

# The Burgess Shale Fossil Beds

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The Walcott Quarry Located on Wapta Mountain

In 1909, Charles Walcott unearthed a geological find of great significance while hiking the Burgess Pass trail above Emerald Lake. Splitting open a slab of layered shale, he exposed incredibly detailed fossils of prehistoric marine life. His find turned out to be a unique window into the workings of the 505 million year old Cambrian ecosystem.

## Well-preserved soft tissues

Fossils at the Burgess shale were observed to have incredibly well-preserved soft-body parts. Because delicate muscle and organ tissues are distinctly visible as a thin film in the carbon-heavy shale, soft-bodied organisms that would have otherwise remained unknown were fossilized. Researchers were given insight into the Cambrian food chain by determining the stomach contents of the organisms. The intricate balance of a diverse undersea ecosystem from a time that marked the origins of multi-cellular life is demonstrated by the quality and quantity of fossils extracted from the Walcott dig site.

Evidence suggests that the aquatic community existed in shallow water along the edge of a large underwater cliff now referred to as the Cathedral Escarpment. Mudslides buried creatures at the bottom of the cliff, where the low oxygen levels ensured they would not be disturbed by predators and slowed their decomposition as the sedimentary rock formed over time.

## Strange creatures

Most numerous among the fossils found at the Burgess Shale is the Marrella (or lace crab, as Walcott called them). Also to be found are hard-shelled Trilobites, the stilt-walking Hallucigenia, early crabs, sponges, and many species that don't fit at all within the modern classification system.

## Guided Hikes to the Burgess Shale

The Walcott Quarry and trilobite bed on Mt. Stephen are very important research stations, and remain closed to the public. However, guided hikes

to the fossil beds are available during the summer season through the Burgess Shale Geoscience Foundation.

Full-day hikes to the Burgess Shale Fossil Beds take you from the Yoho Valley at Takakkaw Falls to the Walcott Quarry on the Burgess Highline trail high above Emerald Lake. View an assortment of selected fossils that have made the Burgess Shale known as one of the world's most important fossil discoveries.



Hikers on the Burgess Highline Trail approach the Walcott Quarry. A half-day hike is also available at the Mount Stephen Fossil Beds above the Field townsite, where you're sure to find plenty of trilobites and fossils of other aquatic species.

Both hikes are accompanied by guides with first-aid certification and expertise in the Earth Sciences so you can make the most out of your Burgess Shale experience. Hikers should be advised that the guided tours are not just a walk in the park; The high elevation of the Rocky Mountains amplifies the effects of fatigue and respiratory difficulties. The hikes contain significant uphill climbs and descents that require adequate physical fitness, plenty of water, and hiking boots with proper ankle support.

For bookings or more information, contact

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or visit [The Burgess Shale Geoscience Foundation](http://TheBurgessShaleGeoscienceFoundation) website for more information.

Large or educational groups that wish to undertake a guided hike can do so by phoning 1-800-343-3006. These hikes will be scheduled outside of the regularly scheduled hikes. The minimum number per group is 10 and maximum number per group is 15.

# Guided Hikes



The Burgess Shale Geoscience Foundation contract professional geoscientists, university graduate students and professors to conduct earth science educational guided hikes that will interpret the topics of geology, paleo-biology, climate science, bio-astro-physics and evolution during the hikes and that are developed for geoscience professionals, high school students, teachers, academics and the general public. The Foundation guides have been charged with the responsibility to provide all levels of understanding of these topics. These are Science-in-Action hikes that will pleasantly change your perception of the planet earth we live on forever.

The earth science educational hikes include the following themes:

1. **History of Life on Earth** (the story of the Burgess Shale and life that existed before the Burgess Shale)
2. **Rocks and Mountain Building** (how these incredible mountains came to be and how the Burgess Shale marine animals, that once lived at the equator over half a billion years ago, died and managed to be perfectly preserved and remain intact during the mountain building processes. As well as the glaciations that scoured this area and how these precious animals can be viewed in-situ at an elevation of 7,600 feet above sea level)
3. **Landforms and Climate Science** (incredible geomorphology can be viewed en-route to the Burgess Shale - Walcott Quarry)
4. **The importance of this Canadian Rocky Mountain Parks UNESCO World Heritage Site** (that will ensure and provide Protection, Education and Interpretation of the Burgess Shale for future generations)

**IT IS NOT POSSIBLE TO VISIT THE FOSSIL SITES ON YOUR OWN**