# Introduction

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# INTRODUCTION

One of the great problems in treating works on science by eminent men of letters such as Voltaire or Goethe is that literary scholars, no matter how much scientific training they have had, never come to think like scientists whereas scientists are rarely interested to know how scientific ideas influenced literature, or how such ideas were accepted or rejected by a humanist who had little training in sciences but enough common sense to judge these ideas. Since in the eighteenth century and earlier most scientific ideas were discussed by both scientists and humanists, historians of science are aware that both sides ought to be consulted. Research of this kind requires such vast learning in science and literature, however, that some kind of teamwork seems to be necessary since a single man often cannot know about more than one science in more than one century.

My study of Voltaire's attitude toward geology does not coincide with any of the approaches previously used in American scholarship. [1] I am not merely commenting Voltaire's scientific remarks but I explain the state of knowledge in geology when Voltaire made those remarks so that this study can be read by literary scholars of Voltaire. However, I am not writing the history of geology of the eighteenth century, nor am I showing the influence of geology on Voltaire's literary career. He was not a romantic and hardly ever described a landscape. The only influence the beginning field of geology might have had on Voltaire was the idea of change. I mention his reaction to Ovid's *Metamorphoses* and to Lucretius and his followers in the eighteenth century: Diderot, Buffon, d'Holbach, as well as his criticism of Maillet's concept of transformism.

This study will most of all fill in a gap, that is, the almost universal neglect of Voltaire's attitude toward geology. Only two geologists have discussed the subject, and in brief fashion. Charles Lyell, a nineteenth-century geologist, dismissed Voltaire

[1] Literature and science as an area of study has been defined by G. S. Rousseau, a historian of literature (*Isis*, 1978, 69: 583-591). He described the major developments since 1950 and mentioned several approaches. "Traditionalist-philologists" were commenting scientific aspects in literature; they were taking courses in science only to "illuminate the literary text, not to shed light on the science studied" (p. 584). "Theorists" studied several authors in the course of many centuries. Arthur O. Lovejoy, for instance, studied the concept of "Great Chain of Being" from its origins to the twentieth century. According to Rousseau, theorists thus became historians of science. Another group headed by Marjorie Hope Nicolson studied the influence of science on literature, for instance, the influence of "eighteenth-century geologists on the Romantics" (p. 586). Rousseau states that historians of science disagreed with Nicolson's approach, saying that it was not "scientific" enough, that she did not distinguish, for instance, between the science of Newton and "soft Newtonianism" as perceived by the layman. Other approaches have been made by writers of science fiction, by structuralists such as Michel Foucault, by semioticians, Marxists, Maoists, neo-Freudians, etc.

saying: "The numerous essays written by him on geological subjects were all calculated to strenghten prejudices, partly because he was ignorant of the real state of the science, and partly from his bad faith" (1867,I:80). Emmanuel Fallot wrote in 1911 that Voltaire "a été le moins heureusement inspiré" when he turned to geology (p. 214-224). Literary scholars have discussed Voltaire's attitude toward science in general but have said very little about geology (Emile Saigey, 1873; Daniel Mornet, 1911; Abraham Wolf, 1938; Ira O. Wade, 1959; Otis Fellows, 1955; Jacques Marx, 1975, and Margaret Sherwood Libby, 1935). Libby has made the incredible effort to understand Voltaire's attitude toward all sciences; geology, however, has not received her best attention.

There is a general consensus among literary critics of Voltaire to assume that he was greatly influenced by his beliefs as a deist: if the world was formed by God, the sea, for instance, could not have shaped mountains, nor could life have started spontaneously in the sea and later extended to land. This study indicates that Voltaire's metaphysical beliefs were not crucial for his skepticism versus geology. To make a complete assessment of Voltaire's reaction toward all sciences and to affirm that his metaphysical beliefs did not influence his scientific views, one would have to study the history of astronomy, biology, and geology, as well as the modern approaches in these fields. Since such a teamwork is not available, I shall extract from Voltaire's essays, in particular the *Disseration*, the *Singularités*, and other works before and after these two essays, those ideas which pertain to geology, namely to fossils and to theories of mountain-building. If these ideas are closely connected with biology, the two sciences will be considered. A comparison of Voltaire's remarks on geology with those of his contemporaries and with modern science ought to permit us to judge Voltaire the "geologist." [1]

[1] The term "geology" in the modern sense did not exist in the eighteenth century. It was apparently used for the first time in 1778 by Jean André de Luc, a naturalist from Geneva, Switzerland, and the term then became gradually accepted in the nineteenth century (Taylor 1979: 78).

# ACKNOWLEDGMENTS

Without my husband Albert V. Carozzi, professor of geology and historian of science, this inter-disciplinary study would not have been possible. He had studied the Jura Mountains and knew every outcrop and local geological features of that area. Thus, he was able to explain to me details typical of the vicinity of Ferney which Voltaire had observed. As a historian he had always been curious to know why Voltaire had called Maillet a "charlatan." His curiosity and collaboration will be for ever appreciated. I am also very grateful to Professor A. Owen Aldridge, a great scholar of Voltaire, who encouraged me to write this dissertation. He understood that my interest in Voltaire's attitude toward geology might be able to portray Voltaire's role in science in a new light.

Particular gratitude is expressed to Dr. Charles Wirz, Curator of the Institut et Musée Voltaire at Geneva, for his permission to publish a facsimile of the *Saggio*, for valuable bibliographical data on *Singularités*, and other relevant documents, and to Dr. Charles Ducloz, Head of the Department of Earth Sciences at the University of Geneva, who critically reviewed the manuscript. Dr. Edouard Lanterno, Curator of Geology at the Museum of Natural History of Geneva is also thanked for his technical help.

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## ABBREVIATIONS AND SPELLING

D. This letter refers to Voltaire's correspondence in the edition of the *Complete Works* by Theodor Besterman. Letters are cited according to a number in the edition rather than by volume and page.

DSB *Dictionary of Scientific Biography*. 1970-1980. C. C. Gillispie (ed.) New York. Charles Scribner's Sons.

*Histoire* *Histoire de l'Académie Royale des Sciences*, Paris (All segments mentioned in this study written by Fontenelle.)

M. *Œuvres complètes de Voltaire*. 1877-1885. Louis Moland (ed.) Paris.
Voltaire's *Dissertation* in M.XXIII and *Singularités* in M.XXVII will only be referred to by the page and not the volume in the respective chapters.

*Mémoires* *Mémoires de l'Académie Royale des Sciences*, Paris.

SVEC *Studies on Voltaire and the Eighteenth Century.*

USSR Catalogue of Voltaire's library at Ferney now in the Leningrad Library as catalogued by Alekseev and Kopreeva in 1961.

All quotations correspond to the original source in spelling, capitalization, and punctuation. The use of "sic" has been omitted since French grammar allowed different spelling in the eighteenth century and earlier.