The Role of Railroads and Heavy Industry in Carter County, Kentucky

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The growth and development of North America is closely associated with the expansion of the continent's network of railroads. Historically, the first road of rails was built in England as early as 1550 and consisted of wooden rails over which horse or oxen drawn carts were moved. Smaller strips of wood were attached to the edge of the rails to guide the cart. Later, flat metal plates were bolted to the wooden rails and strips of iron were attached to the inside of the rails to keep the cart wheels on the track. Flanges subsequently were placed on the vehicle's wheels rather than the rails which greatly reduced construction and maintenance costs. Originally, Roman chariots had been introduced into Great Britain and were used for cargo hauling and as a result, especially because of much rainy weather, the wheels cut deep ruts into the roads. In bad weather, roads and streets often were impassible; hence, railroads became a necessity for transporting freight. Several years after the railroads were built, the steam powered engine (1814) replaced the horse and oxen drawn cart. It is interesting to note that the track gauge, now standardized in Europe and North America at 4'-8 1/2", is exactly the gauge of the ancient Roman chariot.

Early trains were used primarily to haul heavy freight and passengers over long distances. Later, mail-baggage cars

designed for transporting and sorting mail were added to the train along with the express cars and passenger coaches. Many improvements were introduced over the years and the trains gained great popularity for their efficiency, power and dependability. Railroads still provide a great service in our country; however, their use currently is largely restricted to heavy freight hauling and some passenger service between metropolitan centers. Shorter and less economically productive railroads have been taken out of service in recent years and few passenger trains in the country today remain profitable.

The first chartered railroad in North America was obtained by John Stevens of Hoboken, N.J. (1815) and the first known steam locomotion utilized on a railway track in America occurred in 1825. Many historians believe that the opening of the Baltimore & Ohio and South Carolina Railroads in 1830 marked the real beginning of the railway era on this continent. By 1850, plans were being devised to build a transcontinental railroad along the 32nd parallel, from South Carolina to California; however, the North/South antebellum unrest did much to interfere with such an undertaking.

Prior to the extension of the railway system into Kentucky, (1872) and more specifically to Carter County,

poplar logs and other products were rafted down the Little Sandy River to southern markets. Herds of livestock were driven overland to the Richmond, Va. market. Such trips were frequent and laborious and often fraught with danger. The advent of railroads in Kentucky replaced most of these onerous tasks and in turn greatly enhanced the economic and social advancement of the state and made the previously inaccessible frontier areas more attainable to other parts of the country.

The Chesapeake & Ohio Railroad (C&O) had its earliest antecedents in 1836 in Louisa County, Virginia. A railroad "right of way" later was obtained from land owners and a track was built from Richmond, Va. to Huntington, W. Va. (1872-1873) and thence to Ashland, Ky. where it connected with the much smaller Ashland Coal and Iron (AC&I) Railroad. In December, 1881, the C&O Railroad gained control of the AC&I Railroad and the Elizabethtown, Lexington and Big Sandy (EL&BS) Railroads which connected at Seaton, Carter County, Kentucky. This section of the railroad was renamed the Lexington Subdivision of the C&O Railroad. The Lexington Subdivision, a single track railway, ran through Carter County for a distance of 28 1/4 miles. Telephone and telegraph lines paralleled the track and provided a much improved communication system in this area

of Kentucky. The railroad, trestles and tunnels spanning Carter County were indeed engineering feats.

Many specialized types of main line freight cars were also built and used on the track; e.g., flat cars, gondolas, box cars, refrigerator cars, live stock cars, chemical cars, and invariably the red caboose brought up the rear. Passenger trains were outfitted with day coaches, baggage and mail cars, sleepers and dining cars.

Workers often went to the work site on a handcar which was powered by two men pumping the handcar handle. They moved along at a good speed, and onlookers could watch them as they went bobbing along down the track. Other moving contrivances were invented and also used on the track. Automobiles, equipped with flanged wheels that had been exchanged for the original rubber tired wheels, were used often by railroad inspection crews. Some workers built their own motorized method of transportation on small spur lines to and from the brickyards. One of the Eastern Kentucky (EK) Railroad trains was powered by a Ford car gasoline engine and was called the "Blue Goose" and the baggage trailer was called the "Goslin". The uniqueness of this contraption gained national attention and Henry Ford requested a picture of the fancy colored "GOOSE" powered by one of his Model T Engines.

