

Earth

The Familiar Stranger

OBAIDUR RAHMAN

"We do not inherit earth from our ancestors; we borrow it from our children".

--A Native American Proverb

It all happened 4.54 billion years ago when Earth, the third planet of the Sun and the largest of the terrestrial planets in the solar system in respect of diameter, mass and density was formed in the universe. In the beginning Earth and her neighbours in the solar system were created out of a disk shaped mass of dust and gas that was left over from the formation of Sun and this gradual accretion of Earth continued for 10 to 20 million years. Later the molten outer layer of this planet cooled to form a solid crust as the water began accumulating in the atmosphere.

Over the years, in the span of millions, the primordial atmosphere was produced by the out-gassing and volcanic activities and later ice and liquid water that was delivered by the asteroids and larger proto-planets, comets and trans-Neptunian objects condensed the existing water vapour resulting in the creations of the oceans, the source of all life forms on earth. On time-scales lasting hundreds of millions of years, the surface continually reshaped, breaking and forming continents and the absorption of harmful ultraviolet radiation by the ozone layer, eventually allowed the flourishing of life on earth. Amazingly although life has existed here for about 200 million years but compare to Earths era, the 10 million species of life that have had housed on Earth (currently 1.5 million of animal species) have only been present for 5 per cent to 10 per cent of this planet's entire lifetime! Many of such astonishing facts surround this earth, the place we call home and the only planet in the universe known; so far, to have harboured abundance of life exclusively enjoys her day on every April 22nd, the day we, the earthlings, celebrate the "International Earth Day".

The only planet not to be named after a mythical God, Earth, with a diameter of almost 8,000 miles, is the only planet in the Solar system which is known to be geologically active with her formation of lands through earthquakes and volcanic activities while replenishing carbon dioxide into the atmosphere and obliterating impact craters from meteors. Mostly consisting of oxygen, silicon, aluminium, iron, calcium, sodium, potassium, magnesium, nickel and carbon, Earth travels at an orbital speed of 66,700 miles per hour in her course around the Sun. But this around 200 million square miles pumpkin shaped planet is gradually getting slower when it comes to rotating around her axis and astronomers explain that this "sidereal day" which is universally known as 24-hour day, was 20-hour day millions of years ago and many believe that the pace of Earth will get more slower with 27 hours long days million of years later. Not only is that but Earth getting fat too, especially at the equator to the extent of millimetres, becoming slightly more spherical as the mountain glaziers melt and already this planets weights about 6,585,600,000,000,000,000,000 tons!

And what about the layers of gases around Earth's atmosphere that reaches out to about 10,000 km above her surface? The thickest of such is within 50km and in fact 75 per cent of earth's atmosphere is contained within the first 11km above the planet's surface due to the pull of earth's gravity while the rest of the atmospheric density is extremely thin and this leads to the fascinating fact of the fall of space dust on earth. According to United States Geological Survey (USGS), roughly 1,000 tons of space dusts make their way through earth's atmosphere and fall on her surface every year and some scientists even claim celestial microbes rain down from space, which is principally responsible for flu epidemics on earth! While still in outer space, it is fascinating that along with moon there are also two additional asteroids that are locked into a co-orbital course with planet earth. The first one is 3753 Cruithne which is 5 km across and also referred as earth's second moon has a synchronized orbit of her own following distinct path around the Sun. And the second one is 2002 AA29,