Anniversaries

Goethe's Essay on Granite 240 years ago

JOHANN WOLFGANG VON GOETHE (1749-1832): ESSAY ON GRANITE 1785

Ernst Hamm (Canada)

Figure 1. Goethe in 1779, etching (1881) by William Unger after a painting by Georg Oswald May, 1779. Wellcome Collection Wellcomecollection.org

The lyrical essay on granite, left untitled by Goethe, is among his most memorable brief essays. In a handful of paragraphs it moves from the enduring fascination with the granite monuments of Egypt, to a succinct recounting of what was known about granite by the late eighteenth century and concludes with a caution about the pitfalls awaiting those who would take up the study of granite. All of these are matters of interest, if not remarkable. The heart of the essay is something altogether different, for it is here that Goethe notes that the most recent observations of naturalists in their travels confirm that granite is the "oldest" and the "deepest" rock, the bedrock upon which all other rock formations are built, and that the simplicity of its components allows for a remarkable variety of its appearance. Then he makes the turn, unforgettable and striking, to his own vocation as a poet and its relation to his irresistible attraction to nature and the study of nature, to his juxtaposition of the human heart in all its fraught frailty, to the grandeur, solitude and solace that he finds in granite.

There is more. The speaker in the essay, much of which is in the first person, imagines himself on a mountain peak, an experience that will resonate strongly with all those who have enjoyed mountaineering. Not the exuberant joy of reaching the summit, but the quiet reflection that so often comes when one takes in the panorama of a peak. Except in this case, Goethe looks across space *and* time and imagines himself seeing Earth's crust unfolding from its primeval beginnings. It is an evolutionary picture, not a Darwinian one of natural selection, of course, but one that bears a relation to *Les Époques de la Nature* (1778) by Georges-Louis LeClerc de Buffon (1707–1788), a work that depicts our planet going through stages of development, a work Goethe knew well, as he did *Voyages dans les Alpes* by Horace Bénédict de Saussure (1740–1799), another work with clear resonances in Goethe's essay. A superficial reading of the essay on granite might suggest that it is a literary *jeux d'esprit* inspired by little

more than big picture accounts of Earth's history and the mineral kingdom. The literary brilliance of the essay does not stand in question, but otherwise nothing could be further from the truth, for when Goethe wrote this essay he had already spent years observing nature first hand. He had worked hard to reopen the ancient mine at Ilmenau, a very impoverished town in the Duchy of Saxe Weimar, he had visited the mines not only in Ilmenau, but he had made mineralogical travels in Weimar, neighbouring Thuringia, and travelled in the Harz Mountains three times. His first Harz journey (December 1777) was undertaken with the express purpose of informing himself about mining, and he risked life and limb to visit some of the deepest and most storied Harz mines, and to climb the Brocken, the most famous of the Harz mountains, in winter. His second trip, in 1783, was in the accompaniment of his friend, the geognost and mineralogist Friedrich Wilhelm Heinrich von Trebra (1740–1819) an early graduate of the Freiberg Mining Academy; for the third, in 1784, he took along an artist who was instructed to carefully depict large granite formations (on this and Goethe's ideas on granite structure see Hamm 2012). His travels also took him to Switzerland, where he climbed mountains and consulted with de Saussure, one of Europe's most distinguished naturalists, about geological matters.

Goethe's decision to move from Frankfurt to the Duchy of Saxe-Weimar in 1775, to serve its Duke as an administrator, was among the most important of his life. By this time Goethe had a European wide reputation thanks to his *Sorrows of Young Werther* (1774) and he might have made a life for himself as a literary light of Frankfurt. The move to the Weimar court was not without its risks for a commoner (Goethe was ennobled only later in his life): he took seriously his many responsibilities, which included roads, agriculture and mining—and that was just the beginning. By the time he composed the essay on granite he was pretty much minister for everything in the small Duchy. In the case of Ilmenau, the prospects of reopening the mine were based on a report by Trebra, whose work as assessor led to his first meetings with Goethe. For the day to day operations of the mine Goethe employed Johan Carl Wilhelm Voigt (1752–1821), another Freiberg graduate. It was Voigt who introduced Goethe to the mineralogical classification and identification systems of Freiberg's great geognost, Abraham Gottlob Werner (1749–1817). In the following years Goethe had nothing but praise for Wernerian geognosy and the signs of this are unmistakable in his essay on granite.

