PLANE 8 OF THE PORTAGE RAILROAD

George W. Storm, a well known artist who remembered the Portage, made this drawing of Plane 8 in operation. Note hitching shed, beaver cars, Adams Barn and smokehouse at head.
THE PORTAGE RAILROAD NATIONAL HISTORIC SITE AND THE JOHNSTOWN FLOOD MEMORIAL

By JESSE L. HARTMAN*

HIDDEN in ravines, climbing steep mountain gaps, and sometimes broadly visible in forest glades of the Allegheny Front lie remaining traces of an historic railway. Englishmen like Charles Dickens and David Stevenson, the civil engineer, admired its unusual technology; Henry Clay and Thaddeus Stevens enjoyed traveling over its lifts and levels; and Michael Chevalier, the observant French economist, was duly impressed. The grandeur of the scenery, if not the railroad, reputedly moved Jenny Lind to song. Close by the Allegheny Portage, a once busy route of western commerce, stand the ruins of a high dam that caused one of the most devastating natural disasters ever to afflict and nearly destroy an American city. A wide opening in the breast recalls the awesome power of mad waters that flooded Johnstown.

Two Pennsylvania Congressmen, the Pennsylvania Historical and Museum Commission under the leadership of Dr. S. K. Stevens, its executive director, and many interested organizations and people in and out of the state are working together to preserve these early engineering works by urging creation of the Allegheny Portage Railroad National Historic Site and the Johnstown Flood National Monument.

Legislation to accomplish the purpose was introduced in the House of Representatives in February, 1963, by Congressmen John P. Saylor and J. Irving Whalley, of Cambria and Blair Counties respectively. After being carefully evaluated by a subcommittee, the definitive bill, known as H.R. 931, was transmitted to the Committee on Interior and Insular Affairs. This group drafted amendments to broaden the administrator's authority, de-

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scribe more particularly the historic sites to be preserved, and designate a specific sum for appropriation, and then reported the measure favorably to the House floor. Friends of the bill, convinced of its historical merit as a worthy subject of national legislation, are working for its passage at this session of Congress.

The bill authorizes the Secretary of the Interior to designate up to nine hundred and fifty acres of land that may, in his discretion, include portions of the Pennsylvania Canal . . ., the Allegheny Portage Railroad, . . . and such other land and historic features as may be necessary to illustrate the significant role of the . . . Portage Railroad and the Pennsylvania Canal in the Nation's history; and he may designate up to fifty-five acres in Cambria County, Pennsylvania, for use in commemorating the tragic Johnstown flood of May 31, 1889.¹

Flexible provisions of H.R. 931 empower the Secretary to acquire appropriate lands "by purchase, donation, purchase with donated funds, or otherwise." When sufficient acreage has been acquired "to form administrable park units," he is authorized to establish the jurisdiction of the Interior Department's National Park Service over the historic localities. A supplementary feature permits him "to enter into cooperative agreements with the State of Pennsylvania, political subdivisions . . ., corporations, associations, or individuals, and to erect and maintain tablets or markers" to preserve and interpret those parts of the Portage Railroad and the Johnstown flood area not included within the National Historic Site. The bill as reported by the Committee carries an initial appropriation of $2,000,000 to begin the anticipated twofold historical preservation.

The areas of Cambria and Blair Counties to be developed are, by fortunate coincidence, common to the bill's apparently dissimilar objectives. The Allegheny Portage Railroad was constructed by the Commonwealth to cross the mountain divide between basin terminals and serve as a 36-mile link in the main line of the Pennsylvania Canal, a gigantic public work of 395 miles between Philadelphia and Pittsburgh. Other components