The steam locomotive came in many sizes and designs. They were mammoth and powerful, noisy yet beautiful and they demanded the respect and admiration from those who attended to their needs as well as a parade of other admirers. Employees kept the huge machine clean and shiny and saw to it that the locomotive and train cars operated smoothly and efficiently. Engine weight ranged from a nine ton engine to the 650 ton articulated locomotive with 15 axles. The steam engines were fueled with coal carried in a tender just behind the engine. Diesel engines came into use in 1925 and were built with a self-contained power plant. Diesel engines eventually replaced most steam locomotives; but they never won the admiration and affection the steam engines received.

Dispatching and controlling the flow of train traffic through Carter County was a difficult and demanding job. The chief dispatcher was stationed at Ashland, Ky., and controlled the railroad switches between Aden and Olive Hill with a Centralized Traffic Control (CTC) machine. Control signals were placed at many railroad crossings; however, hand flags and lamps frequently were used by flagmen to signal the engineer. The caboose was designed with a glass lined cupola on top, called a "Crow's Nest", or "watch tower", so that the brakeman could maintain vigilance over the train. Safety of

the train, employees and passengers was of the utmost importance; therefore, every effort was made to provide for a safe trip.

Railroading was perceived by many to be a very dangerous occupation and insurance agencies would not insure workers in the railroad industry. As a result of this circumstance the Railroad Brotherhood, a union of railroad workers, formed their own insurance program.

The C&O Railroad, Lexington Subdivision, entered Carter County from Boyd County on the east and ran westward to Rowan County. The railroad served many small communities along the way and many of the residents, through employment and sale of commercial produce, gave the railroad economic reasons for being there.

The first stop in eastern Carter County was at Milepost 540.6, Denton, Ky. and the last stop was at Soldier, Ky. located approximately 10 miles west of Olive Hill. A tunnel was built just east of Denton and the small town supported two coal camps, a clay mine and wood industries. Various businesses and a 19 room hotel helped meet the needs of people traveling into the community as well as the local residents.

The rail track continued to Mt. Savage where the remains of the Mt. Savage Iron Furnace still stand as a mute reminder

of days of yore. Approximately 500 people were employed at the Mt. Savage Iron Furnace and more than 100 cabins were built by the company to provide housing for their employees.

Timber was cut and hauled from the surrounding mountains and converted into charcoal which was used in the furnaces. Cordwood, cut four feet in length, was hauled by oxen pulled sleds to the charcoal pits. The wood was stacked, resembling a hay stack, then covered with leaves and dirt, and burned inside the pit. The speed of burning was carefully controlled by strategically placing a row of holes around the top of the mound using a very precise measurement device; a shovel handle. The charcoal was then hauled to the furnace in wagons pulled by six mules or ten oxen. The loads were heavy and the labor was difficult.

The smelting furnace itself was composed of three parts; the hearth, the borsh and the stack. When heated to a high temperature the iron ore, limestone and carbon chemically combined and liquefied the ingredients. The tap hole was then opened to allow the liquid to pour out. Molten iron is heavier than the impurities, so when the furnace was tapped, the white hot iron sank to the bottom permitting the slag to be scooped off the top. The molten iron flowed into an adjacent indentation in the ground which was equipped with

several small trenches. This arrangement allowed the hot iron to cool in several smaller compartments. The appearance of this cooling system reminded people of suckling pigs and the mother sow; hence, the name "pig iron" was given to this stage of iron production. The furnace was inefficient but with ingenuity the smelting job was accomplished and pig iron was produced.

The town of Hitchins, Ky. has the distinction of being the only community in Carter County having two railroads and two separate depots. The first railroad operated (1874-1931) between Webbville, Lawrence County, and Riverton, Greenup County, a distance of 17.59 miles. This branch of the railroad was named the Eastern Kentucky (EK) Railroad and passed through Hitchins, which got its name from the family who built the General Refractories brick plant in the town in 1912. The main C&O Railroad also passed through Hitchins.

Leon, Ky. was noted for its lumber industries and prospered by producing railroad cross ties and paper wood and by manufacturing wooden kegs. Each small community along the railroad contributed in various ways to maintenance and productivity of the Carter County Railway system.

