

BELL CREEK—FALL CREEK VALLEY.

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The Bell Creek—Fall Creek Valley is a continuous trough extending from Buck Creek southwestward. Bell Creek occupies the northern part of this valley and Fall Creek the southern part. The continuity of this valley suggests the possibility of formation by a single stream. Phinney¹ recognized this and in speaking of the valley of Fall Creek, in the vicinity of Middletown, he says: "This channel continues northward into Delaware County, where it is known as the 'Glade', a long swampy tract, which extends to within four miles of Muncie." The trend of the small valleys which are tributary to this valley suggests the existence, at one time, of a single northward flowing stream. On the other hand the width of the valley goes to prove that this single stream was a southward flowing stream. The valley of Bell Creek, near its mouth, is approximately 300 feet wide. Farther south, in the Glade (marked B in figure 1), the valley is from 1,800 to 2,000 feet wide and continues on south for several miles at about this width.

The tributaries to Bell and Fall creeks, suggesting the existence of a single northward flowing stream, have their origin on the inner slope of the Mount Summit Moraine. These are consequent streams, thus giving them a northwest trend. In this area the inner slope of the moraine is very close to the Bell Creek and Fall Creek drainage systems, which made the tributaries join the master stream at an unusual angle. Another evidence of the morainic origin of these tributaries is the fact that no tributaries are found on the northwest side of the stream. Farther south than is shown on the map, the tributaries are normal. They have their source on the inner slope of the moraine but Fall Creek, in this part of its course, is separated from the morainic ridge by several miles of ground moraine. This has given the tributaries a chance to join the master stream in the natural, dendritic pattern.

The south-flowing stream which carved out the Bell Creek—Fall Creek Valley, carried glacial waters and post-glacial drainage from Delaware County and vicinity until White River came into existence. With the establishment of White River and Buck Creek a short tributary flowing northward into Buck Creek, was established in this trough, and by headward erosion moved southward until it reached the Glade, near the southern edge of Delaware County. The first capture of this north-flowing stream was No Name Creek, the next was Little Bell Creek, and then the tributary that is now the upper portion of Bell Creek. At present the divide is in the Glade, a short distance south of the county line. If diversion of drainage northward is continued, Bell Creek will work across the Glade and capture the upper waters of

¹ Phinney, *Geology of Henry County*: Ind. Dept. Geol. and Nat. Hist., 15th Ann. Report, 1885-86.

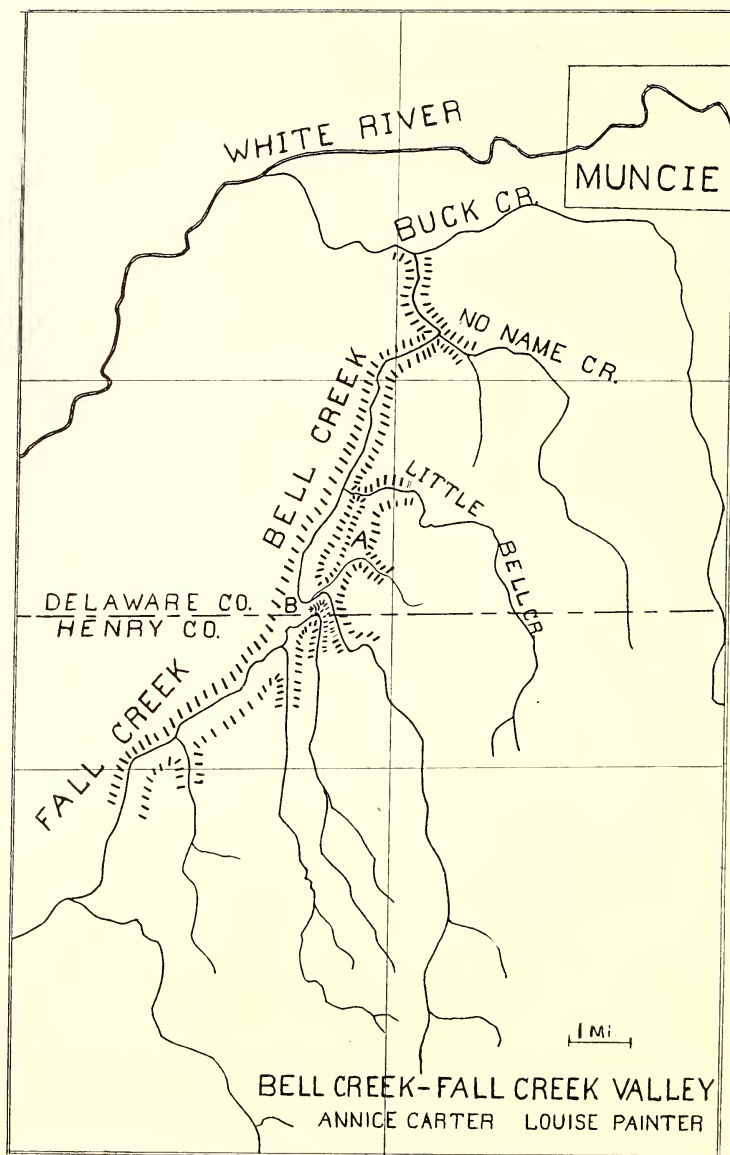


Fig. 1. Drainage Changes in the Bell Creek-Fall Creek Valley.

Fall Creek, but the channels of both Bell and Fall creeks have been dredged, and the depth to which each is dredged may prevent further natural changes in drainage.

Fred J. Breeze² has mapped and described four distinct valleys through which glacial water flowed southward across the Mount Summit Moraine. In each has occurred a reversal of drainage, and the northern part of each glacial spillway is drained by a north-flowing tributary of White River. These four cases of drainage changes are similar to that which has occurred in the Bell Creek—Fall Creek Valley.

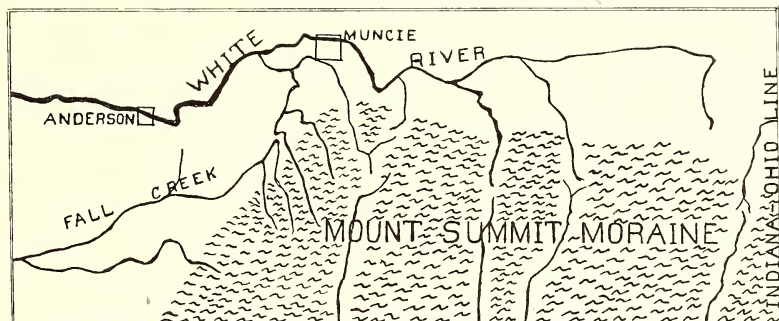


Fig. 2. Map Showing the Relation of the Bell Creek—Fall Creek Valley to the Mount Summit Moraine.

When the master stream flowing southwest was in existence, Little Bell Creek flowed through the now abandoned valley, marked A in figure 1. This stream now joins Bell Creek about one and one-half miles farther north. Its new valley is so narrow that some have thought it to have been cut out by man. However, the natural channel can be seen along the present dredged channel.

All of these changes have taken place since the Wisconsin glacial stage. The valleys are all in Wisconsin drift and do not reach bedrock anywhere in this locality.

The Bell Creek drainage is well shown on the colored soil map of Delaware County in Soil Survey of Delaware County, 1915, U. S. Bureau of Soils.

² Breeze, Abandoned Channels in Randolph and Delaware Counties, Indiana, Proc. Ind. Acad. Sci., 1922, pp. 95-98.

