

# Tennessee's Historic Copper Basin Area: An Overview

The Ducktown Basin, or Copper Basin, is located in the extreme southeast corner of Polk County, Tennessee. It is an area with a rich history rooted in copper mining. Three veins of copper run through the basin and each attracted several mining companies ready to exploit the resource.

The terrain of the basin is rolling hills — partly barren, denuded hills, mostly planted with pine and kudzu. The basin is drained by the Ocoee River and numerous minor creeks. To the north and west is the Cherokee National Forest, to the south is Fannin County, Georgia, and to the east is Cherokee County, North Carolina. The Basin extends into both Georgia and North Carolina but most of its area and the mines are in Tennessee.

The early inhabitants of the Basin were Cherokee Indian farmers who did some hunting in the forests and produced some copper. By the Treaty of New Echota in 1836 they gave up many of their lands, including those in the Copper Basin. Many of the Indians who remained in the Basin after the treaty were removed by the U.S. Army in 1838 during the Trail of Tears.

## Early Exploration and Settlement 1839-1850

Polk County was created in 1839 from parts of Bradley and McMinn counties. It was named after James K. Polk, Governor of Tennessee when the county was created and later President of the U.S. (1845-49). The county seat of Benton had been established in 1820.

Because there were no roads into the Basin, settlement was slow to occur. The first white settlers came to the area to farm, but until 1839 there was little white settlement. That year, prices were lowered from the starting price of \$7.50 an acre, which had been established when the land was surveyed after the Indian Removal, to only \$1 an acre. In December 1839 John Rogers purchased 40 acres, the first white to buy land in the Basin. He was followed the next year by John Davis, who purchased land near the creek which bears his name. Prices would go even lower before much settlement occurred.

The farming community of Pleasant Hill was founded around 1840 east of present-day Copperhill, the first organized settlement in the Basin.

A few early prospectors came to the area looking for gold and finding iron and copper. The iron, which had a very high copper content, was a low quality. An iron foundry was established on Potato Creek by B.C. Duggar in 1847 but it failed because of the poor quality of iron it produced. The copper was not to be exploited until the 1850s.

The lack of roads into the Basin increased its isolation and prevented economical shipment of goods outside the Basin and helped retain an agricultural lifestyle.

Railroads did not come into the area because of a railroad convention held in Knoxville in 1836. This convention, which included railroad executives and governments from nine states, decided to build a railroad across upper East Tennessee by way of Knoxville, but they did adopt a resolution favoring a spur line being built to the Georgia border. Many companies were formed to build this line but corruption and the terrain prevented the building of the line.

## Early Mining Development 1847-1878



Boyd Mine, 1854-1985

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Historic Preservationist  
Southeast Tennessee Development District

### Pre-Civil War Mines Starting Dates

Hiwassee	Aug. 1850
Cocheco	Oct. 1950
Tennessee	Oct. 1851
Polk County	Nov. 1852
Cherokee	Dec. 1852
Eureka	Apr. 1853
East Tennessee	June 1853
Isabella	July 1853
London	Sept. 1853
Mary	Sept. 1853
Calloway	Nov. 1853
Culchote	Feb. 1854
United States	Aug. 1854*
Boyd-Biggs	Aug. 1854
<u>Fannin County, Ga.</u>	
Sally Jane	1854
Number 20	1856
Mobile	1854

