

Southern Railway Spencer Shops, 1896
East side of Salisbury Avenue between 3rd and
8th Streets
Rowan County
North Carolina

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PHOTOGRAPHS

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Department of the Interior
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HISTORIC AMERICAN ENGINEERING RECORD

Southern Railway Company: Spencer Shops

NC-8

Location: East side of Salisbury Avenue,
between 4th and 8th streets,
Spencer, North Carolina, UTM:
17.551100.3949120
USGS QUAD: Salisbury

Date of construction: 1896

Present owner: Southern Railway Company

Significance: The Spencer Shops served as the
largest maintenance and repair
facility in the Southern Railway
Company system. The extant structures
provide important indications of the
requirements of large scale maintenance
of steam locomotives and freight cars.

Historian: Daniel M. Bluestone, June, 1977.

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Southern Railway Company: [1]

On February 20, 1894 the Commonwealth of Virginia legislature passed a special act granting a charter to the Southern Railway Company. On July 1, 1894, following J. P. Morgan & Company's 1893-1894 plan for the reorganization of several bankrupt railroads, Southern took over the operation of the 2,012 mile Richmond & Danville Railway system and its major holding company, the Richmond & West Point Terminal Railway and Warehouse Co. Without actually owning any track, the Richmond & Danville system comprised some thirty separate companies operating from 6 to 552 miles of track. Upon its incorporation, Southern Railway superseded the Richmond & Danville System's separate companies and several independent railroads. With the exception of 491 miles of track leased on the line between Goldsboro, N.C. and Atlanta, Ga., Southern owned the tracks, shops, and equipment of its entire 4,549 mile system.

Operating over single track roads, Southern Railway's 1894 main line system ran from Washington, D.C. (Alexandria, Virginia) and from West Point and Richmond, Virginia, through Salisbury, North Carolina to Augusta and Atlanta, Georgia, and on to the Mississippi River at Greenville, Mississippi. At Salisbury, N.C. a main line led west to Asheville, N.C. and onto Knoxville and Chattanooga, Tennessee. In Rome, Georgia, the line split; one section terminated in Meriden, Mississippi and the other in Brunswick, Mississippi. A Kentucky line ran from Louisville to Lexington and Burgin where it connected with the Cincinnati Southern. Aside from extensive passenger travel along these lines, Southern freight lines ran to major coal fields in Kentucky, Tennessee and Alabama; iron producing cities such as Chattanooga, Knoxville, and Birmingham; and the growing furniture, lumber, and textile areas of North and South Carolina and Georgia.

After its initial formation Southern continued to lease and absorb major railroad lines throughout the South; in 1895 Southern purchased the Georgia Line and the Atlanta and Florida Railway; in 1896 the Georgia Midland Railway was leased and in 1899 the Atlantic and Yadkin Railway, Atlantic and Danville Railway, and the Northern Alabama Railway merged with the Southern Railway Co. These consolidations and mergers made Southern the most extensive railroad system in the South, operating 6,431 miles of road by 1900 and 7,090 miles by 1920.

The Spencer Shops:

In 1896 the Southern Railway Company began construction of a major locomotive repair shop on a portion of a 162.52 acre site acquired 2.5 miles north of Salisbury, Rowan County, North Carolina. Later incorporated as part of the town of Spencer, the Spencer Shops served as the largest locomotive repair facility on the Southern system from the early twentieth century until the final transition from steam to diesel locomotives in the early 1950s. J. P. Morgan and Co.'s 1893 investigation of the Southern Railway properties indirectly fostered the establishment of the Spencer Shops. Morgan found much of the property and rolling stock badly deteriorated from age and poor maintenance. Morgan's reorganization plan called for a

large initial investment in property improvement, and at the same time it anticipated reducing the annual fixed costs from \$9,900,000 to \$7,000,000 through consolidation and more efficient operation. [2] The Spencer Shops consolidated the maintenance and repair operations previously conducted at separate shops in Burlington, Charlotte, and Salisbury, North Carolina.

The development of the Spencer Shops partially displaced the pattern of local shop and repair operations developed prior to consolidation by the Richmond & Danville or the Southern Railway systems. To Burlington, Charlotte, and Salisbury shops had all developed as part of smaller railroads. Following the common railroad practice of building shops at the midpoint of a major line, the Burlington shop was located midway along the North Carolina Railroad Company line between Goldsboro and Charlotte. Charlotte and Salisbury operated terminus shops for the North Carolina Railroad Company and the Western Carolina Railway Company, respectively. Southern Railway consolidated and integrated the local lines and shop facilities into a broader railroad network. Spencer served as the midpoint shops for the main line running between Washington, Richmond, Pinner's Point, and Atlanta, and as the terminus shops for the line running between Salisbury, Asheville, Knoxville, and Chattanooga. [3]

Southern Railway located the Spencer Shops on its major freight and passenger line, 334 miles south of Washington and 313 miles north of Atlanta. The development of traffic along the Washington to Atlanta main line contributed to the continued growth of the Spencer Shops. Between 1902 and 1904 Southern constructed its first double track line between Alexandria and Orange, Virginia. In 1920, 647 of the Southern's 744 miles of double track ran between Washington and Atlanta. Along this line, the Spencer Shops operated as the major maintenance and repair facility. [4]

