

a6 Geology defined < Gk. *ge*, Earth; Gk. *logos*, principles >

Geology ... deals with the present configuration of the earth and all its parts, from core to atmosphere. This aspect of geology might be considered nonhistorical insofar as it is purely descriptive, but then it also fails to fulfill the whole definition of a science. As soon as theoretical, explanatory relationships are brought in, so necessarily are changes and sequences of configurations, which are historical. The fully scientific study of geological configurations is thus historical science. This is the only aspect of geology that is peculiar to this science, that is simply geology and not also something else.

—George Gaylord Simpson in *The Fabric of Geology*, 1963.¹

... many historians now project the literalism of modern fundamentalist religion back into the intellectual world of the eighteenth century, with gross anachronism. ... Savants [in Saussure's time] expected few problems with the authorities, provided their publications were deemed unlikely to 'frighten the horses or excite the servants'.

— Rudwick, 2006.²

Geology is the scientific study of Earth. Geologists are interested in the origins of Earth materials and of life (for the useful fossil record that it leaves, and as a geological agent).

Geology advances, as do all sciences, by the accumulation and classification of facts; the spatial distribution of Earth materials through time being the most relevant. Some of these facts are obtained by direct observation and others become known by the scientific method.

Ulisse Aldrovandi (1522-1605) is credited by Gian Battista Vai for paving a start for and in 1603 naming *giologia* ("geology" in Italian).³ Horace Bénédict de Saussure (1740-1799) in his *Travels in the Alps*,⁵ 4 volumes, 1779–96, employed the term *geologie* ("geology" in German) that Jean-André de Luc had floated in 1778,⁴ but (their thinking being Wernerian, see Topic a26) not with the modern meaning that his admirer Hutton (1726-1797) gave the science (see Topic a27) and which, forwarded by Playfair (1748-1819), was broadcast by Lyell (1797-1875) (see Topic a28).

Unlike other sciences, geology does not seek to discover scientific laws but does discover scientific principles.

Geology (Earth study) is ahistorical where it furthers natural history (science of classification and description) and is historical (allows for predictions and retrodictions) where it furthers natural philosophy (science of mathematical analysis and causal explanation).⁶ Geology can be divided into physical geology and historical geology (see Topic a8). □

Figure a7.1 Georgius Agricola (1494-1555)

"I have omitted all those things which I have not myself seen, or have not read or heard of from persons upon whom I can rely."¹

As was the custom of his time, Georg Bauer (his German name in English translates as George Peasant) published in Latin. As author of books with Latin titles his name was printed Latinized as Georgius Agricola. In his published works, his Latin prose is mercifully clear (he taught Greek and Latin as a young man) and to the point, but to convey concepts foreign to that tongue, he devised and included many non-standard Latin words.

Agricola published:

In 1530, on mining and mineralogy in *Bermannus*. In this he relates his conversations with the "learned miner" Lorenz Berman during three years at Joachimsthal, a mining boomtown in Bohemia.² (cont.)