A number of commentators on Goethe's essay on granite and on his mineralogical work in general, have at times made a sharp distinction between Goethe's concern with mining, his first opportunity for intensive study of the mineral kingdom, and his geognostic-geological writings, almost all of which appeared long after his Ilmenau work. Such a distinction is unfounded and pernicious, for it draws a strong line between the practical concerns of mining, which were central to the Freiberg Mining Academy, and the scientific study of minerals and Earth's crust, which was central to the Freiberg Mining Academy. It suggests, altogether improbably, that those who looked to bigger pictures, such as de Saussure and even more so Buffon, were not concerned with detailed, careful work; no less improbably, it suggests that Werner was obsessed with details of nomenclature and mining and could not see the bigger picture. As is very clear in the essay on granite, Goethe's concern with granite in all its variations, his focus on formations (*Gebürgsarten* or *Gebirgsarten* modernized) show a deep concern with Werner's geognosy. Unfortunately, English renderings of Goethe's essay have not always attended to such matters. Perhaps understandably, *Gebirg* has been taken as a word that refers only to mountains, or even peaks, and words such as *Gebirgsart*, as synonyms for "rock" or "mineral." Surely nobody could accuse Goethe of carelessness in matters of language, for he knew extremely well Werner's classification of rock formations (*Gebirgsarten*). The issues of translating *Gebirge* and *Gebirgsarten* into English have been

explained insightfully, decades ago, by Alexander Ospovat (Werner 1971), and they are relevant for my own translation, which I offer here in place of further commentary. It is better to read Goethe, even in translation, than to read about him.

But I cannot conclude without a few further remarks about the essay. We have no definitive evidence on its dating, but what we do know points to 1785, hence a 240th anniversary (the other possible date is 1784). My translation attends to the matter of voice, for there is an unmistakable moment where Goethe writes in the first person, only to change into the third person at a later point and then back to the first. More tellingly, it points not only to his reputation for *Werther* and matters of the human heart, but to the inner turmoil he experienced in Weimar, that would only be relieved when he took his two-year journey to Italy (the latter could be the subject of another INHIGEO anniversary). The biggest puzzle is why Goethe left it unpublished: the complete essay did not appear in print until 1877 (Goethe 1877). He took great care in presenting the final edition of his works to appear in his life, the *Ausgabe letzter Hand*, and there can be no question of an oversight. One can only speculate, but this was not the only one of Goethe's works that did not see print in his lifetime. More importantly, he chose to keep it, a choice that did not apply to some of his letters, which he destroyed rather than let see the light of day. It seems likely that he saw it as incomplete, a prologue perhaps to his idea of a *Roman über das Weltall*, Novel of the World, a project unfulfilled, that he mentioned in a letter of 1781. Perhaps it was too personal, too close to his own life, for a poet who wanted to be known for his scientific contributions. I hope my rendering, which strives to be faithful to the original, offers some sense of the original essay.

Essay on Granite, by Johann Wolfgang von Goethe, translated by Ernst Hamm

Even in the most ancient times granite was a remarkable kind of rock and in our time it has become even more noteworthy. The ancients did not know it under this name. They called it syenite, after Syene, a town on the Ethiopian border. The immense masses of this rock inspired the immense works of the Egyptians. Their kings erected obelisks of it to honour the sun and due to its red flecks it was known by the name of "fiery-coloured." Travelers continue to admire the sphinxes, the Colossi of Memnon, the massive columns, and in our day the powerless lord of Rome rebuilds the rubble of an ancient obelisk, which his almighty predecessors brought whole from foreign lands.

The grainy appearance of this rock led moderns to give it the name it now bears. Recently, it endured some moments of denigration before rising to the high stature it now has among all informed naturalists. The immense masses of those obelisks and the marvelous diversity of their grain misled an Italian naturalist into believing that Egyptians had by artifice fashioned them from a fluid mass.

But this opinion quickly dispersed and the dignity of this rock was finally secured by many keenly observant travelers. Every journey into unknown mountains confirmed the lesson of long experience, that granite is the highest and the deepest, that this kind of rock, which we have come to know better and differentiate from others, is the foundation of our Earth upon which rest all the other diverse rocks. It lies unmoved in the innermost bowels of the Earth; its ridges ascend to heights whose peaks were never reached by the all-surrounding waters. This much we know about this rock and little more. Composed of known parts mysteriously compounded, neither fire nor water can explain its origin. Extremely diverse in the greatest unity, its mixture has countless variations. The position and relation of its parts, its durability and its colour change with every formation [*Gebürge*], and individual formations themselves

often vary from step to step, and yet as a whole they retain their unity. And thus everyone who knows the human attraction to nature's secrets, will not be surprised that I have left my usual field of observations and have turned to this one with a truly passionate inclination. I do not fear the reproach that a contrary spirit must have turned me from the consideration and depiction of the human heart, the youngest, most varied, most fluid, most malleable and most delicate part of creation, and led me to the observation of the oldest, firmest, deepest, most unshakeable son of nature. For one will readily agree that all natural things have a precise relationship with one another, and that the enquiring mind resists being restrained from that which is within reach. I have suffered much and continue to suffer from the fickleness of human opinion, through its sudden changes within me and others, and so one may allow me the sublime tranquility afforded by the solitary, silent immediacy of nature, softly-speaking its grandeur; whoever has a sense of this, follow me.

