



Kentucky Geological Survey

PROGRESSION OF LIFE
In Commemoration of the Sesquicentennial Anniversary
1838-1988

STEVEN CYREB ©1988

PROGRESSION OF LIFE

This Sesquicentennial poster, which commemorates the 150th anniversary of the Kentucky Geological Survey, was constructed to illustrate the great diversity of life throughout geologic time. Restoration of ancient animals and plants is based on the fossil record that has been preserved in the rocks. Many of the forms depicted on the poster lived in the area that is now Kentucky; however, some geologic rock units are missing in Kentucky due to erosion or nondeposition, and some of the older units are not exposed at the surface anywhere in the State. Scientists are able to determine the life forms represented by the missing rock units by studying units of the same age that have been preserved in other areas throughout the world. In this way a more complete understanding of the progression of life can be acquired.

The accompanying explanation may be used to identify the animals and plants on the front of the poster and to determine the geologic time in which they lived. Figure 1 shows the subdivision of geologic time into eras, periods, and epochs, each successively smaller than the preceding, much like our division of time into years, months, and weeks. Symbols used for time periods on the geologic time scale correspond to those used in the identification list. Where two symbols are joined by a hyphen, this indicates

the range of geologic time through which the plant or animal existed. For instance, the entry "C-M" for graptolites (No. 63) shows that evidence of this life form has been found in rocks ranging in age from Cambrian through Mississippian. Reference to the column headed "MILLIONS OF YEARS AGO" in Figure 1 indicates that the Cambrian Period began about 570 million years ago and that the Mississippian Period ended approximately 320 million years ago.

Figure 2 shows the boundaries of the large-scale divisions of life forms depicted on the poster. These subdivisions are keyed to the major headings used in the identification list and are based on age, type of life form, and environment in which the animal or plant lived.

Each animal and plant on the poster is shown in outline form on Figure 3, and each individual has been assigned an identification number. The numbers on Figure 3 correspond to numbers in the identification list. The type of plant or animal, and in many cases its scientific name, can be determined by checking the list. A more detailed description of the various life forms depicted on the poster is available from the Kentucky Geological Survey.

GEOLOGIC TIME SCALE						
ERA	PERIOD	EPOCH	MILLIONS OF YEARS AGO	SYMBOL		
CENOZOIC	QUATERNARY	HOLOCENE	.01	Qh		
		PLEISTOCENE	1.6	Qp		
		PLIOCENE	5.3	Tpl		
		MIOCENE	23.7	Tm		
		OLIGOCENE	36.6	To		
		EOCENE	57.8	Te		
		PALEOCENE	66.4	Tpa		
		MESOZOIC	CRETACEOUS		144	K
				JURASSIC	208	J
				TRIASSIC	245	Tr
PALEOZOIC	PERMIAN		286	P		
		PENNSYLVANIAN	320	Pa		
		MISSISSIPPIAN	360	M		
		DEVONIAN	408	D		
		SILURIAN	438	S		
		ORDOVICIAN	505	O		
		CAMBRIAN	570	C		
PRECAMBRIAN						
				PC		

(adapted from the Geological Society of America, 1983)

Figure 1. Geologic time scale.

