

Chapter Eleven

A Sequential History of Arizona Railroad and Mining Development 1864—1920

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In the early days of Arizona Mining, exploration and operating conditions were tough and dangerous as we know from written history.

Henry Lesinsky of Coronado Copper fame shipped copper by wagon to the Santa Fe Rail head in Kansas as it advanced west. Some of the teamsters would stop in New Mexico and plant or harvest their crops but eventually all of the copper bars were delivered and accounted for. Many teamsters were killed, horses stolen and wagons burned. When the Coronado Railroad was built, imagine transporting 175 tons of rail from Otero, New Mexico to Clifton via wagons. Then the first Coronado locomotive arrives in the same way. As the Southern Pacific reached New Mexico the last of the following year, the horse and wagon train became shorter.

The same problem of distance was apparent at the Copper Queen. The cost of wagons and teams was high, the loads both ways were limited. The trip to Fairbank lowered costs significantly compared with Benson.

The Pioneer district was remotely located in early Arizona. The Arizona King shipped to Melrose or Selby, California. This ore went to Yuma where it was loaded on steamers before arriving at either mentioned smelter. When the S.P. reached Casa Grande that would be the wagon terminal and then a 900-mile trip to the smelter. Ore shipped by wagon ran \$1,000 per ton. If it was less, it was stockpiled for the mill.

The same problem faced Magma until their narrow gauge Magma Arizona line was finished.

If Dr. James Douglas had recommended United Verde when he first saw it, what would the company do with it? The nearest shipping point was Ehrenberg on the Colorado. No wagon roads, only primitive trails. A gold or silver mine might off-set the problem with the high value of their product. When the Atlantic Pacific crossed northern Arizona the wagon freight cost was \$20 per ton. When the railroad reached Prescott, it was \$10 per ton from Jerome.

All of the early miners told of the Indians killing teamsters and running off with the horses, also bushwhackers creating problems. Another complaint was the mud and quagmires during the wet seasons.

Even the coming of the early railroads would show that they were not immune to acts of mother nature.

This paper is an attempt to show the sequence of events from 1864 to 1920 as pertained to railroads that had a substantial effect on mining in Arizona. Surveys were made earlier. Every railroad that was proposed or incorporated is not mentioned. Details of what transpired can be found in excellent books listed. More details can be found in State offices, libraries, historical societies, newspapers etc. Keith L. Byrant Jr., who wrote "The History of the A.T. & S.F." reports that all large railroad companies have warehouses filled with notebooks and detailed records of years of operation.

The date of incorporation is used as the starting date in listing the railroads. The company that filed its route first and occupied the ground had the best start.

In recent years we hear so much about creative financing. Some of these early railroad operators have all of these characteristics.

Phelps Dodge, Magma and United Verde appear among the ones who arranged the financing before starting a line and they had reason to believe that the project would be self supporting.

1864 Castle Dome Railroad Co.

3 NOV 1864—The first Arizona territorial Legislature created the C.D.R.R., Co. to build a short common carrier from Castle Dome to Castle Dome landing 35 miles above Yuma; length of line was 35 miles. Were unable to finance the project.

1872 Texas & Pacific Railway Co.

Granted right of way across Southern Arizona by U.S. Congress. This was the first railroad company to start construction in Arizona, but never laid a rail or ran a locomotive. Work consisted of establishing grade on each side of Colorado river at Yuma to protect their position.

1877 The Southern Pacific Railroad of Arizona

The first locomotive to whistle in Arizona was S.P. #31 on 30 SEP 1877 at 7 AM. On 22 SEP 1880 the rails crossed the Arizona-New Mexico line.

1879 The Coronado Railroad

An unincorporated division of the Coronado Copper Co. In May of 1879, Henry Lesinsky was in New York purchasing rails and equipment for a 4½ mile 20-inch gauge line. In July the rails were unloaded at Otero, New Mex-

ico, the end of the Santa Fe. The 350,000 pounds of rail were hauled through Las Cruces in freight wagons. On Christmas 1879 the mules pulled the cars up the line in two hours. The return trip required 30 minutes by gravity. In early 1880 an order was placed with H.K. Porter Company of Pennsylvania for a locomotive. There appears to be some doubt as to the shipping route, since Lesinsky favored the Santa Fe at this time. It is probable that the locomotive was hauled from the end of the Santa Fe rails by wagon to Clifton. The engine a small O-4-OT type was called the EMMA. This first locomotive was made into an air compressor for plant use in 1893. The light original rail was replaced by 35-pound rail after 1898 and in 1901 & 1902 it was changed to 36-inch gauge.

1880 Colorado & Silver District

Incorporated to build a line from Nortons landing on the Colorado river to the Red Cloud Mine, a distance of five miles. Two surveys no construction, Yuma Co.

1880 Arizona Southern Railroad Co.

Incorporated 16 AUG 1880 to build south of Tucson. The Santa Fe had a token investment of 1,000 shares of stock. This venture was unable to secure adequate financing and withered, the name was revived by another group that built to Silver Bell.

1881 Arizona Mineral Belt Railroad

Later known as the Arizona Central. This was planned as a standard gauge line from Flagstaff to Globe. The *Globe Silver Belt* 18 AUG 1883 reported that the proposed 3,100-foot tunnel under the rim was 70 feet in from the portal. Rails were laid from Flagstaff southeast. On the 04 DEC 1888 it was sold at sheriff's auction to satisfy a labor lien in the amount of \$44,000. Riordan & Hinckley the purchasers used it for a logging road. One report said that 35 miles of the projected 160 had been completed.

1881 New Mexico & Arizona Railroad Co.

Incorporated 17 JUN 1881 by the Santa Fe. This standard gauge railroad ran from Benson to Fairbank to Calabasas to Nogales, a distance of 88 miles. Construction at Benson started in October 1882 and met the Sonora Mexico Railroad at Nogales in October 1884.

1881 Atlantic & Pacific Railroad

On 27 JUL 1866 President Andrew Johnson signed a bill creating the A & P Railroad with capitalization of one hundred million dollars and a land grant of 14,325,760 acres. The A & P ran into financial difficulty and receivership. In 1879 the Santa Fe, Frisco and A & P interests revitalized the A & P to preserve the continuity fiction and benefit from the land grant. Starting from Isleta, NM 100 miles of track were in place by February 1881. Needles, California was reached 03 AUG 1883. The line was rough and poorly ballasted, 52-pound rail was used. On 04 MAY 1897 the A & P from Albuquerque to Needles was foreclosed for \$12,000,000 and control passed to a new corporation the SANTA FE PACIFIC RAILROAD.

1882 Arizona Narrow Gauge Railroad Co.

A 36-inch narrow gauge line that hoped to run from Tucson to Globe and connect with the Denver & Rio Grande at Espanola, NM. Incorporation papers were filed

23 NOV 1882. A 368-foot bridge and ten miles of finished track from one half to three quarters miles west of and parallel to Oracle Road that ended south of McGee Road. Another 20 miles were graded. In 1887 the name was changed to the TUCSON, GLOBE & NORTHERN RAILROAD CO. Construction funds being unavailable the end was in sight. The rails went to the Los Angeles Street Railway system. Pima County paid the Bonds off in 1953.

1885 Prescott & Arizona Central Railway

A 75-mile standard gauge line using 32-pound rails that ran from Seligman to Prescott. Much of the line was on unballasted bare ground with quick cheap construction the rule. Yavapai County bonded itself for \$300,000 and gave a contract to Tom Bullock in that amount. Hence the line was called the "Bullock Line". The rails arrived in Prescott by midnight 31 DEC 1896 thus relieving Mr. Bullock from the \$1,000 a mile penalty. The two small engines were forced to back from Prescott to Seligman as there was neither a wye or turntable at Prescott. Sloppy management, high rates, poor service resulted in the Santa Fe foreclosing on the line as they had not been paid for supplies, equipment and interchange facilities at Seligman.

1885 Calabasas, Tucson & Northwestern Railroad Co.

Organized early in 1885 and backed by eastern monied men. Col. Sykes made the pitch to the Pima County Supervisors for bonds. The proposed line started at Calabasas then to Tucson, Florence and Phoenix both without railroads. Branches were projected to Arivaca, Quijotoa, San Xavier Mines and to Globe and the Deer Creek coal fields a distance of 350 miles. Maybe 1,000 feet of grading was completed but the bonds didn't sell and the railroad fizzled. Pima County burned the bonds in September 1903.

1888 Arizona & Southeastern Railroad Co.

Incorporated 24 MAY 1888 by the Copper Queen Consolidated Mining Co. who purchased all of the stock. The line was completed from Bisbee to Fairbank in 1889. This was a standard gauge line 36.2 miles long that used redwood ties and 2,388 tons of 40-pound rail in its construction. On 20 JUN 1894, the 19.1-mile Fairbank-Benson extension was started. It paralleled the New Mexico & Arizona (Santa Fe) tracks. Benson was the only town in Arizona at this time served by 3 lines. The A & SE later reached Naco on the border.

1891 Santa Fe, Prescott & Phoenix Railway Co.

On 27 MAY 1891 the SFP & P, or "Peavine" was organized by executives of the Santa Fe, the A & P and some Arizona territorial leaders including Frank M. Murphy. They proposed building a line through Prescott to Phoenix from Ashfork. Construction started 17 AUG 1892. The 57 miles to Prescott was reached 25 APR 1893 and Phoenix 28 FEB 1895. On 23 OCT 1901 the Santa Fe announced the purchase of the line. The Rock Butte area of the Peavine was then rebuilt. This reduced the 30 mile-section to 27. Forty bridges reduced to thirty. Twelve degree curves were eliminated along with seven complete circles of track and the grade reduced from 3% to 1½%.

1894 Congress Gold Railroad Co.

Three miles of track. The company owned two locomo-

tives. One an 0-6-0 Brooks reported to be the first oil burner in Arizona and later an 0-4-0 saddle tank Porter supposedly purchased from the Tombstone & Southern.

