

Topic Page: [Hutton, James, 1726-1797](#)

Definition: **Hutton, James** from *Philip's Encyclopedia*

Scottish geologist. He sought to formulate theories of the origin of the Earth and of atmospheric changes. Concluding that the Earth's history could be explained only by observing forces currently at work within it, he laid the foundations of modern geological science.

Summary Article: **Hutton, James (1726-1797)**

From *The Hutchinson Dictionary of Scientific Biography*

Place: Netherlands

Subject: biography, earth science

Scottish natural philosopher who pioneered uniformitarian geology.

He was born in Edinburgh on 3 June 1726, the son of an Edinburgh merchant, and studied at Edinburgh University, Paris, and Leiden, training first for the law but taking his doctorate in medicine in 1749 (though he never practised). He spent the next two decades travelling and farming in the southeast of Scotland. During this time he cultivated a love of science and philosophy, developing a special taste for geology. In about 1768 he returned to his native Edinburgh. A friend of Joseph Black, William Cullen, and James Watt, Hutton shone as a leading member of the scientific and literary establishment, playing a large role in early history of the Royal Society of Edinburgh and in the Scottish Enlightenment. He died in Edinburgh on 26 March 1797.

Hutton wrote widely on many areas of natural science, including chemistry (where he opposed Antoine Lavoisier), but he is best known for his geology, set out in his *Theory of the Earth*, of which a short version appeared in 1788, followed by the definitive statement in 1795. In that work, Hutton attempted (on the basis both of theoretical considerations and of personal fieldwork) to demonstrate that the Earth formed a steady-state system, in which terrestrial causes had always been of the same kind as at present, acting with comparable intensity (the principle later known as uniformitarianism). In the Earth's economy, in the imperceptible creation and devastation of landforms, there was no vestige of a beginning, nor prospect of an end. Continents were continually being gradually eroded by rivers and weather. Denuded debris accumulated on the sea bed, to be consolidated into strata and subsequently thrust upwards to form new continents thanks to the action of the Earth's central heat. Non-stratified rocks such as granite were of igneous origin. All the Earth's processes were exceptionally leisurely, and hence the Earth must be incalculably old. Though supported by the experimental findings of James Hall, Hutton's theory was vehemently attacked in its day, partly because it appeared to point to an eternal Earth and hence to atheism. It found more favour when popularized by Hutton's friend, John Playfair, and later by Charles Lyell. The notion of uniformitarianism still forms the groundwork for much geological reasoning.

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