

## **Ice-rafted Boulders and Glacially-faceted Stones to be Displayed at Museum**

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During the episode of Kansan glaciation, deep back in the mid-Pleistocene (some 700,000 plus years ago) glaciers plowed through North America. The advancing ice blocked and rerouted major river systems forcing them into the Mississippi River Valley as far south as Missouri, substantially increasing the size of the river from its pre-glacial configuration. Periodic megafloods from glacial meltwaters and ice-dam breaks entering the Mississippi River Valley were commonplace as it drained an ice sheet over a mile thick out into the Gulf of Mexico. The river carried with it a flood of rocks, ice, and other geological materials bulldozed by this glacial ice from the glaciated region and carried it down the ancestral Mississippi River. Subsequent glacial episodes caused major drops in sea level and the Mississippi River to drastically cut an ever deeper valley, abandoning these remnants of the old courses which are now perched high along the eastern bluffs overlooking the Mississippi Delta region.



The extensive gravels left behind are mapped by geologists as the Pre-loess Terrace Deposits. Much later on, at the end of the very last ice age, the ice sheets receded for the very last time into the Arctic and the Mississippi River and then as sea levels rose again it filled its valley with sediment to where it is today. The mark glaciation left on Mississippi during this time in our ancient geological history is something we are only now beginning to understand as the Office of Geology maps the geology along the loess bluffs region in western Mississippi and we study the gravels of these Pre-loess Terrace Deposits. These ice-age ancestral Mississippi River gravels are also a very important economic resource for the state from the Memphis area south to Natchez. These gravels can be found perched in the bluffs more than 200 feet higher and up to 20 miles east of the Mississippi River alluvial plain today. They are typically buried by a thick mantle of loess making them incredibly difficult to study and to access as a resource. Research geologists with the Surface Geology/Surface Mapping Division have been working with local gravel companies to study these gravels at a pits in loess bluffs

region. Sampling gravel and sourcing them to their original bedrock source has provided new insight into the evolution of the Mississippi River Valley. Important new discoveries from these gravel pit studies include ice-rafted chert, quartzite, and sandstone boulders, weighing well over a ton, that were once carried in icebergs to Mississippi from thousands of miles from their original bedrock source. Also, a number very important specimens of glacially-faceted stones were discovered from ongoing studies. These newly discovered rare stones found amongst gravel were shaped by being dragged along the base of a glacier and are the incontrovertible evidence of Mississippi's place in North America's glacial history, something we are just now only beginning to understand.

A number of ice-rafter boulder specimens were recently recovered from a gravel pit located along the Warren and Hinds county line northeast of Flowers Mississippi, and placed on display on the lawn of the Mississippi Museum of Natural Science for further study and for public education. So, go check these geological wonders along with all the fascinating exhibits the museum has to offer.