

GNEISS



Standing stones of gneiss on the Isle of Lewis



The Isle of Lewis is off the coast of Scotland in the United Kingdom.

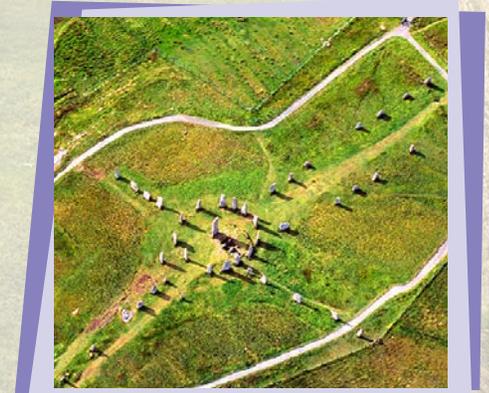
"NICE" GIANTS

Strange stones stand in a circle like giant guardians. People built the circle about 5,000 years ago on the Isle of Lewis in Scotland. The tall center stone rises almost 5 meters (16 ft.) above the ground. It is surrounded by 13 smaller stones.

No one knows why the circle was built. Maybe it helped people predict the location of stars. Maybe people used it to hold ceremonies. We do know that the stones are made of some of the oldest rock in the United Kingdom. This rock is called *gneiss* (sounds like "nice"), and it is three *billion* years old!

From far away, gneiss looks gray. But if you look closely, you will see that it has stripes. That's because it is made up of bands of light and dark minerals.

Although the stones may seem like giants, they are actually pieces of nonliving material. Long before ancient people built the stone circle, the ancient gneiss formed in nature.



The stone circle on the Isle of Lewis is surrounded by several rows of stones.

A Gneiss Change

Gneiss wasn't always gneiss! It's a kind of *metamorphic* rock. Gneiss started out as a different rock, such as granite. Then the granite was buried deep below Earth's surface. It stayed buried for millions of years.

Heat and pressure inside Earth changed the granite. Large crystals grew. The rock also developed bands of light and dark minerals.

Over time, the gneiss was pushed upward as mountains rose above the surface. Then erosion uncovered the rock, which now looked very different from granite. The heat and pressure had changed the rock into gneiss!

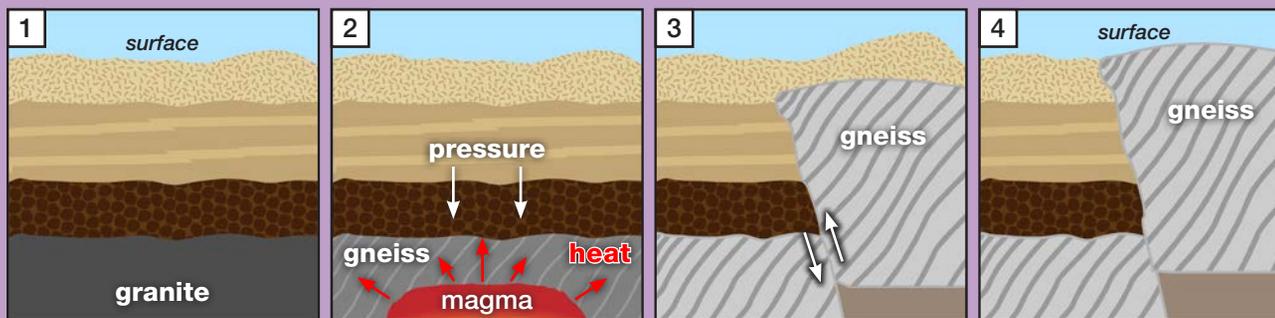


granite



gneiss

FROM GRANITE TO GNEISS



1. Granite is buried deep below Earth's surface.
2. Heat and pressure inside Earth change granite into gneiss.
3. Forces inside Earth push the gneiss up.
4. Erosion removes rocks from above the gneiss and exposes it at the surface.

Gneiss, Old Rocks

One of the oldest rocks in the world is the Acasta gneiss. This solid material is over 4 billion years old! Earth itself is only about 4.5 billion years old.

Just how old is the Acasta gneiss? Suppose 1 kilometer that you ride on your bike represents 1 year of Earth's history. To equal the age of the Acasta gneiss, you would have to ride your bike to the Moon *and back* about 5,000 times!



The Acasta gneiss is only found in Canada's Northwest Territories.

Word Wise

The letter *g* in *gneiss* is silent. It is also silent in words like *gnaw* and *gnat*. What other words can you think of that start with a silent *g*?