¹H.R. 3350, 88th Congress, a duplicate bill introduced by Mr. Whalley, February 4, 1963, as amended by Report No. 970 from the Committee on Interior and Insular Affairs.
of the lengthy, "mixed" system, costing in excess of 12 millions, were, of course, the Columbia and Philadelphia Railroad and the Eastern, Juniata, and Western canal divisions. The famed Conemaugh dam that caused the great flood was built initially to increase the supply of water available for the Western Division, which paralleled the Conemaugh, Kiskiminetas, and Allegheny Rivers to Pittsburgh. The proposed National Historic and Flood Memorial Sites combine, therefore, a striking degree of historical unity. The Railroad, the Canal, and the flood may, in the language of the bill, be "interpreted" by common physical remains. The magnitude of the flood made it a memorable event in national and state history. A prolonged period of rainfall came to fearful climax over parts of Cambria County in the spring of 1889. A severe cloudburst in the last days of May swelled accumulating runoff from the upper branches of the Conemaugh River enough to inundate Johnstown to a depth of several feet. The furnaces and steel mills continued to operate, but most business and rail travel came to a standstill. Little alarm prevailed, for the proprietors of stores and shops, crowded together in a ring of high mountains, had frequently experienced such inconvenience. But this time horror impended in a narrow ravine 14 miles above the flooded city, where lay an enormous body of water impounded by the South Fork reservoir. Sketchily maintained after serving the old Canal, the giant dam afforded recreation for a social organization whose name, the South Fork Fishing and Hunting Club, soon acquired sinister notoriety in the nation's press.

During the night of May 30-31 the unrelenting downpour raised the water to the very top of the breast, many feet above the stone foundation. By 3:10 p.m. on May 31 the earthen wall of the dam could no longer withstand the ever-increasing pressure. With a "thunderous report" a 300-foot-long segment of the breast burst and started a wall of water, preceded by a dense cloud of dust, down South Fork Run into the Little Conemaugh and on to hapless Johnstown. Fire and disease followed unforgettable

3 Richard O'Connor's *Johnstown, the Day the Dam Broke* (Philadelphia: Lippincott, 1957) is a good recent account.
scenes of mass death and property destruction. The loss of life exceeded 2,200 victims, some bodies being washed away as far as Pittsburgh and on into the Ohio and Mississippi Rivers. The tragedy struck on Friday. People still living remember the painful excitement on Saturday that swept the countryside and saddened their homes as parents hastily prepared food and collected clothing for pickup in wagon trains. From all over Pennsylvania and many parts of the country came relief for the sufferers, marshaled by Governor James A. Beaver and administered effectively by Adjutant General Daniel H. Hastings.

South Fork reservoir, located on 18 acres of land owned by the Cambria County Historical Society, is well chosen for a National Flood Memorial. It remains substantially as intact as outrushing flood waters left it. A railroad passes today along the creek bed running through the shattered breastwork, once stretching 931 feet across the valley, 272 feet thick at the base, and rising more than 100 feet above the stream. Canal engineers designed the superstructure of the dam over a stone core, 50 feet in height, surmounted by fatally insecure riprapped earthen fill, which was never intended to confine water to full depth. Except for occasional markers and random inscriptions, the country’s most disastrous interior flood is recalled at present by but one impressive monument: a commemorative pile erected by the State Flood Commission in 1892, at a cost of $6,500, to mark the graves of 777 unknowns interred in Johnstown’s Grandview Cemetery.

The scattered structures and earthworks of the Allegheny Portage Railroad have undergone much change and obliteration. The original route of this first railway over the mountain was abandoned when the state built and opened in 1855 a single-track, graded line on a new roadbed of slightly longer mileage. The elaborate installations on the old route of the inclined planes, a once busy scene of straining horses, puffing locomotives, and

hempen ropes that wound around creaking drums, were sold to local contractors who dismantled and salvaged obsolete stationary engines and outdated rail and flat bar. The state works were in a condition of decline and neglect, and a movement to dispose of them, begun several years prior, came to a head. In 1857 the Pennsylvania Railroad purchased the main line of the canal which included the new but incomplete state improvement. The following year the Company abandoned this facility running parallel to its own Horseshoe Curve route. The track was torn up, and the iron rails were used to extend the Pittsburgh, Fort Wayne, and Chicago Railroad. For the next forty-five years the Portage grades, “old” and “new” as they were called, remained deserted mountain trails.

