GEOLOGY

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The geology of the region about Devil's Lake is not less remarkable than the scenery, from which it is largely deciphered. The great ridges of quartzite which rise so abruptly above the lake on either side, and which stand so boldly above the lower lands to north and south, are significant monuments of ancient geological history. The sandstone which underlies the plain about the ridges embodies a somewhat later chapter of the same history, and the glacial drift which covers much of the surface in the vicinity of the lake is the record of a relatively recent event in the history of the earth. Other portions of the history are read from the configuration of the surface, rather than from the rocks themselves.

The first part of the geological history of the region which can be distinctly read has to do with a time when the region about the lake was mountainous. The mountains were developed by the up-folding of the beds of quartzite. The quartzite itself is an altered sandstone, the materials of which were originally deposited as sand in some body of standing water, presumably the sea. When this sand had been cemented to sandstone, and perhaps still more completely cemented into quartzite, its nearly horizontal beds were folded, developing ridges of mountainous height. These ridges were exposed to winds, rains, frosts, and snows, and by these agents, but especially by running water, they were partly worn away, just as all existing mountains are being worn away. The process of wearing away continued so long that only fragments of the original folds remain. These fragments are the quartzite ridges, which after the long period of erosion stood as low mountain ridges above the surrounding plain.
The next chapter of recorded history in the region tells of the gradual submergence of the region beneath the sea. As the waters crept in about the quartzite mountains, sand and gravel were laid down on the shallow sea bottom. This water is known to have been the sea, for the shells, etc., of the animals in the sand, now cemented to sandstone, are the shells of marine animals.

The quartzite ridges were slowly buried by the gathering of sands about their bases. It seems likely that they were in time completely buried, thus disappearing as surface features.

During the next great stage of the history of the region, the waters of the sea withdrew, perhaps because the ocean basin sank enough to draw off the shallow waters which had spread themselves over the land. The formations laid down in the sea when it was present were exposed to erosion when it withdrew. Various agents co-operated in wearing away the surface rock, but among them running water was doubtless most important. This period of erosion was of great duration, though no one is now able to number the millions of years. During this period, so much of the sedimentary rock deposited during the submergence was removed that the quartzite ridges were uncovered, and again stood forth as mountains. They remained while the surrounding rock was worn away, because the quartzite is much harder than the other rocks of the region.

In relatively recent time when great ice sheets covered half of North America, the eastern part of this region was buried beneath the ice, which here advanced from the northeast. The edge of the ice reached this region, but did not cover it all. This is shown by the fact that the western part of the area is not covered by the deposits which the ice left in the areas which it overspread.

Devil's Lake owes its existence to the ice, which blocked up the valley of the river which once flowed through the gap in the ridge where the lake now lies. The blocking was at two points, the one just north of the lake, and the other east of its south end. To the southeast of this latter blocking, the deep valley formerly followed by the large stream which flowed through the Devil's Lake gap may still be seen.
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The numerous picturesque glens and gorges on the south face of the east bluff have been developed by running water since the ice melted away.

Few other areas of equal extent contain so many points of striking geological interest, so plainly exhibited. It would be most fortunate if an area set aside for a State park should be so chosen as to contain so many points of geological interest, so plainly written that they may be of popular educational value.
THE BLUFF ACROSS THE LAKE IS THE ONE NOW BEING DESTROYED