1894 United Verde & Pacific Railway

When the first claims at U.V. were staked in 1876, ore could be shipped to the Colorado River or to the Santa Fe Railroad Terminal in Abilene, Kansas. After the Atlantic & Pacific was completed across Arizona in 1882 it was possible to build a road to Ash Fork from Jerome for mule teams, the distance being 60 miles. While an improvement over the pack train the cost one way was \$20 a ton. In 1887 the Bullock line reached Prescott and a wagon road one third of the length of the first one was completed. When the Santa Fe Prescott and Phoenix line reached Prescott in 1893, Senator Clark made plans for a narrow gauge railway. The United Verde & Pacific to Jerome from Chino Valley. Grading started on this three-foot, narrow gauge in June of 1894 and first commercial train ran over it 24 JAN 1895. The maximum grade on the line was 3% and maximum curvature 24 degrees. This 24-mile line was known as the most crooked in the world. This was a well equipped hardworking railroad listed in the Official Railway guide as a common carrier. Wheels of this line had a white dot painted near the rim so that the engineer could tell if they were turning or were locked from a hot box. On one sharp curve the passengers in the back cars of the train could look into the engine cab as it went by in the opposite direction. This line was abandoned in January 1920.

1894 Gila Valley Globe & Northern Railway

On 24 JAN 1894 incorporation papers were filed in Arizona for the GVG & N Ry. A line to be built from Bowie to Globe a distance of 125 miles. Grading began at Bowie 30 JAN 1894. The line reached Solomonville station 08 AUG 1894. In February 1895 grading crews assembled at Pima for the westward push. The construction halted at Geronimo for two years while officials worked out an agreement with the Indians and the Federal Government. All very interesting but too long to discuss in this paper. The 125.5-mile railroad reached Globe in December 1898. In January 1899, the Old Dominion loaded twenty cars of copper bars weighing 25 tons per car. The Southern Pacific controlled the GVG & Northern but kept a low profile. In 1909 an extension was completed from Globe to Miami.

1897 Prescott & Eastern Railway Co.

Formed 14 SEP 1897 after Frank Murphy asked the territorial legislature for favored tax status for his proposed railroad. By 1 MAR 1898 work had started with a connection to the Peavine at Granite Dells. The first train over the completed line arrived in Mayer October 1898. The 56-pound rails were from the Peavine and other Santa Fe upgrading projects. Most of this iron was of 1880 vintage. Over the years the 26-mile P & E saw the rails upgraded to 65 then 80 and 90 pound rail. The power and rolling stock belonged to the SFP & P Railway. When the Santa Fe purchased the SFP & P line it gained control of the P & E. The 23 MAY 1920 time table was the last one to list the SFP & P as a division of the Santa Fe System.

1899 Arizona & Utah Railroad

The AU also known as the CB & F (Chloride back and forth). A standard gauge line built in 1899 from McConico to a station one mile south of Chloride. In 1912 the line was extended through Chloride to the Tennessee mine. All the rails were removed in 1933. The original line was 21.5 miles long. The *Mohave Miner*, 23 NOV 1912, reporting on the extension through Chloride reported that the Arizona & Utah line was part of the Santa Fe System.

1899 Morenci Southern Railway

The Morenci rail transportation system probably required more gauge transfers than any other place in the country. When Phelps Dodge gained full possession of the Detroit Copper Co., they shut down for five months for plant modernization. On 02 OCT 1899 the Morenci Southern Railway was incorporated. In February 1900 grading started, rails ordered from CF & I of Pueblo. On 31 JAN 1901 the line was accepted from the contractors. This 36-inch N.G. ran from Morenci to Guthrie where freight transfer was made with the Arizona & New Mexico line. The distinguishing feature of this 18-mile railroad was the spectacular loops. There were five in Morenci Gulch. It was reported that in one instance the conductor reached out and handed the engineer going in the opposite direction a chew of tobacco. In November 1908 the EL PASO & SOUTHWESTERN assumed control. On 03 MAY 1922 it ceased to be a common carrier.

1899 Helvetia Copper Co.

On October 1899 construction work started on a 8,000-foot, 36-inch narrow gauge line from the mines to the smelter, and work was completed the following November. A survey was run to a connection with the S.P. at Vail but the line was never built. A 10-ton saddle tank Porter and a new 18-ton Lima shay furnished the motive power.

1899 Ray Copper Mines Railroad

Located August 1899. Grading on the east side of Mineral Creek began in October 1899. By the end of April 1900 the five and one-half mile 30-inch N.G. line had been completed and the 25-pound rail in place. The first ore train from Ray to Kelvin was 14 MAY 1900. Sixty to 70 tons could be carried and repeated in an hours time. In 1907 after a five-year shutdown Ray Consolidated Copper came into control. The narrow gauge was improved so that by 1909, 400 to 500 tons were hauled per trip. During March 1909 work commenced on a standard gauge line from Ray to Kelvin over a new route. Eighty pound rail was used and the line still retained the Ray Copper Mines name. In July 1910 an agreement was made with the Arizona Eastern Railroad to handle ore cars from Ray Junction to Hayden Junction and then over Ray Mines trackage to the mill. The Ray and Gila Valley Railroad Company was incorporated on 10 AUG 1910 and property transfer to the new entity accomplished by 14 OCT 1910. Many changes have been made, but this is still a viable operation.

1900 Southwestern Railroad of Arizona

Incorporated 19 OCT 1900 this railroad started at Don Luis station along the international boundary to present site of Douglas and the right to extend to Arizona's eastern boundary. Within a month grading for the new line was

in progress. By June 1901 the line had reached the New Mexico border. At a stockholders meeting in New York the name of the Southwestern Railroad of Arizona was changed to the El Paso and Southwestern Railroad Company.

1901 El Paso & Southwestern Railroad Co.

This interstate railroad began in June 1901 when the company was formed as a name change of the Southwestern Railroad of Arizona. When it was sold to the Southern Pacific in 1924 the line extended from Tucson to El Paso to Dawson, New Mexico. The EP & SW interest in the Ajo Gila Bend line was not included in the sale.

1901 Bradshaw Mountain Railway Co.

Incorporated 06 FEB 1901 by Frank Murphy who was able to secure a favorable tax bill from the territorial legislature. There were two branches to this line. The Poland branch extended eight miles from the P & E to the Poland Mine. The Crown King Branch extended from the Prescott and Eastern at Mayer twenty-eight miles in the higher Bradshaws to the Crown King Mine. The Poland Branch was completed on 11 MAY 1902. The difficult Crown King Branch had ten switchbacks in seven miles of track (to travel two miles) with grades as high as 4%. At 6,000-foot elevation the construction was hampered by heavy snow. Regular travel service to Crown King began in May 1904. This completed the Bradshaw Mountain Railway sixty miles out of Prescott. While the Bradshaw Mountain, the Prescott & Eastern and the Santa Fe, Prescott & Phoenix railways were three separate entities. The SFP&P furnished motive power and rolling stock. The trains operated out of the SFP&P yard. In 1926 the most spectacular and least profitable section from Crown King to Middleton was removed.

1902 Phoenix & Eastern Railroad

Incorporated 31 AUG 1901 by the Frank Murphy interests to build a standard gauge line east from Phoenix then following the Gila River and the San Pedro to Benson, 185 miles away. On 17 OCT 1902 the work started, the Santa Fe bought the line from Murphy and limited the construction to Winkelman 95 miles distant. The line passed through Gilbert, Queen Creek, Magma at M.P. 43.1 around Poston Butte and followed the Gila River to Winkelman. The rails arrived at Florence station 08 JAN 1904. By the end of June 1904 the track had been completed to Kelvin, 80.7 miles from Phoenix. On 28 SEP 1904 train service reached Winkelman and M.P. 95. This ended expansion of the P & E in spite of location and right of way having been secured to Benson. P & E equipment included four oil burning locomotives, five passenger cars, three combos and sixteen company service cars. After 1906 the four locomotives were sold and the Santa Fe, Prescott and Phoenix supplied the necessary motive power. The year 1905 brought a deluge that put rivers higher than ever and washed out bridges and track. The first ten weeks of 1905 brought 10.2 inches of rain to Phoenix. The Southern Pacific acquired the securities of the Phoenix & Eastern RR on 13 MAR 1907. The P & E operated for three years. It lost its public identity in August 1934 when the S.P. Co. acquired its property.

1902 Arizona & Colorado Railroad Co.

Incorporated 08 SEP 1902. On 28 MAY 1903 the first train from Cochise entered Pearce and the Commonwealth Mine property. This seventeen-mile stretch stopped at this time. In the spring of 1908 thirty-five carloads of rails were unloaded at Willcox. In February 1909 the S.P. started building south. Eighteen miles of railroad opened for business to Gleeson 01 JUL 1909. The A & C then concentrated on building a line to Naco. In November 1909 all work halted and the A & C had rails in place 23.8 miles south of Kelton to a place named Black Knob. Less than sixty miles of track constituted this line. Outside of rock work into Gleeson and near Courtland the terrain was level so little grading was required. This company was owned by the Southern Pacific so problems of financing were not encountered. On 01 FEB 1910 the A & C wound up with five other local lines in the Arizona Eastern Railroad Co. The track from Kelton to Black Knob which never operated was removed by 31 JUL 1924. Operations ceased and all rails were removed in 1933.

1902 Mohave and Milltown Railroad Express

A seventeen-mile long, narrow-gauge line that ran from the Leland mine past the Vivian mine to a landing across the Colorado River from Needles, California. A ferry transported supplies across the river. A mill located five or six miles from the landing processed the ore. The mining company operated the ferry and railroad. It has been reported that a steam engine pulled a train of freight cars and one passenger car. In 1913 after several floods mainly near the Colorado River the line was abandoned.

1902 Old Dominion Railroad

A mine plant railroad. From 1902 to 1908 the Old Dominion Copper Mining & Smelting Company built a new concentrator, smelter, power house and standard gauge in-plant service railroad. This line had three connecting segments, one to the ore bins, another terminated above the new smelter. The third linked the new shaft with the concentrator, and the Arizona Commercial RR to Copper Hill. By 1914 the in-plant trackage measured over six miles. Old Dominion owned two 35-ton and one 50-ton 0-4-0 saddle tank Porters and two Lima 45-ton shays.

1903 Arizona & California Railway Co.

On 18 DEC 1903 the Santa Fe announced the sale of bonds to finance the construction of several new lines including one from Wickenburg to Parker to Cadiz in California. The Santa Fe incorporated the Arizona & California Railway Company. It was slowly constructed west and north from Wickenburg arriving at Parker on 17 JUN 1907. One mine railroad from Bouse to Swansea was built to connect with the A & C, however, the A & C crossed mining country.

