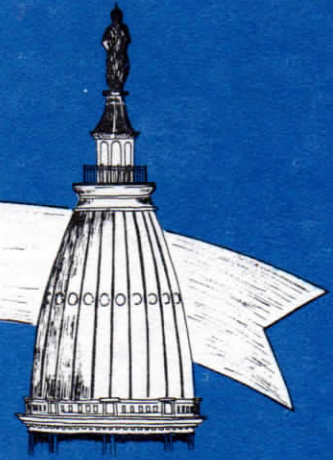


# Tippecanoe Tales



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## The Teays River -- Our Glacial Heritage

By CATHERINE E. KRAMER

Lafayette and parts of Tippecanoe County are blessed with a virtually inexhaustible source of pure, clean water — the Teays River, an underground river about which most local people know little. Yet few parts of North America can lay claim to such an unusual heritage in its water supply. And not many areas can boast of a water supply of such ancient lineage, geological and historical interest, and economic value as the Teays River.

Just what and where is the Teays (pronounced Taze) River, that enormous body of water that is found only on specialized water supply maps? To answer this question we must go back well over 100,000,000 years, long before the Ice Age, when the topography of northern Indiana was far different from what it is today. In fact, then it more nearly resembled today's hills of southern Indiana and the deeply cut gorges of modern Turkey Run State Park.

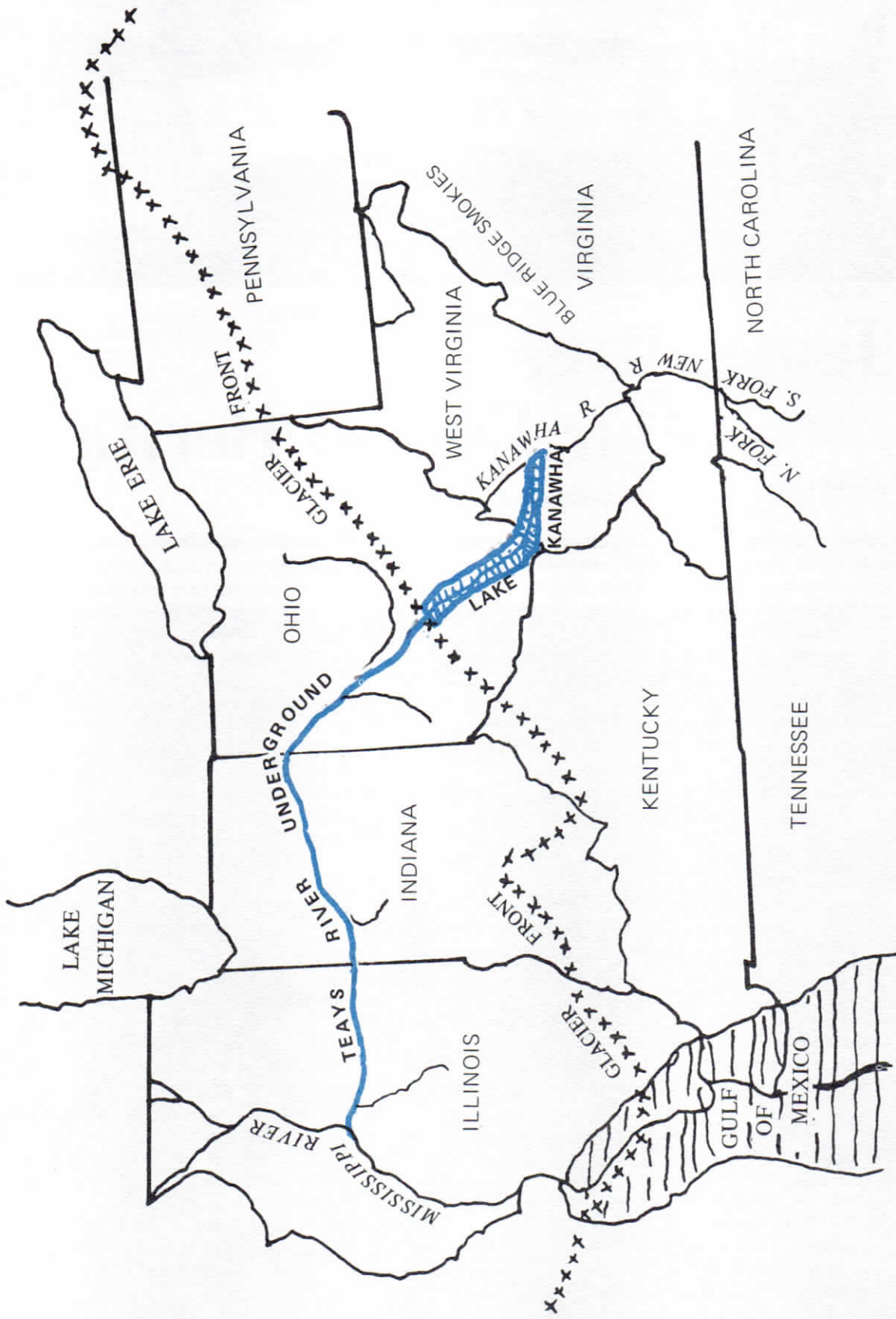
To start at the beginning of our story — and of the river — one must go over to the northwest corner of North Carolina, to Ashe County. There two small streams, the North Fork and the South Fork, join to form the New River. "Geologically, the New River is the oldest river on the North American continent. During most of the Paleozoic era, its present drainage area was inundated by a large salt-water sea. The result was massive depositions of sandstone, shale, bituminous coal, and conglomerates. Later, during the Mesozoic era, the area underwent two periods of major uplifting that drained the sea and created river systems. The major system created — a forerunner of the New River — was the Teays River."<sup>1</sup> The river flowed northwesterly, cutting across the Alleghenies toward the present Great Lakes before reaching the Mississippi delta. "The history of the Teays system was one of continual erosion as the sedimentary rocks were being uplifted. During the Cenozoic era, then, the Teays system in large part was destroyed by the southward reaching glaciers of the Ice Age. The only remaining section of it which still flows is that portion of the New River upstream from Nitro, West Virginia."<sup>2</sup> Part of the valley through which this river flows is called the

