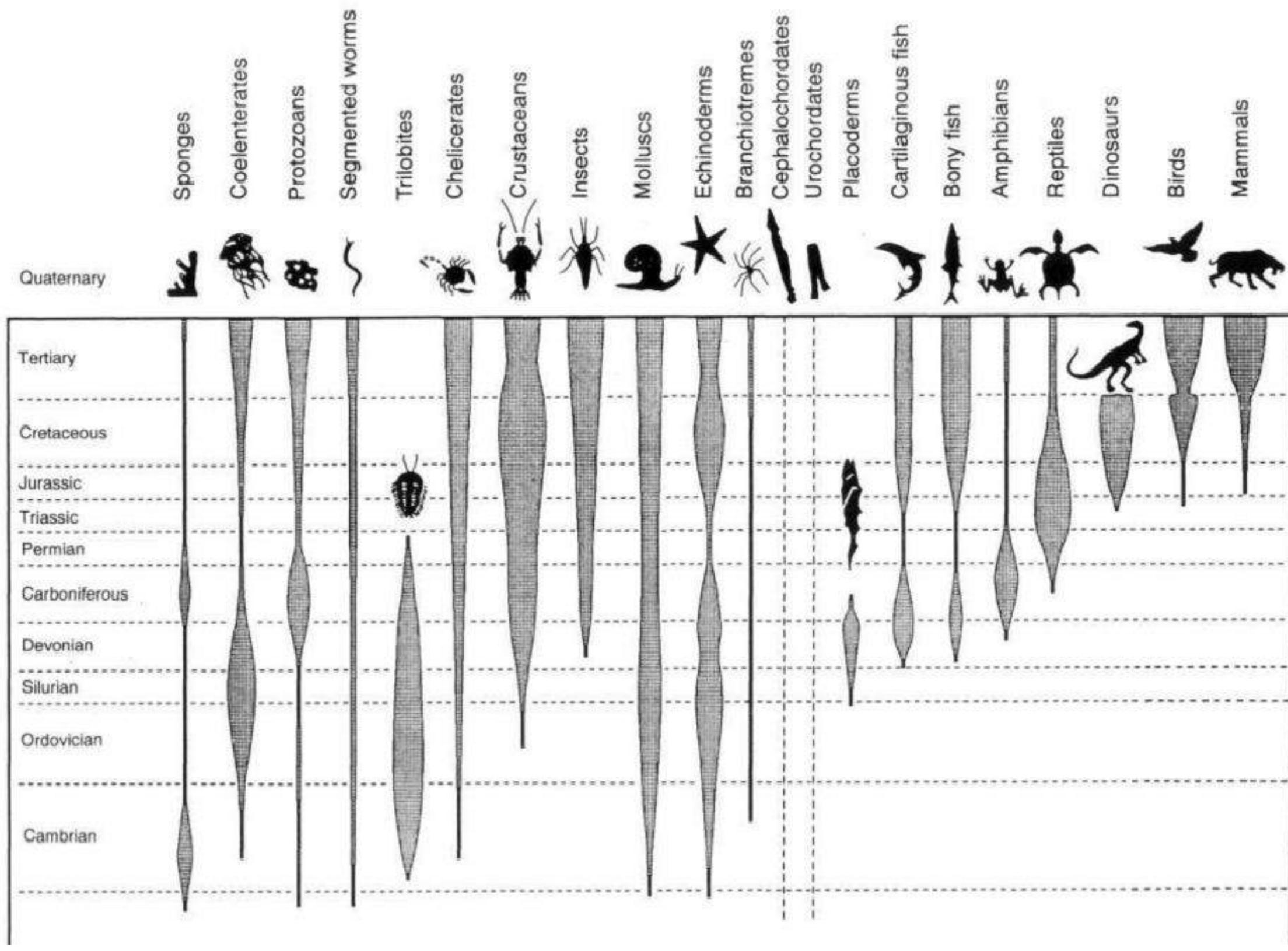


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Transitional Fossils

“It is as though they were just planted there, without any evolutionary history. Needless to say this appearance of sudden planting has delighted creationists.” *The Blind Watchmaker*, 1987, p. 229.

