Souvenir Program
Dedication of the Historical Marker
"INLAND SEAS"

This map illustrates a period of worldwide rising ocean levels that resulted in the North American continent being divided by warm and salty ocean water. This shallow inland sea was named the Western Interior Seaway.

Sioux Empire Gem and Mineral Society
Sioux Falls, South Dakota
November 14, 2003
MINNEHAHA COUNTY HISTORICAL SOCIETY
THE "SPLIT ROCK CREEK FORMATION"

Between 65 and 80 million years ago, sediments were laid down on the sea floor in the quiet-water bays of Minnehaha County's quartzite islands. In time a series of glaciers flowed through this region and the deposits were covered with glacial till. Eventually three waterways, the Big Sioux River and the Slip-Up and Split Rock Creeks, here and there eroded away some of the glacial drift and exposed these ancient deposits. Geologists have named these very early deposits the "Split Rock Creek Formation."

Shown is an ancient deposit of the Split Rock Creek Formation found along an east cutbank of the Big Sioux River.

The drawing used on the cover and these three images of the Split Rock Creek were provided by Dennis Tomhave.
The sediment of the Split Rock Creek Formation shown here may be found on the north cutbank of Slip-Up Creek just south of I-90.

Laid down 65 to 80 million years ago, this deposit of the Split Rock Creek Formation may be found along the east cutbank of Split Rock Creek north of Corson, SD.
INLAND SEAS

The changing of global sea levels over millions of years was a major factor in determining the ancient geography of Minnehaha County. Through much of geologic time, salty warm-water seas covered the interior of the United States. During the late Cretaceous Period, 65 to 80 million years ago, rising ocean levels several times produced flooding that created inland seaways. Extending from the Gulf of Mexico to the Arctic Circle, these seas divided North America into two parts. The highest elevations of the Sioux Quartzite Ridge became exposed islands with irregular shorelines containing shallow, quiet-water bays. Sediments laid down in these bays contained fossils of wood, plant imprints, carbonized plant fragments, tiny mollusks, and fish parts.

During the Ice Age, these deposits were buried by glacial drift. Several exposures of the ancient bay deposits may be seen at points where the Big Sioux River, Split Rock Creek, and Slip-Up Creek have eroded through the glacial overburden.

DEDICATED IN 2003 BY THE MINNEHAHA COUNTY HISTORICAL SOCIETY AND THE CITY OF SIoux FALLS.

Officers and Directors of the Minnehaha County Historical Society
President - Randy Maas
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Ferocious Predators Ruled the Sea That Covered Sioux Falls and Minnehaha County

GINSU MAKO SHARK

The Ginsu Mako shark was the biggest of all sharks in the Western Interior Sea. Adults grew to be as much as 22 feet in length. Their largest teeth were about 2 inches in height. These huge sharks had about 80 teeth at the gum line and each tooth had as many as 7 replacement teeth on the inside of the jaws in various stages of growth. Evidence has been found that even the savage and vicious Mosasaurs were food for the giant Ginsu Mako sharks. Drawing by Doug Henderson.

MOSASAUR

A full grown mosasaur could be 30 to 40 feet in length, occasionally even longer. A powerful swimmer, the mosasaur used the thrust of its muscular tail to outswim its prey. Jaws were more than four feet long and were lined with sharp, conical teeth. The lower jaw could flex in the middle enabling it to swallow large fish and other animals. Mosasaurs were the T-Rex of the prehistoric seas! They were true hunter killers and had few rivals. Drawing by Carl Buell.
Giant Flying Reptiles Nested and Lived on the Quartzite Islands in and Around Sioux Falls

PTEROSAURS

Bone from the wing of a pterosaur has been found near Yankton, SD, only 80 miles from Sioux Falls. It is believed that the quartzite islands located in the inland sea in and around Sioux Falls were inhabited by giant pterosaurs (flying lizards). Their featherless bodies were almost the size of a human, although they weighed only 25% as much because of their thin, hollow bones.

For lift and to keep aloft, pterosaurs had elongated fourth fingers that formed the leading edge of their two delicate membrane wings. Some paleontologists believe that the pterosaurs launched themselves from the cliffs of the quartzite islands and then skimmed low over the sea while scooping up fish. Other paleontologists envision pterosaurs as huge vultures that circled high in the sky looking for carcasses to gorge upon.

The largest pterosaurs were as large as a small airplane with wingspans of 25 to 40 feet. These giant reptiles were the largest flying creatures ever to live on earth.
MINNEHAHA COUNTY HISTORICAL SOCIETY
REGISTERED HISTORICAL MARKERS NOW TOTAL 104
Three marker stories involve Earth history.

1) THE SIOUX QUARTZITE
   Falls Park, Sioux Falls

2) 1938 EARTHQUAKE
   Northern Links Golf Course, Renner

3) INLAND SEAS
   Falls Park, Sioux Falls

SIOUX EMPIRE
GEM AND MINERAL SOCIETY

SEGAMS is a nonprofit, educational organization,
chartered by the state of South Dakota, to share knowledge
about Earth Sciences and Lapidary through field trips and
programs. SEGAMS meets in Room 101 in the Gilbert
Science Center at Augustana College and meetings are
held on the second Friday of each month from September
through June (except December).

Annual dues are: Adults, $10, Juniors (12-17), $3,
children, free. Janine Heifner is the club president and
Newsletter editor.

Special Thank You!

The MCHS wishes to offer special thanks to Fritz Blake, Project
Director, Corps of Engineers, Albuquerque, New Mexico, for
providing research material about the Western Interior Seaway.
Dennis W. Tomhave of Vermillion, SD, is a geologist with the Department of Environment and Natural Resources, Geological Survey Program. Dennis has provided the expert technical assistance needed not only for the INLAND SEAS historical marker script but also for a marker previously dedicated, the 1938 EARTHQUAKE, plus two future "earth history" historical markers, CACTUS HILLS, and THE GREAT BEND. Thanks once again, Dennis!