Designed in 1896 by the Southern Railway engineers, C. H. Hudson and B. Thompson, the original shop buildings served as the nucleus of the greatly expanded shop, freight, and yard operations at Spencer. Grading and construction began on the spencer site March 3, 1896. On August 19, 1896, with Southern Railway Company President Samuel Spencer looking on, the machinery was started and work officially began at the shops bearing his name. Construction cost for the original shops totaled \$261,975. [5]

Moving about 75,000 cubic yards of earth, Lane Brothers of Scottsville, Virginia graded the site for the buildings and the yards. The Shiffler Bridge Co., of Pittsburgh, manufactured the buildings' steel frames. John P. Pettymohn & Co. and W. W. Dorning, both of Lynchburg, Virginia, constructed the buildings on masonry foundations, with corrugated steel siding and slate roofs. The original Spencer Shops facility included: a fifteen stall Round-house, with a 124' inner radius and a 194' outer radius with annexes for the heater room and office; a Machine Shop, 100' x 204' with annexes for the engine room, toolroom, and grinding room; a Smith and Boiler Shop, 90' x 204', with an office annex; a Woodworking Shop, 90' x 204', with annexes for the Boiler Room, Engine Room, shaving tower, and office; two Car Repair Sheds,

each 50' x 120'; a Storehouse, 40' x 150'; an Iron Storage House, Paint House, and Oil House. The yard's 60,000 gallon water tank was the largest tank in use along the Southern system. The yard's coal bin was 700' long, 70' wide, and 24' high. [6]

The power plant consisted of four 100 hp boilers working at 100 lbs. steam pressure. [7] The shop buildings were heated by hot air and lighted with electricity generated in the power plant. Two air compressors manufactured by Chicago Pneumatic Tool Company provided compressed air for the traveling hoists and cranes and many of the shop machines. The boilers also furnished steam through pipes for engines located in several shop buildings which powered the shafts, pulleys, and belt driven machinery.

Locomotives received light running repairs in the Roundhouse; air, water, and steam pipes for washing out boilers served ten tracks outside of the Roundhouse. [8] A 40' x 200' transfer table paralleled the Machine Shop which accommodated ten engines on ten tracks for heavier repair work. Three tracks connected the transfer table with the Smith and Boiler Shop, facilitating easy transfer of engines and parts, across the transfer table, between the forges and the Machine Shop.

Aside from equipment moved in from Salisbury, Charlotte, and primarily from Burlington, the annual report for June 30, 1896-June 30, 1897 stated that "one milling machine, one lathe for making tools, three bolt-turning and threading lathes, one pneumatic lift for dropping engine wheels, rack apparatus for testing airpumps and valves, one flange forge for boiler plate, and one smith forge, have been added during the year." [9] The Machine Shop accommodated most heavy engine repairs and depending upon the extent of the repairs the shop could service six to eight engines per month.

The Spencer Shops freight car repair sheds and Woodworking Shop operated all the machinery necessary to perform both light and heavy repairs on the wooden freight cars. [10] At the time of its completion, the capacity and volume of repairs at the Spencer Shops roughly equalled the work done at each of Southern's other major repair shops in Atlanta and Knoxville which had been modernized in 1895-1896 at a cost of \$66,128 and \$49,323 respectively. [11]

John S. Henderson and Spencer Development:

Southern constructed the Spencer Shops on land encompassing fields and woods in the countryside 2.5 miles north of Salisbury. By 1904 a town of 3,500 had grown up on either side of Southern's property. Through his real estate development and speculation, John Steele Henderson, a Salisbury lawyer and former United States Congressman, almost single handedly launched the Spencer Shops and the residential development in the area adjacent to the shops.

In January 1895, Henderson wrote to his wife Elizabeth of his up-coming retirement from Congress, "I look forward to my relief from Congressional

life with a good deal of pleasure. The only thing I dread is the uncertainty of earning a competent support." [12] In March 1895, Henderson expressed similar concern about his "business future;" he told his wife, "I intend to make a brave fight with the world." [13] Shortly after Henderson's return to Salisbury he engineered one of the most ambitious land developments ever undertaken there.

Henderson somehow discovered the Southern Railway Company's plans to build a major maintenance and repair facility in the middle of its line. He contacted the Railway and made the arrangements for it to locate near Salisbury, adjacent to an area where he owned several hundred acres of land. In February 1896, Henderson's wife wrote to her daughter, Bessie, explaining the Spencer land transactions:

"although you have read the good news you can't appreciate its significance to us . . . The immense shops are to be located . . . right in the midst of Mr. Henderson's land. A town of several thousand inhabitants is obliged to spring up right there /and/ his land will have to be purchased by the people for their homes. Mr. H- is selling a small amount of his land for the shops proper and that at a mere nominal price, but the great advantage is that his land surrounds all this spot. He has been engaged on this for some time but it was a profound secret. Mr. H- has purchased the land for them . . . The people for several weeks have been frantic to find out something - - constructed all sorts of things that he was going to form a colony. . . . Everybody is much excited for although unfortunately it will be a separate town still it will be of great advantage to Salisbury."

