THE MINERAL VEIN

Official Newsletter of

THE MINERAL SOCIETY OF MANITOBA

FEBRUARY 2016

JANUARY PRESENTATION SUMMARY

By Marjorie Turton

The January presentation was well attended as usual whenever James Bamburak speaks. This time his subject was walking in William "Strata" Smith's Footstep. This is part of a tribute by the MGS and the CFDC. 2015 marks the 200th anniversary of the release of the paleontologically 1:316 000 scale, (hand coloured) geological map of a nation (Great Britain). James Bamburak had first encountered Smith's geological exploits from Professor Leith, (U of M) during James first year in geology. At that time he did not fully realize how much influence Smith had on the geological methods that would be used for the next 50 years of Bamburak's career in Manitoba.

William "Strata" Smith was born March 23, 1769 and died on August 28, 1839. The map he reproduced was compiled from his 28 years of geological field observations and fossil identification. In 1815 he published the first geological map of Britain (England, Wales, and parts of Scotland). Although not the first geological map it was the first covering such a large area. Remarkably, the field observations was conducted by William Smith himself; he travelled extensively across Britain working as a mineral surveyor. Although lacking a formal education, he found work as an assistant to a surveyor. He was quick to learn and soon became proficient at the trade. While he was working for the Somersetshire Coal Canal Company, as an engineer, he observed the rock layers (or strata) at the pit.

Portrait of William "Strata" Smith by Hugues Foureau

He realized that they were arranged in a predictable pattern and the various strata could always be found in the same relative positions. Additionally, each particular stratum could be identified by the fossils it contained, and the same succession of fossil groups from older to younger rocks could be found in many parts of England.

It appears he has become a paleontologist (self-taught?). He published his findings with many pictures from his fossil collection, enabling others to investigate their distribution and test his theories. His collection is especially good on Jurassic fossils he collected from the Cornbruash, Kimmeridge clay, Oxford clay, Oolitite limestone and similar areas.

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THE MINERAL SOCIETY OF MANITOBA
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The Mineral Vein is published monthly from September to June.

Meetings are held on the first Wednesday of each month from September to May inclusive at the Manitoba Museum in room P47 on the Planetarium level. They begin at 7:30 PM and feature announcements, an invited speaker and a raffle. Members are encouraged to bring along any new, interesting specimens, or specimens appropriate to the speaker's topic.

Field Trips take place from May to September to interesting sites in Manitoba or neighbouring provinces and states.

Membership: A single membership is $15 while a family membership is $20. Memberships run from October to October.

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UPCOMING EVENTS

February 3, 2016: MSM regular monthly meeting begins at 7:30 p.m. at the Manitoba Museum.
This meeting will feature guest speaker **Kathryn Lapenskie**, Industrial and Specialty Minerals Geologist at Manitoba Geological Survey. She will be talking about the paleontology highlights of Manitoba.

March 2, 2016: MSM regular monthly meeting begins at 7:30 p.m. at the Manitoba Museum.
Speaker to be announced.

March 23 to 27: "A Taste of Tucson" Mineral Show by Jacobs Trading – Ye Olde Rock Shop, Brokenhead River Community Hall, 320 Veterans Lane, Beausejour.

April 6, 2016: MSM regular monthly meeting begins at 7:30 p.m. at the Manitoba Museum.
Speaker to be announced.

April 22, 2016: Earth Day—Manitoba Geological Survey Open House .

