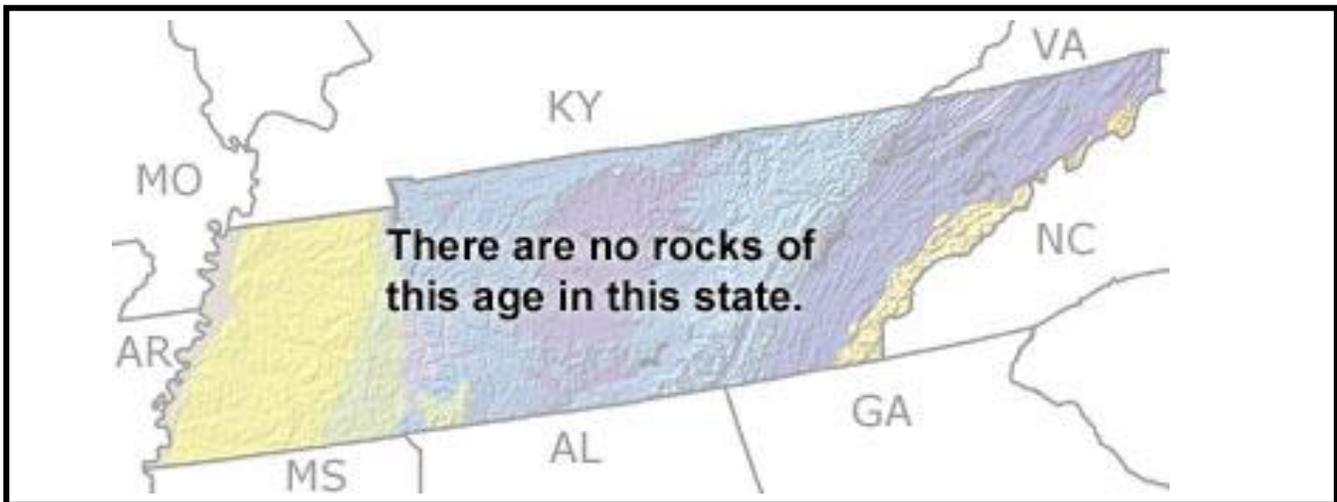
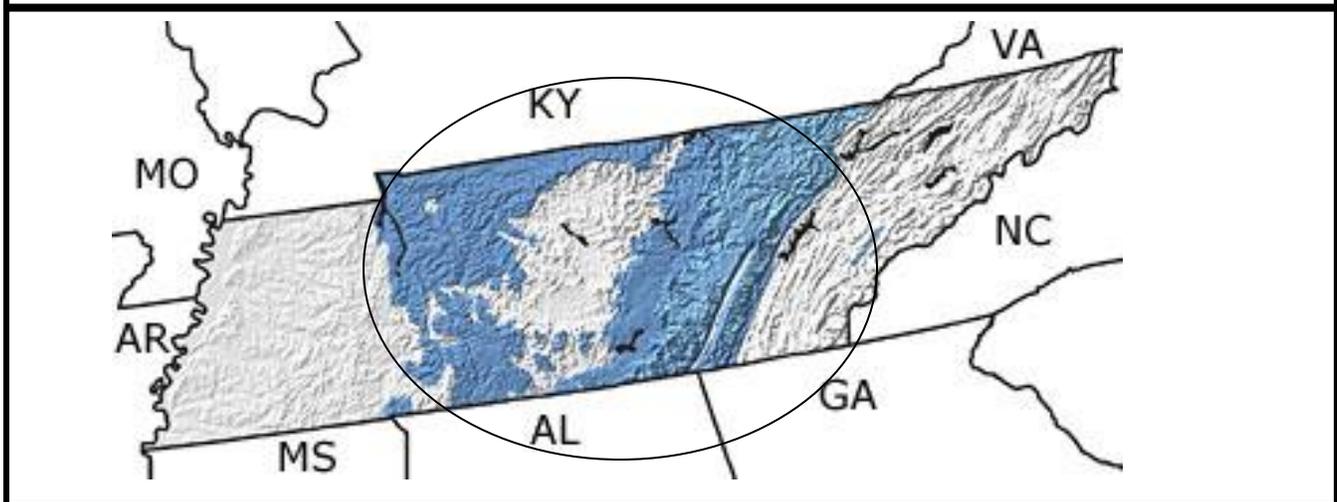


