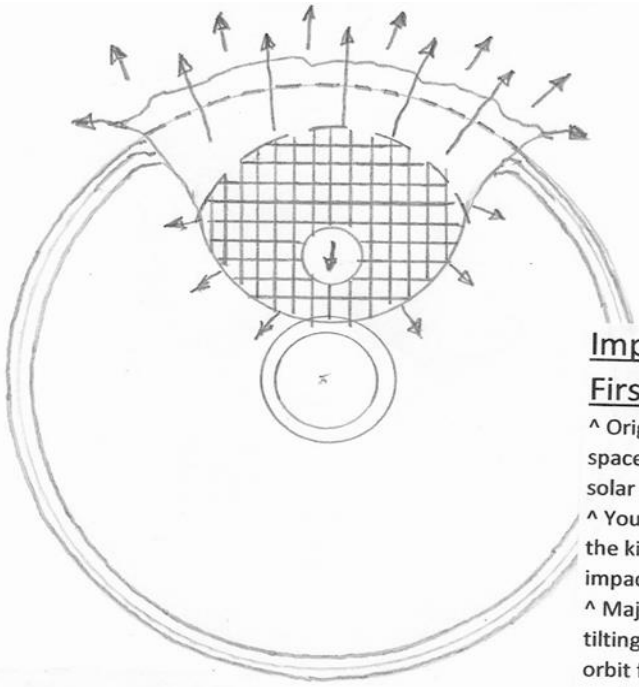
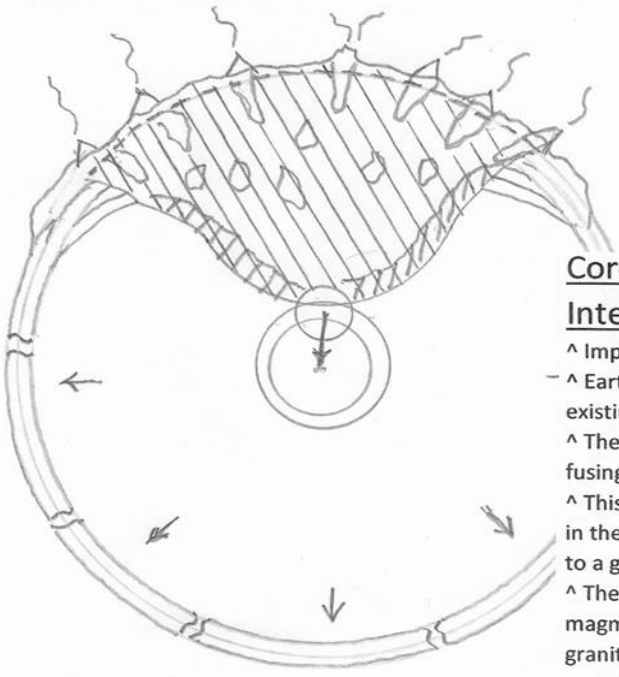
The below phases of the impactor penetration into Earth's mantle show the various transformations.



Impactor Strikes the Earth's First Oceanic Crust:

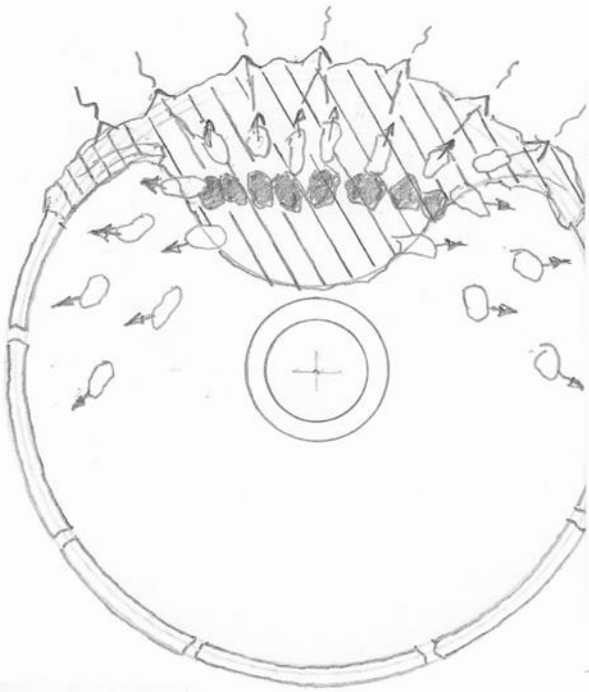
^ Original crust and lithosphere ejects into space creating the Main Belt of Asteroids and solar system's Late Heavy Bombardment.
^ Young very liquid molten mantle absorbs the kinetic energy of frozen volatile of impactor.
^ Majority of the impact energy is consumed by tilting the Earth's spin axis and displacing its orbit from 2.7 to 1.0 AU coming very close to the Moon-planet already having an orbit.