In 1903 the Pennsylvania Railroad used the “new” Portage roadbed to lay an auxiliary, double track line down the eastern slope of the Mountain. Widening and filling operations destroyed the “old” Portage grade in a number of places. Meanwhile, many changes incident to progress occurred on the western side. Extensive development of bituminous coal mining covered the high plateau of Cambria County with numerous spur lines and storage sidings. Rectifications of the Pennsylvania’s main line tracks in the valley of the Little Conemaugh and the coming of modern highway construction accelerated alteration and disappearance of the old state right-of-way. In 1927 the Pennsylvania legislature, aware of the Commonwealth’s growing historical loss, appropriated $10,000 for a Portage Railroad monument, a working model of an inclined plane, and a topographical map of the country traversed by the state railway.

Governor John S. Fisher appointed a commission to carry out the act. A site on the eastern side of the summit, near a Portage bridge once used to carry a turnpike over the tracks, was selected. On a half-acre plot, purchased by the Blair County Historical Society, the commission erected a plain pylon, ten feet high, comprised of stone “sleepers” from the summit level. Four bronze

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BRIDGE OVER PORTAGE RAILROAD FOR HUNTINGDON, CAMBRIA, AND INDIANA TURNPIKE

This is the largest structure of its kind left on the grade of the first railroad through the Alleghenies.

Tablets reciting the history of the road and displaying excellent bas-reliefs of drawings depicting its operation were mounted on the sides. The simple but attractive monument with carefully composed inscriptions, written by William Elmer, a special engineer for the Pennsylvania Railroad and commission chairman, was unveiled on October 1, 1929. Governor Fisher, A. J. County, a P.R.R. vice president, Charles M. Schwab, the steel manufacturer, and local dignitaries attended the ceremony.

Perhaps because essential research and time were unavailable to the commission, nothing came of the act's provisions for a model of an inclined plane and topographical map, and the unused part of the appropriation lapsed. But popular historical appreciation of the nation's past, growing and manifesting itself abundantly in the years since World War II, has now brought into fuller perspective the whole sequence of America's transportation history. An upsurge of interest in the unique form once taken by state enterprise when it confronted the challenging terrain of western Pennsylvania has focused Congressional atten-
tion on this national project to perpetuate the memory of a vanquished phase of early rail and canal enterprise.

The Portage Railroad grew uniquely out of a fleeting interval in the comparatively short evolution of the nineteenth-century science of railway building. The transitional state of a new technology at the moment of construction stamped it with characteristic features which imparted exceptional historical significance and justify national preservation of the remains. The decision to build it was made at a time when canals were the favorite medium of the day, railroads the rather novel fetish of a dedicated but defensive minority. Constructed three years earlier, three years later than it actually was, this public transportation facility linking vital segments of a great state-wide waterway must have been a quite different kind of work. Instead, it was fated to become a mechanical marvel, blending inextricably the old and the new, looking backward to the dawn of history and forward to the twentieth century, combining ancient principles of man's earliest physical endeavors with the nascent promise of modern civil engineering.

The most difficult topography between the Atlantic coast and Mississippi River interposed a barrier to Pennsylvania's dream of an east-west canal, for which ground was broken at Harrisburg in 1824. Numerous exploratory surveys made through the rugged defiles of the Allegheny Mountain from 1825 to 1831 showed that an overland grade across the steep summit must rise 1,400 feet above an eastern canal in barely ten miles but descend westward only 1,775 feet in the remaining twenty-six. Young engineers and more mature, if less knowledgeable, canal commissioners who came to grips with the situation in 1825 and subsequent years would have much preferred a continuous waterway through the mountains.

When two boldly imaginative commissions suggested boring a canal tunnel, sunken 754 feet under the summit, a wave of laughter and ridicule greeted them. Despite the enormous labor such a project would have entailed, the proposal was apparently discarded only when stream measurements indicated a totally inadequate water supply. An alternative intended to reduce the length of the

5 Wilson, Pennsylvania Railroad Company, pp. 51-53.
6 Ibid., p. 43; Hazard's Register, IV, 289-293.
land barrier was a possible extension of the canal eastward from Johnstown 17 miles up the plateau-like western slope. But the excessive lockage involved doomed this proposal.9

Official hope that a water connection might somehow prove feasible persisted in the Canal Commissioners' Room at Harrisburg long after being given up in the field. Partly for that reason, several years of delay ensued in resolving the question. Contractors and callus-handed workmen were meanwhile digging the ditch and pushing the forty-foot-wide prism of the canal up the Juniata and Conemaugh Valleys ever closer to the mountain. Railroad design, then in its infancy, had emerged in this country as an adjunct of horsepower and gravity. The canal commissioners, confirmed "water" men," had serious reservations, which they did not hesitate to voice, about committing a portion of the state works to a new, relatively untried medium.