A few days later Elizabeth Henderson wrote her daughter once again, "The excitement is increasing -- great talk of electric lights or of extending Main Street out to the Shops or having electric cars -- I wish the men of the place did have some money so that they could accomplish something to the advantage of Slisbury. The negroes are selling their little plots of land and Mr. H- has been writing deeds all day. Col. is so excited over his piece of land that he has gotten drunk for two day! We have great expectations but very little money." [15]

Henderson lacked strong financial backing and after putting all his money into Spencer real estate, he had several years of financial problems while waiting for the land's appreciation and development. [16] Finally, in about 1900, the pace of development picked up and Henderson's son Archibald wrote to his father that he was "truly thankful that you have been able to obtain some relief from your financial embarrassments," through the profitable sale of several lots of land in Spencer. [17] A 1904 enlargement of the shops, a growing workforce, and the construction of a street car line connecting Salisbury and Spencer enhanced the value and pace of real estate development. [18] Henderson's financial "embarrassments" subsided as Spencer real estate boomed.

Henderson's 1896 land transactions with the Southern Railway involved acquiring 162.52 acres of land and reselling it to Southern. [19] Henderson sold the land to Southern for the price that he acquired it from the area's land owners, \$4,118.60. For \$2,500, Henderson bought 101.8 acres of land from Robert Partee who had originally purchased the land from the Henderson family in 1880 for \$712.00. [20] Henderson also purchased 40.42 acres of land from Isaac and Sallie Earnhart for \$1212.69. [21] The total land deal brought the "nominal" price of \$25.34 per acre. Southern Railway Company used about 100 acres of the land for the shops proper; the remaining tract was sold to Alexander B. Andrews, Southern Railway Co. 1st Vice President, for a dollar with the understanding that Andrews would mortgage and sell lots to railway employees for approximately \$90.00 per lot. [22]

Henderson's hundreds of acres of land in the double towns of Spencer and East Spencer, both incorporated in 1901, appreciated in value with the development of the Spencer Shops. The rising value of Henderson's land included lots such as a 13.24 acre parcel which he sold to Southern for year expansion in 1904 for \$502.27 an acre -- approximately 20 times the cost per acre of land that he sold to the Railway in 1896. [23]

The operations of other land developers and speculators in Spencer and East Spencer account for the crazy quilt grid of streets in the two towns. Subdividing land parcels into the maximum number of plots did not necessarily mean two adjoining land owners would orient their subdivisions in the same direction; John Whitehead's addition to Spencer established a grid totally out of line from the subdivision established in the center of Spencer by the Southern Railway Company and its agent Alexander B. Andrews. Other major land developers included T. H. Vanderford, A. S. Heilig, J. D. Dersette, I. N. Earnhart, A. W. File, C. B. Jordan, and the Eudora Land Company.

Early directories for Spencer and East Spencer document the evolution of the two towns as almost exclusively railroad worker residential communities. The overwhelming majority of working residents listing occupations in the directory worked for the Southern Railway Company, many workers also lived in adjacent parts of Salisbury or rode in special shop trains from Salisbury. John Steel Henderson's land transactions with the Southern Railway and the developers of Spencer and East Spencer outline the strong interdependence between the Spencer Shops and the growth of the surrounding communities.

Machine and Erecting Shop Project, 1904:

In the Spring of 1904 Southern Railway designed and started constructing a 596' x 150' Machine and Erecting Shop at Spencer. Southern Railway engineers, S. Higgins, S. D. Cushing, and D. W. Lum and the Spencer Shops Master Mechanic S. R. Richards, designed the immense facility tripling the pervious maintenance and repair capacity. [25] The enlarged shops were expected to handle all large locomotive work for the Eastern District. [26]

Locating the Machine and Erecting Shop in Spencer gave Spencer the Central control of heavy locomotive work for the entire district and made the shops the largest on the Southern Railway System. With its modern machinery and equipment and its skilled workforce, the Spencer Shops repaired locomotives also machined parts such as cylinders, bushings, and frames needed by light repair facilities elsewhere along the line.

The engineers working on the Machine and Erecting Shop design considered two site options for the building, one parallel to the yard's tracks and one perpendicular to the tracks. [27] The size and shape of the Spencer Shops, land and the decision to incorporate the older plant buildings as integral parts of the new repair operation helped determine the placing of the building parallel to the tracks. For continued use of the old buildings the best site would be east or west of the old line of buildings; in this position the building ran with the flow of the yard tracks. Rather than using a long transfer table to run locomotives into individual work places, as was done in the 1896 Machine Shop, the design required large overhead cranes to place the engines on either of two 480' erecting tracks.