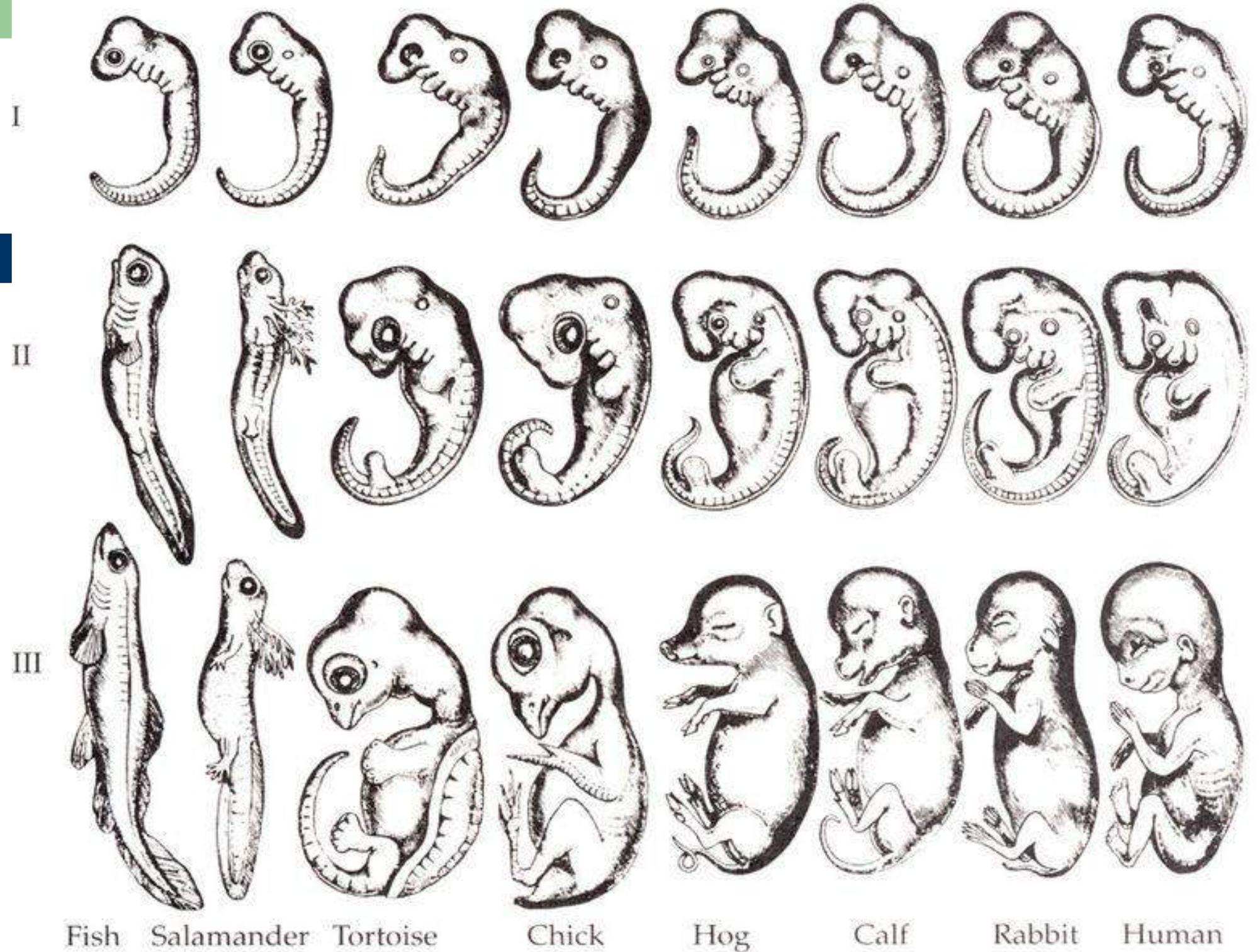
Transitional Fossils

- "But just in proportion as this process of extermination has acted on an enormous scale, so must the number of intermediate varieties, which have formerly existed, be truly enormous. Why then is not every geological formation and every stratum full of such intermediate links? Geology assuredly does not reveal any such finely graduated organic chain; and this, perhaps, is the most obvious and serious objection which can be urged against the theory. The explanation lies, as I believe, in the extreme imperfection of the geological record." (Darwin, Charles R. [English naturalist and joint founder of the modern theory of evolution], "The Origin of Species by Means of Natural Selection," [1872], Everyman's Library, J.M. Dent & Sons: London, 6th Edition, 1928, reprint, pp.292-293).

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Embryology



Embryology

Michael Richardson and his colleagues in a July 1997 issue of *Anatomy and Embryology*,^[32] demonstrated that Haeckel fudged his drawings in order to exaggerate the similarity of the phylotypic stage. In a March 2000 issue of *Natural History*, Stephen Jay Gould argued that Haeckel “exaggerated the similarities by idealizations and omissions.” As well, Gould argued that Haeckel’s drawings are simply inaccurate and falsified.^[33] On the other hand, one of those who criticized Haeckel's drawings, Michael Richardson, has argued that "Haeckel's much-criticized drawings are important as phylogenetic hypotheses, teaching aids, and evidence for evolution".^[34] But even Richardson admitted in *Science Magazine* in 1997 that his team's investigation of Haeckel's drawings were showing them to be "one of the most famous fakes in biology." - “Embryo Drawings” - Wikipedia

Non-adaptive forms

Leaf Venation

Flower swirl patterns

Radiolarian patterns

Insect segments

VENATION



Arcuate
secondary veins
bending toward apex



Cross-Venulate
small veins connecting
secondary veins



Dichotomous
veins branching
symmetrically in pairs



Longitudinal
veins aligned mostly
along long axis of leaf



Palmate
several primary veins
diverging from a point



Parallel
veins arranged axially,
not intersecting



Pinnate
secondary veins
paired oppositely



Reticulate
smaller veins
forming a network



Rotate
in peltate leaves,
veins radiating

Non-adaptive forms

Flower swirl patterns

In many species the number of petals often corresponds to a Fibonacci number, e.g., bloodroot, eight; blackeyed daisy, thirteen; shasta daisy, twenty-one; and field daisy, thirty-four. Would anyone seriously insist that the number of petals in each species is adaptive?

Denton, *Evolution: Still a Theory in Crisis*



Non-adaptive forms

Radiolarian Shells

