

Pre-history beneath our feet

mya = millions of years ago

Last 10,000 years Top soil **SE Michigan area covered with forests, prairies, swamps, taiga**, tundra down 10 inches to 100 feet Glacial deposits clay, silt, sand gravel, bolders Late Pleistocene

1-2 mya early humans appear

Ice age

11,000 years ago a major extinction of North America's mammals occurred possibly due to an extraterrestrial impact or over hunting. Losses included the woolly mammoths, mastodons, giant beavers, giant ground sloths, saber-toothed cats, North American camel and miniature horse.

60-100 mya Rocky mountains formed Dinosaurs become extinct Flowering plants appear

152-200 mya Layers of Jurassic was sandstone and limestone eroded away no longer here

Napoleon sandstone down about 100 feet about 150 feet thick varies

Marshall sandstone 150 feet thick varies from Mississippian 290 mya

Coldwater shale may be some gas, oil water can be at almost any level due cracks 300-1300 ft thick

200 mya super continent Pangaea breaks up Michigan has traveled from equator to S pole

230 Dinosaurs appear 210 Mammals appear 205 Birds appear

252 mya Permian–Triassic extinction **Earth's largest extinction killed 96% of all species** 70% of land species, including insects).even the successful marine arthropod, the trilobite became extinct.

Sunbury shale, Berea sandstone, Bedford shale, Antrim shale 100-3000 feet thick varies Devonian

Traverse group some eroded, Ten Mile Creek dolomite some erosion 200 feet thick varies

Traverse silica 300-600 feet varies, Dundee limestone

400 mya Detroit River group Anderson, Amherstburg sand stone **Appalachian Mountains formed**

Boris blanc formation

Bass Island group Raisin River dolomite, put-in-bay dolomite

Salina Group salt 1200 feet down several layers of evaporate and carbonate split gypsum 30-3000 ft dolomite oil gas some deadly poison gas

423-445 mya Niagara brown, gray, white **niagaran clinton shale with oil and gas 980 feet thick** varies

these are from the Silurian period 423-445 mya

Cataract cabbot head shale, mantoulin dolomite 100-2000 ft

Richmond queenstown shale 960 ft

Eden utica shale, collingwood shale oil gas

Trenton black river oil, gas

St Peter sandstone **There have been 5 major extinctions of life on Earth**

shakopee dolomite

prarie du chen richmond sand stone

omeota dolomite and oil, tremealeau formation jordan sandsstone, looi dolomite

St lawrence dolomite, lake superior franconia sandstone

Dresbach sandstone Eau Claire FM

Mount Simon sandstone, Jacobsville sandstone

Earth becomes ice ball several times

500-4,500 mya pre cambrian igneous metamorphic sedimentary rocks 19,000 feet thick varies above unknown igneous and metamorphic rocks below total thickness of **crust is 20-30 miles.**

Below the crust is the **mantle** made of **peridotite** rock denser than granite. Above is less than 1% of earth's volume. **The deeper into the mantel the hotter, more dense and more plastic the rock becomes.** source Wikipedia. See Index for more in the Wes Arnold's Educational archive. For an easy

to read story of the above.