The center line of columns roughly split the Machine and Erecting Shop into distinct operations. The erecting shop occupied the west half of the building except for the six bays at the north end where some of the largest machine tools operated, including the wheel lathes, driving wheel presses, a vertical boring mill, and a few other lathes. Engines receiving heavy repairs entered either end of the erecting shop along a single central communication track and stopped over a 100' stripping pit at either end. At the stripping pit the erecting shop mechanics removed the motion work and freed the wheels. One of the two 70' span, 60-ton capacity, Shaw Electric Crane Company cranes lifted the locomotives and placed it on either one of the erecting tracks; the cranes also moved the wheels to the wheel department. To handle heavier locomotives an 80-ton capacity crane was added to the erecting shop in the 1920s. The two 480' erecting tracks could accommodate 24 standard 40' locomotives at one time. Mechanics marked the parts removed from the locomotives. Major repaired parts were always returned to the locomotive from which they were removed. Parts were either sent to the machine shop departments for repair or stored for reassembly in the 4' x 4' storage pit adjacent to the erecting track working area.

In 1905, the machine shop operations on the east side of the building included over 100 machines on the main floor grouped into different departments. A 35' wide gallery, 19' above the main floor, ran the length of the machine shop and included several more repair departments. Five- and ten-ton capacity cranes manufactured by Shaw Electric Crane Company moved parts around the machine shop and up and down the machine shop gallery. Light equipment and light machine tool work was carried on in the gallery. Repair departments located in the gallery performed repairs on electric motors and headlights, pistons, piston heads, lubricators, injectors, air pumps, air brakes, and jackets; lathes operated in the gallery to fit and seat the valves, work on whistles, comb the mud plugs, and made studs and wedge bolts. [28]

The main floor included a wheel department on the erecting shop side; a rod department; a link department; a section with a boring mill and planner to work cylinders; vertical boring mills for the boxes; planners for machining the frames; and a large number of lathes for producing bolts and bushings. In 1905, within the various main floor departments were located 55 lathes; 12 drill presses; 11 planners; 8 boring mills; 7 shapers; 5 grinders; 4 driving wheel lathes; 3 slotters; 2 milling machines; 1 rod busing press; 1 piston rod cutter; 1 cold saw; and a driving wheel press. [29]

When the new machine shop was erected Southern altered its original 1896 buildings and adapted them to new uses. The old Machine Shop next to the Roundhouse was divided into a Cab, Paint, and Boiler Shop. Moving the Boiler Shop into the old Machine Shop allowed for a greatly expanded blacksmithing and forging operation in the old Smith and Boiler Shop. The Smith Shop operated 38 Ross Meehan Foundry Company iron forges. In the Smith Shop several machines produced blanks for making bolts and nuts from bar stock; a bolt header; bolt cutter; bolt shear; nut tapper; and a punch and shear. In 1905, 7 seven large forge hammers, from 75-3,000 lbs. operated in the forge. Parts from the Smith Shop were moved into the Machine Shop on tracks over a standard guage track. The old transfer table continued to move trucks and engines into place in the new Boiler and Cab Paint Shop. [30]

In 1910-1911 the arrangement of the older buildings change and new brick and steel Boiler Shop was built on the site of the old Smith and Forge Shop. Cab painting moved into a new building and the Smith and Forge operations moved into the original Machine Shop adjacent to the Roundhouse and water tower. [31]

The enlargement of the Spencer Shops in 1904-1905 necessitated a corresponding enlargement of the Shops' power house. As part of the Machine and Erecting Shop project, W. S. Sweet, Chief Electrician, designed an electric plant and switched nearly all the Spencer Shops' machinery and equipment from steam to electric power. [32] The old 43' x 48' Boiler House received a 48' x 72' extension, and a new 36' x 48' engine room was constructed. Walsh & Weidener Boiler Company manufactured the three new 150 hp boilers added to the power plant. Boiler House equipment also included a Stillwell cast iron open heater and a Herron Pump Company pump. The boilers furnished steam to two 16" x 16" and one 27" x 16" Westinghouse compound non-condensing engines which drove two 200 k.w. 250 volt direct current Westinghouse electrical generators. The two wire direct current system using 250 volts was used throughout the shops. Two engine room air compressors manufactured by Chicago Pneumatic Tool Company furnished compressed air for the plant's pneumatic tools.

The vast majority of the Machine and Erecting Shop's machine tools ran off belting from an overhead shaft. The largest machine tools, requiring the greatest horsepower, ran on individual two wire variable speed motors manufactured by the Northern Electrical Manufacturing Company. These machine

tools included driving wheel lathes, planners, slotters, and radial drills. Northern Electrical Manufacturing Company also manufactured the five 20 hp direct current motors used to drive five lengths of overhead shafting, each 100' long, and the associated belt-driven machinery. Steel brackets, connected to the gallery columns, 7' 10" above the floor, supported the 20 hp motors. A set of crab clutches made it possible to couple the shafts together in the event of mechanical problems in a particular motor; it also permitted the drawing of 20-100 hp from all of the motors into any one particular group of machines. [33]

Two rows of 13 Toerring arc lights 40' above the floor, spaced 40' apart, provided light for the shop interior. These lights supplemented the abundant natural light entering the shops - about 40 percent of the roof and the wall surface was galzed. Two large blowers located in the gallery distributed hot air through ducts around the shops from Sturtevant heaters.

