

FLOOD EROSION ALONG PAINT CREEK, FAYETTE COUNTY, OHIO.

CHARLES W. NAPPER.

A little more than two miles above Greenfield, Ohio, a crossroad connects the Washington C. H. and Good Hope Pikes that have run parallel for that same distance on the eastern and western sides of Paint Creek. This cross road traverses the creek by what is known in this locality as the First Iron Bridge.

At this place Paint Creek is a rather deep stream flowing in a well-defined bed with a distinct flood plain on either side. The soil of this plain is thin, and in many instances the underlying rock, the Greenfield dolomite, comes to the surface and projects into the creek.

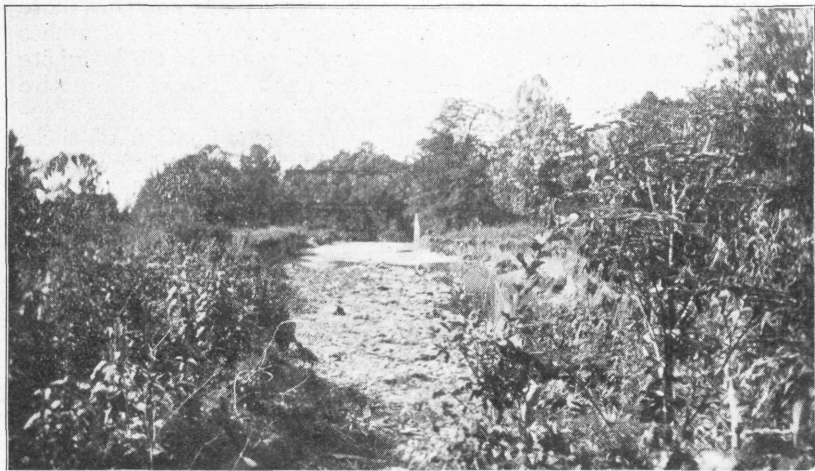


Fig. 1. General view of cut from the southern end.

For a short distance above the Iron Bridge, Paint Creek runs due north and south. Below the bridge a rocky ledge causes it to swing to the eastward. As is usual in stream life, when bends are made, the stream will endeavor to straighten its channel under certain favorable conditions. In the instance we are describing these favorable conditions came with the high waters that prevailed over southern Ohio in the latter part of March, 1913.

At this time Paint Creek rapidly rose to its highest stage and completely filled and covered its entire flood plain. The cut made by the stream where it broke out of its accustomed channel has a mean measurement of 350 feet long, 47 feet wide, and 6 feet deep.

At the extreme southern end it terminates by narrowing into a small, shallow gulley, a foot wide. The sides are perpendicular and appear as if trimmed by hand as is shown in the photograph.

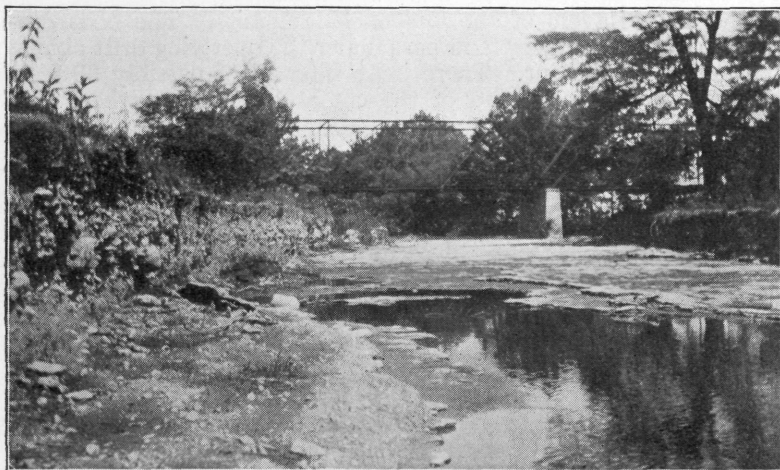


Fig. 2. Exposure of the cut wall and the dolomite.

The walls show characteristic glacial drift overlain by a thin, black soil. Beginning at the northern end for nearly half the length of the cut all the material has been removed down to the Greenfield dolomite.

