Absolute geologic time scale

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ABSOLUTE GEOLOGIC TIME SCALE

One of the most fascinating questions—to the professional geologist as well as the layman—is: how old is it? Early age determinations were based almost wholly on the uranium / lead and thorium / lead ratios. More recently, other methods have been used, such as the lead / alpha-particle ratio, the potassium / argon ratio, and the rubidium / strontium ratio. For the uppermost end of the time table—the last few thousand years (of more interest to the archeologist)—the carbon-14 or radiocarbon method is suitable.

For several decades the uranium / lead and thorium / lead determinations gave the following approximate dates, widely cited in various textbooks:

Cenozoic Era
60-70 million years ago
Mesozoic Era
200 million years ago
Paleozoic Era
500 million years ago
Precambrian (Cryptozoic) Eon
3,000 million years ago

Within the last few years a great deal of research has been accomplished and a more reliable time scale seems to be emerging. The beginning of the Paleozoic Era has been pushed back about a hundred million years. The recent work is ably summarized by J. L. Kulp (1961), and the new scale, together with certain stratigraphic units of the Albuquerque country, is given below.

Era	Period	Key Formations	Millions of Years Ago
CENOZOIC			
	Quaternary (Pleistocene)	Several fms.	1
	Tertiary	Several fms. Santa Fe group San Jose formation Nacimiento formation	65
MESOZOIC			
	Cretaceous	Many stratigraphic units	135
	Jurassic	Morrison Todilto Entrada	180
	Triassic	Chinle and Dockum	230
PALEOZOIC			
	Permian	San Andres, etc. Yeso Abo	280
	Pennsylvanian	Madera Sandia	310
	Mississippian	Arroyo Penasco and Tererro	345
	Devonian	(missing?)	405
	Silurian	(missing)	425
	Ordovician	(missing)	500
	Cambrian	(missing)	600
PRECAMBRIAN (CRYPTOZOIC) EON			
		Sandia granite	1,350
		Older sedimentary and igneous rocks	?

REFERENCE

Kulp, J. L., 1961, Geologic time scale: Science, v. 133, p. 1105-1114 [April 14, 1961].