Figure 2. Misty Valleys near Ilmenau, drawing by Goethe, 1776. Public domain, copy of a scan from *Handzeichnungen von Goethe*, Leipzig: Insel, 1940.

With these convictions I approach you, the oldest and worthiest monuments of time. Sitting on the pinnacle of a barren mountain peak overlooking a vast expanse, I can tell myself: here you rest on a foundation that reaches to the deepest regions of the Earth; no recent layer, no heap of alluvial debris lies between you and the solid ground of the original world [*Urwelt*]; you walk not atop an enduring grave as you would in those beautiful fertile valleys, for these peaks have neither brought forth living things nor devoured living things: they precede all life and stand above all life. In this moment, as the Earth's inner attractive and moving forces directly affect me, as the sky's influences envelope me more closely, I am drawn to higher contemplations of nature. Just as the human spirit brings life to everything, so too I am stirred by an image of irresistible sublimity. Such solitude, I say to myself as I gaze down from this barren peak and barely glimpse a low growing moss, such solitude will be the experience of the person who bares his soul to the oldest, first and deepest feelings for truth. For he can say to himself: here at the oldest, eternal altar, raised directly on the depths of creation, I offer a sacrifice to the being of beings. I feel the first, firm origins of our existence, I survey the world

with its rugged and gentle valleys, with its distant fertile pastures, and my soul will be exalted above itself and all else, longing for the nearer heaven. But soon the burning sun awakens his human needs, thirst and hunger. He looks upon those valleys over which his spirit had soared and he envies the inhabitants of those fertile, spring-filled plains who have built their happy homes on the rubble and ruin of errors and opinions, scratching in the dust of their ancestors as they peacefully fulfil the modest needs of their insular lives. Readied with these reflections, the soul reaches into past centuries recalling all the experiences of careful observers, all the presumptions of fiery spirits. This crag, I say to myself, stood steeper, more jagged, higher in the clouds when it was a sea-girt island in the ancient waters and around it hovered the spirit that brooded over the waves; in the great depths the ruins of the primeval mountains [*Urgebirge*] were forming the taller peaks and, in turn, their ruins and the remains of sea creatures formed newer and more distant mountains. The moss is already spreading, the shelly sea creatures are moving less, the water recedes, the higher mountains are greening, everything is beginning to teem with life.—

But soon new scenes of destruction collide with this life. Violent volcanoes rise up in the distance and seem to threaten the world with destruction. Yet the foundation on which I rest securely is unshaken, even as the inhabitants of the distant shores and islands are buried under the untrustworthy ground. I leave aside my wandering reflections and look at the very rocks whose presence edifies and secures my soul. I see their masses riven by confusing fissures, here straight, there tilted upwards, sometimes in sharply formed layers, sometimes in misshapen heaps as if thrown on top of one another. At first, I almost want to cry out: None of this is in its original, ancient condition; everything here is ruin, disorder and destruction. Indeed, this is the opinion we will find when we turn from the first-hand experience of these rocks and withdraw to the study to consult the books of our predecessors. Here one can read that the original rock formation [*Urgebirge*] is all of a piece as though it were cast, or that it is divided by horizontal clefts into deposits and beds that are crisscrossed by a great many veins running in all directions, or that it has no layers and is separated in solid masses that alternate without the slightest regularly; yet another observer finds both distinct layers and confusion. How can we unite these contradictions and find a guiding thread for further observations?

This is what I now intend to do, and should I not be so fortunate as I hope and wish, my efforts will give others the opportunity to go further. For when it comes to observations, even errors are useful, inasmuch as they foster attention and challenge the keen-eyed to do better. At this point a caution would not be out of place, more for foreigners, should this text find its way to them, then for Germans: learn how to distinguish clearly this kind of rock from others. Italians continue to confuse a lava with a fine-grained granite, and the French call gneiss a flaky granite or granite of the second order. Even we Germans, who are otherwise so conscientious in such matters, have until recently confused granite with the *Toteliegende* [rotliegend, a sandstone] a conglomerate of quartz and a kind of hornstone usually placed among the slates, or with the Harz greywacke, a younger mixture of quartz and slate.

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Author: Ernst Hamm
Member (CANADA): Vice President North America
IUGS International Commission on the
History of Geological Sciences (INHIGEO)

Department of Science, Technology and Society
Bethune College 218, York University,
4700 Keele St.,
Toronto, Ontario M3J 1P3
Canada.
Email: ehamm@yorku.ca

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