While the board avow themselves favorable to railroads where it is impractical to construct canals, or under some peculiar circumstances [they stated as late as December, 1831] they cannot forbear expressing their opinion that the advocates of railroads generally have overstated their comparative value. The board believes that, notwithstanding all the improvements . . . made in railroads and locomotives, it will be found that canals are from two to two and a half times better than railroads for the purposes required of them by Pennsylvania.10

The state railways were the product of this moment and of this kind of thinking.

Meanwhile, general surveys continued in the Alleghenies. Engineer Nathan S. Roberts, who was sent out in 1828, worked under such uncertainty as to which of several routes and sites for terminals might be selected that he felt impelled to make one practical suggestion in harmony with the times. In a report, otherwise full of conjecture as to the type of "rail road" likely to be chosen, he proposed that the crossing be supplemented by a macadamized turnpike. The idea was not altogether his own.

9 Hazard's Register, III, 290-292; Transactions of the American Society of Civil Engineers, XV, 183-202.
for as successive engineers visited the scene each benefited from a colleague's prior expression of opinion. Repeated surveys at length narrowed the range of engineering speculation to a connecting railroad. The genesis of the Allegheny Portage was articulated clearly the following year by an expressive young Virginian. Moncure Robinson, then only twenty-seven, had attended William and Mary for several terms, carried a surveyor's chain along the James River, and, like many other young men, traveled abroad to study European works. "Next to a good water communication," Robinson wrote of the Allegheny Mountain problem in his report of November, 1829, "no plan is in general deemed more eligible for the accommodation of a large trade than a railroad overcoming elevations by means of stationary power and inclined planes."11

The origin of inclined planes is lost in antiquity. Ramps for water conveyances are said to have appeared on the Grand Canal of China at indeterminate date.12 They are thought to have been utilized in vertical building construction prior to classical times. The age-old device for overcoming elevation was handed on ultimately from the Middle Ages to the Renaissance, whence it was clutched in the seventeenth and eighteenth centuries by an evolving fraternity of self-taught English millwrights and hydraulic engineers. At their hands the inclined plane underwent improvement in mechanical operation and lifting capacity as a result of the Industrial Revolution which notably accelerated the growth of water transportation in England and brought steam power into widespread application.

By the end of the eighteenth century cargo boats on English waterways were being moved from level to level where differing elevations were regarded as too extreme for lockage. When the clairvoyant Robert Fulton, living in England, wrote his treatise on navigation in 1796, such lifts were a developed feature of the "small canal system" he urged his countrymen to adopt for future commercial prosperity. Inclined planes were part and parcel, then, of an American engineering heritage that included Brindley's canals, Boulton's steam engines, the industrial tramways of mine

and factory, and the applied science that Britain's renowned Royal Society publicized. No wonder talented young engineers like William Strickland and Horatio Allen reported British ingenuity enthusiastically in the 1820's.

Moncure Robinson and other capable engineers in the service of the canal commissioners had had no experience projecting a railway through such a country as the Allegheny Mountain region. They failed, understandably, to grasp the importance of a graded, uninterrupted line, freely traversable. Adequate motive power to assure its practicability was being developed but had not yet been perfected, though the use and adaptability of steam was spreading. Robinson assured the board:

Nature appears to have denounced any plan of effecting this object by graduation. The wide and deep ravines with which both the eastern and western slopes of the Allegheny are torn . . . would have presented obstacles to a graded road of any kind, which could only have been overcome at an enormous expense, or avoided by a very great increase in the length of a line.\textsuperscript{13}