The 1904 design for the Machine and Erecting Shop included plans for segregated toilet and locker facilities. Segregation within the shops paralleled the segregated development of Spencer and East Spencer. From the beginning of work at Spencer, blacks and whites were employed in the shops, and early directories for the towns, listing occupations, reveal that blacks generally held unskilled positions while whites worked as skilled machinists and engineers. The Spencer side of the railroad yards developed as an almost exclusively white community. The black and white community in East Spencer lived in separate residential sections with the blacks living in smaller houses toward the southwest end of town on Broad, Cedar, St. James, and Shaver streets and on Railroad and Long streets south of Cauble. The white residential sections were near the center and north side of town along Earnhart, Depot, Spencer, Henderson, and Heilig streets.

J. P. Pettyjohn & Company and the American Bridge Company constructed the Machine and Erecting Shop at a cost of approximately \$160,000. The total cost for the machinery, buildings, and alterations added in connection with the Machine and Erecting Shop project exceeded \$483,000. [34]

The operation of the Machine and Erecting Shop tremendously increased the repair capacity of the Spencer Shops and required additional workers. In January, 1905, J. F. Shehan, Spencer Shops Master Mechanic, began enlarging the workforce by fifty percent in the mechanic and black smithing department, and by twenty-five percent in the boiler making department. The Shops workforce during this period exceeded 1,000. A 200' long two story brick building, combining a warehouse and an office for the railway officials stationed in Spencer, was built shortly after the completion of the Machine and Erecting Shop on an adjacent site to the west. [35]

Repair Work at the Spencer Shops:

After the completion of the Machine and Erecting Shop and the 1910-1911 relocation of the blacksmith, boiler, and paint shops, the Spencer Shops repair operations settled into a distinct pattern. The pattern of service and maintenance and the locations of the various departments did not vary to any great extent. However, machines were frequently replaced when larger, faster, and more powerful machinery became available.

In 1913, 1,307 employees worked in the Spencer Shops, and 340 locomotives operated out of the Yards. These locomotives received 828 repair jobs ranging from class 1, (complete overhauls) to class 5, (light running repairs made in the roundhouse). Of this number, 12 locomotives were completely stripped, overhauled, and rebuilt; 72 locomotives received class 2 repairs; wheels were dropped, new boxes installed, flue and boiler work done, and rods, cylinders, and pistons were checked and repaired. Class 1 and class 2 repairs were handled almost exclusively in the Machine and Erecting Shop and in 1913, 84 locomotives were turned out of the Erecting Shop. The 288 class 3, 276 class 4, and 180 class 5 repairs carried out in 1913 were all performed in the Roundhouse and consisted of light running repairs, such as dropping a pair of wheels or cleaning the boiler. The electric power plant continued to expand during this time. In 1913 eight stationary boilers developing 1,100 hp drove five electrical generators producing 700 hp. The generators drove 125 motors ranging in size from 3 to 75 hp. [36]

Car Repair at the Spencer Shops:

The Spencer Shops car repair department gradually expanded after it started light and heavy freight car repair in 1896. In 1913, 350 people worked in the car repair department - the wood working mill turned out approximately 400,000 board feet of lumber a month; about 150 wooden freight cars were repaired daily. In the 1910s the car repairing steel freight department manufacturing and repairing steel freight cars, and in 1916-1917 a new car repair plant was designed and constructed. The steel and iron frame car repair shed, 110' x 600', with a 50' x 105' wing for machine tools, replaced the small congested wooden sheds built for car repair in 1896. J. P. Pettyjohn & Company, of Lynchburg, Virginia, which had constructed all the other major Spencer Shops' buildings, built the corrugated steel, two story high, building for a total cost, including machine tools and electric cranes, of approximately \$300,000. When the 1917 car repair sheds were put in operation there was room to construct or built 60 cars at one time. The car building and repair operation at Spencer was one of the largest on the Southern Railway system. The new building required extensive track relocation. The Spencer Shops purchased its first outside electric power for the new car repair plant on September 1, 1917. The electric power produced 400 hp. The power plant continued to generate electricity to drive the direct current machinery and cranes, but as new alternating-current machinery was installed, larger amounts of outside electric power were utilized. In 1952 the local utility provided 1,300 hp to the Spencer Shops. [37]

The Spencer Yards:

Besides the locomotive and car repair facilities connected with the Spencer Shops, the yards provided a large fleet of locomotives with water, coal, and sand. The locomotives used water drawn from a point about three miles away on the Yadkin River. Two pumps filled the 60' high, 60,000 gallon water tank adjacent to the Roundhouse.

In 1913-1914 Southern spent several hundred thousand dollars improving the Spencer locomotive terminal. A 110' high reinforced concrete, 1,000-ton capacity electric coal chute streamlined the coaling of locomotives out of the original 1896 15,000-ton coal storage area. In 1913 approximately 75 locomotives received more than 500 tons of coal per day from the Spencer coaling station. A new lubricating Oil House was constructed with two 4,000 gallon and four 12,000 gallon tanks in the basement.

