Gunflint Chert
(Explanatory Display)

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Why is Gunflint Chert Important?
The Precambrian time (ca. 4.55–0.54 Ga) makes up almost 90% of Earth’s history, and it contains most of the significant evolutionary transformations of the past. Precambrian fossils are necessary for understanding the emergence of complex life in terms of pattern, rate, and process. The preservational windows in the 1.88-Ga Gunflint chert allow us to highlight the crucial role played by the fossil record in understanding early biodiversity. Throughout the last 60 years, attention has focused essentially on microcrystalline quartz (called ‘chert’) for high-quality preservation of cellular organic materials, most famously within the 1.88-Ga Gunflint chert.”[12]

What is the Gunflint Chert and where is it located?
Found through Northern Minnesota to Northwestern Ontario, Canada. The area is an iron ore deposit containing iron formations that are now known to contain fossils dating back to the Middle Precambrian era, dating back to about 2000 million years ago.[7]
The entire deposit is found through the Gunflint and Mesabi Range. Preservation is known to be best in the Schreiber locality, while the entire extent of preservation is known to be around 190km.

The geologic age and paleoenvironment represented by the site
A study using radiometric dating, specifically uranium-lead dating, was conducted on zircon excavated from undisturbed volcano matter to find a more accurate timeline of the Gunflint Chert Formation. The result came out to be 1878.3 ± 1.3 million years old.[8] The local paleoenvironment was on a continental shelf, which can be seen due to the stromatolite, which is produced by cyanobacteria. The banded iron formations (BIFs) are caused from the great oxygenation event, which caused iron to form into iron oxide, which creates the bands of iron and chert. [1]

Bibliography:
13. “Geologic Time Scale” https://www.ucmp.berkeley.edu/geologic_time.html