\textsuperscript{13} \textit{Transactions}, XV, 183-202. But the state's graded line of 1855 was only five miles longer than the route of the inclined planes. Though the state's other railway, the Columbia and Philadelphia, was initially built with two
Inclined planes were just then being tried successfully on an extensive New Jersey canal and on a small industrial railway in northeastern Pennsylvania. Built from 1825 to 1831, the Morris Canal extended the benefit of inland navigation 101 miles from Jersey City on New York Bay to the Delaware River at Phillipsburg. Dr. James Renwick, famed as a teacher of engineering at Columbia, had invented a wheeled cradle to run on rails and carry boats over 23 inclined planes that checkered the towpath of the Morris across the state. In 1826 the Franklin Institute awarded him a medal for the achievement. The other contemporary work that influenced Robinson and fellow engineers even more was the Carbondale and Honesdale Railroad. The sixteen-mile coal line, built by the Delaware and Hudson Canal Company, climbed from the Lackawaxen River to the mines on the summit of Moosic Mountain by means of inclined planes powered by steam and gravity. "The complete success of the Carbondale Railroad has enabled the Board of Canal Commissioners to point to an improvement, which illustrates more forcibly than any reasoning could, the advantages of the system proposed for the Allegheny Mountain," Robinson noted.

Legislation, a public clamor, and impending completion of the eastern and western canals hastened the Pennsylvania Commissioners to act in 1831. Water terminals were picked, the route across the mountain selected, and an able canal engineer assigned to start the work. The veteran Sylvester Welch had begun his career on the Erie in 1821, continued it on the Lehigh Canal, and then supervised the Western Division of the Pennsylvania. There was nothing anomalous in a mission to build a state rail-

16 The planes on the Morris Canal averaged about sixty feet of elevation overcome. Those on the Carbondale were comparable in height and length to the lifts on the Portage. Some in fact were longer and steeper and, as prototypes, had to be modified in the interest of passenger safety when adapted to the Allegheny Mountain.
road, for he was thoroughly familiar with Josiah White's tramway, which carried coal to the Lehigh River at Mauch Chunk, and had observed the Morris Canal and the Carbondale Railroad. On April 12, Welch, as principal engineer, began locating the Portage line from a little tent camp near Lilly's Mill on the mountain branch of the Conemaugh. The party consisted of an assistant engineer, a surveyor, twelve hardy axemen, and, last but not least, a cook.

Ten inclined planes, five on each side of the summit, were laid out straight in plan and profile, rising 10 1/4 feet per hundred and overcoming elevations from 150 to 300 feet. "Levels" which overcame some elevation but were suited to horse or locomotive power, depending on length, connected them. At the head of each plane provision was made for two thirty-five horsepower stationary steam engines complete with sheaves and cranks to activate endless ropes. Two assured operation in event of accident or breakdown. Even so, as though to guard against every contingency, the planes might also be made to pass trains of cars by the self-acting method, in which case descending loads pulled up empties. When so operated, an ingenious water-filled cylinder, controlled by a sliding valve, regulated the speed of descending cars.

From May, 1831, until November, 1833, between the letting of contracts and completion of the first track, the eastern and western slopes of the Allegheny must have presented a stirring scene of lively activity. The tall trees of a dense forest necessitated the clearing of a right-of-way 120 feet wide, but the builders were also animated by the forethought of providing space for additional tracks to accommodate "hereafter the incalculable trade of the Mississippi basin and the lakes." Embankments were heaped up and excavations made for a grade twenty-five feet wide. Irish laborers proved to be the mainstay of contractors. They swarmed and toiled on the line to dig, shovel, push wheelbarrows, load dump carts, run stump-pullers, cut ties, quarry sandstone sleepers, split building stone, gather riprap, screen sand and gravel, and, in spare time, live up to their universal reputation for fighting, drinking, praying, and mixing inimitably the brogue of Erin and the vernacular of the day.

\[7\] Hazard's Register, VIII, 419-420.
In addition to ten essential inclines, necessary engineering structures included sixty-eight culverts, eighty-five masonry drains, four viaducts, the largest of which consisted of a single, semi-circular stone arch of eighty-feet span above the Little Conemaugh at Horseshoe Bend, and a tunnel 901 feet long at Staple Bend. While nearly 2,000 men labored on the railroad itself, there began along the newly blazoned route through lonely reaches of Huntingdon and Cambria Counties a frenzy of house- and village-building, remembered afterwards by contemporaries as like "the rapid developments, which in the latter decades, between 1860 and 1890, we have seen on our western frontier." Families removed from the eastern counties, houses sprang up at the heads of the planes, villages at the foots, and the eastern and western canal terminals started on the way to becoming incorporated towns.