In 1914, Southern put a new Sand House into operation which used compressed air to blow sand into the tower where it then dropped by gravity into the sand domes at the top of the locomotives. Improved cinder pits installed in 1914 allowed the engineer to shake the grates and have the ash box flushed out with water. Electric cranes lifted cinders out of the pits into cars; the cinders were used as a ballast on trains and as ground cover in the yard.

In connection with the 1914 terminal improvements, Southern tentatively planned to build a 40 stall Roundhouse. The increased size of locomotives made the old turntable and roundhouse inadequate. The turntable, drop pits, and tracks associated with a roundhouse were installed. However, an actual roundhouse building was not built, and the turntable and track area was used for dropping wheels, making inspections, and turning and parking locomotives. [38]

Spencer's central location in the Southern System and the development of the Shops and Yards enhanced Spencer as the site for a major freight transfer station. In 1899, Spencer maintained the fourth largest livestock yard on the Southern system. The yard included 3 single deck and 2 double deck chutes, 20 livestock pens with a total capacity of 20 carloads, and 7 quarantine pens with a capacity of 7 carloads. [39] The livestock was rested, watered, and fed along the route to primary northern urban slaughterhouses. An ice plant on the east side of the yards provided ice for produce trains.

On November 1, 1907 the Spencer Freight Transfer opened on a siding yard one mile south of the main shops. The Spencer Transfer came to handle 600,000 tons of freight annually which made it the largest freight transfer operation in the South. In the 1920s approximately 250 cars per day arrived at, and 250 cars departed, the twelve tracks alongside the six freight sheds of the Spencer Transfer. Manufactured products from the Piedmont area were assembled

into full car loads in Spencer for shipment to points outside the South. Manufactured goods arrived in solid carloads from the East and North and were broken into smaller mixed carloads for shipment to points throughout the South. [40]

Robert L. Julian Roundhouse, 1924:

In 1924 Southern built a steel and concrete 37-stall roundhouse to replace the original 1896 15-stall roundhouse. The 70-foot depth of the 1896 roundhouse could not accommodate the larger Southern Railway locomotives and mechanics had to work on parts of the locomotives as they protruded from the roundhouse. Inadequate space for repairs forced some light and running repairs to be made in the Machine and Erecting Shop. The new roundhouse was 106' deep. A 100' end-bearing turntable powered by an electric motor positioned the locomotives in front of the proper stall. The roundhouse was named after Robert L. Julian, the general roundhouse foreman for the Spencer Shops, and was the only roundhouse on the Southern Railway system to be named after a person. The round had a hollow tile roof to prevent condensation. It had five pits for dropping drive wheels, one pit for dropping truck wheels and one pit for dropping tender wheels. A crane girder spanned the length of the building and supported lifting devices for the 37 stalls. The roundhouse filtered hot water drawn from incoming locomotives and used it to wash out and fill boilers in 26 stalls. The exhausted water and steam heated fresh water for filling the boilers and a live steam connection provided additional heat. A 10-ton crane carried heavy parts along a 320' long, 25' wide, outside craneway connecting the Julian roundhouse, the lye pit, the Machine and Erecting Shop, and a new Flue Shop. The new 51' x 155' steel frame Flue Shop was glazed from the window sills up. The burned end of the flues were cut off and new flue pipe was electrically welded back in its place. [41]

The main tracks within the Spencer yards changed with the construction of the Julian Roundhouse. The lead track to and from the North formerly passed along the east side of the Machine and Erecting Shop; upon completion of the new roundhouse a lead track was built along the west side of the Machine and Erecting Shop. The 1924 completion of the Julian Roundhouse and the associated yard changes ended major shop and yard construction associated with the maintenance and repair of steam locomotives. With slight increases in the volume of repair work and modernization of equipment, the shops continued to operate through the 1940s much as they had in 1905. In 1938 approximately 2,200 people worked in the Spencer Shops servicing up to 100 locomotives a day and performing heavy class one and class two repairs on two to three locomotives per week. [42] In the 1940s a modern compressed air sand blasting station was installed in the north yard area, where cabs and cars were sand blasted before entering the Paint Shop.