## Tennessee – Paleozoic and Precambrian Eras



### Permian Period

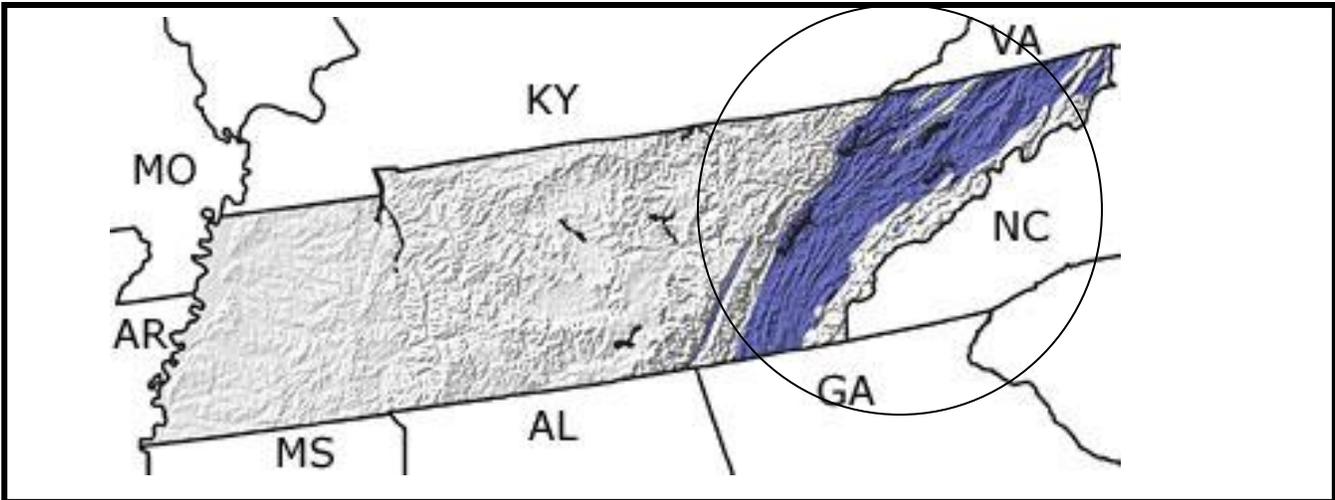
Most of Tennessee was above sea level during the Permian as a result of the continued building of the Appalachians, and no rocks of this age are found in the state.