1904 Arizona Eastern Railroad Company

Incorporated in Arizona 16 FEB 1904 by the Southern Pacific because of the plans of Frank Murphy's Phoenix & Eastern. The incorporation date followed the Phoenix & Eastern arrival at Florence Junction. The plan was to follow the Gila River across Arizona and enter New Mexico near Duncan. In May and June of 1904 amended filings were made. Construction in 1904 was limited to 2.1

miles along the Gila River. The AE RR completed the 7.6-mile, Winkelman-Christmas line in June 1911. On 01 FEB 1910 THE ARIZONA EASTERN RAILROAD COMPANY was incorporated in Arizona. This railroad company combined the Arizona Eastern RR of 1904 with the GVG & Northern Railway Co., the Maricopa & Phoenix Railroad Co., the Arizona & Colorado Railroad Co., and two projected railroads in New Mexico.

1904 Arizona Southern Railroad Co.

Incorporation papers of the Arizona Southern Railroad Co. were filed 20 JAN 1904. Grading began at Red Rock 17 FEB 1904. The first trains to Silverbell arrived in September. Three switchbacks were necessary and then the maximum grade was 3.4%. Rails and fastenings were leased from the S.P. This standard gauge line was 20.6 miles long. The Imperial Copper Co. built its own smelter under the name of its affiliate, Southern Arizona Smelting Co. SASCO was the name given to the location. The mines went into receivership in 1911 and for two years there were no trains on the AS RR. In 1916 rails and ties were replaced and operations resumed. On 20 DEC 1933 the railroad ceased operations.

1905 Arizona Commerical Copper Co.

On 9 JAN 1905 this company was incorporated in Maine. Until 1905 pack mules had packed the ore. A narrow gauge tram with mule power was tried. During 1906 & 1907 a standard gauge line connecting with the Old Dominion rails was completed. The steep grades demanded the use of shays. The first of three went in service in March 1907. Other standard and narrow gauge lines were used in the vicinity of Copper Hill but are not included in this paper.

1905 Tombstone & Southern Railroad Co.

Tombstone and Southern Railroad Co. incorporation papers were filed 01 MAR 1905. The proposed route extended from the end of the EP & SW in Tombstone to Charleston a distance of about ten miles. A few weeks later the Tombstone Consolidated Mining Co. conveyed its 9,700 feet of trackage to the T & S RR Co. Work on changing the T & S to standard gauge began immediately and was completed in late January 1906. In November 1907 the Lucky Cuss hoist was destroyed by fire and on 01 JUN 1909 the pumps failed. The Tombstone Consolidated Mines Co. went into receivership, including the two-mile T & S railroad.

1905 Twin Buttes Railroad Co.

Incorporated 23 SEPT 1904. This line is now the present S.P. Nogales Branch from Tucson to Sahuarita. The Tucson station was located across the tracks from the present Arizona Motor Vehicle Department on 22nd Street. On 30 JUN 1906 the rails reached Twin Buttes. The S.P. supplied second hand rail & fastenings for the twenty-seven mile standard gauge line for \$155,335 to be paid within five years at 5% interest. In May 1912 the Pioneer Smelting Co. a subsidiary of the TBM & S Co. completed its custom smelter on the TB RR 1½ miles west of Sahuarita. The smelter created considerable business but lost money and closed in 1913. The Twin Buttes railroad leased a 4-4-0 Rogers from the S.P. that was returned in 1910. In 1908 a 4-6-0 Schenectady was purchased from the S.P. One combination passenger baggage car and the

only freight equipment was a flat car. In June 1910 the Tucson-Nogales railroad purchased the 17.9-mile Tucson-Sahuarita section for \$221,518 leaving 10.2 miles in the T.B. systems. However, the TB RR was able to pay off its debt. In 1934 the line was scrapped.

1908 Mexico & Colorado Railroad Co.

Incorporated 22 DEC 1908 to build from Douglas to Courtland. Work began 07 JAN 1909 at the end of the line so that supplies were hauled to Courtland by wagons. The Great Railroad War occurred 17 FEB 1909 when the M & C and the A & C grading crews tried to occupy a 400-foot section and put their grades in the same location. It was settled and the two lines did cross at Kelton. The 35.7-mile line ran from Douglas through McNeil and Elfrida. The M & C became part of the EP & SW RR on 01 MAR 1910. The EP & SW became part of the S.P. on 01 NOV 1924. The unused line from Kelton to Black Knob was torn up by 31 JUL 1924. Under SP ownership the line operated as one train from Cochise to Douglas. In 1933 the rails were removed.

1909 Arizona & Swansea Railroad

Probably built in 1909 and 1910 to serve the Swansea Mine. This twenty-five mile standard gauge ran from Bouse on the Arizona-California line of the Santa Fe to the Swansea operations. In 1909 four locomotives were purchased. The first one was an English built Manning-Wardle 0-6-0 saddle tank from the lower California development company in San Quintin Bay 184 miles south of Tijuana, Mexico. It was lost overboard from a lighter and is probably covered with twenty-one feet of sea water in the bay. Two 2-8-0 Baldwins and a 2-8-0 Alco Schenectady completed the motive power. The rails were removed in the 1930's.

1909 The Shannon Arizona Railway

Incorporated 29 MAR 1909 with all stock held by the company and the directors. A ten mile long 36-inch narrow gauge through 10 tunnels and over 7 trestles. Mile post 0 was along Chase Creek south of Clifton and M.P. 10 just below Shannon Mountain. On 21 FEB 1910 the first trains began running using empty cars. The railroad ceased operations in 1919.

1909 Tucson & Nogales Railroad Company

A rail line from Tucson to Nogales was proposed very early in Arizona. In 1882 the New Mexico and Arizona completed 9.8 miles from Calabasas to Nogales and the Twin Buttes R.R. in June 1906 completed the 17.9 mile Tucson-Sahuarita link. On 19 JUN 1910 the first train was run over the line leaving Tucson in the morning and arriving in Nogales three hours later. The day before the transfer of the Twin Buttes RR had been accomplished. On July 13 Sonoita Canyon was subject to the worst flood in its history. The T & N RR Co. was merged into the S.P. on 02 OCT 1934. The T & N rebuilt the Tucson-Sahuarita portion of the old Twin Buttes line with new trestles and heavier rail.

1910 Calumet & Copper Creek Mining Co.

On 23 MAR 1910 the Calumet & Copper Creek Mining Co. was incorporated. Local transportation problems were solved by a short line railroad. The railroad a 30-inch

narrow gauge about two miles in length ran from the Old Reliable up Copper Creek to the mill. The 135 tons of 40 pound rail were purchased from the Arizona Eastern. A Porter 0-4-4 T narrow gauge (30 inch), eight dump cars and one flat car were purchased from Ray Consolidated Copper. Louis S. Cates, the Ray manager, advised D. C. Jackling on 28 JAN 1913, that this was a cash transaction with money (\$1,200) deposited in the bank before shipment was made. The engine was hauled to Copper Creek on narrow gauge rails mounted on two large wagons pulled by twenty horses in front and four mules behind. After closing the rails were hauled out and sold to various mines in the area.

1911 Verde Valley Railroad

In October 1911 the Santa Fe started construction of a thirty-eight mile standard gauge railroad from Drake on the SFP & P that followed the Verde River to the new town of Clarkdale. This line operated under control of the SFP & P RR. Clarkdale may not have been a railroad town but four standard gauge lines terminated there for several years, the VT & S, UV CCo., SFP & P and the AE.

1912 Inspiration Consolidated Copper Co.

Formed 18 DEC 1911 to combine Inspiration Copper Co. and Live Oak Development Co. This company railroad started in lower Miami and connected with the mines and plant. It was a standard gauge line 7½ miles long and the original rail was 75 pounds; the maximum grade was 4%. Over the years many changes have taken place on this line.

1912 Verde Tunnel & Smelter Railway

Incorporated 10 AUG 1912. Work started in 1913 and line was open to traffic 17 FEB 1915. This eleven mile railroad had a 4% grade from Clarkdale to Hopewell, a climb of 2,000 feet. The original line used 75-pound rail but in 1919 to 1920 this was replaced with 90-pound rail and Alco-Schenectady steam locomotives furnished motive power. The last two were 2-6-6-2 and these were the largest locomotives in mine service in Arizona. Each would handle 220 tons or ten empty ore cars on this grade. They were sold to the SP in 1943.

1914 Magma Arizona Railroad

Early shipments from the Pioneer District were by wagon to Yuma and then by boat to the California coast. The P & E reached Florence 1903 only thirty miles from the Silver King Mine. In 1914 Magma paid \$10 per ton to haul concentrates to Florence. One could imagine the conditions of the roads in wet weather, or the difficulty with men and animals during the hot summers. The Magma line was incorporated 10 OCT 1914. A new American locomotive saddle tank 2-4-2 was purchased for \$3,800. Ten V-bottom rocker dump cars of 100 cu. ft. capacity @ \$225 each. Four gondolas @ \$340 each. On 27 NOV 1914 construction started. This thirty one mile long 36-inch narrow gauge from Magma to Superior used new 30-pound rail. All Magma locomotives were oil burning.

1914 Mascot & Western Railroad Co.

This sixteen mile line from Willcox to Dos Cabezas has been the subject of many interesting stories in books,

magazines and newspapers. This R.R. line was incorporated 30 JUN 1914 with construction starting in February 1915 and was completed by 31 MAY 1915 and torn up about fifteen years later. Second hand 50 to 60 pound Bessemer Steel rails were leased to the M & W for five years, but purchased later. There were seven trestles totaling 795 feet and 41,000 ties. The only locomotive was a 4-6-0 Schenectady leased from the SP and later purchased. Grades on this line were moderate except for a short one of 3.6%. The M & W owned one old passenger car. All freight cars and gondolas were furnished by the SP on a per diem basis.

1914 Tucson, Phoenix & Tidewater Railroad Co.

Incorporated 17 MAR 1914 by James S. Douglas of UVX fame. The next evening applied to Phoenix city council for a franchise on Madison and Jackson Streets to be used for railroad purposes. A published brochure showed a map of the surveyed route from Tucson to Phoenix 120 miles, a dotted line to California and Tidewater and use of EP & W tracks from Tucson east. This was published in 1923. One time table was published. Apparently the proposal died in 1923 or 1924 without any construction.

1915 Tucson, Cornelia & Gila Bend

In the early days rich ore was hauled to the Colorado River by wagon teams to start the long water trip to San Francisco. After the SP arrived ore could be hauled by wagon to Gila Bend from Ajo. The TC & GB Railroad was incorporated 18 MAY 1915. Stock in the company was divided evenly between the New Cornelia Copper Co. and the EP & SW RR. Some maps showed a line from Tucson to Ajo but the actual construction was a 44.3-mile line from Gila Bend to Ajo. The railroad was considered complete in April 1916. For several years one 2-6-0 locomotive served the line, in 1918 a Baldwin was added. This does not include equipment in the mine or plant. The company owned 114 concentrate hauling cars, six or seven ballast cars and other equipment.

