Delaware Street Tramway Power Sub-Station
(Denver Mint Tramway Pressroom)
1448 Delaware Street
City and County of Denver
Colorado

HAER No. CO-12

PHOTOGRAPHS

HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Rocky Mountain Regional Office
Department of the Interior
P.O. Box 25287
Denver Colorado 80225

HISTORIC AMERICAN ENGINEERING RECORD

Delaware Street Tramway Power Sub-Station

(Denver Mint Tramway Pressroom)

CO-12

Location:	1448 Delaware Street Denver, Colorado UTM: 13;500700mE;4398620mN Quad: Englewood, Colorado.
Dates of Construction:	1913, with major alterations in 1964.
Present Owner & Occupant:	United States of America, Department of the Treasury, Bureau of the Mint.
Present Use:	Coin Stamping Plant -- Demolition is planned for September, 1983.
Significance:	The Delaware Street Tramway Power Substation is significant for its association with the growth and development of Denver's tramway trolley system, a major transportation system during the first half of the 20th century. This substation was instrumental in the conversion of the system from cable power to effective electrical power. It is more stylistically impressive and retains a greater degree of historic integrity than do the other remaining structures believed to have been substations.
Historian:	Laurence W. Steele Denver City Restorations Aurora, Colorado
Date:	July, 1983.

HISTORICAL INFORMATION

Following the discovery of gold at the confluence of Cherry Creek and the South Platte River in 1858, two small settlements were established by the miners who traveled to the gold fields. While an intense rivalry developed between the two communities, eventually they merged and became the City of Denver. In the 1860s, Denver was often viewed as a rough and uncivilized outpost on the western frontier -- travelers to the young city, often criticized the community for its lack of services and facilities.

In spite of this criticism, the community continued to grow and expand. By 1867, a group of Denver businessmen sought a charter from the Colorado Territorial Legislature for the Denver Horse Railroad Company. The legislature complied, granting the firm "the sole and exclusive right and privilege of building, constructing, and operating a horse railroad in the said city of Denver and in all later additions thereto," for a period of thirty-five years.[1]

Little work beyond that required to maintain the state charter was undertaken by the Denver Horse Railroad Company, until 1871, when the firm was sold and reincorporated as the Denver City Railway Company. By the end of that year however, approximately two miles of track had been laid and were operational. By the end of the decade the Denver City Railway Company was operating on approximately eight miles of track.[2] While

the mileage of the company was not particularly impressive and its motive power was primitive, both its immediate and long-term benefits were apparent.

> The street railway is a potent factor in the prosperity of the city. It has given value to outside property, and has enabled men of small means to locate themselves in homes of their own on the outskirts of the town. Nor should its moral influence be overlooked. Strangers coming here with very vague impressions of Denver's status as a metropolitan city, are always favorably impressed by the sight of a well-loaded street car rattling along past them, and are ready to admit that the Queen City of the Plains has some genuine and undisputed claims to a place among cities of the first class, East or West. Thanks to the enterprise and liberality of the management, the cars are always neat and clean and comfortable, and only the best 'motive power' and the most gentlemanly drivers are employed. As a consequence, no complaints are heard from the patrons of the line, and it is a pleasure instead of a discomfort to ride in the cars of the Denver City Railway Company.[3]

According to the unidentified writer, quoted above, it appears that little dissatisfaction with the horse-drawn trams existed throughout the 1870s. However, by 1885 the Denver City Railway Company found a competitor in The Denver Electric and Cable Railway Company. This new entrant on the Denver transporta-

tion scene was given a charter by the City of Denver, which allowed it to "build and operate lines of electric or cable railways 'in, along and across the streets of the city of Denver,' without any time limit being mentioned, the fare not to exceed five cents."[4]

Early in 1885, the Denver Electric and Cable Railway Company began a series of experiments using an electric trolley developed by Professor Sidney Short, of the University of Denver.

> On the last day of July, 1886, the first passenger car was successfully conducted over 3,000 feet of track on 15th street. One or two cars passed over this track daily for three months following. Power houses and other improvements were built. At the beginning of 1887, three and a half miles of track had been constructed and four or five cars were running. But the system did not prove satisfactory, therefore, in the spring of 1888, the company prepared plans for a series of cable lines.[5]

The principal inducement for the switch from trolleys to a cable operation came, not from within the company, but rather from real estate developers on the south and east edges of the city. These speculators were not convinced of the practicality or safety of electrically powered trams, and were able to effect the change through financial committments which offset a part of the costs of conversion.[6]

Operators of the Denver Tramway Company, successor to the

Denver Electric and Cable Railway Company remained convinced of the utility of electric power, and "in 1889, the company decided to build electric trolley lines, but when first proposed it met with furious opposition from some of the local papers; nevertheless the project was rapidly consummated. The first trolley car was run on Broadway Christmas day, 1889. . . . The cable was not wholly abandoned on Broadway, however, until May, 1893; the Colfax being dropped and electricity substituted in July of that year."[7]

