

## STRANGE ATTRACTORS



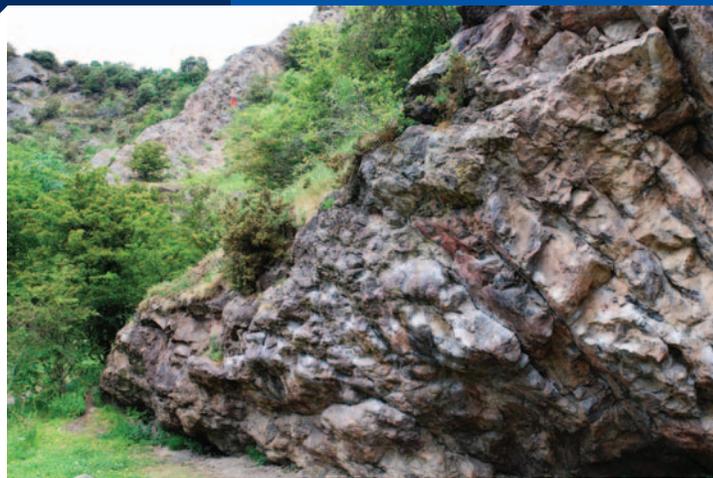
Finsteraarhorn and Agassizhorn, Switzerland

It is strange how sometimes a striking and unusual family name seems to attract our attention repeatedly, linking apparently unrelated places, events and activities. The name Agassiz is extremely rare but turns up in all manner of contexts. The family originated from a village near Lake Neuchâtel in Switzerland and has produced an extraordinary number of high-achievers. Most *Elements* readers will have heard of Louis Agassiz (1807–1873), and perhaps his son Alexander (1835–1910), because they both made important contributions to Earth sciences. But what of Auguste, who founded the Longines watch firm? Or James, who commanded a ship in Lord Nelson's fleet during the Napoleonic wars and was praised for his act of sending fire ships into the French lines. Or James's son, Lewis, who as a British Royal Marine led a firing party into Washington, DC, during the Anglo-American war of 1812–1815? National boundaries appear not to have existed for the Agassiz clan.

The graceful mountain which dominates my first picture is the Finsteraarhorn (4274 m), the highest peak in the Bernese Oberland. The first point on the long ridge leading from the summit is the Agassizhorn, named after Louis Agassiz. He was born in Switzerland and his first post was professor of natural history in Neuchâtel. He worked initially on living fish, before studying fossils and more general palaeontology. Louis became interested in glaciers and built a hut on one of the Aar glaciers in which he lived for some time, observing their behaviour. He was the first person to suggest that large areas of Europe had been covered by ice sheets like the one in present-day Greenland. After moving to Harvard University in 1846, he became one of the best-known scientists in the world. Glacial Lake Agassiz is central North America is also named after him.

But Louis had what many would now regard as a dark side. He never accepted Darwin's view of evolution, and rather than seeing all of humankind as having common origins, he advanced the view that the individual races were created separately and, more controversially, that the black races were intrinsically inferior. He illustrated this supposed inferiority in 1850 with a photograph of a slave from the Congo, called Renty, whom he found in South Carolina. An organization called the 'De-mounting Louis Agassiz' committee has been organizing a petition to change the name Agassizhorn to Rentyhorn, which has recently been refused by the three Swiss communities in whose territory the mountain stands. Louis based his ideas on race on what he perceived as scientific facts, and although he was wrong, it seems to me that Louis deserves his minor peak as a reward for his glaciological insights. You may not agree.

In 1840 Louis visited Scotland, and on being shown grooves on an exposure of andesite forming one of the numerous volcanic necks that give Edinburgh its dramatic skyline, declared that they were produced by ice. The 'Agassiz Rock', as it is now known, has a seminal position in



Agassiz Rock, Edinburgh, Scotland

our modern view that all of Scotland owes its landforms to glaciation. The Rock is somewhat overhanging, and being conveniently close to the Edinburgh University science campus, is used by rock climbers, who are responsible for the film of white powder you can see in the photograph. On my lunchtime walks I often pass lithe young men standing contemplating their route up, although curiously I have never seen one actually climbing. There is even a detailed guide to the climbs. Here are the instructions for getting up a route called The Wizard, rated Br 5c/6a Font 6a: F12, G12 (jugs), LH-I9 (slope pinch), RH-K9 (edge)... I could go on. It reminds me somewhat of the knitting patterns my grandmother used to generate multicoloured Shetland sweaters.



Keweenaw copper

I encountered another Agassiz when, about ten years ago, I visited Michigan Tech in Houghton as an MSA Lecturer. Houghton is at the base of the Keweenaw Peninsula, which sticks out into Lake Superior and is notable for its amazing snowfall, hitting a recorded maximum of 9.92 m in 1978–79. It also has the world's largest deposits of native copper, which have been mined for around 7000 years, up to 1968. In the 19<sup>th</sup> century, miners arrived from Finland and from Cornwall, in southwest England, and you can still enjoy a sauna and a Cornish pasty. The copper was precipitated from warm brines circulating in Proterozoic conglomerates and amygdaloidal basalts. The lump in my picture weighs 4.26 tonnes and is worth about US\$32,000 at today's prices. Like his father Louis,

Alexander Agassiz started his career as an expert on fish and always maintained his interest in marine biology, but through a web of family connections became involved in the copper mining, which in 1867 was beginning to falter, partly because of the inaccessibility of the region. With great determination Alexander developed the mines, eventually amassing a considerable fortune of which he gave US\$500,000

to Harvard to found its museum of comparative zoology. His statue can be seen in the town of Calumet, Michigan, looking more academic than mining tycoon.



Statue of Alexander Agassiz in Calumet, Michigan, USA

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