1917 Arizona Extension Railway

The UVX started a new standard gauge railroad line and a new smelter which was located at Clemenceau. The 2½ mile Josephine tunnel was driven from a point just west of Clarkdale to connect with the Audrey shaft. This was also standard gauge and electrified. A Baldwin Westinghouse 24-ton 150-h.p. locomotive pulled the underground train through the tunnel. The portal of the tunnel was connected to the smelter by a ¾-mile standard gauge line. Another line 3½ miles long connected the smelter with the Santa Fe at Clarkdale. Two steam engines, one a Brooks 0-6-0 of 1896 vintage and a 4-6-0 Baldwin built in 1901 were the surface motive power of the line. In practice the electric engine pulled the loaded gondolas from the mine to the tunnel portal where a steam engine took them to the plant. The electric then pushed the empty cars back for reloading. This tunnel was still open in 1943 when four of us rode to the shaft station on a small, four-wheel, model T Ford-driven speeder.

1922 Sheldon Mining Co.

In 1901, Murphy and his associates decided to extend the 800-foot Poland Tunnel through the mountain. They

hoped to find new ore deposits. This was accomplished but there were no bonanzas in size or grade. They probably hoped to tap many mines in the Lynx Creek area and ship the ore to the Poland mill, then concentrates to the Humboldt smelter over their railroads. The double track (probably 18-inch gauge) 8,017 foot tunnel was completed in 1904 at a cost of \$500,000. Starting from each end they were only six inches off center, a one percent grade downhill towards Poland and three percent the same direction at the other end. The Sheldon Mine operated a few years later. The track was changed to single track, 24-inch gauge and history records the use of three Plymouth locomotives of 28 to 32½ size from the middle 20's to the middle 30's. They were never able to find sufficient ore to enlarge the tunnel to standard and otherwise carry on sizeable operations.

Acknowledgement of Sources of Information

THE RAILROADS OF ARIZONA—Volumes I, 11, 111 by David F. Myrick

These books are well written and cover a myriad of details including photos, route maps and names of people involved.

GHOST RAILROADS OF CENTRAL ARIZONA—by John W. Sayre

This excellent book covers part of the building of the Frank M. Murphry Railroad Empire centered around Prescott, Yavapai county, Arizona. This book also contains excellent photos, maps and operational details.

VERDE VALLEY RAILROADS—by Russell Wahmann in collaboration with Robert des Granges

RAILS TO CARRY COPPER—by Gordon Chappel

A well illustrated and written book on the detailed history of the Magma Arizona Railroad.

HISTORY OF THE ATCHESON TOPEKA & SANTA FE RAILWAY—by Keith L. Byrant Jr, Dean of Liberal Arts—Texas A & M University.

An excellent overall history of the AT & SF. Only a few pages cover Arizona, but the overall understanding of the events as they happened is well explained.

UNITED VERDE COPPER CO.—The Mining Congress Journal April 1930

J. E. McLean, General Superintendent, Verde Tunnel & Smelter Railroad Co. "Development of Transportation to the United Verde".

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U.S.G.S. Bulletin 397—by F. C. Schrader

Description, map and picture of Mohave Milltown RR and a map and description of the Arizona Utah RR.

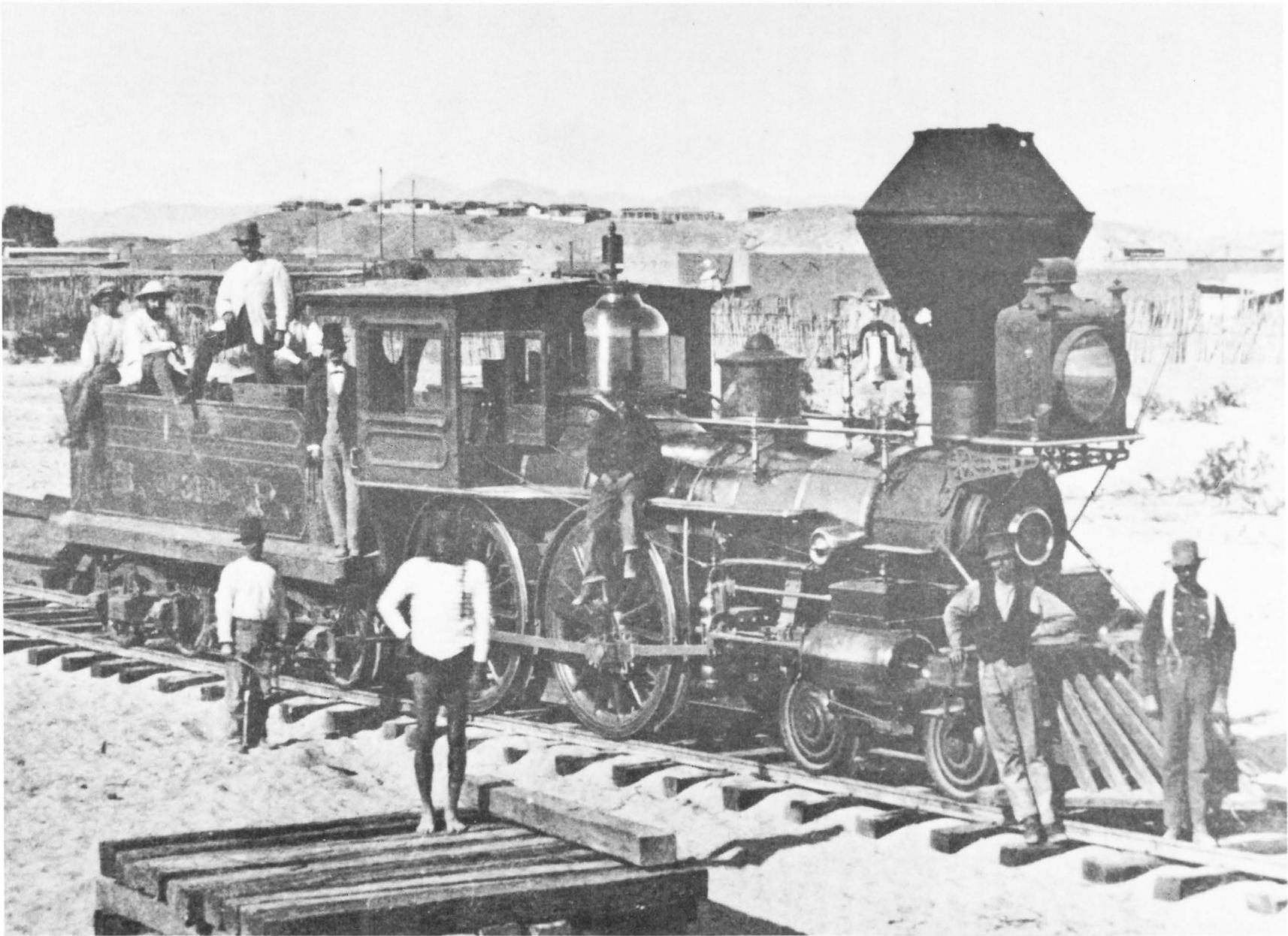
THE EARLY HISTORY OF THE CLIFTON MORENCI DIST.—by James Colquhoun

President of the Arizona Copper Co. and The Arizona & New Mexico Ry.

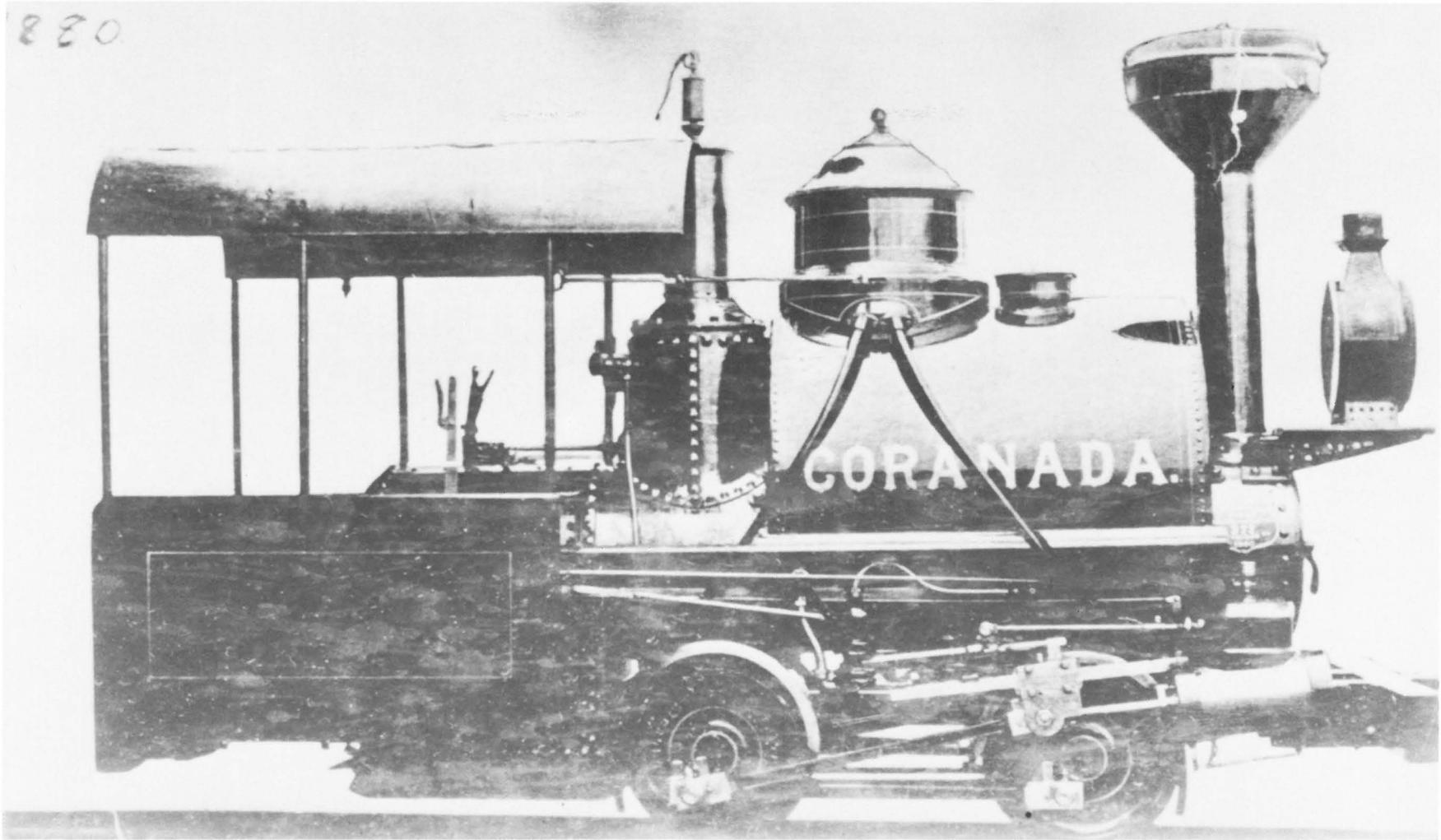
THE MINERAL INDUSTRIES OF ARIZONA—by J. B. Tenney