Diesel Locomotives and the Spencer Shops:

On May 31, 1941 Southern placed into service the world's first diesel freight locomotive. After its success, Southern rapidly changed its locomotives from steam to diesel. In 1949 Southern operated 530 diesel units making it one of the largest users of diesel power in the United States. By the end of 1952, diesel-electric powered locomotives handled 97.2% of Southern's gross ton miles and 99.7% of the system's passenger car miles. The switch to diesel locomotives altered the maintenance and repair operations of the Spencer Shops. The overhaul of steam locomotives required custom machine work. With the introduction of diesels the simple replacement of standardized, mass produced parts, took the place of custom machine work and maintenance. In 1949, Southern planned extensive renovations of the Spencer Shops and altered the shops and yards of service, maintain, and repair diesel powered locomotives. Several bays of the Robert L. Julian Roundhouse were rebuilt and equipped with new diesel wheel drop tables, inspection pits, and working platforms. In the early 1950s overhead sanding towers and a diesel fueling station were installed west of the Roundhouse and adjacent to the old Oil House. The diesel fuel was stored in a 1,000,000 gallon capacity tank. [43]

Modern diesel engine pits and diesel parts repair departments displaced the Machine and Erecting Shop's engine lathe department where nuts, bolts, and bushings had been custom machined. A diesel engine repair unit was established in the Machine and Erecting Shop to dismantle, repair, and assemble engines. The engine repair unit closely followed the assembly line techniques used in a diesel engine manufacturing plant.

In the 1950s the Woodworking Shop received several heavy machines for producing roller bearing axles and wheels for diesel locomotives. The Boiler Shop with its steel plate and structural steel fabricating machinery, formerly used in manufacturing parts for steam locomotives, began producing steel gear cases, oil cooler tanks, water tanks, fuel tanks, pilots, and cabs for diesels. The Flue Shop was converted to a light electrical equipment repair shop. Many of the actual machine tool operations were slowly moved toward the north end of the Machine and Erecting Shop and finally moved out of the shop into adjacent buildings, such as the Woodworking Shop. [44]

In the late 1950s operations began to contract at the Spencer Yards and Shops. In 1957 a large section of the Car Repair Shed was dismantled; car repair operations contracted and the remaining portion was used exclusively for running repairs. During the Summer of 1960 the Spencer Shops ceased operation and all the machine tools in the Machine and Erecting Shop were scrapped or moved to heavy diesel maintenance and repair shops in Atlanta and Chattanooga. Standardized repair operations on diesel locomotives and the tremendous increase in miles traveled before maintenance was required, as opposed to the relatively low mileage for a steam locomotive, contributed to the consolidation of repair facilities which closed the Spencer Shops.

In 1977 a small force of approximately 100 men worked in Spencer performing running repairs and servicing locomotives and cars. During the early 1960s, in order to decrease cost and to remove property from the tax roles, the Boiler Shop, Blacksmith Shop, Woodworking Shop, Cab and Tender Shop, and several other shop buildings were demolished and several miles of yard tracks were removed. With the exception of a 5, a 10, and a 60-ton crane, no equipment or machinery remains in the Machine and Erecting Shop. Only four of the thirty-seven bays of the Julian Roundhouse remain in use for locomotive repair work. The conversion of the roundhouse for storage erased most the traces of the earlier locomotive repair operations. The wheel drop pits have been filled and most of the tracks leading to the turntable have been removed.

In 1953 the coaling tower was demolished and the old san house abandoned. As the shops increasingly relied on outside utilities, the machinery in the power house was removed. The boilers remained in place in the power house as did parts of three air compressors and the electrical generator equipment panel. None of the dynamos or generators remain in the power house. In the 1960s Southern considered, and drew up tentative plans, to establish a major train assembly yard or hump station on the Spencer Shops site. A Linwood, N.C. site, about five miles northeast of Spencer, was finally chosen and upon its completion in 1978 the entire yard and shop operation in Spencer will be abandoned.

Footnotes

Abbreviations: SRCAR is abbreviation used for Southern Railway Company Annual Report.

SEP is abbreviation used for Salisbury Evening Post.

JSH is abbreviation used for John Steele Henderson.

1. "The Southern Railway Co.," Railroad Gazette, 26 (September 7, 1894): 613-614; Richard E. Prince, Southern Railway System, Steam Locomotives and Boats, Green River, 1970, pp. 5-6; Southern Railway Company, Annual Reports, 1st-35th, 1895-1930, Washington, D.C., 1895-1930; Southern Railway Company, Southern Railway System, 1911-1920, Washington, 1922, pp. 3-9; John F. Stover, The Railroads of the South: 1865-1900, Chapel Hill, 1955, pp. 252-259.
2. Stover, Railroads, pp. 258-259.
3. T. P. Fowler, "Railroad's Decision to Centralize Turned Woods Into Spencer," SEP, 12 April 1953.
4. Southern Railway Company, Southern Railway System, 1911-1920, Washington, 1922, p. 8.
5. SRCAR, 2nd, 1896, p. 6; SRCAR, 3rd, 1897, p. 8.
6. "The Southern Railway Shops, near Salisbury, N.C.," Railroad Gazette, 28 (October 23, 1896): 739.
7. "Improvement at the Spencer Shops of the Southern Railway," Railroad Gazette, 37 (November 25, 1904): 576.
8. SRCAR, 3rd, 1897, p. 19; SRCAR, 4th, 1898, p. 19.
9. SRCAR, 3rd, 1897, p. 19.
10. "Improvement at Spencer," p. 575.
11. SRCAR, 2nd, 1896, p. 6; SRCAR, 3rd, 1897, p. 19.
12. JSH to Elizabeth B. Henderson, 20 January 1895, in the John Steele Henderson Papers, Southern Historical Collection, University of North Carolina, Chapel Hill, N.C. repository for all Henderson letters cited below.
13. JSH to Elizabeth B. Henderson, 3 March 1895.
14. Elizabeth B. Henderson to Bessie B. Henderson, 28 February 1896.
15. Elizabeth B. Henderson to Bessie B. Henderson, 3 March 1896.

