Drainage

though on a limited scale in the earlier years of settlement, aided in disposing of surface water. It allowed the sun to dry the soil and to hasten the melting of winter snows, which before had fed water into the ground during a long period in spring. Drainage work began with the removal of obstructions in natural streams and the digging of open ditches on an extensive local scale. Later, drainage systems became county and intercounty projects carried on under regulations prescribed by state laws.

A notable drainage project was the “Jackson cut-off” in Wood County. Completed in 1879 at a cost of $110,000, this channel, nine miles in length and twenty feet deep in places, connects headwaters of the Portage River to Beaver Creek, a tributary of the Maumee. It has converted into a garden spot 30,000 acres of land, formerly worthless because the Portage River, meandering northeasterly to Lake Erie, did not provide adequate drainage. Another main-line channel, dug some years earlier in one of the wettest portions of the Black Swamp, is more than thirty
miles long. Canal-like in proportions, it drains some fifty thousand acres.

Drainage work continued until the region was covered by a network of open ditches having an aggregate length of many hundreds of miles. The use of horse-drawn dump scrapers for scooping out these ditches involved an enormous amount of very strenuous human labor. In many cases the drainage channels follow the routes of old, shallow, natural watercourses, winding for miles through fields and woodlands of several farms. Some run alongside highways, being so routed to avoid cutting up and wasting farm land. After the automobile came into general use, miles of guard rails had to be erected beside deep roadside ditches. Where the danger to motorists was greatest, sewer pipes were laid in and the ditches were filled up.

These man-made ditches and many of the natural creeks and rivers have been deepened and widened at intervals since the first drainage work was done. In some cases this has involved, in the lower courses, blasting and removing long ledges of bedrock. The work, now done with mechanized equipment, goes on year after year. Wherever one may travel in the region, he is pretty sure to find a power shovel or dredge at work, increasing the water-carrying capacity of some ditch, creek, or river.

In the decade 1835-1845 several hundred miles of canals were dug and made operative in the state. The Miami and Erie Canal, completed in 1845, extended from Cincinnati, on the Ohio River, to Toledo, on Lake Erie, a distance of 250 miles. Its course lay over a part of the boundary line between our county and adjoining Allen County on the east. Together with a branch line to the north of us, extending from Indiana, it aided greatly in the drainage of the
area, although of course, like others of the system, it was intended to serve primarily as a waterway for trade and travel. In its heyday the Miami and Erie carried a great volume of freight, and hundreds of passengers traveled in its packet boats. The canal and the area it served soon came to enjoy extraordinary prosperity. This prosperity continued only a relatively short time, however; it was slowly eroded, and finally destroyed, by the competition of the railroads, the first of which in the state was completed in 1848—about the time the canal system was getting into its stride.

In the flourishing days of area canals, towns along their courses grew quite rapidly. At several points new towns sprang up suddenly and burgeoned forth phenomenally. Without the canals they probably would never have come into being at all.

Some of the canal workers and a considerable proportion of the people attracted to canal towns were rough, lawless adventurers. Saloons for the accommodation of roisterers and gamblers in many cases predominated among the business establishments of such towns. One canal town that now can boast only about fourteen hundred residents had a population close to five thousand and some forty saloons in boom days. Behind the bar in saloons that catered to canal trade, proprietors in numerous cases maintained a sort of stockade. When carousing boatmen or other patrons got drunk and began to brawl, a muscular bouncer hustled them into the "bullpen" and left them there to fight it out.

Sedimentation and the trampling of livestock cause creeks and open ditches to choke up fairly rapidly. Grasses and weeds help the process along. The creek through our
farm, like most others, had to be dredged out at intervals of five or six years, the work being all done with horse-drawn scrapers. The gumbo, mixed with a conglomeration of weeds, grasses, sticks and stones, was scooped out and dumped in uneven piles on the banks.

Wherever a fence crossed a stream, it was necessary to maintain a floodgate to prevent livestock from escaping under the fence. Built of boards to fit the contour of the stream bed, it was suspended horizontally and hinged so that it could swing downstream when the water rose, then close automatically as the water went down. We always had to take down and later remount our floodgate—sometimes to rebuild it completely—when dredging was done.