Arizona Bureau of Mines Bulletin 125

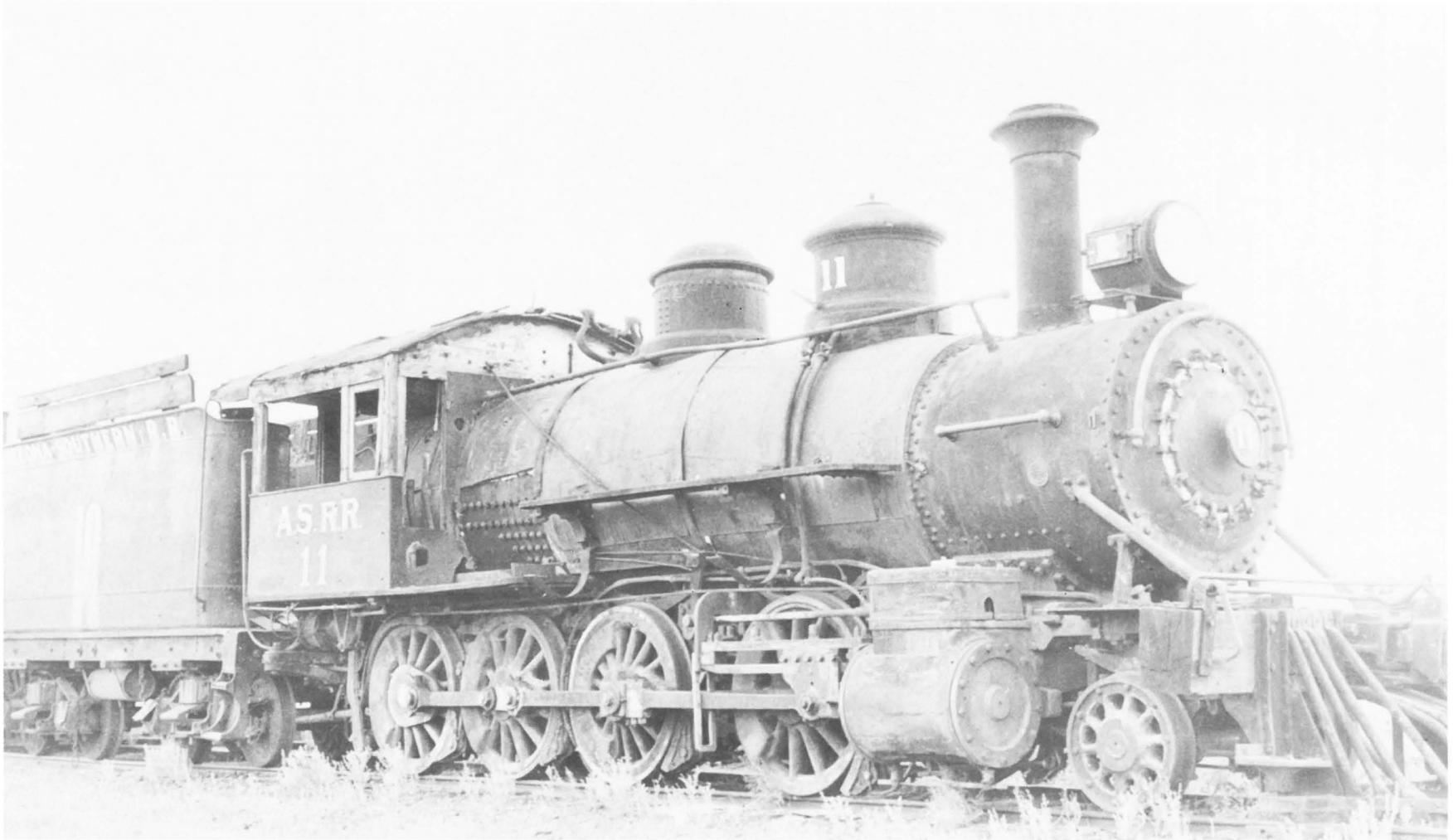
THE ARIZONA HISTORICAL SOCIETY, THE UNIVERSITY OF ARIZONA LIBRARY SPECIAL COLLECTIONS, THE SHARLOT HALL MUSEUM, THE MOHAVE COUNTY HISTORICAL SOCIETY—furnished pictures and information from their records.



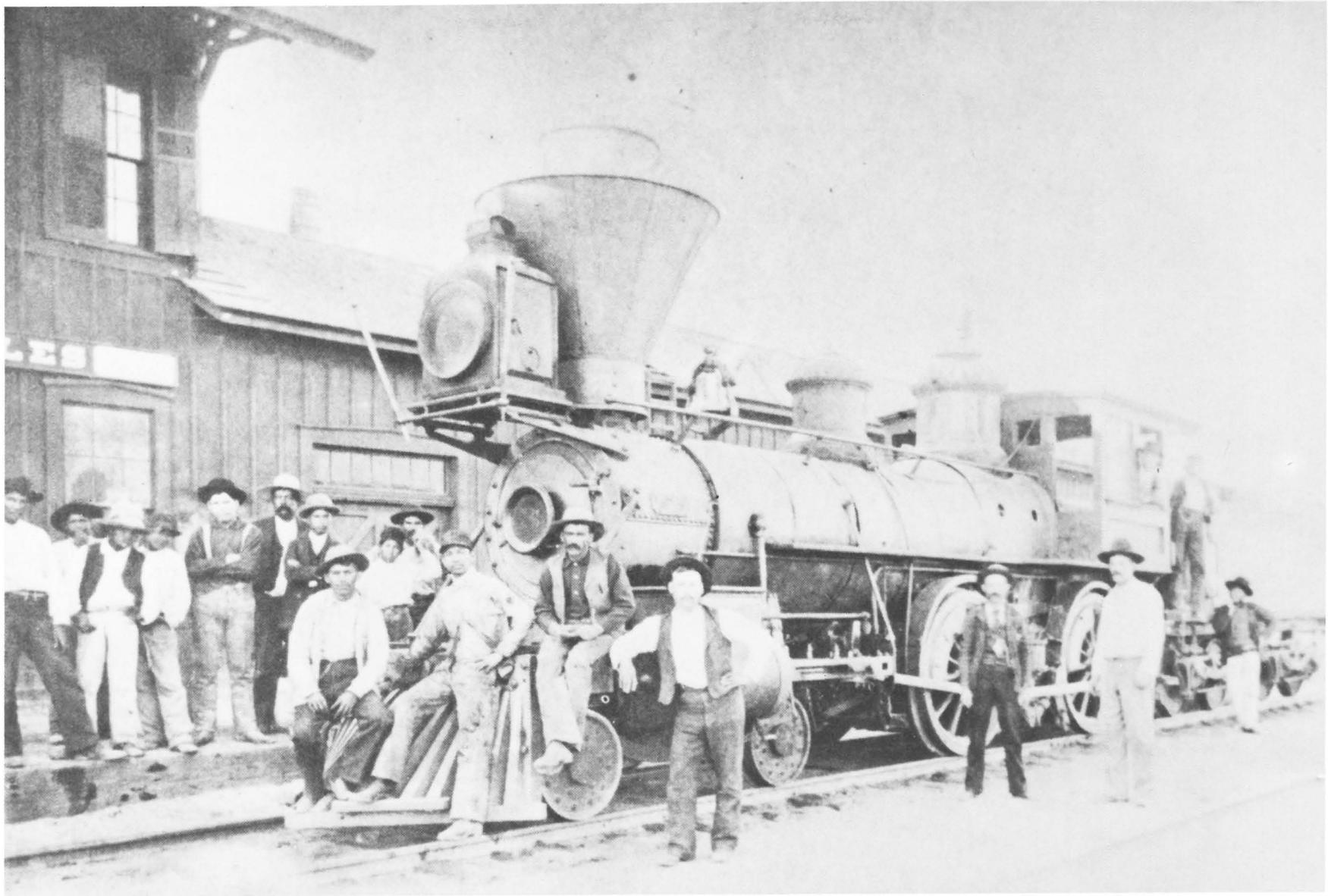
The first locomotive to enter Arizona was the Southern Pacific No. 31. Yuma, 1877. Courtesy of the Arizona Historical Society/Tucson.



