

OVERTHRUST FAULTS OF GLACIER NATIONAL PARK

DR. WALTER E. LAMMERTS

Freedom, California

Glacier National Park, among other marvelous features, is famous because of the Lewis overthrust. In fact, the very essence of this unusually lovely national park is dependent on the resistance to erosion of the Pre-Cambrian limestones which comprise the mountains in contrast to the softer Cretaceous shales below, out of which the valleys are carved.

A preliminary report on my study of this area is given in Morris and Whitcomb's *The Genesis Flood*, pages 189-191.¹ The photographs shown there were taken in August of 1956.

In August of 1957, I visited Glacier National Park again. I was fortunate in securing the services of Ray Siers of Chief Mountain Ranch who drove a Dr. Hines and me right up the side of the ridge to within about 1½ miles of the steeply rising cliff of Chief Mountain. Since only low brush covers the Cretaceous shale the hike on up from there was easily made.

We easily found the contact line, shown from a distance in Figure 1, A closer view is shown in Figure 2. Here the contact line is just below the lighter limestone above as shown by the arrow. The limestone juts out in places because of the rigorous pickax work of Dr. Hines and me. The dark appearance of the Cretaceous shale upon which pieces of limestone are lying should be noted. These larger pieces have fallen, over the years, from the Pre-Cambrian cliffs above.

Figure 3 is a closeup view of the contact line where we had chipped away the shale in order to make a close examination of the physical nature of contact between the limestone above and shale beneath. It should be noted that the

line of contact is almost level. This was **generally** true at the base of Chief Mountain.

The shale was soft and crumbly. There were many **intercalations** of limestone and shale below the main contact line and even several layers of limestone several feet thick! Thin, crumbly, approximately 1/2-3/4 inch layers of shale were in between these intercalations. The shale here was much softer than that at the base of Mt. Wynn.

Just as at Mt. Wynn and at the contact line near Glacier National Park Hotel, a very thin layer of shale was present at the main line of contact, and it was often cemented to the limestone above. The particles in this layer were comparable in size to those of the lower layers of shale, and so gave every appearance of water deposition rather than being the result of grinding action, such as would occur in the presumed overthrusting.

While I was taking pictures Ray Siers and Dr. Hines hiked on up to the top of Chief Mountain. When they finally returned Ray Siers reported that **8-10 feet of granite** was on top of the mountain. He is not a geologist and may have been mistaken, but most keen outdoor men of his type at least know granite when they see it, or its metamorphic equivalent.

I had asked him to check especially as to whether any remnants of the shale, which according to the theory of overthrusting should at one time have covered the limestone, could be found. He reported that he could not find **even a shred of shale**. And by the time he had been with us, pickaxing around at the base of mountain, he certainly knew what shale was.



Figure 1. Base of Chief Mountain, Arrow indicates the contact line.



Figure 2. Close-up of contact line showing Allyn limestone (above) and Cretaceous shale (below).



Figure 3. Limestone and Cretaceous Shale (below) at the contact line.

Yet an oil well core made on the slope leading on up to Chief Mountain was drilled through 11,000 feet of shale before hitting any limestone. What has happened to the shale above the limestone supposedly thrust over the shale? Its total disappearance from the tiny area on top of Chief Mountain might not pose too much of a problem for the usual orthodox geological interpretation of this area.

However, the next day, all of us hiked over to the Granite Park Chalet, arriving just in time for one of their marvelous dinners one can really enjoy after about a ten mile hike! The next morning we hiked up to Swift Current Peak Lookout; a stiff climb but well worth it. On the way we were of course hiking **on top of** the limestone. I was tremendously impressed by the many wave and ripple marks, raindrop marks, and mud cracks, phenomena similar to those so splendidly reported by Rupke.²

Here is indeed a strange situation: vast areas of limestone supposedly deposited over 500 million years ago, and then later thick sediments of shale. Finally long sections on the west fractured were uplifted, and thrust over the shale

toward the east. Since then or **at least since the deposition of the shale**, all of it was presumably eroded away from on top of the limestone but **only on the area overthrust**. And all this went on without such ephemeral records as ripple marks and raindrops being eroded away!

This is indeed hard to believe and I find it more in harmony with objectivity to postulate simply that the limestone was deposited on top of the shale. As the final part of the deposition occurred the water was so shallow as to allow the formation of wave and ripple marks. A short time later as the surface was drying and before hardening, raindrops were recorded, and finally mud cracks formed.

The clear preservation of these indicates (1) that a relatively short time has occurred since their formation, i.e. a few thousand years, and (2) that most of the time during precipitation they are covered with snow or ice.

One of the most profitable avenues of research open to the Creation Research Society is a detailed study of many so called "thrust faults," of which there are thousands of examples, from the viewpoint of Flood geology. Also a careful study of oil well cores reported in the American Society of Petroleum Geologists would show how really localized such so called "world-wide" formations as the Cambrian, Silurian, Devonian, Permian, Cretaceous and indeed all those used as "time markers" really are. As we get better organized let us hope that funds for studies such as these may be obtained.

Literature Cited

¹Morris, Henry M., and Whitcomb, John C., Jr., *The Genesis Flood*. Presbyterian and Reformed Publishing Co., Philadelphia, 1961. Also available through Bible-Science Association, c/o Walter Lang, secretary, Caldwell, Idaho.

²Rupke, N. A., "Prolegomena to a Study of Cataclysmal Sedimentation," *Creation Research Society 1966 Annual*, pp. 16-37.