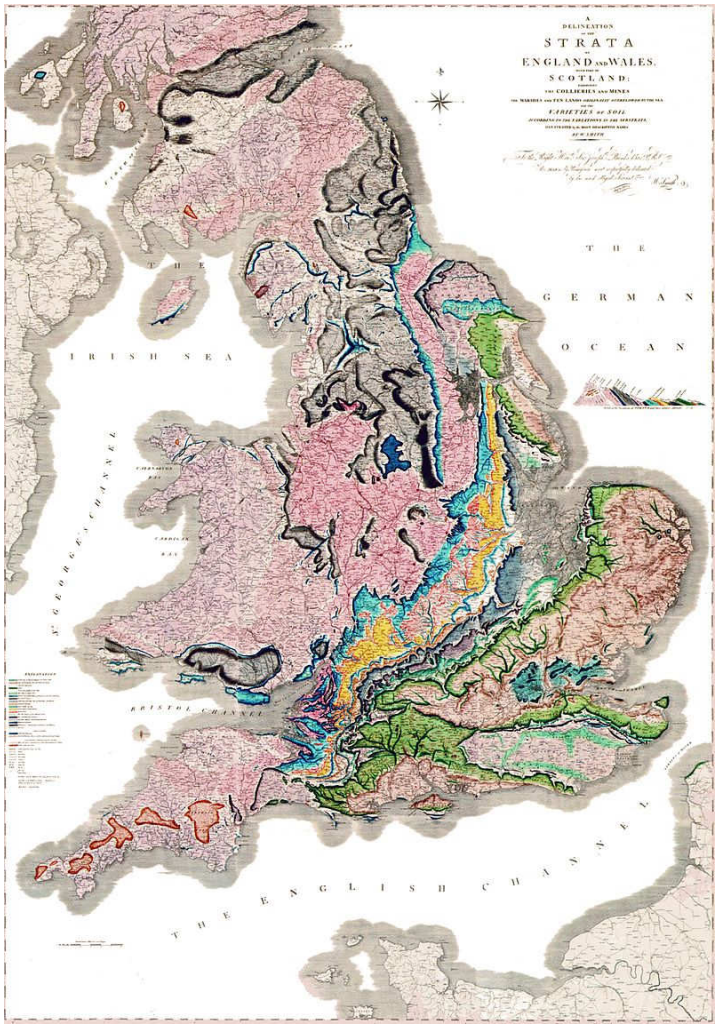
Founded in 1971, the Mineral Society of Manitoba is dedicated to promoting the study of minerals, rocks and fossils for their scientific and recreational value.

The Mineral Society of Manitoba hosts monthly meetings covering a variety of mineral related topics. In addition, the Mineral Society organizes summer field trips to collecting localities, and hosts educational exhibits about minerals and fossils.

JANUARY PRESENTATION (CONT.)

Some of the names he coined are still used today. He was puzzled by the age of the fossils since the prevailing belief stated that the earth was 6,000 years old.

He noticed a south-easterly dip of the beds of rock in Great Britain, This gave Smith a testable hypotheses. He began a search to determine if the relationship the strata and their characteristics were consistent throughout the country. Manitoba displays almost a mirror image with a south-western dip. There is a succession of Phanerozoic rock overlying the Precambrian basement in part of the province dipping towards the Williston Basin, centered in North Dakota.



Smith's famous 1815 geological map of part of Great Britain

It was Smith who first recognized that the regionally dipping outcrop belts of laterally continuous geological units in Great Britain could be depicted on a topographic map base. He had difficulty in separating and portraying outliners and inliners from more recently deposited surface deposits. He only knew how to draw the vertical extent of the rocks, but not how to display them horizontally. That is, until he saw an agriculture map directing the different soils and vegetation in different colours. Smith could now draw a geological map from his observations showing the outcrops of the rocks. He took a few rock types, each with its own colour, estimated the boundaries of each of the outcrops of rocks, filled them in with colours and ended with a crude geological map. This became "the map to change the world".

He self-published, in 1815, the first geological map of Britain. It depicted the whole of England, Wales, and parts of Scotland. The various geological types were hand painted and they were large (4 large sheets to one page). Four hundred maps, numbered and signed were printed. About 40 are still in existence. Unfortunately these maps were expensive to print and prohibitive to purchase. He became bankrupt and went to debtor's prison. Upon release from prison the bailiff seized his home and everything in it. While he was in prison, his work was plagiarised by the Geological Section of London and sold for a lower price.

Later he was given the responsibility for building the Rotunda, a geological museum devoted to the Yorkshire coast.

William Smith started out , though not formally trained, a surveyor became an engineer, paleontologist, publisher and ended as an architect.

James Bamburak was introduced to William Smith in his first year of geology and after delving into Smith's history, discovered that he has been using the procedures Smith developed for almost 25 years.