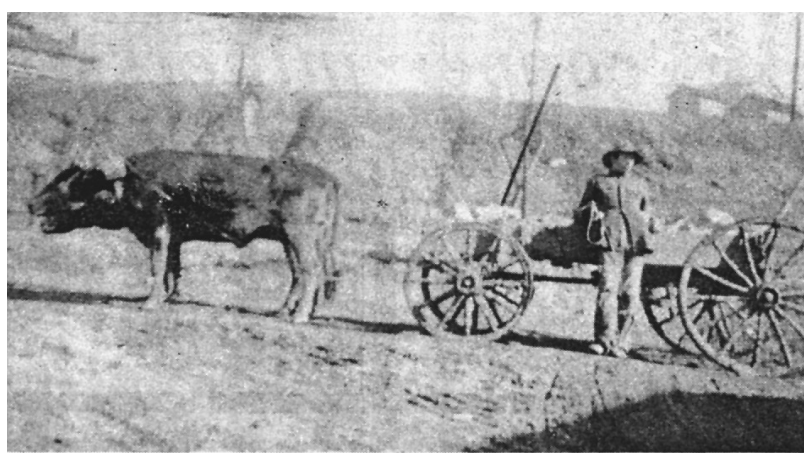
\*A "wild cat" or non-producing mine, it covered 1,000 acres.

### 20th Century Mines

BurraBurra (Hiwassee)	1899-1958
Old Tennessee (Cherokee)	1851-1987
Mary Mine	1853-1971
Polk County Mine	1852-1971
Calloway Mine	1853-1983
Boyd Mine	1854-1985
Eureka Mine	1853-1975
London	1853-1926
East Tennessee (Peanut)	1853-?



Miners drilling for ore



1916 photo shows Tennessee Copper Company train.

The earliest recorded shipment of copper out of the Basin occurred in 1847 when A.J. Weaver shipped, by mule, 90 casks of copper to Dalton, Georgia, the nearest railroad. It was shipped north of the Revere Smelting Works near Boston.

In 1850 a rail line was completed between Dalton and Cleveland, Bradley County, Tennessee. However, it was many years before the railroad came into the Basin. In 1850 the first permanent community, Hiwassee (later Ducktown) was founded near the site of the Hiwassee mine, which opened that year. Also in 1850 the Cochecho Mine and the Tennessee Mine opened south of Hiwassee. In 1852, the Polk County Mine opened. Hiwassee was the most important and long lasting community to be formed during this early state of mining development.

In 1851, the Copper Road between Hiwassee and Cleveland began to be constructed in Bradley County and was completed in 1853. Now copper could be taken economically by copper haulers to Cleveland for shipment, and other goods could be brought back into the Basin. The road ran through the Ocoee River gorge, and for 25 miles of its 40-mile length the road was hemmed in by the river and steep mountains. Copper haulers would make this journey in two days, spending the night at a halfway house. On the return trip from Cleveland the wagons were usually loaded with merchandise for the stores, and with mining supplies. The completed trip of the copper haulers required a minimum of four days of travel. The original road was used throughout the 1800s as the only way to ship copper out of the Basin. (The road route was later used for part of U.S. Hwy. 64.)

By 1854 fourteen mining companies had been chartered. These companies all concentrated on real estate development and did not save capital for operation of the mines. In 1857 only five of the mines were operating regularly — the Tennessee, Mary's, Isabella, Eureka, and Hiwassee. In 1858 the mines in the Basin began to consolidate into three large companies — the Union Consolidated Mining Company, the Burra Burra Copper Company, and the Ducktown Copper Company.

The largest was the Union Consolidated, which had been chartered in 1854 but did not open until 1858. It controlled 2575 acres of mining lands including the following Copper Basin mines: East Tennessee, Mary's, Callaway, Maria, Isabella, McCoy, Buena Vista, Johnson, Beaver, Cherokee and Ocoee. The company employed Julius Raht as superintendent of the mines. It is largely through Raht's involvement with the mines that they prospered. Another of the three large companies was established in 1860 when the Hiwassee Mining Company and the Cochecho Mining Company were acquired by the newly-chartered Burra Burra Copper Company.

The Civil War disrupted work at the mines, as the miners left to fight in the armies and the mines closed down. Many mine interests and smelting plants were owned by northern industrialists who closed the mines in late 1861. The confederacy gained control of the Basin in 1863 and sold the mines to southern capitalists to provide the south with needed copper. The mines were operated at a reduced capacity through the end of 1863 when Federal troops again gained control of the area. Guerrillas roamed the Basin stealing equipment and animals. After the Civil War the miners and their families returned, the damage to the mines was repaired, the Copper Road was repaired, and mines reopened. The Burra Burra and Union Mines were reopened in 1866, the first to do so.

