

Geologic History Beneath the Museum of Mississippi History

David T. Dockery III, RPG



The [Museum of Mississippi History](#) in downtown Jackson occupies a site near the crest of the Jackson Dome, a structural uplift atop an extinct volcanic island of Cretaceous age. Like the museum, the Jackson Dome enlightens history. Generally, the pages of a history book follow a timeline from a point of beginning to the present time. To the contrary, the geologic record beneath the museum reads in reverse from today (at the surface) to a beginning point (at some depth). At about half a mile below the surface, an interval of missing time disrupts the timeline where the Late Cretaceous Jackson Gas Rock rests above the Cotton Valley Group of Jurassic age. The contact between these formations is called an angular unconformity. The lateral extent of this unconformity to the north and south and east and west maps the 420-square-mile area of a volcanic island that existed some 75 million years ago. This island footprint is shown in Figure 1 where the red X marks the site of the Museum of Mississippi History just west of the throat (igneous vent) of the old volcano. Above the island footprint in Figure 1 is a line of cross section from Pickens in northern Madison County to Terry in southern Hinds County and the cross section, showing the igneous uplift below Jackson. Figure 2 is an enlargement that places the museum in red on the city streets.

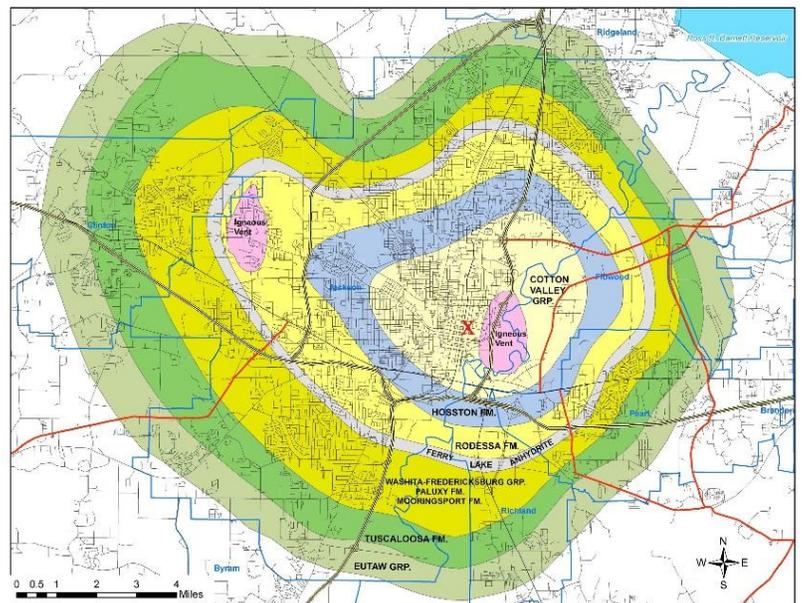
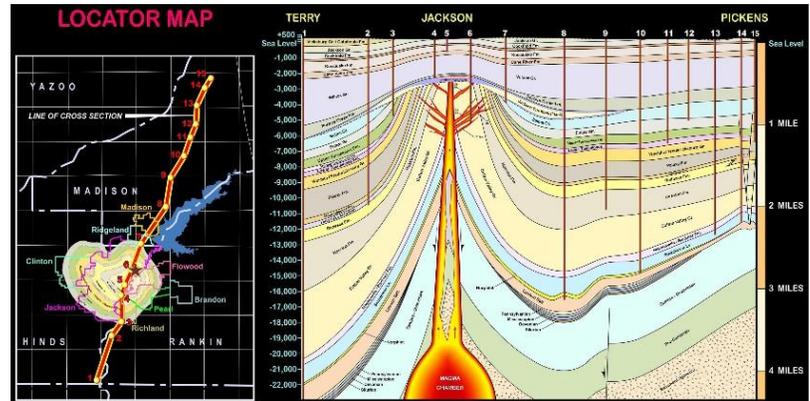


Figure 1

Another disruption in geologic history occurs at an unconformity called a nonconformity between sedimentary rocks of the 152 million-year-old Cotton Valley Group from the 75-million-year-old igneous intrusion. Here the timeline reverses back to the general time of the angular unconformity beneath the Jackson Gas Rock. The story told by this geologic sequence is of a time in the Late Cretaceous when Mississippi was covered by a tropical sea. Around 75 million years ago, rising molten rock from the Earth's mantle lifted the seafloor thousands of feet high before erupting as a volcanic island and sending ash deposits as far east as Sumter County, Alabama. Once the eruptions ceased, erosion by rain and sea surf leveled the island to sea level, forming an atoll or island reef with a central lagoon. Figure 3 shows the lateral extent of the reef that covered the extinct volcano. Along the north flank of the dome, the

reef and associated sands eroded from the island are up to 1,500 feet thick. The reef is thin over the crest of the dome.