### Carboniferous Period

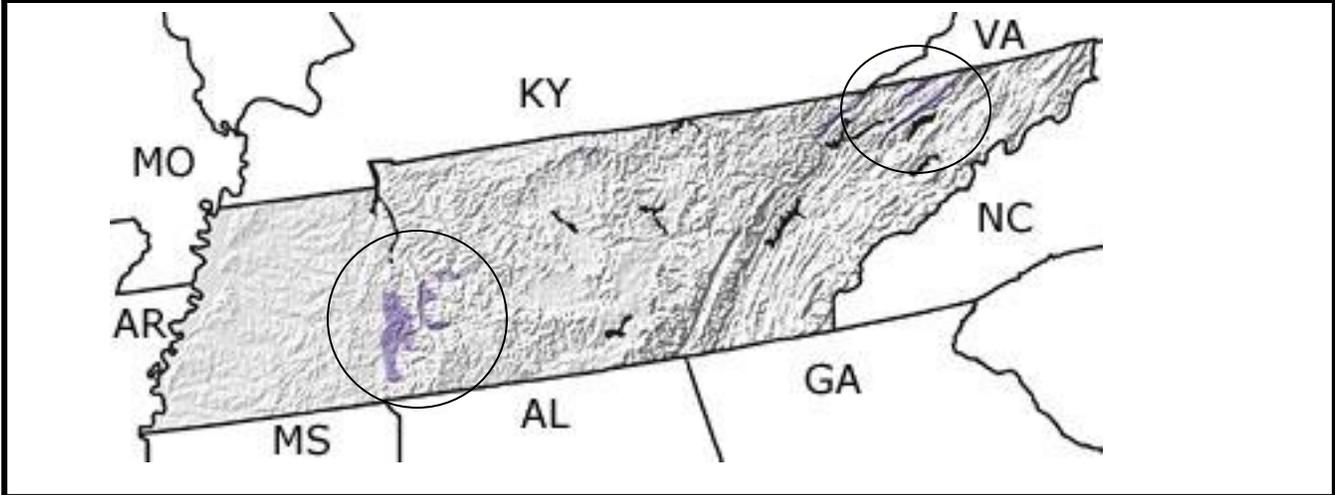
During the Early Carboniferous (Mississippian), Tennessee was covered by a warm tropical sea that supported an abundance of marine life. The limestones produced from the sediments that accumulated on the seafloor are rich in fossils of bryozoans, brachiopods, and crinoids (sea lilies).

By the Late Carboniferous (Pennsylvanian), mountain building to the east (the Alleghenian Orogeny) produced highlands that shed vast quantities of clastic sediment westward into the sea, forming vast deltas. Coastal swamps formed over these deltas and tall scale trees (lycophytes), horsetail rushes, and other plants grew in abundance. Plant remains in these swampy lowlands eventually produced coal seams that have been economically important in the state's history.