From 1866 to 1877 the mines grew in size and production. Work-



Mary Mine flotation plant



At one time, barren red hills devoid of topsoil stretched to the mountains that surround the Copper Basin. Deep ruts caused by erosion gave the area a "moonscape" appearance.



1915 photo shows the General Office of Tennessee Copper Company in Copperhill

ers continued to come into the area and there was improvement in the number and conditions of the mines. The principal smelters were located at the town of Isabella and near the Potato Creek.

The Basin's mines are the only deep shaft copper mines east of the Mississippi River. Copper mining also occurred in Michigan but the ore there was close to the surface and could be extracted by strip mining. The Copper Basin's ore is three deep seams and could only be extracted by deep shaft mining, a dangerous activity. Dynamite charges used to loosen ore could cause cave-ins and many miners lost their lives in the mines. Research has not revealed major collapses in the mines which resulted in deaths.

Unfortunately in the late 1870s most of the mining companies in the Basin began to fail because of a lack of adequate transportation and decreasing quality of ore. Copper was still being hauled by wagon to Cleveland, which was increasingly expensive and still took four days of travel. The cost of transporting the ore would have been greatly reduced by rail, which would allow more ore to be shipped in less time. As the cost of transporting the copper went up, the price received by the copper companies decreased. Without rail transportation it became uneconomical to ship copper. Union Consolidated Mining Company went into receivership in 1877 and the Polk County Mining Company failed in 1878.

#### Late Mining Development 1890-1987

The copper mines in the Basin were idle for more than ten years until the Marietta and North Georgia Railroad built a spur line north to the area. They established a flag stop called McCays, after its first resident, Herbert McCay, on the Tennessee/Georgia state line. The arrival of the railroad ended the isolation of the Basin and made transportation of people and products easier. An efficient transportation system also allowed the mines to re-open.