Sheet 1 of 2



Core and Mantle Parts Are Interacting and Fusing:

^ Impactor core sinks and joins Earth's core.
^ Earth's mantle expands and cracks the existing crust and young, thin lithosphere.
^ The mantle materials of both bodies begin fusing and differentiate the lightest volatiles.
^ This percolation creates the first volcanism in the solar system which releases more gases to a growing atmosphere and ocean.
^ The high energy of impact creates a special magmatism that produces molten plutons of granite that raises to the surface slowly only crystallizing after 900 million or more years.



Global-sized Crater Fills Its Rim and Rises in Elevation to Form Earth's First Mega-continent

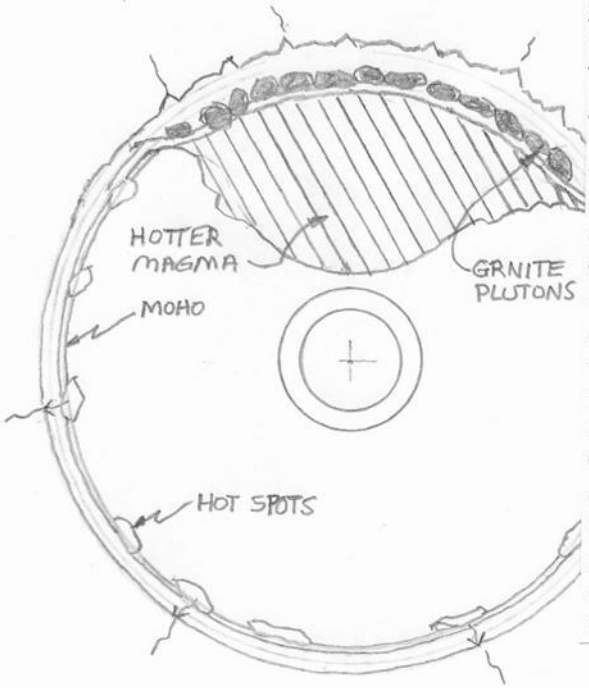
^ The crater materials with more silicon and and volatiles become a granitic structure as opposed to the basaltic rock of the existing oceanic crust.

^ Pockets of lighter volatiles pervade the remaining parts of the mantle, begin to rise, and become trapped under the litho-sphere.

^ Magma slowly cools after meeting the cooler atmosphere to become the first continental crust or igneous rock.

^ Plutons of molten granite formed by the impact shock and mesostasis process slowly rise.

Sheet 2 of 2



A Pristine Planet of Even Surface in Metamorphic Fashion Has Become a Spaceship for Life

^ The intrusive granite plutons rise to beneath the faster forming and eroding extrusive rhyolite rocks.

^ A thin lithosphere begins to form under the differentiated continental crust eventually joining the oceanic plates.

^ A slippery Moho layer of trapped volatiles collects under the lithosphere plates.

^ The pockets of lighter volatiles randomly lodge into the underside of lithosphere to become known as geological hot spots that will eventually form island chains and mid-continental magna chambers such as Yellowstone.

^ The volcanic mountains and raised plateaus will erode to form sedimentary rock layers and start a rock cycle after plate tectonics and continental drift begins in earnest about 2.3 billion years later.