DRAINAGE OF THE TEAYS-STAGE MOUNT VERNON AND CAMBRIDGE RIVERS*

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The most important sources of ground water in Ohio are glacial outwash sand and gravel deposits in buried valleys. One of the primary objectives of the groundwater geologist in Ohio, therefore, is to locate and map the courses of these buried valleys.

Most of the data in this paper were collected by the author during a water-resources investigation in Licking County, Ohio, made by the U. S. Geological Survey in cooperation with the Division of Water, Ohio Department of Natural Resources. Altitudes of the bedrock surface were obtained from water-well records on file at the Ohio Division of Water, oil-well and gas-well records on file at the Ohio Geological Survey, and seismic refraction determinations made by the Geophysics Branch, U. S. Geological Survey.

Mount Vernon River

The Mount Vernon River, named by W. G. Tight in an unpublished article referred to by Clark (1902), was the second longest tributary to the Teays River, being surpassed in length only by the Marietta River described by Stout, Ver Steeg, and Lamb (1943, p. 57). The Mount Vernon River and its tributaries drained all of Coshocton, Franklin, Knox, and Licking Counties and parts of Ashland, Fairfield, Holmes, Muskingum, Pickaway, Richland, Tuscarawas, and Wayne Counties, Ohio. The river's headwaters were in the highlands of Wayne County near Burbank and West Salem and in Ashland County near Savannah. From its headwaters the Mount Vernon River flowed southwest past Wooster to Shreve, thence west past Big Prairie and Loudonville to Perrysville. From Perrysville the river flowed southwestward past Butler to Ankenytown, and thence south past Mount Vernon to the Knox-Licking County line. At the Knox-Licking County line, just north of Utica, the river swung west into Licking County, past Homer and Johnstown, and thence south past Jersey and Pataskala into Fairfield County. In Fairfield County, near Pickerington, the Mount Vernon was joined by a large tributary from the east, called herein the Cambridge River. From the confluence with the Cambridge River, the Mount Vernon River flowed west across the southeast corner of Franklin County past Canal Winchester and Groveport into Pickaway County where, near South Bloomfield, it joined the main stem of the Teays River (see fig. 1). From its headwater areas in Wayne and Ashland Counties to its junction with the Teays River in Pickaway County the Mount Vernon River was about 115 miles long.

North of Mount Vernon the drainage system of the Mount Vernon River was the same as that described for Stout, Ver Steeg, and Lamb's Groveport River (1943, p. 66). The bedrock walls and floor of the old valley were eroded by ice of the Pleistocene epoch, and glacial drift deposited by the ice now masks the valley for most of its length. Altitudes shown for the floor of the valley, therefore, are only approximate.

Altitudes on the bedrock floor of the Mount Vernon valley as determined from existing well data are 850 ft at Burbank, 840 ft at Wooster, 835 ft at Shreve, and 830 ft at Perrysville. Because of the thick cover of glacial drift and insufficient

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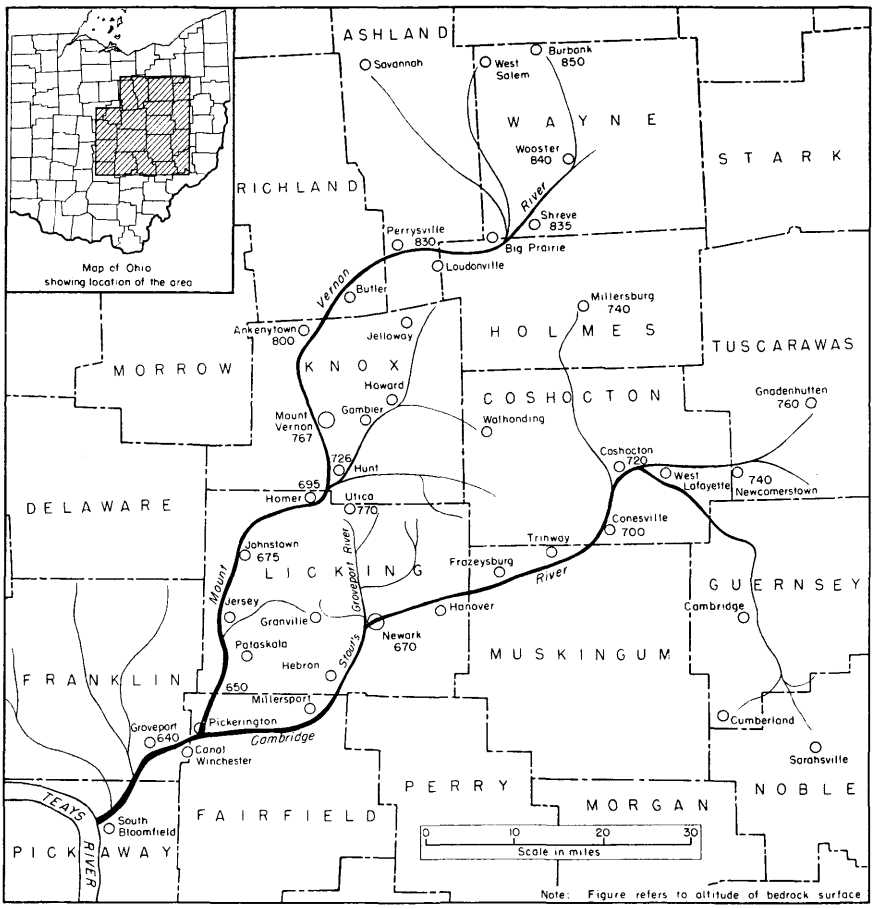