The Museum of Mississippi History presents the state's human history as measured in hundreds and thousands of years. It rests on rocks with a geologic history measured in millions of years and is further explained in the *Stories in Stone* exhibit at the [Mississippi Museum of Natural Science](#), an exhibit created in cooperation with MDEQ's Office of Geology.

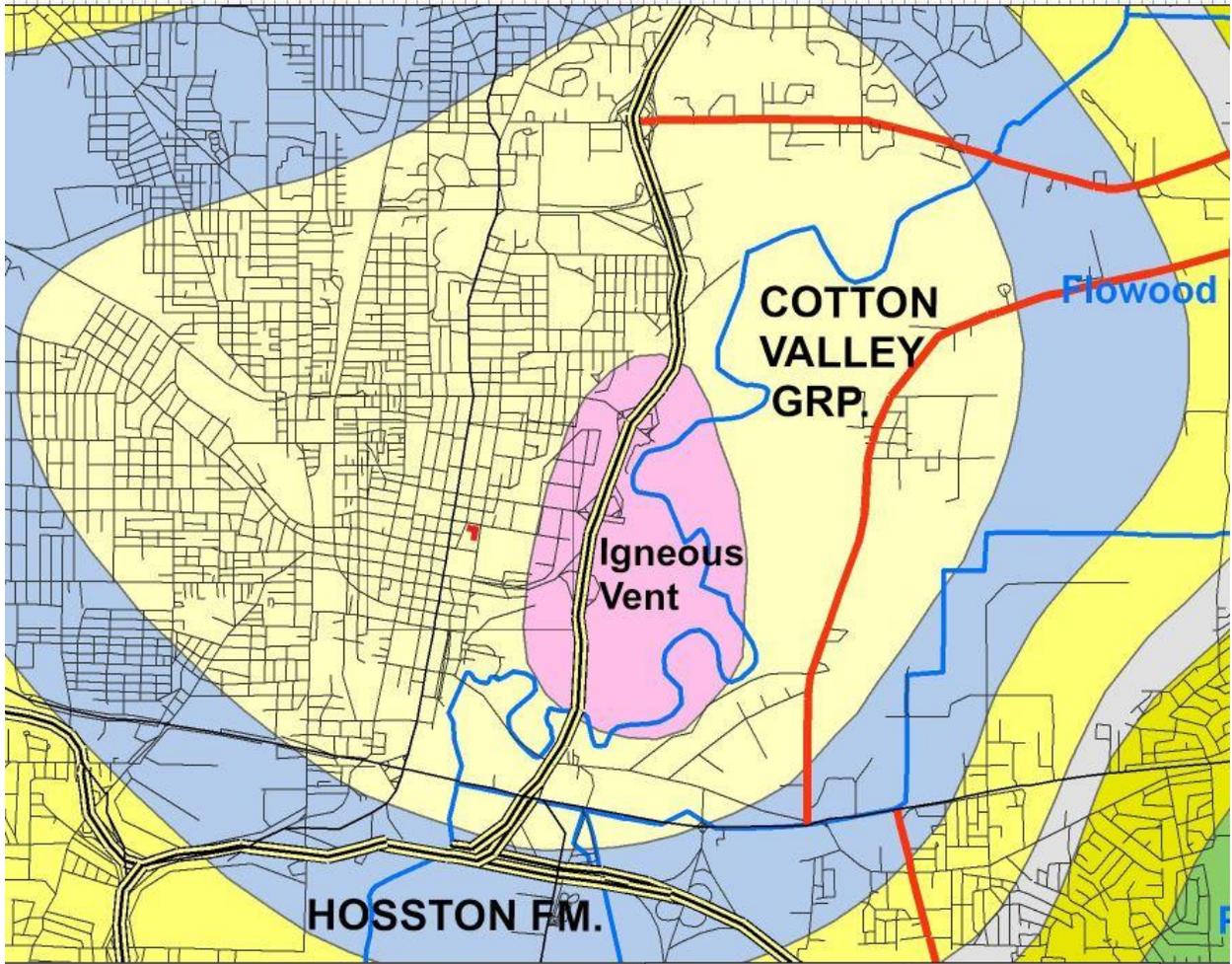


Figure 2

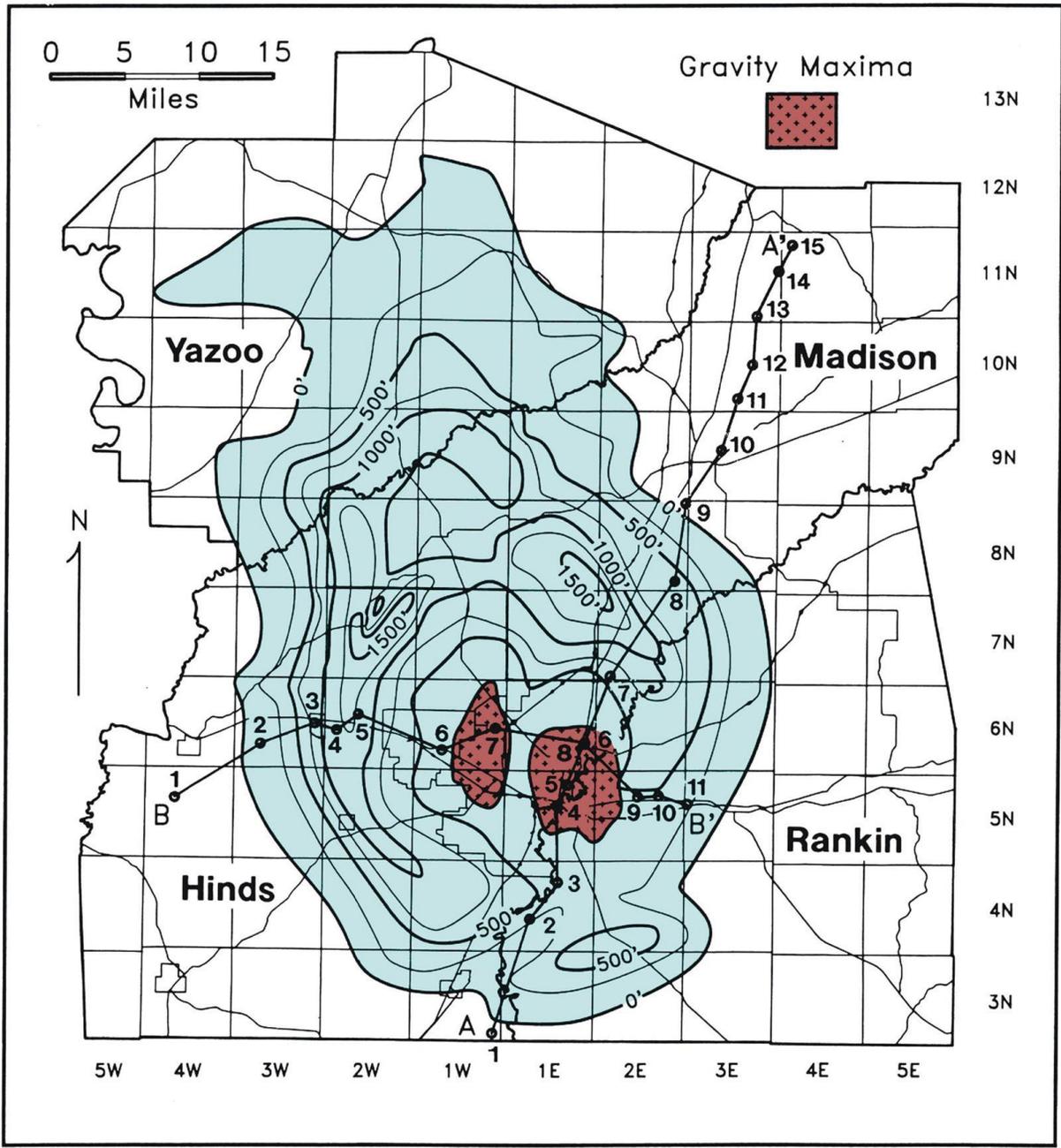


Figure 3