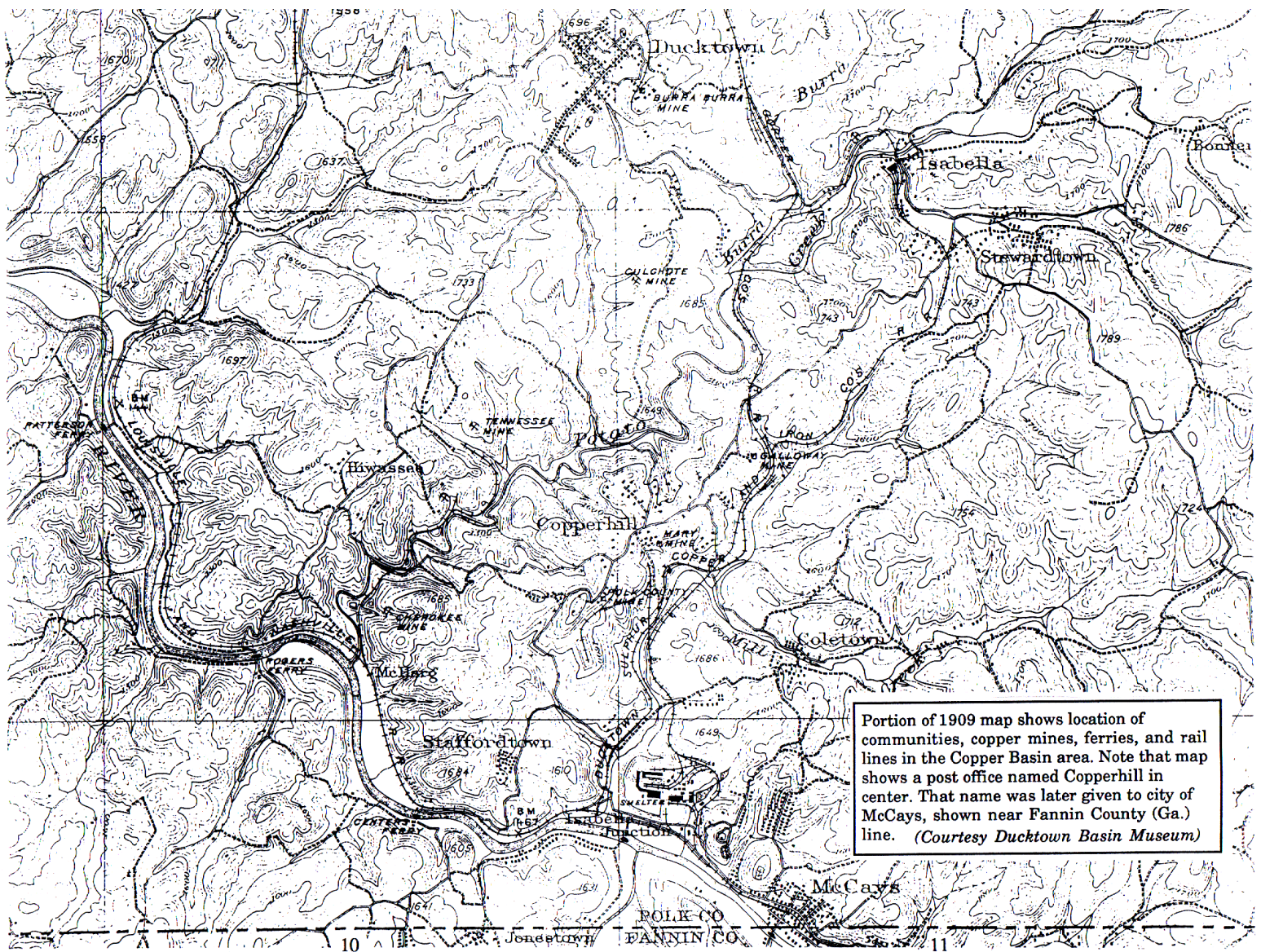
The Georgia spur was met soon by the spur from upper Tennessee. The major obstacle in the Tennessee line was the Hiwassee River gorge, with a 426-foot difference in the height between the north and south shores of the river. George Eager of the Knoxville Southern Railroad designed a switchback to eliminate the obstacle. The switchback was located near Farner, Polk County, Tennessee. The completed rail resembled a "W" built up the river gorge.

These two lines consolidated in 1890 as the Marietta & North Georgia Railroad. It passed into receivership in 1891 and was reorganized in 1895 as the Atlantic, Knoxville, and Northern Railroad Construction Company (AK&N). In 1896 it was finally incorporated and began to run the rail line.

In 1890 the Ducktown Sulphur, Copper and Iron Company (DSC&I) of London, England, reopened the Mary mine and built a furnace with a 100-ton-a-day smelting capacity. In 1893 they shipped 632,000 pounds of copper out of the Basin. In 1891 the Pittsburg & Tennessee Copper Company leased the old Tennessee mine and reopened it, then also leased the Polk County mine. In 1899 these leases were purchased by the Tennessee Copper Company.

In 1891 the open roast heap smelting process of copper was begun. This process, and the high sulfur content in Polk County copper, created sulfuric acid fumes which, combined with the timber cut as fuel, destroyed vegetation in the Basin.

AK&N replaced the cumbersome switchback at the Hiwassee Gorge with a loop around Bald Mountain in the gorge. The loop was necessary because a train could pull only three or four cars up the switchback.



and a pusher train was needed to help get the trains up. This was very time consuming at a time when the line was getting more traffic. T.A. Aber, a civil engineer with the Louisville and Nashville Railroad, designed a loop around Bald Mountain, in the middle of the Hiwassee River, to eliminate the switchback. The loop, over 8,000 feet long, would circle the mountain one and a half times up a passable grade until it reached the plateau height near Fanner north of Ducktown. Trains began running over the loop in 1898 and continue to do so.