Aden, Ky. was unique for an entirely different reason. Aden Springs was discovered many years earlier by trappers and

explorers and became internationally famous for its "healing waters". Aden Springs attracted a large patronage from the Blue Grass Region of Kentucky. In addition, people came from throughout the nation to vacation near the springs and to seek relief from their physical and mental complaints. Many people believed that the "healing waters" combined with mint juleps concocted from locally brewed mountain corn whiskey provided "blessed immunity" from most diseases and afflictions. The rustic setting of Aden Springs also provided the right mix for romance and "many a gentleman visiting at Aden Springs proposed to his new found lady fair".

Physicians throughout the country also had discovered the medicinal qualities of the water of Aden Springs and in turn prescribed both internal and external use of these waters in the practice of hydropathy for the treatment of many diseases. Stomach problems, liver and kidney impairments, asthma, jaundice, skin disease, consumption, brain fever, enlargement of joints, chronic rheumatism and arthritis, bronchitis, bilious disorders, female weakness, ague, autumnal fevers, dropsy, gout, neuralgia, dyspepsia, and numerous other disease were treated at Aden Springs.

Meanwhile, major infectious diseases; such as, the Asiatic Cholera and Yellow Fever had begun to spread

throughout Kentucky and the southern states. The causes of these terrible plagues and their effective treatments were not known; consequently, many people who could afford the expenses of travel and treatment were motivated to come to Aden Springs to seek the "healing water cure". The area was readily accessible by the C&O Railroad east from Lexington and west from Ashland, Ky. and many people visited Aden Springs in search of good health and happiness.

Oates, Ky. (milepost 553.0) is located at the west end of the Aden Tunnel. The community is noted for a feed mill built to manufacture rolled oats used mainly for feeding livestock. Much of the product was shipped by C&O Railroad to markets throughout the country.

Grahn, Ky. (milepost 553.5) was named for Karl B. Grahn who immigrated to this country from Germany and who had settled in Kentucky. Mr. Grahn had planned to use his mining and manufacturing experience to produce pig iron from the raw materials readily available in this area of Carter County. Meanwhile, large seams of flint clay, essential in manufacturing refractory brick, had been discovered near Olive Hill, and as a result, Mr. Grahn decided that brick manufacturing would be more profitable than iron ore smelting. Mr. Grahn originally built a brick plant in Louisville, Ky.,

which he named the Louisville Firebrick Company. Later, he built a firebrick plant in Grahn, Ky., and manufactured hand-molded refractory brick in shapes that could not be mass-produced. In addition, Mr. Grahn built 100 houses and a company store in Grahn for use by his brickyard employees.

Cory, Ky. (milepost 555.5) became famous because all loaded trains traveling both east and west needed two engines to climb the 2.67% grade between Aden and Mountain Top. The grade between Olive Hill and Mountain Top was 2.65%. Both sides of the mountain were difficult grades to climb and every loaded train needed extra power to accomplish the task. The additional engine was called a "pusher" or a "helper" engine and was operated out of Olive Hill by railroad engineer "Dutch" Knutzer. A short siding for passing trains was built at Mountain Top (milepost 556.7). A long tunnel had been planned by the railroad construction engineers; however, Collis P. Huntington, C&O financier, vetoed the plan. Railroaders called this eight mile stretch of railway "copperhead country" because the area between Olive Hill and Corey is a natural habitat of the stubby tailed copperhead snake, a species of snake which proliferates in rocky and mountainous terrain.

C&O CANTILEVER SIGNAL BRIDGE
AT MOUNTAIN TOP, KY (April 1951)
C&O HISTORICAL SOCIETY COLLECTION

Olive Hill, Ky., grew and developed quickly as a result of its natural resources which were made available to the world by the railroad traversing Carter County. Olive Hill had previously gained world-wide fame for its recently discovered nearly pure fire clay from which high temperature resistant firebrick was manufactured. This one achievement greatly improved steel manufacturing throughout the world because the furnace smelters lined with this brick could increase the smelting temperature to thousands of degrees.

Two busy and highly productive refractory brick plants operated in Olive Hill for several years. Fire clay mined at Burnt House Mine on Perry's Branch, a few miles west of Olive Hill, was used by the General Refractories Company, located at the west end of Olive Hill, (GREFCO). Samples of Burnt House Mine clay won first prize in world-wide competition at the World Exposition in Jamestown, Virginia, in 1907. Harbinson Walker Refractories Company was built a few years later and utilized flint clay mined at the headwaters of Henderson Branch. Both brick plants operated their own narrow gauge rail track to transport clay from their clay mines to the brick plant. In addition, Harbinson Walker Co. installed standard gauge siding tracks and a company owned main line steam engine to achieve more efficient railroad car switching

and to make the main C&O Railroad line readily accessible to the brick plant.