The road's second track, consisting of English rolled iron like the first, was completed in 1835. Thenceforward the Allegheny Portage functioned during yearly seasons of navigation as a unit of the canal, transporting passengers, merchandise, and sectional boats in small, four- or eight-wheeled cars between packets and line and freight boats waiting in the Hollidaysburg and Johnstown basins. Though the system of inclined planes grew obsolete within five years, this mountain railway on which rolling stock moved by means of stationary engines, horses, and locomotives, all having to be interminably hitched and unhitched, coupled and uncoupled, became one of the nation's principal routes of western travel. It competed with the Erie Canal, the western turnpikes, the Pennsylvania and National Roads to the south, and the graded rail lines that pierced the Appalachians in the 1850's. Not only were commercial bonds between Philadelphia and Pittsburgh tightened, the industry and population of the western counties increased, but a new avenue of internal trade and transportation was opened at a formative time between the East and Midwest. The Pennsylvania Canal and Portage Railroad helped cement a regional economic union strong enough to survive the severest political shocks.

If in the course of time a practicability by means of planes and ropes became an impracticability [the late

I Hubertis Cummings had written in a felicitous paragraph, it is well for us to remember that the Allegheny Portage Railroad connected East and West for twenty years of prosperity; brought exceeding great wealth in trade and manufacture to the people of the Commonwealth. It gave impetus to the investor, zest and interest to the workman, the forwarder, the traveler. It spelled hazardous but pulsating and happy activity. It moved at least many an adult mind to wonder and delight. In the domain of engineering it was the expression of the highest skill in the overcoming of obstacles, in confronting the power of nature and making nature bend to the challenger's will. Mammoth public work as it was, it showed that combination of sheer audacity and industrious common sense which turns vision into solid fact and high economic value.

Like the Erie Canal and the Academy at West Point, the Portage Railroad had an acknowledged, if lesser, part in the flowering of a great school of civil engineering from which sprang much of the material progress of the nineteenth century. The names of men who surveyed, designed, superintended the building, and took some part in operation and improvement of the Portage read like a history of the science of mechanics and construction: Canvass White, Nathan S. Roberts, Moncure Robinson, Colonel Stephen H. Long, Major John Wilson, Sylvester Welch, Solomon W. Roberts, Edward Miller, W. Milnor Roberts, Edward F. Gay, John A. Roebling, and others. Many went into the service of corporations to lay the foundations of modern railway systems and related enterprises and apply triumphantly principles and practices, sometimes identical techniques, tried out and perfected in the western mountains of Pennsylvania.

Two localities on the line of the Portage Railroad, well calculated to "interpret" its history, are designated for preservation in H.R. 931. Both are reasonably complete with original masonry structures and sufficiently extensive to comprise "administrable park units." They are the Blairs Gap and Mineral Point sections. Together with Conemaugh Dam the proposed National Park would consist of three core areas.

Portage engineers chose Blairs Gap on the eastern slope to
approach the summit and to locate five of their inclined planes, all numbered eastward from Johnstown. Driving west through the gap, today the route of the William Penn Highway, low foothills one mile west of Duncansville are seen to carry the grade of the railroad up plane 10, from which a ridge of the mountain supports a level for one and three-quarter miles to a point where plane 9 raises the grade into the mountain defile. Here another level of one and one-quarter miles intervenes to reach the place where the gap narrows and the sheer rise of the mountain front begins.