By 1899 the Tennessee Copper Company had bought or leased mines from most of the other mining companies in the Basin. They built a new smelter in McCays (renamed Copperhill) and built a railroad between Ducktown and the smelter. They began a new mine, the Burra Burra near the Hiwassee Mine site to combine the lodes of the Hiwassee and Cocheco mines.

In 1902 the Louisville and Nashville (L&N) Railroad acquired majority interest in AK&N. In 1906 L&N began construction of a new rail line between Etowah, McMinn County, Tennessee, and Cartersville, Georgia. This new line eliminated much of the traffic on the old line around the Hiwassee Loop.

Two important lawsuits involving the Basin's industry occurred at this time. In 1904 landowners north of the Basin sought an injunction against DSC&I and TCC to make them stop using the

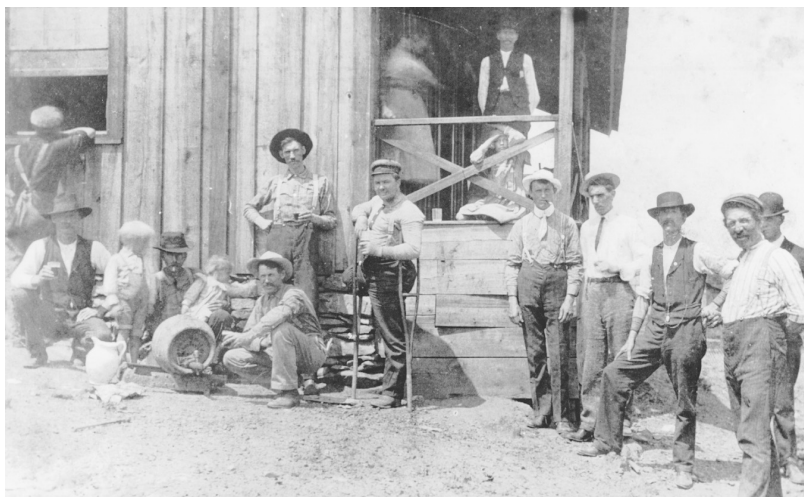
open roast method of smelting. In *Madison v. DSC&I*, Tennessee courts ruled that the value of the copper companies' contributions to the county outweighed damages they caused. The courts noted that over half of Polk County's 1903 aggregate tax of \$2,585,931 was paid by the two companies (\$2,279,533), and over 12,000 people were dependent upon the industry. Before the copper industry came to the area, there were only around 200 residents. The court noted that, at that time, the open-roast heap method of smelting was the only known smelting method. The DSC&I had spent \$200,000 building an experimental acid reclamation plant at Isabella which began operation after that lawsuit was decided.

In 1906 in *Georgia v. Tennessee Copper Company*, the Supreme Court heard Georgia's claim that TCC was taking away its sovereign rights of control over its land and air. Georgia was seeking an injunction preventing TCC from using the open roast heap method. The Court found for Georgia but did not issue the injunction because by then TCC had begun construction of an acid reclamation plant near Copperhill. Eventually, sulfuric acid replaced copper as the company's major product.

*Georgia v. TCC* was extremely important in the beginning of the conservation effort in the Basin. The ruling ended the open roast heap method of smelting, preventing further environmental damage. Within two decades of the ruling the first efforts would



1920 photo shows the Tennessee Copper Company operation in Copperhill.



Happy hour in Isabella: Kegs of beer came into Copperhill by rail and were transferred by company train to employees.



The clinic building in Ducktown and Hoist House (far right) are now part of the Ducktown Basin Museum complex on Burra Burra Hill.

be made to reclaim the barren landscape. Those efforts would continue into the 1990s.

Another technological advancement which occurred in the Basin was a way to extract iron compounds from the copper ore. This allowed the companies to retrieve iron, copper and sulfuric acid from the mines. In 1920 the DSC&I built the first flotation plant near Mary Mine. Flotation plants were built throughout the 1920s and the companies eventually began retrieving zinc as well.