Olive Hill also was the chosen location for a unique elementary and secondary school system, sponsored by the Methodist Church Mission to offer Appalachian children and their families a broad range of education beyond specific academic goals. The educational objectives were planned to encourage training in the following areas: (a) Educational and religious leadership, (b) Training in homemaking skills, (c) Industrial and craft training, and (d) Academic studies. A significant purpose of the school was to improve the quality of life in the local communities by involving citizens, as well as students, in educational, religious and health related activities. During the influenza outbreak (1917-1920) the school and the dormitory buildings were used as a provisional hospital and medical center for the treatment of influenza victims. Some believe that Aiken Hall-Erie School provided America's first "Outreach Program".

With the advanced economic efficiency of the railroads, Olive Hill was transformed into an active manufacturing, commercial and financial center and grew in population from 300 to approximately 1500 citizens. Dirt roads were paved, sidewalks were installed, and old wooden frame buildings were

rebuilt with brick. Olive hill had become a thriving small city replacing a small rural hamlet.

As commercial activity increased in Olive Hill, railroad traffic increased correspondingly and at one time several passenger trains stopped daily at the train depot located in the center of town. In addition to freight and passenger trains, special trains were added sporadically to transport seasonal products; such as tobacco and politicians for which Kentucky is well known. During this period of economic growth, Olive Hill had the largest amount of railroad rolling stock of any community in Carter County.

The three room brick passenger depot in Olive Hill contained a ticket office, and was the railroad communications center and command post. The train station also processed incoming and outgoing mail. The freight station, situated east a few hundred feet down a railroad siding, handled heavy freight. The floor of the freight building was built at the same height as the box cars so that heavy merchandise could be manipulated more easily, especially, since almost all freight was moved by hand. Boxes, crates and other merchandise usually were delivered to their local destination in a two wheel dray.

C&O STATION AT OLIVE HILL, KY (1956)
OFFICIAL C&O RAILWAY PHOTOGRAPH
C&O HISTORICAL SOCIETY

A small community, Limestone, Ky., located just west of Olive Hill, provided much of the limestone used in iron making and for ballast alongside the railroad track. Limestone was either mined in deep mines or quarried from an open pit. This western area of Carter County also was known for its forest product industries.

Atlas, Ky., just east of Olive Hill, produced ballast for the C&O Railroad track obtained from an open pit limestone quarry.

Grayson, Ky. is located on the former EK Railroad, and has become a very important community in Carter County. Grayson is the county seat and is a central hub in the county. The town also was very important to the EK Railroad. The population of Grayson has multiplied over the past few decades and is now a thriving community with a very promising future. City fathers and leaders of the Kentucky Christian College are striving to increase the public utilization of the college facilities, especially during periods of low usage by the college staff and student body. Community residents and college officials are showing a rare example of "town" and "gown" cooperation that may well become a model for many other colleges and communities throughout the nation. Grayson also is becoming well known to growth industries which are planning

to expand their operations and move to an area with a favorable economic climate with an available labor pool and other attractive amenities. Grayson is such a location.

Several smaller spur railroads fed into the main C&O line along the way through Carter County: Lawton, Tygart, Mocabee Branch, Carter Caves, Brinegar, Lick Creek, Lost Creek, John's Run, Huffs Run, Carter City, Soldier, Enterprise, Leon, Mt. Savage, Gregoryville and others.

The Eastern Kentucky (EK) and Chesapeake and Ohio railroads crossed at Hitchins, with EK having the right-of-way; consequently, it was necessary for the C&O train to stop and whistle before crossing the EK line.

A century ago Lawton was a thriving manufacturing center. Staves and tanbark from hemlock trees were hauled from Elliott County to Lawton for shipment by rail to other areas in the United States. A keg factory employed 100 men in 1888 and paid 25 cents in paper script for a ten hour day. Script was spent at the company store. A local limestone mine at Lawton was in operation for several years and the owner permitted all 65 of his employees to attend the one hour church services conducted inside the mine every Thursday morning. The mining operation ceased production in the 1930's but the "Great Stone Methodist Church", deep in the limestone mine, became a

tourist attraction. The main church sanctuary was 36′ x 55′ with a 22′ high ceiling. The room was heated with a coal stove ventilated with a 126′ stovepipe. The church no longer exists and recently the chapel was used to commercially grow mushrooms.

