

# GENERAL SCIENCE NOTES

## FAMOUS FOSSILS FROM A MOUNTAINTOP

By Harold G. Coffin, Geoscience Research Institute

*The following is one of a series of talks on creation prepared for broadcast.*

In 1910, a pack train was struggling up the steep Burgess Pass in the Canadian Rockies not far from the world-famous Lake Louise in Banff National Park. A horse stumbled over a block of dark rock. Something in the rock caught the attention of one of the men. There were fossils in the fine-grained, nearly black shale. They were distinct and well-preserved remains of sea animals.

Word reached Dr. Charles Walcott, secretary of the Smithsonian Institution, who discovered that the location was outstanding for fossils. A quarry was opened up, and in the course of several years many tons of rock were blasted and cut away from the mountainside. Thirty-five thousand fossils were eventually deposited in the U. S. National Museum. These fossils were to become some of the most famous ever discovered. Some are still being studied in museums and universities. Their primary value is found in the marvelously beautiful preservation of the ancient sea animals. The details of even the soft parts were visible.

I recently had the chance to visit the location. Don't think that was easy! It entailed climbing up about 3000 feet along only 3 miles of trail. There could hardly be a more spectacular place to dig fossils. High jagged peaks are found on all sides. Glaciers glisten on their upper slopes. The high meadows are psychedelic with flowers. The old quarry itself is just above timberline on a steep slope not far below the sharp crest between Mt. Wapta and Mt. Field.

There were 116 switchbacks in the trail! I counted them on the way down. Effort had been made to keep the path from being too steep. I chose to take the trail from Emerald Lake, but one may also climb from near the town of Field in the Kicking Horse Valley —

the distance is the same either way and unfortunately also the climbing! Emerald Lake, surely one of the loveliest in the Canadian Rockies, lives up to its name as seen from this airy perch high above it. No real emerald could have the brilliant blue-green of this lake. Any able-bodied person who visits this area should take time for this hike, for the scenery, if not for the fossils.

A trail which goes on over to the Yoho Valley passes several hundred feet below the old diggings, but no doubt many hikers pass by below and never know about the fossil bed above. This happened while I was there.

The rock is shale that breaks into rather thin slabs. Occasionally impressions of delicate animals and seaweeds are seen on the faces of the slabs. Here at this location, the fossils are not numerous, and you probably would be disappointed. The remarkable feature is not the great numbers, but the fabulous detail of the fossils that are seen.

Dr. Walcott left a hole in the side of the mountain about 50 feet long and 20 feet deep. The discarded slabs are scattered down the slope. Other investigators have been digging above this spot more recently. No doubt collectors have in the passing years taken fossils originally exposed or discarded. It is now illegal to collect there, because the site is located in a national park.

I spent several fascinating hours searching the slopes and lifting the slabs for good specimens to photograph. Here was a cluster of small fine-ribbed lampshells. Over there was a group of sea worms—only the impressions remaining, but the delicate lines around the plump bodies were clearly visible. In another place, the unmistakable design of a small trilobite was stamped on the dark, smooth rock.

In the course of his diggings Dr. Walcott unearthed many unusual fossils. Impressions of soft-bodied animals are rare. But these went further — within the outline of the body, even the soft internal organs were often traceable like miniature x-ray films. Among the many fossils found are a wide range of major kinds. I already referred to three main kinds — brachiopods, worms and arthropods (the trilobites). Almost every major kind of animal has been found, except those with backbones (fish, birds, mammals etc.). The animals are sea creatures that probably lived on a shallow sea bottom originally.

Across the deep Kicking Horse Valley is Mt. Stephen, also famous for its fossil bed of trilobites. I have climbed to this location several times in the past. It is not as high a climb. On the shoulders of the mountain are more fine-grained rock containing hundreds of thousands of trilobites. These are crab-like creatures from V2 to 6 inches in length. Other creatures are also buried there, but trilobites are by far the most numerous. This is a collector's paradise, but sorry—no collecting in the national park! What a spectacular fossil bed! However, the scenery is not as breath-taking as that on Mt. Wapta. This place on Mt. Stephen may be reached by a trail that leaves the town of Field. Much of the trail goes along the crest of a glacial lateral moraine. One time when I visited the bed, it rained, and the return trip down the steep trail was a slipping, sliding experience, although not dangerous.

These two locations on Mt. Stephen and Mt. Wapta are considered to belong together; that is, the animals were living at the same time and in the same general area. These shales are called by the name Burgess Shale after the beautiful mountain that forms the backdrop of Emerald Lake. Burgess Shale is classified as Cambrian. Cambrian rocks are said to contain the oldest clear remains of past living things. These fossils on Mt. Wapta and Mt. Stephen are said to be between 400 and 500 million years old.

On the basis of the theory of evolution there is something very puzzling about these fossils. They are considered to be among the oldest known fossils, but why are they so complex? In fact they are just as intricate as the worms, crabs etc. in the oceans today. But according to the theory of evolution, these very old fossils should be some of the early stages of life, simple beginning steps in the development of living things. But they are not! There is nothing simple about them. These fossils are not remains that represent early evolutionary stages of lampshells, worms etc. — they are fully developed.

This situation that seems to fly against the theory of evolution shows up well in these exquisite Burgess Shale fossils. But other Cambrian fossils tell the same story. The Bible says that in the beginning God created animals and plants. This story of creation fits the facts better — the facts as seen on the slopes of Mt. Wapta and Mt. Stephen.