

flow of water from the upper to the lower levels. When the cradle reached the top it was run into a lock; water was admitted, and the boat floated off the cradle again. From there the boat proceeded by mule power to the next plane where the operation was repeated. In this way the boats were literally carried over the mountains. For gentler changes in elevation, ordinary locks were used without planes. When the canal was completed it had 23 planes and 23 locks.

Construction of the Morris Canal began in 1825, soon after the first money had been raised. Six years later the waterway was opened to traffic between Newark and Phillipsburg. Hand labor was the backbone of the construction job. Concrete, as used today, was unknown. All masonry had to be of stone construction, held together by lime mortar. There were no compressed air drills or dynamite, no steam shovels or motor trucks, no iron girders or "I" beams. A working day was from sunrise to sunset. The wages were 90 cents a day or even less.

Rocks were blasted by drilling holes with hand drills and then filling the holes with black powder. After tamping them with clay and dropping a glowing coal on the clay, the blaster ran for cover before the flying rock crushed him. Practically every foot of earth and stone which formed the canal excavation was removed by hand. Even wheelbarrows were scarce. Horses and oxen were needed for farm work and were grudgingly lent or leased for canal construction.

The organizers of the canal company, more interested in the project as a stock-selling proposition than as a useful enterprise, were shortsighted in making their plans. The canal was built only 52 feet wide at the top, 20 feet wide at the bottom and 4 feet deep. Compared with the other canals of that day, it was far too small. The 70-ton barges in use on the Lehigh Canal in Pennsylvania were too large for the new canal. This meant that the coal, instead of being carried direct from the mines in Pennsylvania, had to be transferred from the large boats to smaller ones carrying only 25 tons.

Although the canal was designed primarily for commerce, people were so delighted with the picturesque waterway that a packet boat drawn by three horses made daily excursions between Newark and Paterson. Fares were 25 cents to Bloomfield and 50 cents to Paterson. This was a favorite holiday trip for Newarkers.

From Phillipsburg on the Delaware, opposite Easton, Pa., the canal ascended Hopatcong Mountain, came down again and idled past Port Murray, Rockport and Hackettstown. Passing Saxton Falls, it edged along Sussex County at Waterloo and Stanhope and then touched Lake Hopatcong, its water source, and came into Morris County. Here it made a snakelike way to the east, passing Morris Landing, Kenil, Wharton, Dover, Rockaway, Boonton, Towaco, Mountain View. At Little Falls, it crossed Passaic River in a wooden aqueduct, finally turning southward through Belleville and Newark to Newark Bay.

The inclined planes, which had delighted visiting legislators and other observers when they were first tested, sometimes provided unexpected thrills. Upon one occasion a car carrying the barge Electa was beginning the descent of the Boonton plane when the sprocket chain broke. Laden with iron, the boat tore down the track at terrific speed, striking the water at the bottom with such force that it was ricocheted over a 20-foot embankment into a clump of trees. The captain's wife, extricating herself from the branches, "allowed" she had come down pretty fast, but thought "that was the way the thing worked." After more serious accidents, hemp ropes were substituted for chains and damage to boats, canal equipment and human beings was somewhat reduced. Eventually the hemp ropes were replaced by wire cables.