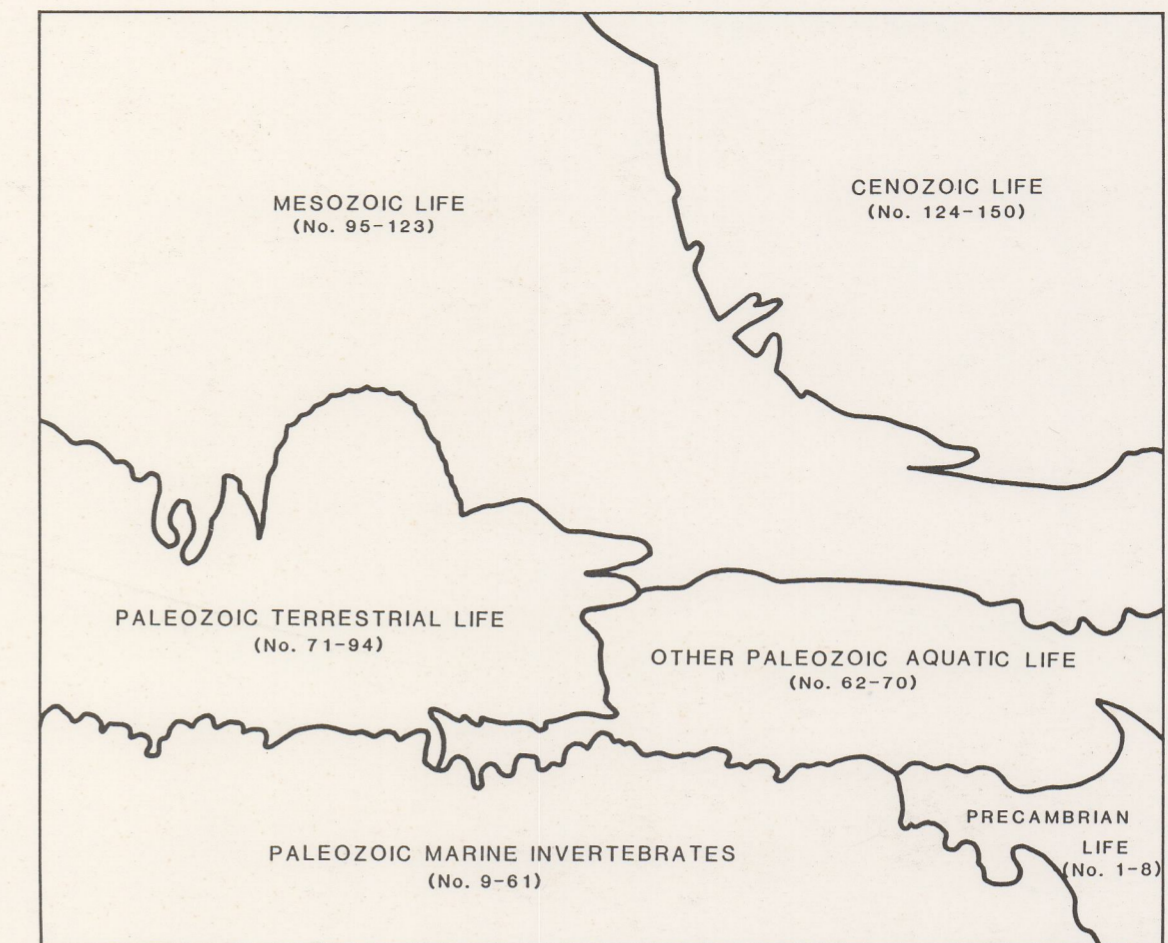


Figure 2. Large-scale divisions of life forms shown on the poster. Subdivisions on Figure 2 are keyed to major headings in the identification list.

PRECAMBRIAN LIFE

1. blue-green algae cells
2. eucaryote cells
3. stromatolites
4. Cyclomedusa, jellyfish
5. Brachina, jellyfish
6. Sprigina, marine worm
7. Dickinsonia, marine worms
8. Charniodiscus, sea pens

PALEOZOIC MARINE INVERTEBRATES

Cambrian Period

9. Peytoia, jellyfish
10. lancelets
11. Vauxia, sponges
12. Canadaspis, arthropod
13. archaeocyathids
14. Chancelloria, sponges
15. Mackenzia, sea anemones
16. Eiffelia, sponges
17. Olenellus, trilobite fossil
18. Calymene, trilobites

Ordovician Period

19. Hallopora, bryozoan
20. crinoids
21. Rafinesquina, brachiopod fossil
22. Platystrophia, brachiopod fossil
23. Tetradium, coral
24. Brachiospongia, sponge
25. Endoceras, cephalopod
26. Isotelus, trilobite
27. brachiopods
28. Dinorthis, brachiopod fossil
29. Constellaria, bryozoans

Silurian Period

30. Atrypa, brachiopod fossil
31. Pentamerus, brachiopod fossil
32. Pachydictya, bryozoan
33. Phaenopora, coral
34. Orthoceras, cephalopod
35. fenestrate bryozoans
36. Heliolites, coral
37. Cyclonema, gastropod fossil
38. Arachnophyllum, coral
39. Plasmopora, coral
40. brachiopods
41. Cladopora, coral
42. Halysites, coral
43. Favosites, coral
44. Cystiphyllum, coral

Devonian Period

45. Zaphrentis, coral fossil
46. Siphonophrentis, coral
47. Heterophrentis, coral
48. Eridophyllum, coral
49. Hercloceras, nautiloid
50. brachiopods
51. Terataspis, trilobite
52. Paracyclas, bivalve fossil

