The Tippecanoe an Infantile Drainage System.

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Streams first come into existence on a recently emerged or uncovered land surface, with enough rainfall to leave a surplus for runoff after the requirements for soil saturation and evaporation have been met. An uplift of part of the sea bottom, the drainage of a lake or the melting of an ice sheet may produce the new surface on which the streams begin their cycle of existence and work.

Most of the streams of northern Indiana are in the youthful stage. They came into being with the recession of the North American Ice Sheet from that part of the State. If parts of the region retained areas of marsh, pond or lake, the location of streams in such areas would be delayed until outlets could be made by the intrenchment of channels by outflowing waters to such depth that the impounded waters would be drained off, when stream lines would be laid out on such newly uncovered lands.

The Tippecanoe river between the abrupt bend on the northeast corner of Pulaski County and Monticello in White County, with its tributaries, furnishes a fine example of extremely young drainage. This section of the river evidently traverses the bed of a former temporary lake which was held in by a moraine at Monticello. Evidence of this lake remains in the sand ridges, some of which seem to be beaches and others dunes numerous in the region. The sudden change in the width and depth of the river valley above Monticello also is significant of such a condition. The valley at Monticello is almost exactly 100 feet deep, and from one-fourth to one-half mile wide, and at Buffalo ten miles north of Monticello the channel is about 25 feet deep and is without floodplain or bluffs. In brief, the channel is just cut deep and wide enough barely to carry the flood waters. The trusses of the highway bridges crossing the river in Pulaski County can be seen miles away across the level prairie. The bridge floor at Winamac is level with the streets of the town. The river has a steep slope through this part of its course, the fall from Winamac to Monticello being not less than 100 feet in thirty miles.

The tributaries to the main stream in this region are examples of still younger drainage. In following the road from Monticello to Buffalo the way is over level country, except that where streams making their way

west to the river are crossed, the road descends ten or fifteen feet to the bridge crossing the stream, then rises by the same distance to the level plain again.
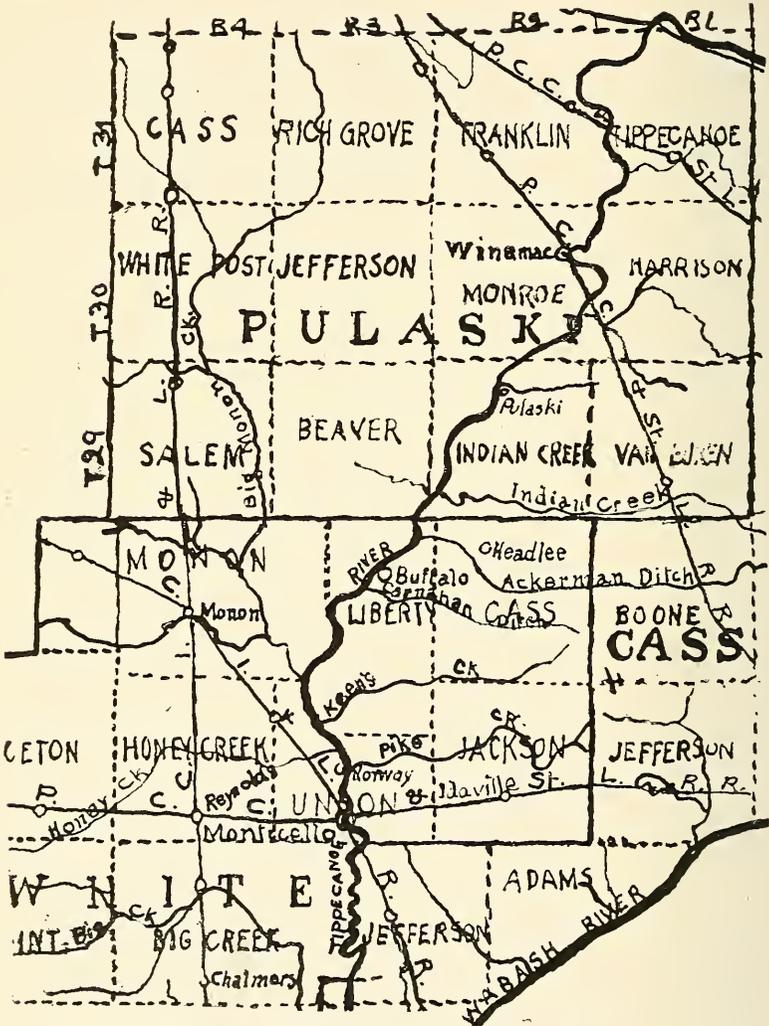
The Drainage of Pulaski and White Counties, Indiana.

Persons going to Headlee, Pulaski or Winamac (see map) often turn east a short distance north of Monticello and going about three miles they

turn north again, following the range line road. (Between R. 2 and R. 3 W.) This road is much more level. The streams crossed in small valleys on the west or river road have no valleys where crossed by the range line road. Formerly they existed as broad sloughs or strips of marsh land, and where crossed stretches of corduroy road were used to enable teams and vehicles to cross without miring. Scarcely the beginning of a channel could be discovered threading its way through the lowest part of the marsh or slough. The drainage was by over wash or sheet streams spreading out many rods in width and slowly creeping away to the river. Within the last mile or two of their course the channel became gradually deeper and wider and the stream sped freely down a steeper slope into the river. These sheet streams are good examples of the primary drainage or runoff. They were interrupted frequently by ponds and broader widths of marsh, keeping large areas so wet as to make cultivation impossible—the land furnishing a poor quality of pasturage.

Within the last few years man has done by machinery what nature has not done and could not do in thousands of years. Starting at the head of the sloughs fifteen to twenty miles from the river steam dredges have been used to dig channels for these over wash waters and practically every slough on both sides of the river in all this region has been furnished a channel ample for its drainage.

Pike Creek, Keen's Creek, the Carnahan Ditch, the Ackerman Ditch and Indian Creek on the east side of the river, and the Monon Creeks, Honey Creek and others on the west side, furnish examples of infant drainage aged by the aid of man in pushing forward the work the waters were so tardily doing.