FIGURE 1. Map showing the courses of the Teays-stage Mount Vernon and Cambridge rivers.

well data, the author was unable to determine the altitude of the bedrock floor between Perrysville and Mount Vernon. Stout, Ver Steeg, and Lamb (1943), however, reported altitudes of 800 ft at Ankenytown and 767 ft at Mount Vernon.

About four miles south of Mount Vernon, the Mount Vernon River received a small tributary from the northeast. The drainage system of this small stream was the same as that described by Clark (1902, p. 3) as the principal course of Tight's Mount Vernon River. The tributary stream headed near Jelloway and flowed south to Howard, where it joined another stream whose headwaters were to the east near Walhonding. From their junction at Howard, these streams flowed southwest past Gambier to Hunt, where they joined the Mount Vernon River.

After receiving this small tributary from the northeast, the Mount Vernon River swung west and entered Licking County just east of Homer. Drillers' logs of water, oil, and gas wells show the altitude on the bedrock floor of the valley south from Mount Vernon to be 726 ft at Hunt and 695 ft near Homer. Seismic determinations made near Johnstown indicate that the altitude of the bedrock floor there is about 675 ft. Resistivity measurements and water-well records show the valley floor to be about 650 ft in altitude at the Licking-Fairfield County line.

Stout, Ver Steeg, and Lamb (1943, p. 66–67) thought the stream that flowed south from Mount Vernon entered Licking County near Utica. They state, "From Mount Vernon southward the course of the preglacial Groveport River is so rock bound as to be defined past Hunt, Utica, St. Louisville, and Vanatta to Newark. . . . " This concept is not consistent with present findings based on oil-, gas-, and water-well records on file at the Ohio Geological Survey and the Ohio Division of Water. These data reveal that a low, saucer-shaped drainage divide existed at an altitude of about 770 ft near Utica during Teays time.

Cambridge River

After passing into Fairfield County, the Mount Vernon River was joined by a large tributary whose headwaters were to the east near Cumberland in Guernsey County and Sarahsville in Noble County. From its headwaters the tributary stream flowed northwest past Cambridge to West Lafayette, where it was joined by a smaller tributary that rose near Gnadenhutten. This smaller tributary flowed southwestward past Newcomerstown and thence westward to West Lafayette. From West Lafayette waters from the confluence of these tributary streams flowed westward to a junction, near Coshocton, with a third tributary that headed near Millersburg in Holmes County. From this junction the main stream followed the present course of the Muskingum River past Conesville to Trinway. At Trinway the stream left what is now the Muskingum River valley and flowed west past Frazeysburg and Hanover to Newark. The course of the stream westward to Newark is the same as that described for the Teays-stage Cambridge River by Stout and Lamb (1938, p. 66). Stout, Ver Steeg, and Lamb, (1943, p. 65) state that the Cambridge River joined the larger Groveport River at Newark. As stated previously, no large Teays-stage stream flowed from the Utica area; however, the Cambridge River was joined at Newark by a small stream that headed near Utica and also by a small stream that had its headwaters near Granville.

In this paper the Cambridge River includes not only that part of the stream to the east of Newark but also the part that flowed south from Newark to Hebron and Millersport and thence west to its junction with the Mount Vernon River near Pickerington. Drillers' logs of wells show altitudes on the bedrock floor of this old valley to be about 740 ft near Millersburg, 760 ft near Gnadenhutten, 740 ft at Newcomerstown, 720 ft at Coshocton, 700 ft at Conesville, and 670 ft at Newark. From Newark to Pickerington altitudes on the bedrock floor of the Teays Stage valley are not known, as the area is covered by a thick mantle of glacial drift; however, from Newark to Hebron the valley is clearly outlined by the adjacent bedrock hills, and from Hebron to Pickerington the course of the Cambridge River may be readily deduced from available well data.

From Pickerington the Mount Vernon River flowed west past Groveport and then swung southwest into Pickaway County where it joined the Teays River. The altitude of the bedrock floor at Groveport is about 640 ft, but from Groveport southwest to the junction with the Teays River altitudes are undeterminable, as the valley of the Mount Vernon River was obliterated by a stream of the drainage system that followed the Teays.

REFERENCES

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