In 1936 the last consolidation of companies occurred when the Tennessee Copper Company purchased the holdings of the DSC&I, which was nearly bankrupt as a result of the Depression and the innovations they researched and financed, which had depleted the treasury. TCC became the only copper company in the Basin and would continue as a major force for decades.

Reforestation efforts began in the 1920s and 1930s and concentrated efforts began in the 1940s. Early efforts were carried out by the mining companies and TVA. In 1929 the DSC&I hired C.R. Hurst, an ecologist with the U.S. Forest Service, to aid in an effort to begin test tree planting zones. A successful test site was established a few miles from the smelters. Hundreds of acres of pine were planted between 1939 and 1944. Reforestation efforts have been conducted by three mining companies, the U.S. Soil Conservation Service, the U.S. Forest Service, the Civilian Conservation Corps, the Tennessee Division of Natural Resources, TVA, and the Universities of Tennessee, Georgia and North Carolina.

In 1941 the TVA established a CCC camp in the Basin to enhance their tree planting efforts. The CCC workers built dams, planted trees, and covered the ground with straw to prevent runoff. Sixteen buildings existed in 1941; all that remains are ruins of some foundations and leveled sites where the buildings stood.

Later owners of the copper mines and acid production facilities were Cities Service and Tennessee Chemical Company. Throughout the 1980s, the vast company land holdings began to be sold off. In 1987, the copper mines were closed and sulfur was brought in by rail for acid production. Tennessee Chemical Company filed for bankruptcy. The production facilities were purchased by Boliden Intertrade AG, a Swiss company, and renamed B.I.T. Manufacturing.

#### Development of Communities 1850-1941

Before the mining companies came into the Basin the area was largely rural with scattered agricultural communities such as Pleasant Hill, Postelle and Hiwassee. When the mining began, towns developed around the mines. The three principal communities of Isabella, Ducktown and Copperhill were all centered around mining activities. Isabella was entirely company built. Ducktown and Copperhill each combined company-owned property and an open town.

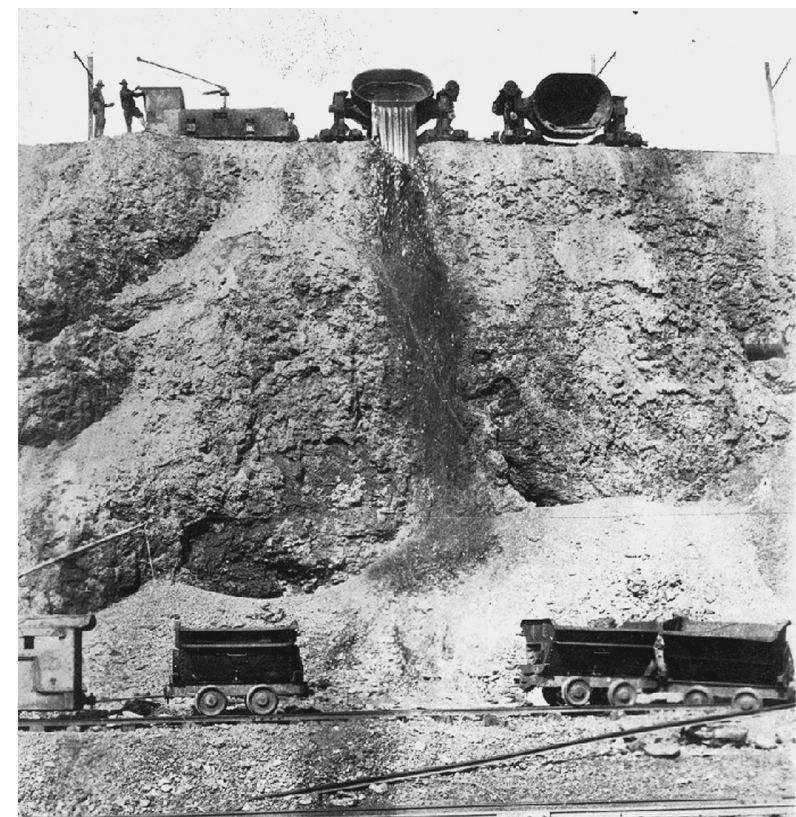
The two earliest communities of any size were Hiwassee and Isabella. Hiwassee was a former agricultural settlement which happened to be near the area where the Hiwassee Mine was opened in 1850. The community grew, in a haphazard way, up a small hill near the mine site. It developed a main commercial street which was surrounded by residential areas. The commercial area contained hotels, dry goods stores, restaurants, and other businesses. Hiwassee, which was not owned or controlled by a mining company, grew in importance as more people came into the Basin.