IDENTIFICATION LIST

Mississippian Period

53. Menophyllum, coral
54. Lithostrotion, coral
55. Archimedes, bryozoans
56. Pentremites, blastoid fossil
57. crinoids and blastoids
58. Forbesiocrinus, crinoid fossil
59. crinoid columnal fossil
60. crinoid with anal sac
61. brittle star

OTHER PALEOZOIC AQUATIC LIFE

62. conodont fossil (PC-Tr)
63. graptolites (C-M)
64. Eurypterus, arthropod (S)

VERTEBRATES

65. Pteraspis, fish (S)
66. Pterichthyodes, fish (S)
67. Cephalaspis, fish (S)
68. Cladoselache, shark (D)
69. Dunkleosteus, fish (D)
70. Osteolepis, fish (D)

PALEOZOIC TERRESTRIAL LIFE

VERTEBRATES

71. Eusthenopteron, lungfish (D)
72. Ichthyostega, amphibian fossil (D)
73. Hylonomus, reptile (Pa)
74. Seymouria, reptile (P)
75. Limnoscelis, reptile (P)
76. Dimetrodon, reptile (P)

EARLY PLANTS

77. Cooksonia and Steganotheca (S)
78. Rhynia (D)
79. Asteroxylon (D)

DEVONIAN PERIOD FORESTS

80. Hyenia, ground plants
81. Eospermatopteris, tree
82. Archaeopteris, tree
83. Rhacophyton, ferns

PENNSYLVANIAN PERIOD SWAMPS

84. millipede fossil
85. scorpion
86. reptile
87. Homaloneura, insect
88. Calamites, reeds
89. Neuropteris, ferns
90. Lepidodendron, trees
91. Sigillaria, trees
92. Medullosa, tree ferns
93. Psaronius, tree ferns
94. Lepidodendron, seedling tree

MESOZOIC LIFE*

95. Hesperosuchus, pre-dinosaur (Tr)
96. Coelophysis (Tr)
97. Dilophosaurus (Tr)
98. Struthiomimus (K)
99. Plateosaurus (Tr)
100. Williamsonia, tree (Tr)
101. Bjuvia, tree (Tr)
102. Apatosaurus (J)
103. sauropod herd (J)
104. sauropod trackway fossils (J)
105. Archaeopteryx, first bird (J)
106. Stegosaurus (J)
107. Tylosaurus, marine reptile (K)
108. Elasmosaurus, marine reptile (K)
109. Baculites, squid-like animals (K)
110. Ichthyosaurus, marine reptile (J)
111. Ankylosaurus (K)
112. Triceratops (K)
113. Styracosaurus (K)
114. Deinonychus (K)
115. Magnolia, flowers (K-Qh)
116. angiosperm trees (K)
117. Sequoia, conifer tree (K-Qh)
118. Parasaurolophus (K)
119. Brachiosaurus, dinosaur skeleton (K)
120. Ceratosaurus, dinosaur skeleton (K)
121. Tyrannosaurus rex, (K)
122. ammonite fossil (D-K)
123. Palaeoryctes, mammal (K-Tpa)

CENOZOIC LIFE**

124. Diacodon (Tpa-Te)
125. Paramys (Tpa-Te)
126. Trionyx, turtle (K-Tpa)
127. Plesiadapis (Tpa)
128. Ptilodus (Tpa)
129. Hyrachtherium (Tpa-Te)
130. Pliohippus, horse skull (Tpl)
131. Blue Whale (Tm-Qh)
132. Phenacodus (Tpa-Te)
133. Coryphodon (Tpa-Te)
134. Brontotherium (To)
135. Glyptodon (Te)
136. grass (Tm-Qh)
137. Dinohyus (Tm)
138. Baluchitherium (To-Tm)
139. Smilodon (Qp)
140. Synthetocerus (Tm-Tpl)
141. Megatherium (Qp)
142. Moropus (Tm)
143. Woolly Mammoth (Qp)
144. Diatryma, bird (Tpa)
145. Aepycomelus (Tm)
146. Notharctus (Te)
147. Australopithecus, skull (Tpl-Qp)
148. Homo erectus, skull (Qp)
149. Cro-Magnon man, skull (Qp)
150. Modern man (Qh)

* Animals are dinosaurs unless otherwise noted.

** Animals are mammals unless otherwise noted.



Figure 3. Reference diagram for use in identifying individual animals and plants. Numbers on the diagram correspond to numbers used in the identification list.