

# James hutton - important figures in earth science



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James Hutton - Important Figure in Earth Science James Hutton - Important Figure in Earth Science James Hutton, considered as the father of Geology, is credited with laying down one of the basic principles of Geology – the theory of uniformitarianism – was born in Edinburgh, Scotland on 3rd June, 1726. During the seventy one years he lived – he died on 26th March, 1797 – he had contributed immensely to our understanding of the planet we reside in. So much so, that he is remembered with reverence whenever geologists congregate in any corner of the world. But he did not take to geology right at the beginning of his career as he entered legal profession as an apprentice in a law firm. But enamored with chemistry as he was at that stage, he spent more time in trying to find how sal ammoniac could be processed from coal soot. It was only natural that his employers were not amused by this and he was asked to leave. He found refuge in medicine as it bore close affinity with chemistry and at twenty three years of age got an MD degree from Holland. By this time, his forays into manufacturing sal ammoniac became commercially viable and he forsook medicine for this opportunity. He returned to Scotland and started pursuing this venture in full earnest till he earned enough fortune within the next three years to retire from it and settle in Edinburgh for pursuing his scientific interests as a full time engagement. He started reading and travelling extensively and submitted his observations in the form two papers at Royal Society of Edinburgh in 1785. When these papers were published three years later in 1788, they altered forever the face of geological science (Scott, 2009). His theory, commonly referred to as uniformitarianism, postulates that all observable geological phenomena of the world have been uniformly repeating themselves over long periods of time. Hence, any geological formation of the current day could be explained

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by observing some geological phenomenon occurring in some other part of the world at that particular time. This postulate was revolutionary, to say the least, when Hutton forwarded it. Though a large amount of data was already available regarding rock formations, such data was never organized and thus did not lend itself to proper scientific study and analysis. Moreover, formation of land mass was still not explained though land erosion was observed and accepted as a geological phenomenon. In fact, geologists believed sedimentary rocks were formed through some kind of precipitation of waters of biblical flood and estimated the age of world to be a mere six thousand years. They ignored the existence of igneous rocks and also the possibility of rock formation through volcanic and similar heat induced processes within the earth's crust (Bailey, 1967). Hutton's theory was a complete deviation from the existing notions in the sense that though he admitted that land did erode and sedimentary rocks did form from particles washed away by water, their formation was not only due to precipitation but also due to the heat and pressure; an idea that still stands unaltered. Further, he stated that as existing landmass got eroded, new land masses were thrown up from the earth's core through volcanic eruptions and internal heat leading to the formations of igneous rocks. If these eruptions took place at seabed, sediments resulting from land erosion got settled there, resulting in new land formations arising out of the sea. Thus, Hutton was the first person who could provide a cogent and logical explanation of existence of both sedimentary and igneous rocks on earth's surface and provided a scientifically verifiable theory of land formation on earth (Pidwirny, 2006). Hutton posited that such activities have gone on in repetitive cycles with each cycle taking an enormously long time and therefore the age of earth

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was not a mere six thousand years but was a couple of billion years instead. During its long life, the unending cycle of erosion, deposition, sedimentation and upthrusting must have taken place many times over. Though his ideas provided a completely novel direction to geological science, his writing style was so complex that it needed the efforts of his friend John Playfair through the publication of 'Illustrations of the Huttonian Theory of the Earth' to make Hutton's ideas more popular and universally acceptable (Playfair, 1805).

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