1916 photo shows general manager's house on Smelter Hill.



Several ferries transported citizens across the Ocoee River in McCays (now Copperhill).



Molten slag from the smelting process was dumped over a hill on today's U.S. Hwy. 68, creating a mountain of solid slag on which the Copperhill plant was built.

Isabella grew up about three miles east of Hiwassee. It was located next to the Isabella mine which opened in 1853. The town was founded by C.A. Proctor, who founded and mine and named it and the town after a sister. (The Mary Mine as also founded by Proctor). Isabella grew in two segments — the mine officials lived in a knoll near the mine, while the miners lived in an adjacent knoll farther from the mine.

These two communities were both built during the early stage of mining development and grew rapidly through the period. Large numbers of residences and commercial buildings were constructed, as well as religious institutions. Schools were founded in the 1870s in Hiwassee in an effort to improve the lives of the young.

Between the two stages of mining development the towns stagnated and lost population. With the mines not working, people returned to farming traditions. Many buildings constructed during the first phase of mining were left vacant and deteriorated during this period. Few buildings constructed before 1890 remain.

In 1890, when the railroad came to the Basin, a new community was founded. McCays was founded by the AK&N railroad as a rail stop. Instead of locating in the larger towns of Ducktown or Isabella, the railroad went to McCays so it could meet the North Georgia railroad at the Tennessee/Georgia border. The community was named after Herbert McCay, who operated a ferry across the Ocoee River at the site. The importance of the town was quickly established because the mines shipped their ore to McCays to be transported to various markets. TCC built a smelter at McCays in 1899 and chose to make the town their corporate headquarters in 1904.

McCays was renamed Copperhill after the primary product of the area and the terrain of the city. TCC did not own residential property in Copperhill but left residential development to private businessmen until 1904 when it constructed houses in Newtown and Smelter Hill. These two areas provided housing for the mine managers and many of the workers. During this time Hiwassee was renamed Ducktown and it grew as well.

With the copper industry growing there was a demand for adequate housing in Ducktown and Copperhill. In response to this demand the Tennessee Copper Company built houses for its workers in both cities. In Ducktown it built the Buzzard's Roost addition on property it owned south of town. The community still exists.

Near Copperhill TCC developed two areas. Smelter Hill was built on the hill behind the smelter. In this area the managers and officials lived. They built large houses, the smallest being seven rooms, with decorative detailing. Connected to Smelter Hill, but designed for workers, was Newtown. Buzzard's Roost and Newtown contained simple, stock plan houses in basic forms. These areas were owned and controlled by TCC. Newtown remains in existence but Smelter Hill was razed in 1976.

In December of 1910 Copperhill experienced two devastating fires. On the evening of Dec. 2 a fire destroyed about half of the town and left only four commercial buildings standing. The next night a second fire destroyed all the buildings along the river front. The community rebuilt but experienced fires again in 1925 and 1926. Severe flooding swept through the city in 1906 and 1990.

By 1913, within 25 years of its founding, Copperhill had grown enough to incorporate as a city. It was the first city to incorporate in the county; Ducktown would follow in 1954. Isabella would never incorporate, largely because the company owned the community.