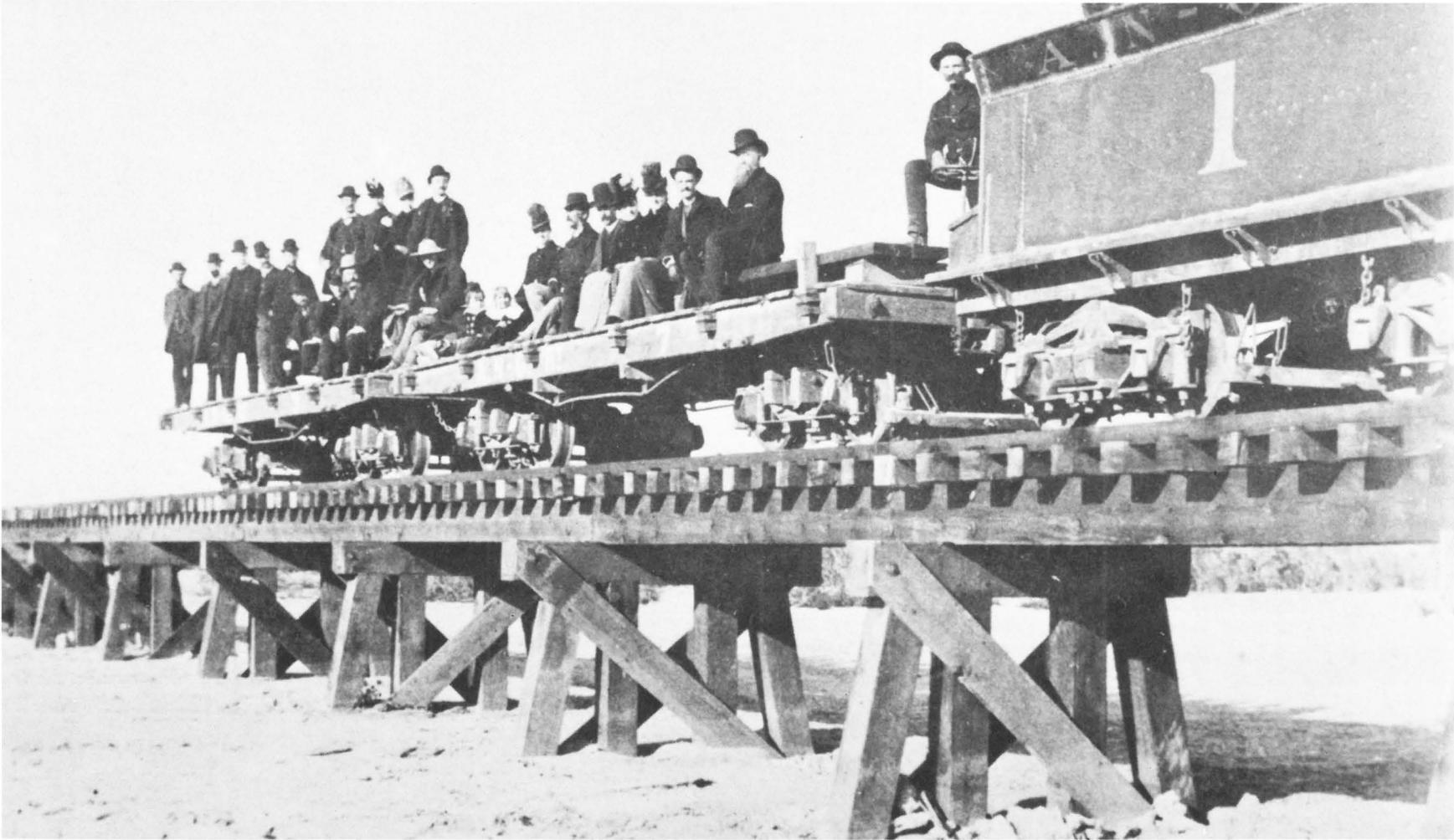
Operated by the Coronado Railroad Co., this locomotive was the first employed in the Copper Mountain mining district, 1880. This engine was eventually converted into an air compressor.
Courtesy of the Arizona Historical Society/Tucson.



A locomotive of the Arizona Southern at Redrock. *Courtesy of the Arizona Historical Society/Tucson.*



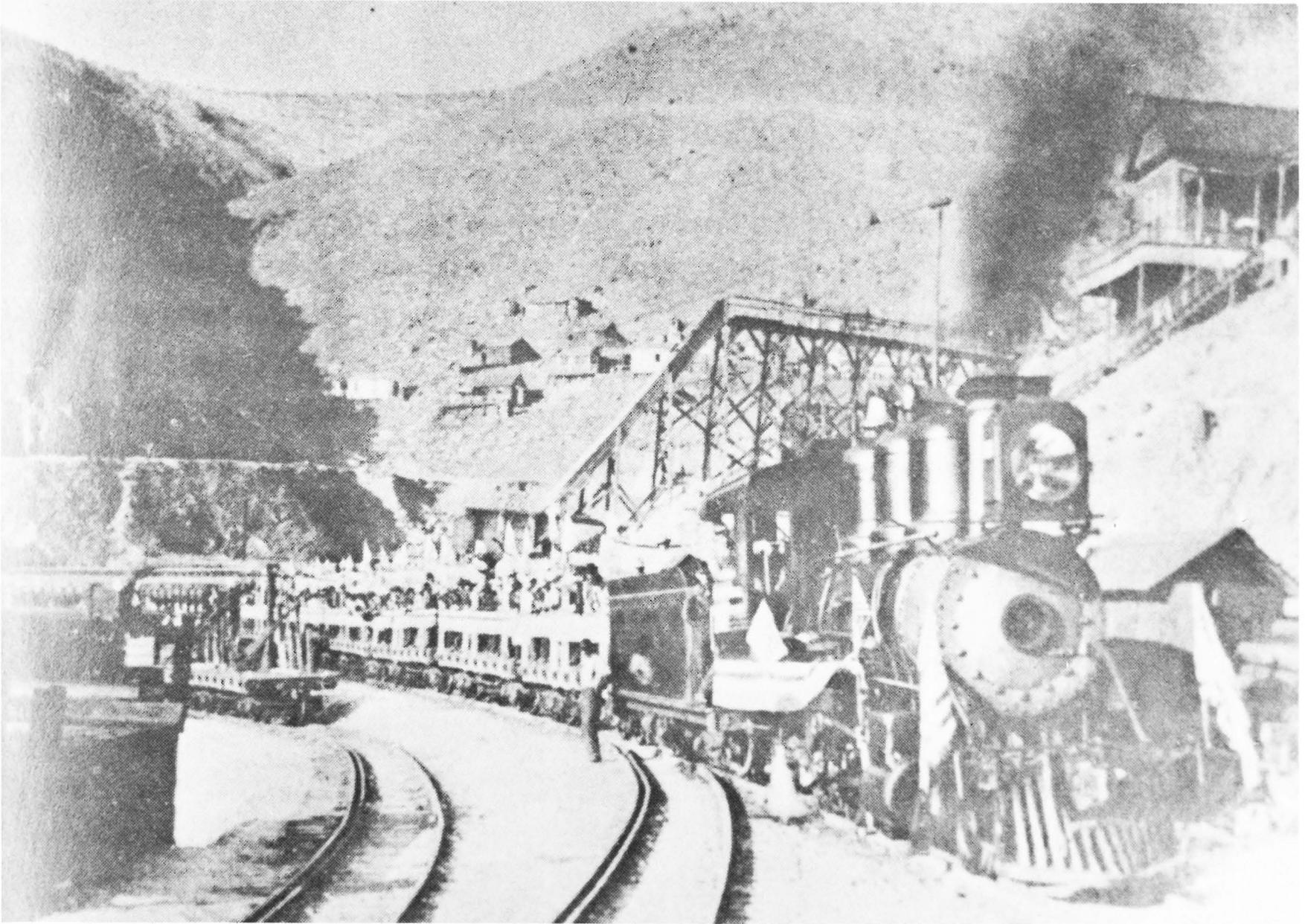
A New Mexico & Arizona engine at the Nogales station. Courtesy of the Arizona Historical Society/Tucson.



The Rillito River crossing of the Arizona Narrow Gauge Railroad Co., late 1880's. Courtesy of the Arizona Historical Society/Tucson.



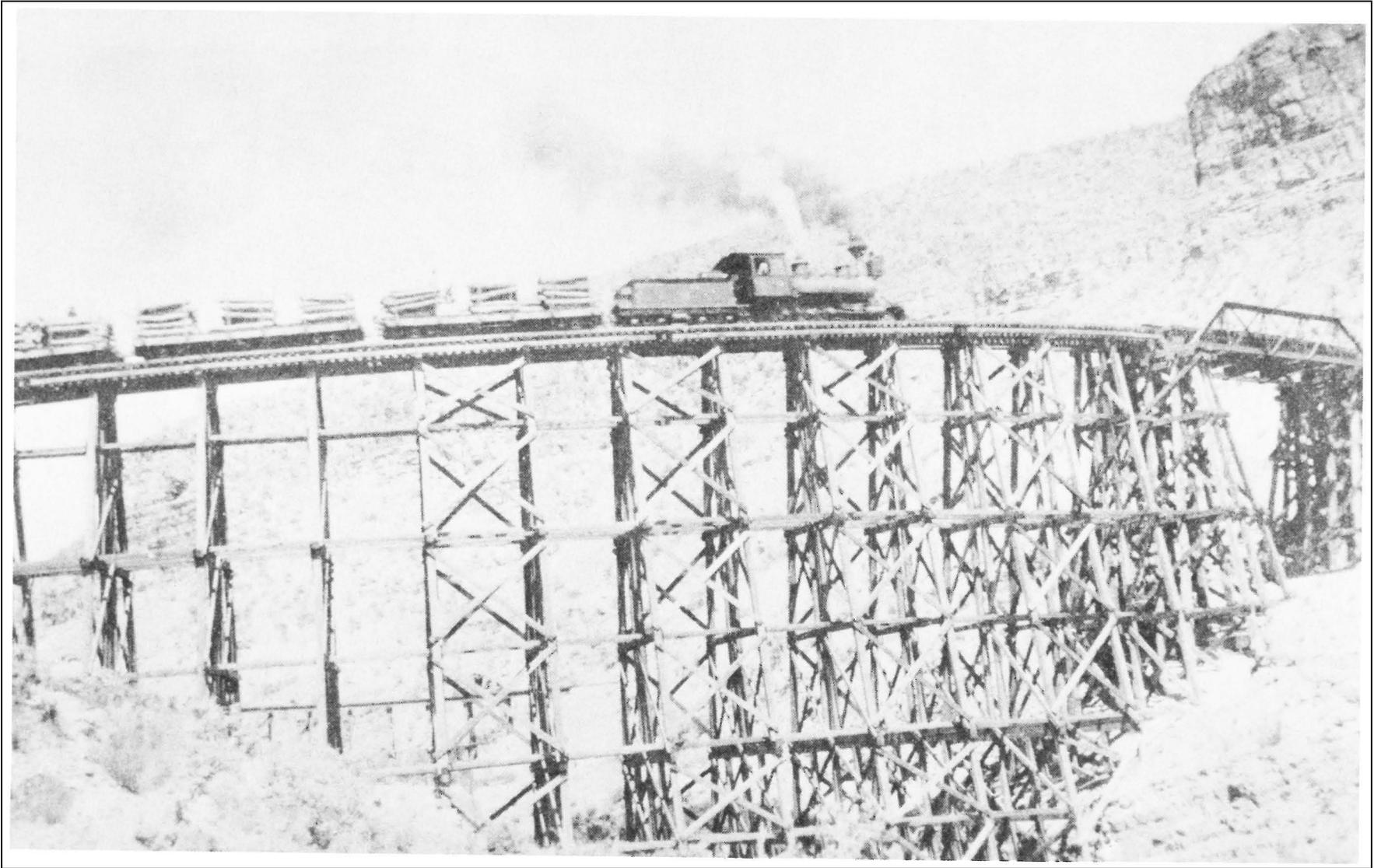
Ore train of the United Verde mine, at the loading station of Shaft No. 5. Headed out of the Hopewell Tunnel. *Courtesy of the Arizona Historical Society/Tucson.*



United Verde & Pacific taking celebrants from Jerome to Granite Dells for Miners Union Fourth of July picnic, 1910. Courtesy of the Jerome Historical Society.



