

GEOLOGIC TIME SCALE

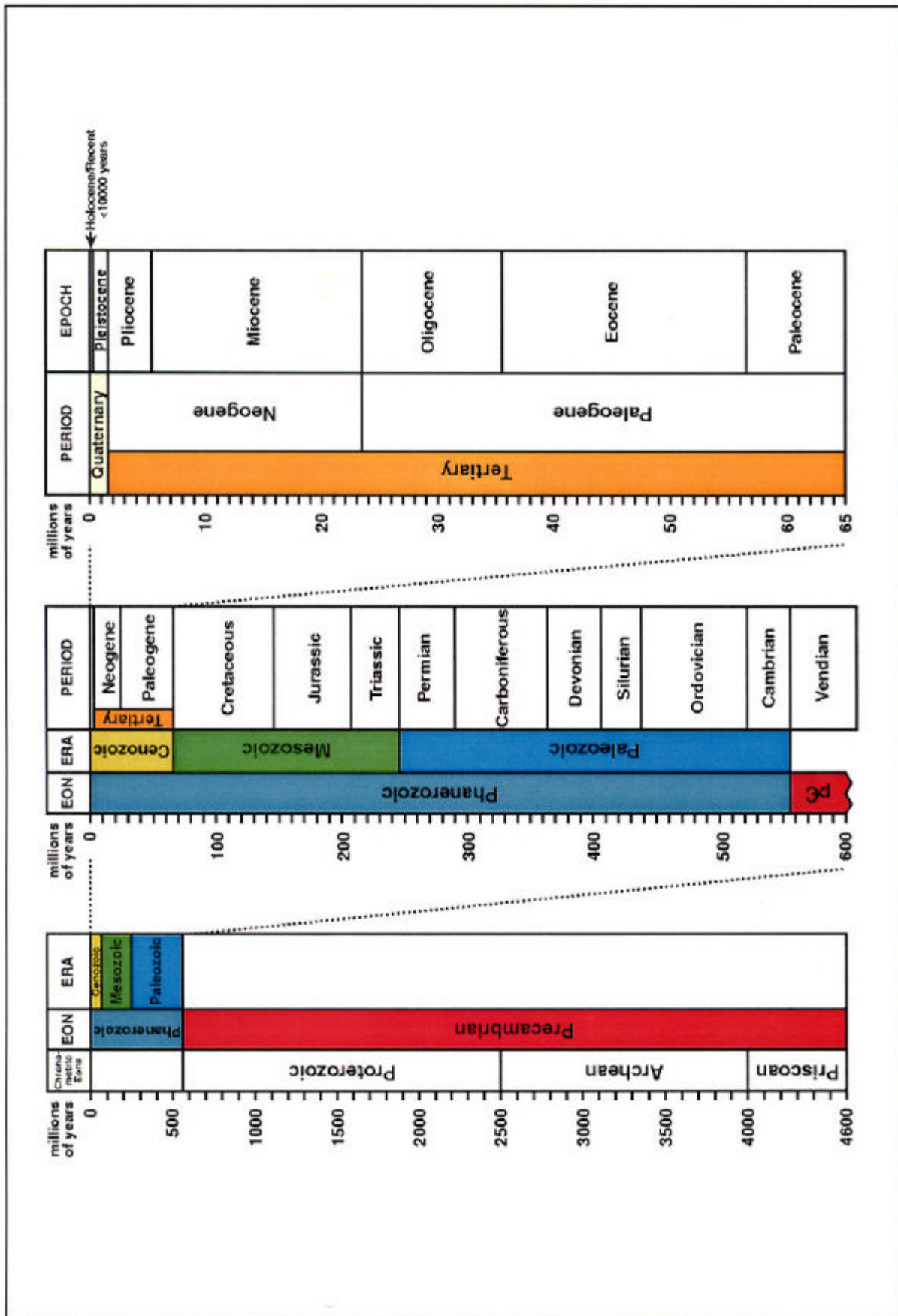
Few discussions about geology of the Trans-Pecos make sense without reference to the geologic time scale. Geologic time can be referred to either as “relative time” or as “absolute time.”

- **Relative time** -- subdivisions of Earth's geology in a specific order based on relative age relationships (most commonly, stratigraphic position). These subdivisions are given names, most of which can be recognized globally, usually on the basis of fossils.
- **Absolute time** -- numerical ages in "millions of years" or some other measurement. These are most commonly obtained by radiometric dating methods performed on appropriate rock types.

Relative time represents the physical subdivisions of the Earth's stratigraphy, and absolute time represents the measurements made upon those strata to determine the actual time that has transpired since the rocks were formed. Absolute time measurements can be used to assign ages to the relative time scale.

The following scale shows the major divisions of geologic time. The time scale is depicted in its traditional form, with oldest at the bottom and youngest at the top. The column on the left shows the complete sequence of time from the estimated origin of the Earth (4.6 billion years ago) to the present day. All time up to about 550 million years ago (Ma) is referred to as the Precambrian Eon. All time from 550 Ma to the present is referred to as the Phanerozoic (or visible life) Eon. The second column is an expansion of the Phanerozoic Eon from Column 1. The Phanerozoic Eon is divided into three eras: the Paleozoic (550 Ma to 250 Ma), the Mesozoic (250 Ma to 65 Ma), and the Cenozoic (65 Ma to present). Each Era is further subdivided into smaller spans of time referred to as “Periods”. The third column is expansion of the Cenozoic time scale to show its division into the Tertiary and Quaternary Periods. The Tertiary Period (which includes the igneous rocks of the Trans-Pecos region) is split into five epochs, and the Quaternary Period into two epochs.

Geologists date rocks based on their relative position in the stratigraphic column, the occurrence of specific fossils found in the rocks, and also by radiometric methods which allow “absolute” ages to be estimated. Thus, based on stratigraphic position relative to other rocks, paleontological data, and radiometric age calculations, rocks can be assigned to their respective periods and epochs within the Geologic Time Scale.



MAJOR DIVISIONS OF GEOLOGIC TIME