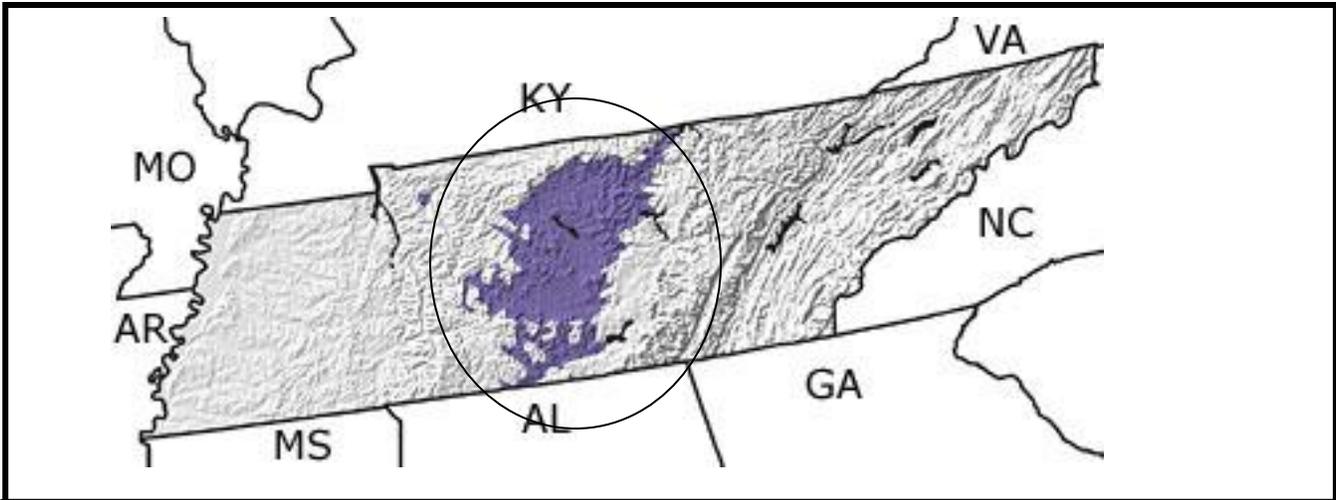
**Devonian Period**

Rocks of Devonian age occur in southeastern Tennessee and in several areas in the western and central parts of the state. Warm tropical seas covered Tennessee during much of the Devonian, and marine fossils include brachiopods, corals, bryozoans, crinoids, and trilobites. By the Late Devonian, a restricted water flow caused oxygen to be severely depleted near the seafloor. Few organisms could live in these conditions. The lack of oxygen prevented the decay of plant and animal remains, and organic-rich muds were deposited on the seafloor. One of the black shales formed from these muds, the Chattanooga Shale, is exposed in several parts of the state. The area highlighted is identified as undifferentiated rock units\*.



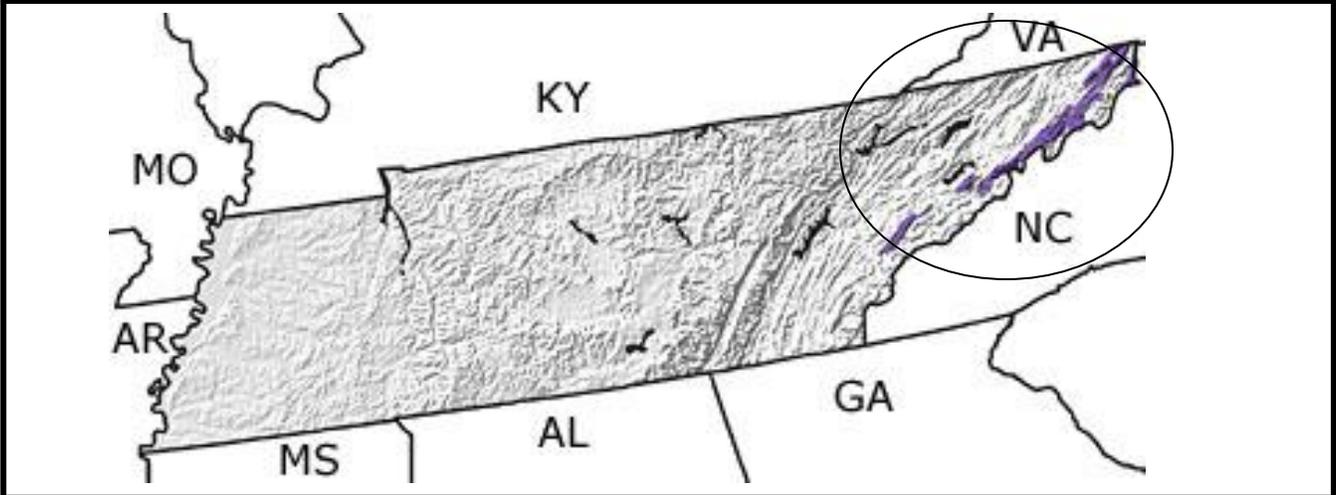
**Silurian Period**

Few Silurian-age rocks are exposed in Tennessee. The largest exposures occur in the southwestern part of the state, north of the Mississippi/Alabama border. Warm tropical seas covered Tennessee at this time, and the limy sea floor was home to a diverse fauna of marine organisms such as brachiopods, bryozoans, crinoids, corals, trilobites.