Open ditches carried off surface water, but they did not help greatly with water in the soil or with water that stood in distant low spots. To remedy this condition, early farmers laid box-like plank drains in their fields, designed to discharge into open ditches or creeks. They helped a great deal, but, though made of good oak, they never lasted long because they were subject to conditions highly favorable to decay. The channels they had provided gradually filled up with soil so that at last little or no water could get through.

In time burned clay tiles, generally handmade, came into use for underground drains. Having round tops and flat bottoms, they were known as “horseshoe tiles.” Few of the drains in which they were used were satisfactory because the tiles were easily broken down and because outlets generally were so shallow that they could not be laid deeply enough. Often the plow, running at a depth of seven or eight inches on our farm, would crash through old horseshoe tiles of drains put in by our predecessors.
Though choked with dark loam, we usually found them still carrying a trickle of water. We also found remains of old plank drains. The wood was so badly decayed that only fragments of the original boards remained. The black soil that filled the crumbling ducts, however, was so porous that some water was still getting through it.

Those inadequate old drains stood pathetically as evidence of human courage and fighting spirit in the face of grimly adverse conditions. The original owner was aware that outlets were not deep enough for those drains to be fully effective. But they were the best available at the time, and he was willing to invest time, labor, and hard-earned money to make the most of resources he had.

After an extensive system of deeper outlet channels had been provided, mills for making good cylindrical clay tiles were set up throughout the area. These plants, not greatly different from those now in general operation, had machines for grinding and pugging the moistened clay, then extruding the tough plastic material through a die in the form of a continuous tube. Diameters ranged up to twelve inches. As the tube came from the die, it was cut by a tautly stretched wire into standard twelve-inch lengths. After drying in open air under a roof, the tiles were burned in wood-fired kilns until hard. The demand for clay tiles remains high. Many, of cast concrete, are also made and sold. Even though his fields may be underlain by numerous lines of tile drains, the average farmer continues to plan for more.

The underground drainage system of the old Black Swamp is now probably the most extensive in the world, connected into innumerable open ditches and natural streams. Even heavy rains are disposed of quickly, the
runoff being hastened by widespread deforestation. At times enormous volumes of water, augmented by melting snows, pour down and cause serious flooding in lower outlet channels. Good soil, totaling millions of tons, is carried away, being finally deposited as navigation-obstructing silt in Maumee Bay.

The soil water table has been gradually falling for years, at a rate approximately commensurate with the progress of deforestation and the rate at which deep drainage has been extended. With the water table too low, growing crops suffer in periods of scant rainfall. Since about 1935, farm and municipal wells here and there have been failing in dry summers. If deeper drilling does not restore water supplies, it becomes necessary for farmers to buy water and for towns to impose use restrictions. At great expense some municipalities have built reservoirs for storing water pumped from dammed streams. Others are drawing water through pipe lines from distant sources. In a few instances cities having abundant supplies are selling treated water to neighboring municipalities and populous rural areas, metering it through large mains.

For years, all trenches for tile drains were cut laboriously with spade and shovel. Now, practically all trenching is done by a self-propelled machine that does the work a great deal faster and saves an enormous amount of time and labor. However the trench may be cut, tiles are placed in the bottom so that each fits squarely against the one previously laid. Joints are never cemented or otherwise sealed; they must be open enough to allow water to seep in, yet no joint opening must be so wide that soil will be washed in, to be lost or to accumulate in the drain.
A pair of knee-length rubber boots was a must for the ditcher working with hand tools in sticky mud or in stretches of trench containing water. The soles were thick and tough, an important advantage in spading and in kicking tiles into place. In the course of about a decade, during which I had a hand at putting in an aggregate of several miles of tile drains on our farm, I became pretty well acquainted with those boots. They were not only heavy to drag about but they had a provoking habit of working the wearer’s socks halfway off, so that rolls and wrinkles in them cramped and pinched his feet. They were too warm in warm weather, and feet nearly froze in them when it was cold. Walking through a deep trench, the flaring tops funneled in a lot of loose earth, which made the feet uncomfortable and soiled the inside of the boots and, thereafter, socks and feet.

Water flowing from a tile drain is nearly always as clear and sparkling as water from a spring. It is pleasantly cool, even in summer—very tempting when one was thirsty. Some drank it freely, but this was risky because of the possibility that it might be contaminated.