SAN JACINTO RIVER AUTHORITY KIDS PAGE

HOW DID THE END OF THE ICE AGE AFFECT TEXAS?

Second article in the "Learning From Our Past" series...

Eleven to twelve thousand years ago, as the last great Ice Age was coming to an end, North America and Texas looked very different than they do today. The huge **glaciers** had begun to melt, and lakes, bogs, and marshes appeared in areas that had been covered with ice. This had major impacts on what was able to grow in the large areas uncovered by the melting ice, and on who would live there. The grasslands of America's Great Plains were populated with herds of Columbia Mammoths, longhorned bison and a wide range of carnivores -- saber-toothed cats, giant short-faced bears and dire wolves. A unique culture of Native Americans -- Clovis hunter gatherers -- moved into Texas, following these giant animals, and settled here.

Glaciology...

Since they are composed primarily of ice, glaciers can form only in an extremely cold region; so cold that it never becomes warm enough for snow to melt completely. Glaciers are "built" in layers -- like a cake: starting with a layer of ice (cake) on which it snows (icing), which then freezes...and so on. The "layers" grow thicker and thicker -- squeezing out most of the air in the snow layers as it grows. It is this lack of oxygen that gives glaciers their blue color. The ice sheet becomes extremely dense and incredibly heavy...so heavy, in fact, that its own weight begins to pull it downhill. It is at this point that the ice layers technically become a glacier.

Glaciers move very slowly -- only a few feet or even a few inches a day. If melting does occur -- because of friction caused as the ice moves over the ground -- a layer of "meltwater" can speed up the movement. Another scientific field -- **Geomorphology** -- studies landforms, notable topographical features, and the forces that might have shaped them. When glaciers melt and redistribute their colossal weight, Earth's crust reacts. At the end of the last ice age, for example, the crust rose upward and had a dramatic impact on the geology of areas south of the glaciers. It took so much water to form the glaciers that the world's sea level fell approximately 425 feet, exposing flat continental shelves as dry land. This, in turn, caused rivers to begin eroding deep valleys. As sea levels rose again, these valleys were filled with sediment carried by meltwater-swollen rivers.

Not all of the meltwater flowed into the rivers; a retreating glacier sometimes left large depressions which filled to form lakes. The grinding of a glacier as it moved created long "scratches" (striations) caused by the debris traveling with the ice. The movement also deposited large quantities of gravel, sand and silt along the way.

Think of a glacier as a giant bulldozer, plowing through everything it encounters on its path -- crushing rock, soil, trees, and all kinds of plant life beneath them. Soil and rock pushed in front of the advancing glacier often formed long ridges called **moraines**. Glaciers erode the bottoms and sides of valleys and, in the process, change their "V" shape to a "U". The thicker the ice flow, the more it bears down on the land below it, the deeper the cravasse it forms.

At the end of the last ice age, the north central Gulf Coast was probably covered by forests of northern pine similar to that found in New England. It is likely that Central Texas was covered by tall grass prairie, perhaps with pine and aspen growing in the river bottoms. The High Plains of West Texas were probably covered by short grass prairie and semi-desert. As the sea level rose, shorelines moved progressively inland and inundated major river valleys along the Texas Coast creating the earliest forms of the state's coastal bays (e.g., Galveston, Matagorda, etc.).

Around this same time period, there was a major extinction event when mammoths, mastodons, saber-toothed cats, ground sloths, cave bears, the small native horses and camels disappeared. *The next article in this series will explore what might have happened to these mighty beasts.* ■