Emerging from what is now the center of the Pennsylvania Railroad's Muleshoe Curve on a fill twenty-five feet high, the Allegheny Portage grade crosses Adams Run on a small stone culvert, which still stands, and climbs up the straight profile of plane 8 for a distance of 3,116 feet. The elevation overcome is 307 feet, making this incline, longest and highest of all ten, the most spectacular and impressive single piece of construction extant. Blairs Gap shows to fine advantage the engineering skill of men who attacked nature's obstructions boldly and elementally and used inclined lifts to surmount a difficult rail barrier.
The Mineral Point section is situated six miles east of Johnstown and but a short distance from the dam. The Little Conemaugh River, having risen on the open, rolling plateau of the Allegheny summit, here cuts through a winding, rocky gorge hemmed in by steep escarpments. The Portage grade is recessed in the hillside or carried on a high embankment overlooking the river some 200 feet below. The route in this picturesque locality, which must have appeared incomparably wild and desolate in early days, comprised part of the road's thirteen-mile level, historic because here ran the first locomotives used in the Alleghenies. Both tracks were laid at this point on sleepers and occasional seven-foot stone crossties, many of which remain in position. The grade runs westward for a mile to end at Staple Bend, where a low, protruding ridge blocks the valley and deflects the river. Staple Bend tunnel, the first bored for a railroad in this country, is twenty feet wide and nineteen high within the arch. Both portals are faced with decorative sandstone, and each entrance is lined with cut-stone for 150 feet. The remainder of the 900-foot wonder of the time, which saved more than a mile of distance, is drilled through solid rock. Scenic Mineral Point complements fully the dramatic inclines of Blairs Gap.

These surviving sections of the railroad comprise a complete range of typical features suitable for historical preservation and development by the National Park System. Numerous other structures and buildings, related by use to railway and canal but located outside the proposed park areas, may be appropriately marked, protected from demolition, and exploited to evoke the transportation media of the time.

Establishment of the National Historic Site and Flood Memorial is replete with fascinating, exciting, and fruitful educational possibilities. Conceived broadly enough to embrace a dynamic and consequential phase of transportation and social history, the project promises to make a comprehensive addition to the story of the beginnings of American rail and canal engineering. Serious historical losses may be retrieved, for the age of inland waterways disappeared so completely in the onrush of technological change that many collections in our large museums remain surprisingly meager and unsatisfactory. If H.R. 931 is enacted, we may expect to have the railroad, canal, and flood elaborated by every resource
CAR WHEELS ON EXHIBIT IN ALTOONA

These wheels were used on the first railroad built across Allegheny Mountain in 1833.

of modern historiography—by thorough research in historical sources, by expert archeology in the field, and by the kind of study and imaginative interpretation that “make history come alive.”

Archeological techniques, for instance, may be utilized to recover enough railroad properties to provide an illustrative collection for such a facility as a roadside museum in one of the park areas. In 1957-1958 the Blair County Historical Society used this rewarding method to secure a number of rail fixtures needed to mount on restored track at its Baker Mansion home a set of car wheels and axles, the sole remnant of Portage rolling stock. Ronald L. Fye, a mechanical engineer, now deceased, suggested using an electric metal detector on the grade of the railroad to find the material. He and several amateur “diggers” went to work with picks and shovels in the vicinity of plane S. Out of the ground came good four-foot lengths of English T-rail, cast-iron chairs of various patterns, some of which appeared nearly new, tapered rail-tightening wedges, chair pins, spikes, handmade nails, coupling rings, brake rods, horseshoes, drive bars for drilling rock, and many other objects—the period debris of the railroad.
When established, the Portage Railroad Site and Johnstown Flood Memorial will be subjected to long range park planning so as to derive the utmost public advantage from the historical preservation. The tragic events of the flood may be told in a variety of graphic ways by use of dioramas and other visual aids. The program adopted for the railroad might include restoration of an inclined plane complete with its track superstructure of wooden timbers, crossties, flat iron rails, and functional buildings. Enginehouse and machinery, the hitching shed, the state houses, the barns, the storage shanties, the nearby inn for travelers, the general stores where enginemen and teamsters bought tobacco and supplies might re-create a typical mountain transportation center once familiar on the main line of the public works.

Historians, hikers, and outdoor enthusiasts, obviously admiring the reality of pioneer engineering and the painstaking workmanship of a vanished era, have long taken the trouble to seek out the grade of the historic railroad. The breath-taking straightness and consistent profiles of planes, the durably constructed embankments and deep cuts of levels, the substantial character of bridges and culverts, all delight the eye and refresh the spirit. The educational and recreational benefits of a soundly conceived historical project deserve to be made available to the public for its use and enjoyment.