Constructing the road bed for the Gila Valley & Northern Railway, between Bowie and Globe. Courtesy of the Arizona Historical Society/Tucson.



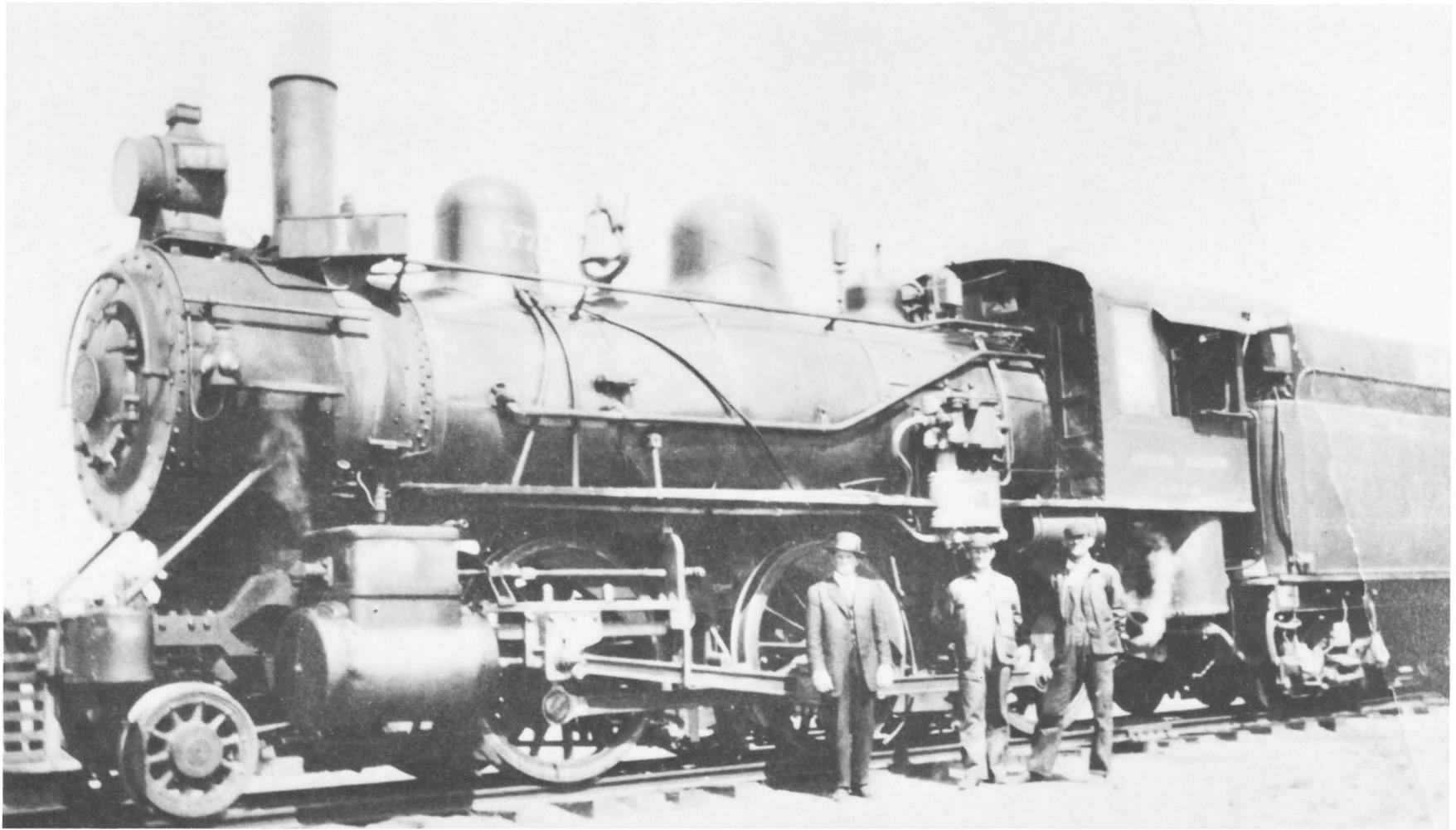
The Morenci Southern on one of its high wooden trestles. *Courtesy of the Arizona Historical Society/Tucson.*



The Helvetia Copper Co. operated this train between the mines and the smelter, c. 1901. *Courtesy of the Arizona Historical Society/Tucson.*



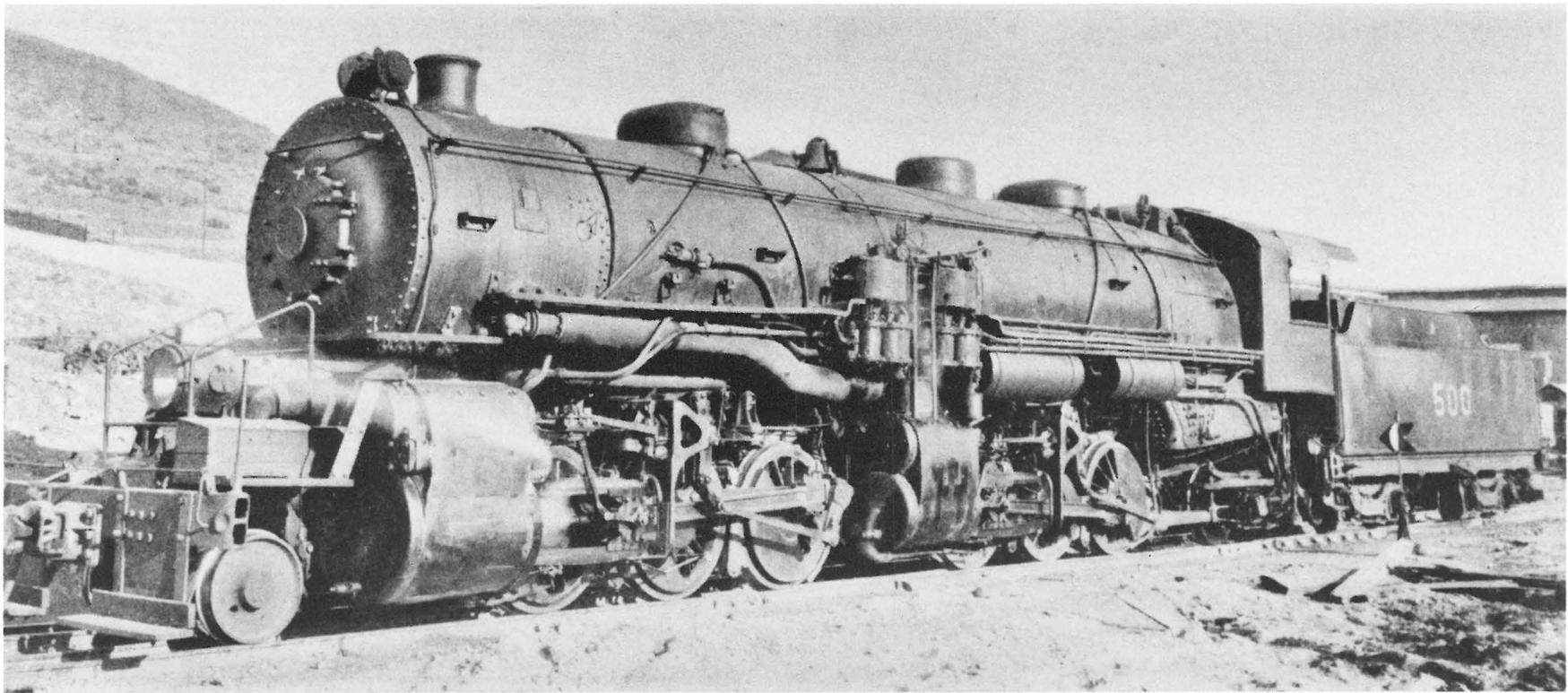
The El Paso & Southwestern No. 1. This railroad company was originally a subsidiary of the Phelps Dodge Corporation. *Courtesy of the Arizona Historical Society/Tucson.*



The Arizona Eastern, sometimes referred to as the "High, Dry and Windy". Courtesy of the Arizona Historical Society/Tucson.



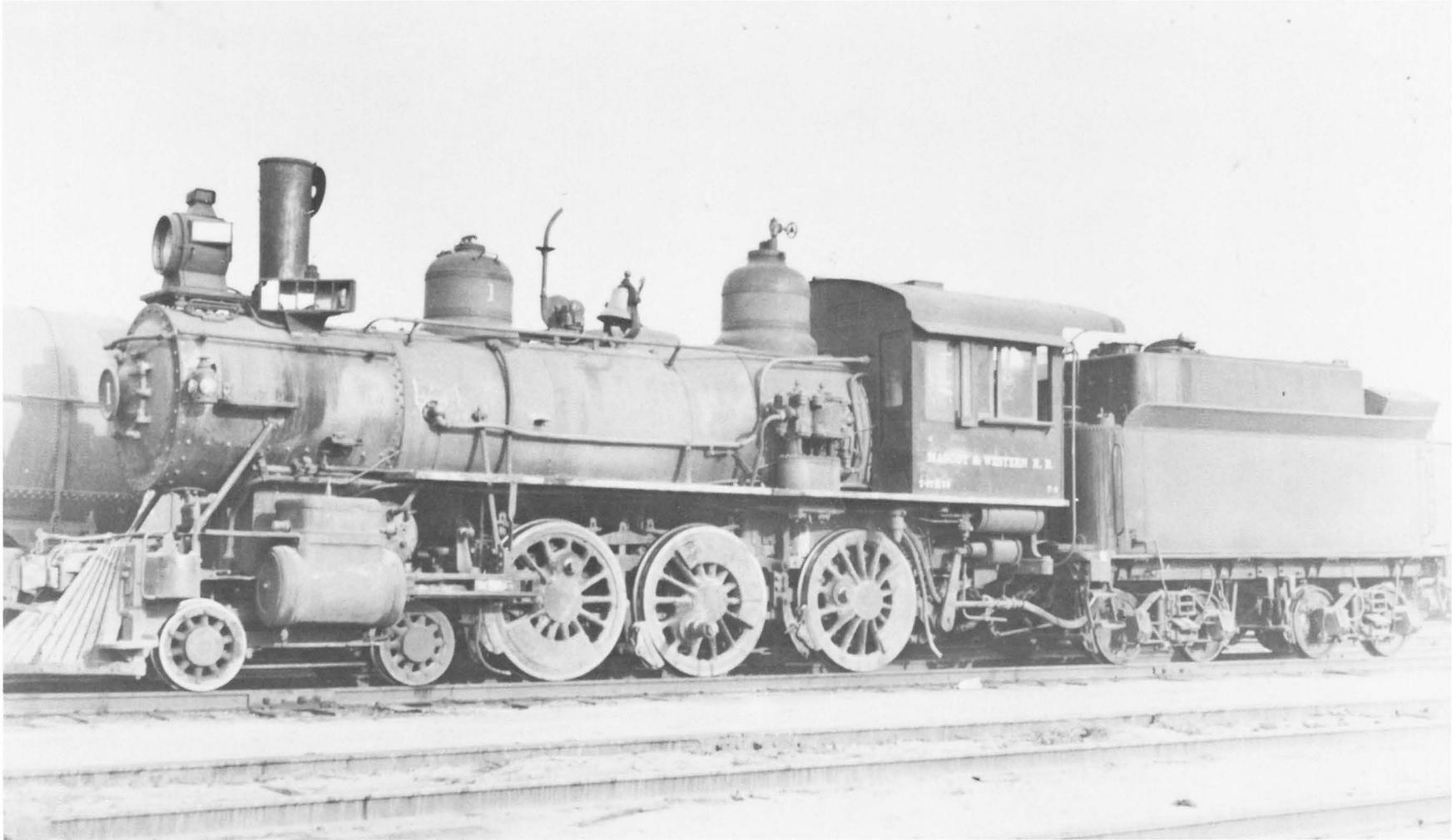
At station of the Twin Buttes Railroad Company; near present corner of Euclid and 22nd St. in Tucson. Courtesy of the Arizona Historical Society/Tucson.