Enterprise, Ky. had a railroad station where one telegraph operator was employed. Enterprise and Limestone were well known for shipping untreated crossties to various railroad companies throughout the country.

Silica, a small community located between Olive Hill and Enterprise, is best known for its silica extracting industry. At one time approximately 100 men were employed to mine and process silica. Eight airtight railroad cars were loaded and shipped daily. In addition, a fire clay mine was operated by General Refractories Company at Silica. Fire clay also was mined at Brinigar and shipped via the Portsmouth and Tygart Valley Railroad to brickyards located at Hayward.

The Hayward Brickyard was built by the Ironton Firebrick Company and employed several workers. The refractory bricks were baked in a beehive kiln and shipped by rail to many industries. The Ironton Firebrick Company also operated fire clay mines at Bradmyer, Ky. where trains made regular stops.

The Kinniconnick & Freestone Railroad branch of the C&O Railroad was incorporated (1890) to transport freestone and virgin timber. The track (19.7 miles) operated from Gesling, Carter County to Garrison, Lewis County. The Oligununk Caves were opened (1896) and the C&O Railroad Co. built a pavilion and entertainment center at Carter City. The C&O Railroad ran excursion trains to the caves from Cincinnati, Ohio and Huntington, W.Va. The "Kinney" branch ceased operations in 1941 in part because of severe flood damages sustained in 1934.

The C&O Railroad ceased its passenger service in Carter County in 1972. In recent years most of the spur line railroad tracks in Carter County have been removed; consequently, little evidence of the many small railroads remains. Some abandoned track beds have been converted into streets and roads and others have reverted to the wilds. A small section of the C&O Railroad track was left in place in the most eastern part of Carter County, at Coalton, to service the Kentucky Electric Steel plant which continues to operate.

The economic and social growth of Carter County closely paralleled the growth of manufacturing, extracting and timber industries and the associated railway transportation network. As the national demand for heavy manufacturing, mining and

timber products declined the need for railroad transportation also has declined. The nature of employment and work skills has changed over the years; however, the heritage of the railroads and heavy local industry in Carter County will forever remain for all of us to appreciate.

References

A look at our heritage in Carter County (1991, May). Grayson Journal - Enquirer/Olive Hill Times.

A brief resume of Olive Hill. (1902, Feb. 20) Carter County Herald.

Carter County History (1838-1976). Carter County Bicentennial Committee.

Coleman, J. W. (1955). The springs of Kentucky, an account of the famed watering places of the bluegrass state (1800-1935). Lexington, Ky's Winburn Press.

Crawford, H. V. & Crawford, P. L. (1985). Erie School-Aiken Hall: "High upon the Hill".

Crawford, H. V. & Crawford, P. L. (1988). General Refractories Company: Olive Hill District, Home of the world famous Diamond O H Firebrick.

Fields, W. (1939, Nov. 28). Industrial resources. Carter County Herald.

Fazier, H. (1975). Recollections, Chesapeake & Ohio Historical society, pamphlet, Alderson, W. Va.

Heinrich, R. (1922). Clay Deposits of Kentucky in Kentucky Geological Survey.

Huddleston, G. (1951, March). C&O Cantilever Signal Lever Bridge, Mountain Top, Ky. Photo from C&O Historical Society Collection.

Huddleston, E. L. (1985, November). Memories and notes along the Lexington Subdivision between Denton and Olive Hill. Chesapeake and Ohio Historical Newsletter, (Vol. XVII, No. 11).

Landmark Falls. (1978, February 4). Ashland Daily Independent.

Parmelee, J. H. (1940). The Modern Railroad, New York: Longmans, Green and Company.

Piatt, G. S. (1990, February 4). The valleys rumble no more. The Sunday Independent. (p. 39-40).

Sulzer, E. G. (1967). Ghost railroads of Kentucky. Indianapolis: The Vane A Jones Co.

Wolford, G. Carter County, a pictorial history. W.W.W. Company, Ashland, Ky.

Young, E. N. (1986, March). The Track Looking Back at the Lexington Subdivision. Chesapeake and Ohio Historical Newsletter, (Vol. XVIII, No. 3).

Ziel, R. (1963) The Twilight of Steam Locomotives, New York: Gross and Dunlop.