Teays Valley, and this has become generally accepted as the name for the whole system.

Originally flowing north, the river joined the Kanawha in West Virginia near what is now Charleston. But then came the glaciers. About a million years ago the climate of North America became extremely cold and great continental glaciers began to form in Canada and spread southward. This was the beginning of the Ice Age. During this time the Teays and its tributaries were repeatedly covered with enormous ice sheets. In the Illinois and Indiana area there were at least four invasions by the glaciers. The most active of these ice periods were known as the Nebraskan, the Kansan, the Illinoian and the Wisconsin. This last period, the Wisconsin, marked the end of the Ice Age around 10,000 years ago. The area in which each layer of sediment was formed has been traced and mapped, thus showing the glaciers' progress and activity. The lower part of the Teays River was effectively dammed by these glaciers, burying its valley completely with sand, gravel and other debris.

Now the upper (eastern) half of the Teays River remained outside of the glaciers' reach and continued to flow down to it. As the front of the glacier presented a tremendous wall of ice, hundreds of feet high, it blocked the flow of the river, which then backed up into a long, narrow lake. Evidence of the existence of this lake is shown by the sedimentary deposits it laid down along the Kanawha and Teays Rivers in southern Ohio and northern West Virginia. This broadening and deepening of the Kanawha River became a lake, which has been traced near Huntington and Charleston, West Virginia.

Now as the river cut through the Blue Ridge Smokies in the only drainage line going west through the unglaciated metamorphic rock, it carried with it material which has become known as the key to the story of the Teays River — mica. Mica is usually associated only with metamorphic rocks such as occur in the Blue Ridge Smokies — in the area now known as Great Smoky National Park. So when it is found north and west of the Smokies in a predominate-



Route of the Teays River at the end of the Ice Age, showing the southern boundary of the glaciers. The Mississippi River was then a tributary of the Teays River and flowed through Illinois in a valley much farther east than the present river. Progress of the Teays is superscribed on a modern map for clarity. Note that at that time the Gulf of Mexico extended as far north as southern Illinois.

ly sedimentary area, the mica plainly shows its place of origin. Incidentally, no mica shows up in the Marietta River, a tributary of the Teays. The mica in the Teays, however, shows up plainly just east of Charleston in the terrace of the first outcropping at Portsmouth, then turning north to Chilicothe. This key to the origin of the Teays is found in the coals and shales deposited from the Ordovician to the Pennsylvanian eras. From Chilicothe the river went on to Dayton (Wright Patterson Air Field is located in the Teays area), then on up to St. Mary's and Celina, Ohio, in the glaciated area; then on into our territory, Fort Wayne and the Limberlost — a legacy of the ancient river. The present Wabash River flows roughly through the old Teays River area down as far as Fort Ouiatenon, coming through Peru and Logansport. In the Lafayette area the Wabash River is 100 to 200 feet above bedrock. Between the water and the bedrock is a layer of gravel through which the underground Teays River seeps.

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**Judge now whether another such river can be found on the globe . . . which combines so many wonders with such great utility . . . and to which futurity promises such brilliant destinies.**

Giacomo Constantine Beltrami,  
as quoted by Walter Havighurst,  
*Voices on the River* (New York:  
Macmillan, 1964).