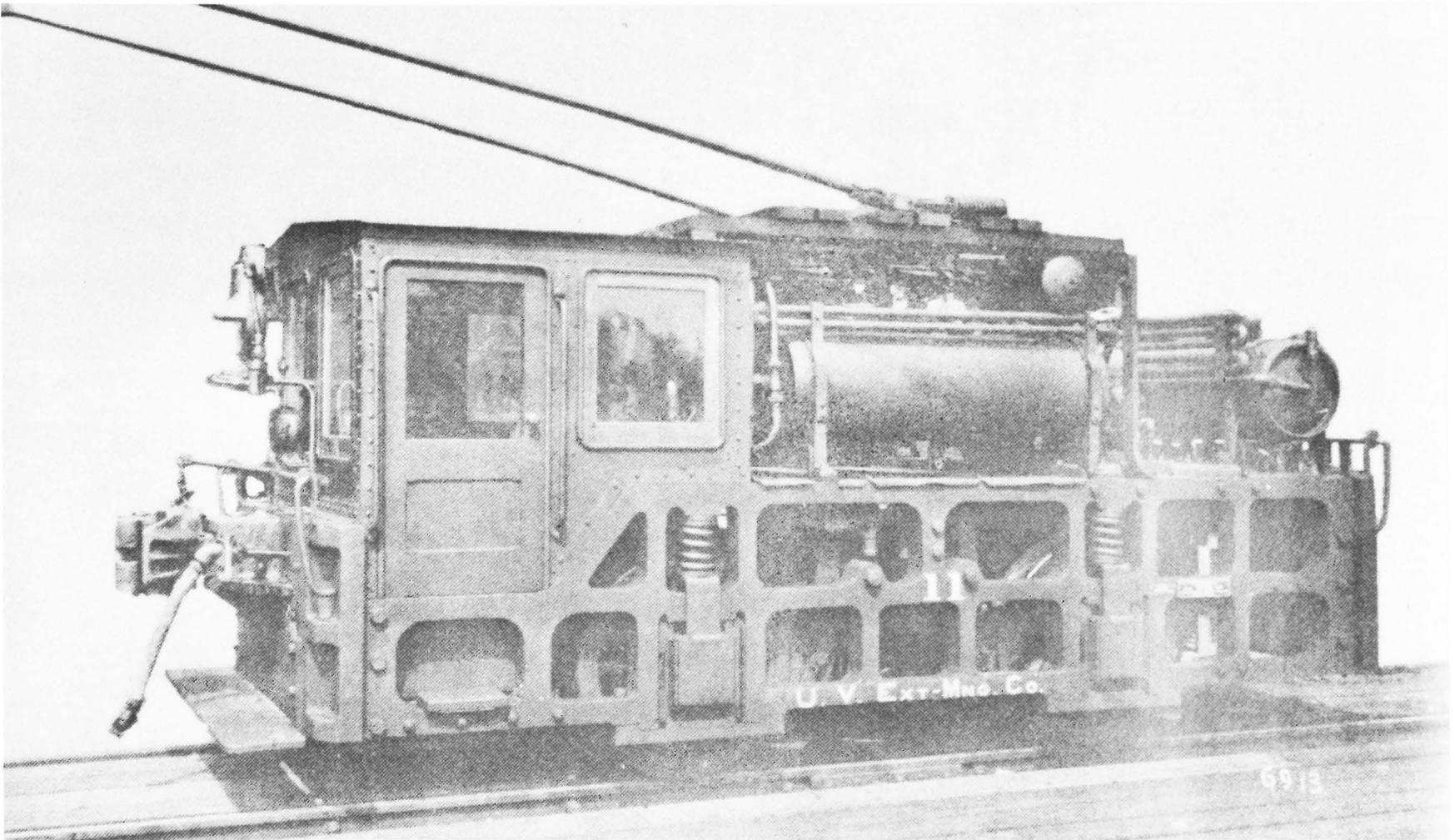
Operated by the Verde Tunnel & Smelter Railway, this locomotive was the largest used for mine service in Arizona. *Courtesy of the Arizona Historical Society/Tucson.*



A wreck on the Magma Arizona Railroad. Courtesy of the Arizona Historical Society/Tucson.



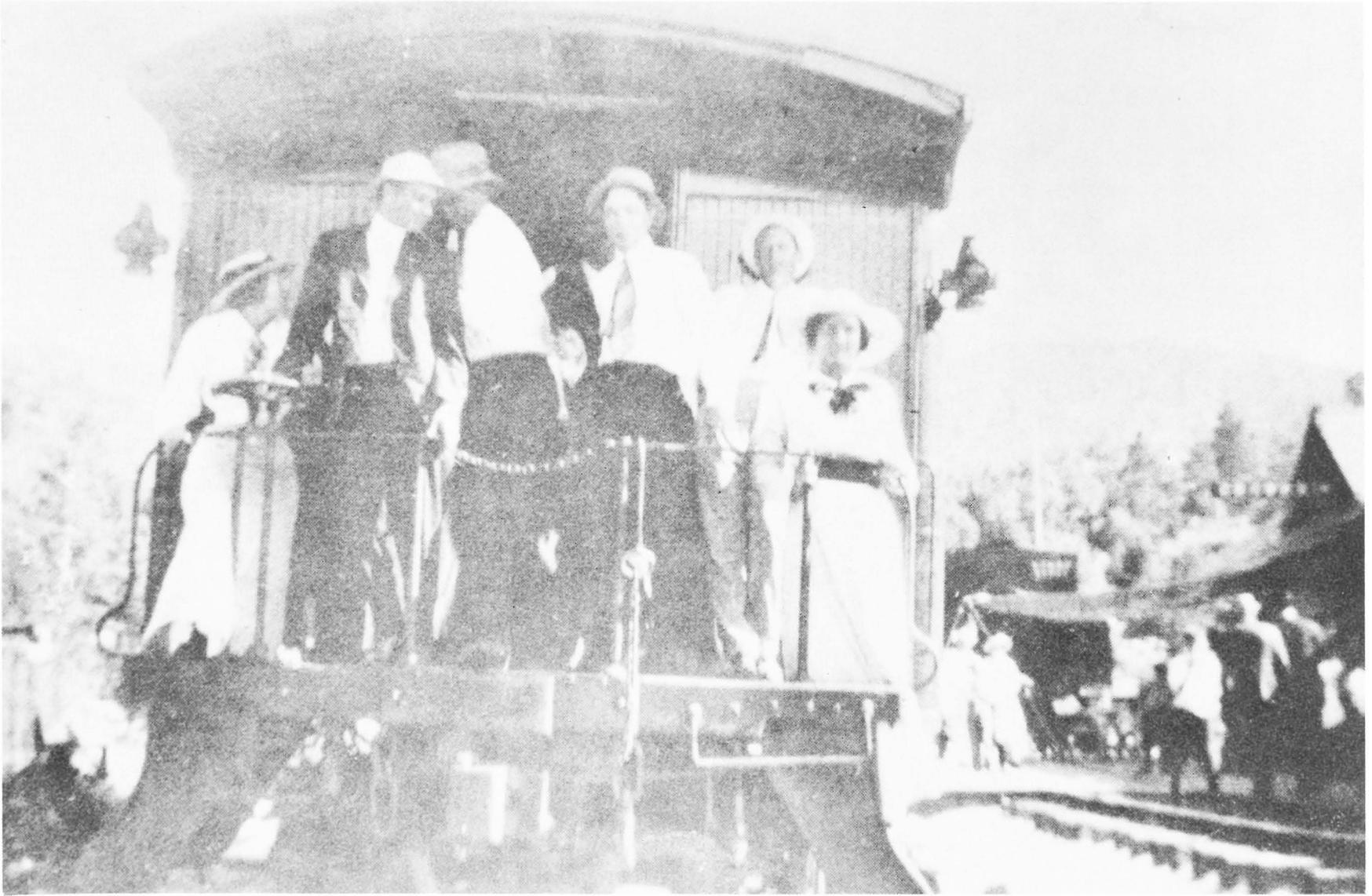
The Mascot & Western operated between Dos Cabeza and Willcox. *Courtesy of the Arizona Historical Society/Tucson.*



Electric mine locomotive operated in the Josephine Tunnel by the United Verde Extension Co. Engine is probably still underground. *Courtesy of the Arizona Historical Society/Tucson.*



Double, narrow-gauge track of the Sheldon Mining Co. in the Poland Tunnel. Completed in 1904, the tunnel is 8,017 feet long. Courtesy of the Arizona Historical Society/Tucson.



The last Bradshaw Mountain train to leave Crown King, 1926. Courtesy of the Arizona Historical Society/Tucson.

HISTORY OF MINING IN ARIZONA

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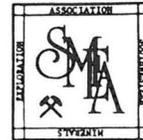


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