16. JSH to Archibald Henderson, 10 June 1896; Archibald Henderson to JSH, 9 October 1899.
17. Archibald Henderson to JSH, 7 October 1900.
18. John S. Henderson, Jr., to JSH, 8 February 1904; John S. Henderson, Jr., to JSH, 3 April 1904; "Upbuilding of Salisbury is Guaranteed," Salisbury Globe, 15 February 1905.
19. Rowan County Deed Books: Book 81, Page 262; Book 81, Page 221; Book 81, Page 223. Deed Books indicate that Southern's land purchase in 1896 included 162.52 acres, the SRCAR, 2nd, 1896, states the amount of land purchased as 168 acres.
20. Rowan County Deed Books: Book 58, Page 253.
21. Ibid., Book 79, Page 155.
22. Ibid., Book 81, Page 518; Rowan County Mortgage Books: Book 12, Page 434, 436, 448, 461, 469, 488.
23. Rowan County Deed Books: Book 100, Page 282.
24. T. P. Fowler, "Railroad's Decision to Centralize Truned Woods Into Spencer," SEP, 12 April 1953.
25. SRCAR, 11th, 1905, p. 13.
26. "Improvement at the Spencer Shops," Railroad Gazette, 28 (November 25, 1904): 575.
27. Ibid.
28. Ibid., pp. 575-578.
29. Ibid., p. 578.
30. Ibid., pp. 577-578.
31. SRCAR, 17th, 1911, p. 17.
32. "Southern's New Engines," Salisbury Globe, 5 October 1904.
33. "Improvements at the Spencer Shops of the Southern Railway," Railroad Gazette, 37 (November 25, 1904): 576.
34. Ibid., p. 575; SRCAR, 10th, 1904, p. 8; SRCAR, 11th, 1905, p. 14; "The Shop Force Much Increased," Salisbury Globe, 4 January 1905.
35. "The Shop Force Much Increased," Salisbury Globe, 4 January 1905.

36. "Enormous Output of Spencer Shops in 1913," SEP, 2 January 1914.
37. "Southern Will Erect Another Large Building at the Spencer Yards Soon," SEP, 22 September 1916; "Steel Car Shed To Be Erected at Spencer," Carolina Watchman, September 27, 1916; "\$300,000 Contract Is Let By Southern," SEP, 17 November 1916.
38. "Enormous Output of the Spencer Shops in 1913," SEP, 2 January 1914; "Three Quarters of a Million for the Spencer Shops Terminal," Salisbury Evening Post, 21 February 1914; SRCAR, 20th, 1914, p. 26.
39. Southern Railway Company, Hand Book No. 4, Washington, 1899, p. 105.
40. "Spencer Shops, Transfer," SEP, 29 February 1924; "Transfer Shed at Spencer is Leader in South," SEP, 11 August 1930; "Spencer Transfer Improvement Unit," SEP, 27 April 1928; E. H. Marsh, "The Spencer Transfer," The Wachovia, 19 (June 1926): 18-20.
41. "Southern Railway Will Build Locomotive Terminal at Spencer, N.C.," Railway Review, 74 (March 8, 1924): 466; "Southern Ready to Build New Spencer Roundhouse," SEP, 29 February 1924; "Southern's Big New Roundhouse Put in Service," SEP, 3 December 1924.
42. O. A. McQuage, "Kiwanians Tour Vast Plant of Southern Road," SEP, 11 March 1938.
43. "Diesel Center: Shops to be Main Service Point for East Lines," SEP, 8 July 1949.
44. Ibid.

Bibliography

Southern Railway Company employees living in Spencer provided invaluable information on the shop operations. John S. Upton, of Spencer, North Carolina, who started working in the Machine and Erecting Shop in 1913 was an important source for the report. Mr. Upton granted several interviews in June and July, 1977.

"Improvement at the Spencer Shops of the Southern Railway," Railroad Gazette, 37 (November 25, 1904): 575-579.

"The Southern Railway Shops, near Salisbury, N.C.," Railroad Gazette, 28 (October 23, 1896): 739.

John Steele Henderson Paper, Southern Historical Collection, University of North Carolina, Chapel Hill, North Carolina.

Salisbury Evening Post, James Brawley's personal index of Salisbury papers through 1910 was invaluable for locating articles on Spencer. The Post's clipping file contains several articles on Spencer as well as a number of historical photographs.

Southern Railway Company, Annual Reports, 1895-1955.

ADDENDUM TO:
SOUTHERN RAILWAY COMPANY, SPENCER SHOPS
Salisbury Avenue between Third and Eight Streets
Spencer
Rowan County
North Carolina

HAER NC-8
HAER NC,80-SPEN,1-

FIELD RECORDS

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