The Driftless Area Script

When glaciers advanced across Wisconsin, they reshaped much of the landscape. The thick ice carried boulders, sand, and gravel as it advanced. And when it finally melted and retreated, it left behind all that material. Scientists called it “glacial drift.”

This glacial drift of sand, gravel, rocks and boulders covers the ground where the glaciers once were. Earth scientists map areas where this drift is present to recreate the history of glacial activity.

But scientists ran into a glacial mystery when their drift mapping revealed an area in western Wisconsin that didn’t have any glacial drift material. They named the place the driftless area. What made the driftless area such a mystery was that the entire area of 15,000 square miles was surrounded by drift. This meant that glaciers went entirely around the driftless area but didn’t cover it. How was that possible?

Besides being driftless, this area reveals what the Wisconsin landscape was like before glaciation. Because it wasn’t filled in and reshaped by glaciers, the driftless area has deep cut river valleys, such as the Kickapoo, and rugged rock bluffs near La Crosse. The lack of glacial drift and the ancient landscape here are clues to geologists that the glaciers somehow missed this area, yet surrounded it.

So how do scientists explain what happened here? Like figuring out most scientific mysteries, it required research and investigation. Glacial scientists used a number of things to help figure out the mystery of Wisconsin’s driftless area.

First, they studied maps and soil samples to figure out that there were at least four major periods when glaciers advanced across Wisconsin. The first began over 2 million years ago and the last one retreated about 12,000 years ago.

By studying glacial features such as moraines, they also realized that the glaciers didn’t advance as one big ice sheet with a flat front from north to sound. Instead, they discovered that the ice flowed in many “lobes” that slowly followed ancient valleys in many different directions.

To get an idea of how these glaciers flowed in lobes, try this experiment. Mix ice and water in a blender until it’s the consistency of a slushy. Then pour it in on uneven ground. Watch how it forms lobes that flow into the lower places. Of course glacial ice was over a thousand feet thick which made it flow slowly like plastic.

Knowing that the glaciers flowed in irregular lobes in different directions, and that there were 4 different times when glaciers flowed across Wisconsin, scientists began assembling clues to the mystery of the driftless. The final piece to their puzzle was figuring out the ages of the drift surrounding the driftless.

Scientists used geologic dating techniques to determine that the drift surrounding the driftless area was deposited during different glacial periods. That meant that some of the drift was deposit on one side during one period while other drift was deposited during other times. So instead of one ice sheet surrounding the driftless area at one time, they realized that drift left by many different glaciers only made it appear that way. Ah ha, mystery solved – almost.

That made scientists ask more interesting questions – such as why did the ice flow around the driftless area during all four periods of glaciation.

Instead of studying soil samples, they took to the skies. They studied satellite photos and topographic maps that showed the topography or shape of the landscape. By looking at Wisconsin from a satellite view, they saw how the depressions made by the Great Lakes and Wisconsin rivers, caused the different ice lobes to change direction and somehow miss the driftless area.

So once scientists figured out the mystery of what caused the driftless area, they job was over, right? Not quite.

When they began exploring within the driftless area, they discovered more mysteries in the creatures that lived there. Because this area had escaped the crushing and reshaping effects of glaciers for 2 million years, it contained rare species of plants and animals from before the ice age.

From fossils, they found that wooly mammoths and mastodons had once lived there. And when they looked closer, they found tiny ice age creatures in the form of rare snails.

Like so many things in science, each new discovery lead to more questions. Now scientists are studying the many creatures and fossils that exist in the driftless area. You can join in exploring these mysteries by doing some research online. Simply go a search for “driftless area” and discover the rare biology and geology of the area. Then plan a trip with your family to visit and explore the area. Maybe someday you can become a scientist to help discover more answers to the mysteries of the driftless area… and ask new important questions.