



## IUGS International Commission on the History of Geological Sciences (INHIGEO)

### "Anniversaries": Basalt, 250 years ago

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Columnar basalt's igneous origin was first asserted in print 250 years ago, by Nicolas Desmarest. In 1768 the sixth volume of Plates (*Recueil de Planches*) for the great *Encyclopédie* edited by Diderot and d'Alembert carried a brief article, "Basalte d'Auvergne," accompanying one of two engravings depicting prismatic basalts in the Auvergne region of south-central France. Desmarest's article reported that based on field observations begun in 1763, examining the circumstances in which Auvergne basalt outcroppings stood in relation to remnants of volcanic action, basalts of any prismatic form (besides columns, such forms included ellipsoidal and tabular shapes) must be derived from volcanic extrusions. He further concluded that the regular shapes of these prismatic products must result from systematic contraction undergone during cooling.

Desmarest was well aware that prismatic basalt structures, of which the Giant's Causeway in Northern Ireland was the most renowned example, were generally presumed to be formed through some process of aqueous deposition or crystallization. His discovery, and the ensuing recognition of the existence of prismatic basalts in ever-widening localities, had evident implications for geological understanding. Desmarest first presented these researches to the Paris Academy of Sciences in an oral report in 1765, and later elaborated on them in an extended memoir in 1771. But their first appearance in print occurred in 1768, in what amounted to a lengthy explanatory commentary (about 1330 words) for an illustration in the *Encyclopédie*.



Figure A: Basalte d'Auvergne. Columnar basalt at La Tour d'Auvergne. Planche VII, Règne Minéral, Sixième Collection. *Recueil de Planches*, Vol. 6, Paris, 1768. Drawing by Jean-Jacques de Boissieu; engraving by Robert Bénéard.



Figure B: Rocher de Peireneire, near Saint-Sandoux in Auvergne. Assemblage of prisms forming an overall shape of a ball (boule). Planche VIII, Règne Minéral, Sixième Collection. *Recueil de Planches*, Vol. 6, Paris, 1768. Drawing by Jean-Jacques de Boissieu; engraving by Robert Bénard.

Images courtesy of the History of Science Collections, University of Oklahoma Libraries.

For more information on Nicolas Desmarest and his discovery:

François Ellenberger, *Histoire de la Géologie*, tome 2: *La Grande Écllosion et ses Prémices, 1660–1810*. Paris: Technique et Documentation, 1994. Esp. pp. 233–242.

Pascal Richet, “Nicolas Desmarest et l’origine volcanique des basaltes,” *Travaux du Comité Français d’Histoire de la Géologie*, 3e série, tome 17 (2003), pp. 81–98.

Kenneth L. Taylor, *The Earth Sciences in the Enlightenment: Studies on the Early Development of Geology*. Variorum Collected Studies Series. Aldershot, UK, and Burlington, VT, USA: Ashgate Publishing, 2008.