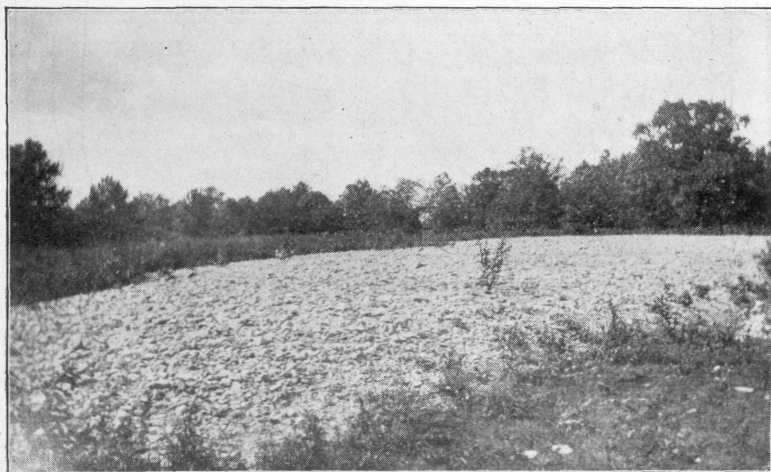


Fig. 3. Re-deposited drift in the pasture.

On the uppermost layer of the limestone are seen splendid striations. In places the rock surface is worn smooth, polished, and clearly striated. The striae run in a northeastward direction. The exposure shows the thin, rough, undulating, uneven bedding of the upper layers of the Greenfield dolomite. The beds dip rapidly to the southwest and pass under the overlying drift about the middle of the cut. There is an interval of possibly 30 feet between the southern end of the cut and the place where the

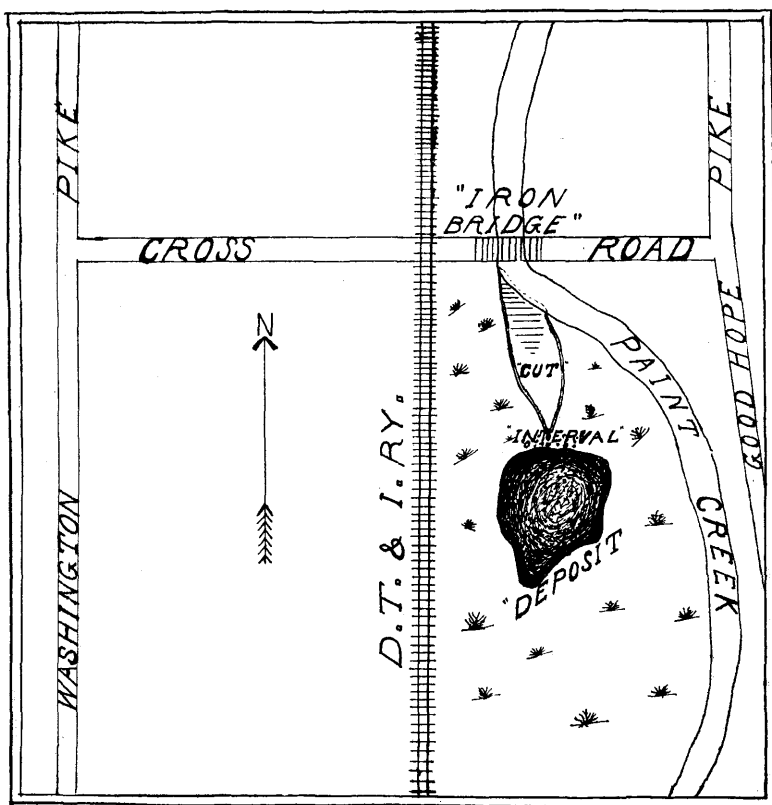


Fig. 4. Map of the Paint Creek cut.

material was deposited. This interval is free from deposits except some very large glacial boulders. Some variation in the velocity of the stream held the material in suspension only to drop and spread it out lower down. The re-deposited drift material is spread over a heavily sodded pasture to a thickness of three feet, covering a space 350 feet long and 100 feet wide. Comparing

measurements it will be seen that the deposit is the same length, about twice the width, and one-half the depth of the cut. Therefore this material will fit in the excavation already described.

The deposit has been washed clean and stands out in very strong contrast with the sod on which it has been laid. An examination of the material shows igneous, metamorphic, and sedimentary rocks mixed in hopeless confusion.

The top layers of the Greenfield dolomite were loose and shattered in many places. The force of the water tore away slabs of this rock and carried them along with its load of drift. Hence in the deposit finely glaciated pieces are to be found.

From the sketch it can be seen that the deposit extends toward the southwest. This results from a gulley running beside the railroad track which served to maintain the water volume and velocity.