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The drainage system of the Teays was, and is, tremendous. It reached from the Appalachian Mountains west to the Great Plains region and from what is now the Great Lakes area to the Gulf of Mexico, which at that time extended as far north as southern Illinois. More than 1,000 miles long, it extended from North Carolina, across West Virginia, Ohio, Indiana and Illinois. One must remember, of course, that in speaking of an "underground river" we do not mean a body of water flowing through well defined banks as a river would do on the surface. It is not one of those rivers that, as Henry David Thoreau remarked after studying a stream near Concord, "wriggle in their beds, till it feels comfortable under them." Rather than "flow," its progress might be defined as "seepage" as it penetrates the sands and gravels with which the glaciers barred its course on the surface. This debris was, and is, porous enough so that the waters could permeate it and so proceed westward.

Here in Indiana, "the buried Teays valley appears to pass through northern Cass and northwestern Carroll Counties and then enters Tippecanoe County from the northeast. A short distance upstream from Lafayette the present Wabash River has partially exhumed the deeply buried pre-glacial valley and follows it past the city. A few miles west of Lafayette, however, the Wabash swings west and south through a valley only thinly alluviated."<sup>3</sup> The reason for this change is, of course, that the river could not penetrate the unusually hard, flintlike quartz found near what is now called Fort Ouiatenon.

And this part of the story brings us to a very modern sidelight on this ancient river. Why is Fort Ouiatenon located in this particular area? A seemingly irrelevant question. The answer, however, is found in the history of the development of the United States. In the early 17th century Samuel de Champlain established the first permanent colony in Quebec. Moved by an insatiable desire to

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**Catherine E. Kramer studied geology and English at Beloit College. Today her personal library consists mainly of books concerning geology.**

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explore this great new continent, by an equally great desire for the wealth to be found in the fur trade, as well as by missionary zeal, the French sent out their voyageurs to explore, to trade and to convert. Those going west and south came down through what is now Fort Wayne (as did the Teays) making their way to the Wabash River and then on down to the mouth of the Mississippi. A glance at the map will show how they were aided in their explorations by the geology of the North American continent, by the size and general direction of flow of the rivers and lakes. When they reached the Lafayette area of the Wabash River, the voyageurs found an obstacle to their canoes which made it difficult to continue down the river. The very hard, flintlike quartz that, being more resistant to the flow of the water than the bed of the river upstream, caused rapids to develop here. As the harder rock changed the pattern of flow in the river, it also changed the flow of voyageur traffic by making a portage necessary. The flood plain of the Wabash River made a fine level stopping place for the travelers — not only for the portage, but as a place for the men to rest, repair their canoes and equipment, and stock up on supplies.

Today the headwaters of the little New River are still to be found where they originated so many millenia ago. Recently this area has come to the attention of those interested in preserving our natural heritage because it is considered by some people to be one of the most beautiful rivers on the eastern half of our continent. It is becoming better known every year as one of the best whitewater areas in the eastern part of the country, and the New River Gorge is acknowledged as one of the best boating and rafting courses anywhere. In addition, three large dams have been constructed along the river as a source of energy. And now a fifty-year license has been awarded the Appalachian Power Company to develop the Blue Ridge Power Project — a tremendous operation involving the inundation of 44,000 acres of land along 100 miles of the river. The conflict between ecology and industry is being watched closely on both sides. We can but hope that the outcome will be rewarding to both factions whenever it comes. And however long that takes will not be of too great an importance to anything with the geological history of the Teays.

In the Lafayette area the geological history of the Teays River has had an enormous economic impact. Along with the glacier-deposited clay, sand, and gravel — which of course is an important economic resource for a large part of Indiana — the ancient buried river acts as a natural reservoir of ground water. To Lafayette this means that a number of business enterprises have settled here at least partly because of that abundant supply of pure, clean water. Three manufacturers who have recognized the value of our glacial heritage are Eli Lilly and Company, Anheuser-Busch, and the Fairfield Manufacturing Company.

Those ancient ice sheets have treated us bountifully. In the past the old French fort provided a welcome haven for the voyageurs, as well as economic security for the fur traders and their sponsors in Quebec. Today the surface deposits and water-bearing sands and gravels are attracting

a number of different types of industry. Lafayette has cause to be proud and grateful for its legacy from the glaciers, particularly the Teays River. It is heartening to know that we can leave this heritage for those who come after us, secure in the knowledge that it will be there for their use for as many more millenia as it is needed.

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#### FOOTNOTES

- 1 Elizabeth Watson, "New River Country: Wild and Scenic," *National Parks & Conservation Magazine* (Feb. 1975), 10
- 2 *Ibid.*
- 3 M. M. Fidler, "The Pre-Glacial Teays Valley in Indiana," *The Journal of Geology*, 51 (1943), 411

**Sandstone Falls on the New River is north of Hinton, West Virginia.  
(Courtesy of West Virginia Department of Commerce.)**

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