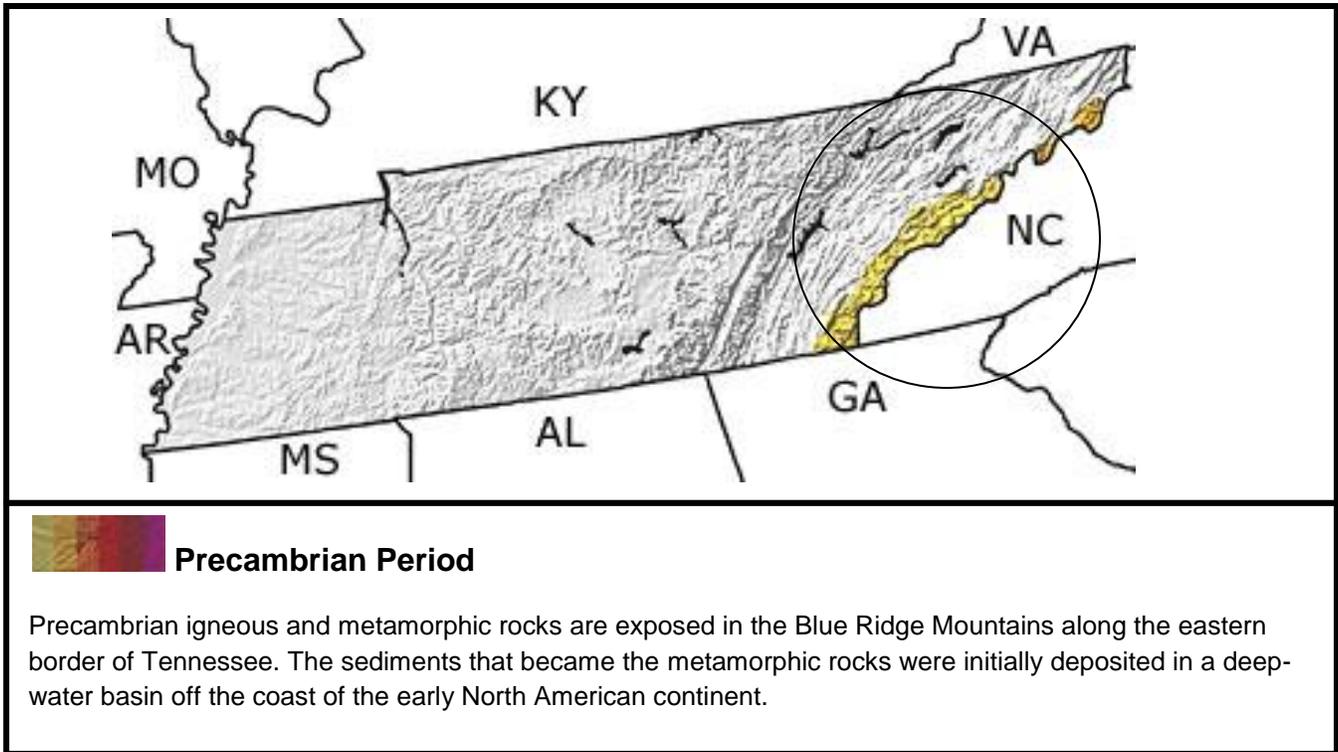
**Ordovician Period**

Ordovician sedimentary rocks cover a large portion of central Tennessee, in an area called the Nashville Dome. These rocks are primarily limestones deposited in the warm, shallow sea that covered the state during this time. Fossils of brachiopods, bryozoans, and crinoids are abundant in these rocks. Other Ordovician fossils in Tennessee include conodonts, trilobites, bivalves, sponges, and unusual echinoderms such as edrioasteroids. In the middle and later parts of the Ordovician, mountain building to the east (the Taconic Orogeny) caused the edge of the continent to warp downward into a deep-water basin. Sediments eroding off the rising mountains were carried westward into the sea, eventually filling the basin and pushing the shoreline toward the west.



**Cambrian Period**

Small areas of Cambrian rocks are exposed in the Valley and Ridge Province of eastern Tennessee. Shallow marine environments covered much of the state during this time. Thick layers of limy sediment built up on the sea floor. Stromatolites, trilobites, and other marine organisms thrived in the warm waters.



### \* Undifferentiated Rock Units

Some rock units on these geologic maps are not clearly assigned to one single period. We call these undifferentiated rock units. The default map for each period shows the rocks that **are** classified specifically as one period. However, there may be other rocks that are of the same age, but shown on an individual map as undifferentiated rock units, such as those areas shown on the Devonian Period map. Other geologic maps may show different interpretations.

Source: Photos and information courtesy of The Paleontology Portal ([www.paleoportal.org](http://www.paleoportal.org))