LARGEST DINOSAUR EVER FOUND ...SO FAR

The remains of one of the largest dinosaurs that ever lived are now on public display at the American Museum of Natural History, thanks in part to the work of a Canadian casting company. The 37-metre skeleton of the dinosaur — which has not yet been formally named, but is part of the long-necked titanosaur family — is so massive that its head and neck stretches out the entrance to the exhibit hall in the New York museum.

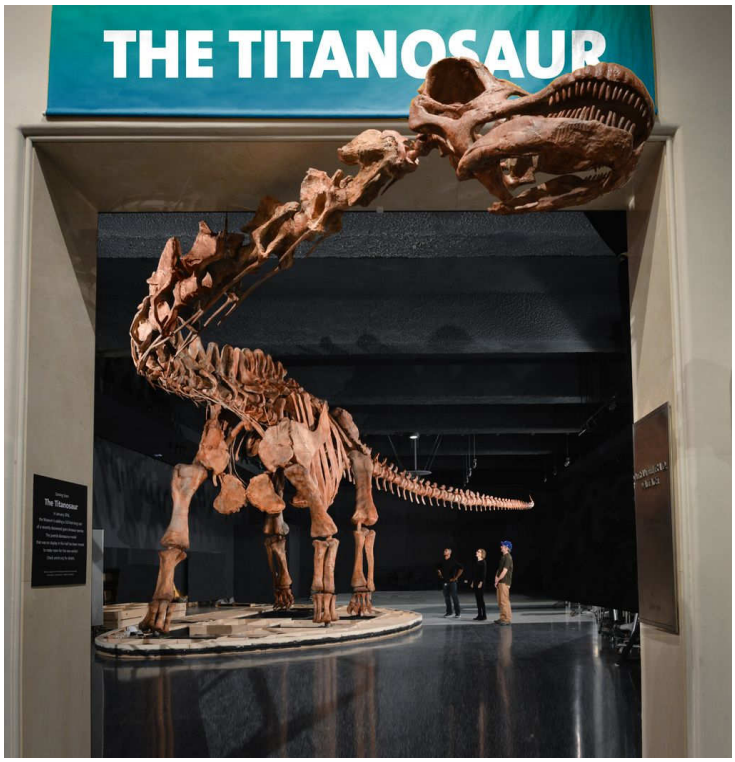
DISCOVERY OF THE TITANOSAUR

In the spring of 2014, a lone farmer scanned his land, looking for a lost sheep. He thought there was something odd about the rocky ledge his grizzled old sheep was perched on. Dinosaur finds aren't uncommon in the area but the outcrop was huge – could it really be a bone? He called in the scientists. When they determined that the ledge was in fact the 8ft thigh bone of a dinosaur, this sleepy Argentinian farm became the most important dinosaur dig site for more than 100 years.

When paleontologists investigated the site, they found pieces of up to six individual dinosaurs, of a new species they called titanosaur.

The titanosaurs were the last great group of sauropods, which existed from about 90 to 66 million years ago, before the Cretaceous–Paleogene extinction event, and were the dominant herbivores of their time. The fossil evidence suggests they replaced the other sauropods, like the diplodocids and the brachiosaurids, which died out between the late Jurassic and the mid-Cretaceous Periods.

A technician lies next to the femur of a titanosaur



ORIGINAL BONES TOO HEAVY TO USE

A cast of the skeleton was made over a period of six months by Research Casting International, based in Trenton, Ontario, as well as a company in Argentina, where the original bones were found.

“Paleontologists used to make mounts of the original fossils, but they'd have to destroy some of the fossils in the process, drill holes straight through them. We obviously don't want to do that anymore," said Brian Switek, a Salt Lake City-based science writer.

However another reason the original bones couldn't be used is because they're too heavy — several times heavier than they originally were because minerals have become deposited inside the bones.

"So if they tried to put up this whole dinosaur with the original fossil material, it would just crash to the floor," Switek said, adding that some of the original fossils are on display separately at the museum.

Weighing as much as up to 15 African elephants, these dinosaurs had to sustain this incredible weight on four specially adapted column-like legs. They were so big they probably used the heavy musculature running from their thighs to halfway down their tails to gain momentum for walking.