ICE AND TIME

Global Cooling and Awesome POWER

Inside the heart of a Glacier lies the awesome power of water. Over thousands of years, the slow pounding of ice upon stone created some of the most amazing geology in the world.

The Earth undergoes changes of all sorts, playing out over many tens of thousands of years. Variations in temperature and atmospheric makeup harness the vast and amazing power of water which is abundant on the Earth.

Ice ages have covered the continents with many different eras of glaciation. This is the time when great sheets of ice form and move over the land. Each ice age had many different periods of glacier formation and advancement punctuated with warmer intervals called interglacials.

Once water freezes into ice and begins forming into continental-sized sheets of ice, it begins to move. Pressure at the bottom of an ice sheet, hundreds of feet high, causes the ice to become more fluid than the brittle ice above. Gravity, coupled with topography, causes this ice to begin flowing. **Some modern glaciers have had movement verified at 200 feet in a single day.** Once on the move, glaciers pick up rubble, rocks and soil and move it along with the advance of the glacier. This material is called glacial till, and it varies in size from massive boulders to tiny dust called rock flour.

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The area surrounding Lake Shelbyville has seen the passing of many different periods of glaciation. **The Wisconsin Glacial Episode, the most recent period of continental glaciation to reach this far south, ended 10,000 years ago.** This is recent in terms of geologic time. However, when the glacier did finally retreat, it left behind an amazing mass of glacial till which changed the land. You can see these artifacts today at Lake Shelbyville.

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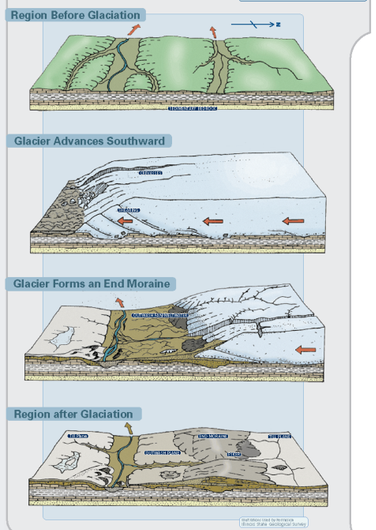
Anatomy of GLACIATION

It might be hard to imagine how water, changes in temperature and time (all of which we experience in everyday life) can combine over eons, to create massive structures which creep over continents and leave the land barely recognizable to what it had been. Glaciers, once they begin to move, radically alter the landscape over geologic time. *The changes they made are visible at Lake Shelbyville today.*

Glaciation at a Glance

Glaciers do not create new rock, they rearrange and erode material that is already in place.



WATER AND STONE

Clues Reveal the Passing of GIANTS

In the depths of time, the Earth released awesome natural forces. If we look closely, we can see how the land still bears the mark of this amazing process. Fire and ice, stone and water, the sculpting of nature's face, is a great story and its pages can be revealed here at Lake Shelbyville.

The story of Lake Shelbyville began thousands of years ago with the final retreat of the glaciers of the Wisconsin Glacial Episode from this area. The glaciers had pushed and carried millions of tons of rock and material along with them, frozen into the ice as they would scrape along the ground. As the ice melted, this material was deposited in very recognizable patterns called glacial moraines. At Lake Shelbyville, you can still see these today.

Glacial moraines usually appear as linear mounds of till (mixture of rock, gravel and fine powdery materials). Over long periods of time, the movement of the glacier changed the face of the land.

Terminal moraines are formed at the front edge of an advancing glacier. As it moves, the glacier pushes a wall of till ahead of it. Once the glacier begins to retreat, the terminal moraine is the recognizable land formation that remains.

The Shelbyville Moraine helped determine the location of the Lake Shelbyville Dam and formed a natural basin for the lake.

Other features formed by glacial deposits include long snake like ridges formed by stream beds under glaciers, known as eskers, and distinctive streamlined hills, known as drumlins.

The Shelbyville Moraine helped determine the location of the Lake Shelbyville Dam and formed a natural basin for the lake.

Anatomy of a RETREATING GLACIER

Glaciers leave behind definite clues about their arrival and departure. Judging by the evidence on the ground, geologists can generally tell the depth, duration and direction of travel for most glaciers.

Drumlins Drumlins are canoe shaped hills made mainly of till. The tilted side of the hill faces the direction from which the ice advanced.

Kettles These are glacial depressions produced when large ice blocks are stuck in the retreating glacial till. After they melt, they form new bodies of water.

Eskers Another type of deposit formed by retreating glaciers is characterized by long, narrow crests, composed of sand and gravel deposited by streams of meltwater flowing within, or beneath the glacier. After the ice has melted, these linear ridges remain.