The decision to electrify the tramway system required the construction of new power production facilities. The first of these new power plants was constructed at 32nd and Blake Streets in 1892. Additional plants were also required due to the use of direct current, which could only be transmitted for one or two miles.[8] The other four power stations were located at Broadway and Alaska Avenue; the intersection of West Thirty-eighth Avenue and Twenty-second Street; on Colfax Avenue in Montclair; and on West Colfax Avenue in Baker's Villa.[9] It was to be another ten years before a plant capable of producing high voltage alternating current would supply the Tramway's fleet of electrically powered trolleys.

Throughout the 1880s and 1890s many Denver real estate speculators purchased and developed property far beyond Denver's corporate limits. To serve the needs of their prospective clients, they also developed small cable or trolley lines from a

convenient point on the Tramway line to their new communities. In the fall of 1893, the Denver Tramway Company purchased several of these smaller trolley and cable companies, and formed the Denver Consolidated Tramway Company. The tramway company's growth, combined with the effects of the Panic of 1893 had an adverse effect on the Denver City Cable Railway Company, which was placed in receivership on November 10, 1893.[10] In spite of several attempts at reorganization, the Denver City Cable Railway Company and its subsidiary, the West End Street Railway Company, were unable to compete with their rival. On March 3, 1899, the Denver City Tramway Company was incorporated as a successor to all of the city's street railway companies. The officers of the Denver Consolidated Tramway Company remained in control of this new corporation.[11]

The consolidation of Denver's public transportation system under one corporate structure brought with it the ability to develop a single means of powering the system. The Denver City Tramway Company soon moved toward the total electrification of the trolley system. The company immediately sought permission of the City Council to electrify the cable systems under its control. However, the company encountered what historian Jerome Smiley characterizes as "much unreasonable opposition, in and out of the Council." Following a year of negotiations with the city, and the payment of a $76,000 inducement for the privilege, the City of Denver granted the Denver City Tramway Company permission

to completely electrify its trolley system.[12]

Nearly a year after reaching an agreement with the City of Denver on the issue of electrification, the Tramway company purchased the land and broke ground for construction of its central power plant at Fourteenth and Platte Streets.[13] The plant began producing power for the system in 1902. The original electric power plant on Blake Street continued to supply some of the Tramway Company's needs. By 1909 however, the Blake Street station was being "held in reserve." At that time the Platte Street power plant was serving four sub-stations -- Broadway and Alaska Avenue, East Colfax and Colorado Boulevard, Clear Creek Junction near Arvada, and Argo, at West Forty-fourth Avenue and Inca Street.[14] In 1911 the Denver Tramway power plant on Blake Street was shut down for the final time.

Two years later, the need for additional power for the Tramway system led to construction of the Delaware Street Power Sub-Station, at 1448 Delaware Street. In January, 1914, W. G. Matthews, reported on the work of the Tramway's Line Department:

> The principal work done during the past year was "the transmission and distribution system" for the new Delaware sub station [sic.], located on Delaware street, near the United States Mint, the purpose of which was to connect up this station with the sub-station of the Colorado Power Company and the various trolley circuits, as follows: Broadway, Cherokee, Colfax Avenue, Eleventh and Thirteenth

avenues, Fifteenth Street, Fourth avenue, Kalamath, Lawrence west, Nineteenth avenue, Seventeenth avenue, Seventeenth street, Sixteenth street, Stout street and Welton street.[15]

The stylistic similarities between the substation and the Denver Mint were recognized soon after construction of the substation. Construction of the Denver Mint began in 1897, and was completed in 1904. In February, 1906 coinage operations began. The use of a similar window treatment, and the location of the substation led the editors of **The Tramway Bulletin** to provide the following caption for a photograph of the building: "Some Folks Think This Is Part of the Mint, But It's Far From it. It's the Tramway Delaware Substation."[16]

Public confusion over ownership of the substation grew as the Mint went through two expansion projects. In 1935 the United States government purchased three lots south of the Mint on Cherokee Street for the first of three major expansion projects. This project, across the alley from the substation, furthered the public perception of Mint control of the building. In 1946 a second addition was constructed on the Cherokee Street side of the Mint. While the materials and exterior finish of these additions varied from that of the original Mint building, the dominant design feature continued to be the use of tall round arched windows similar to those in both the original Mint and the Tramway Power Substation.

The Delaware Street Substation was the largest and most

architecturally interesting substation in the Tramway system. Its size appears to relate to its role as the only substation not dependent upon power from the Platte Street power plant. At the time of its opening, the Tramway Company began purchasing power to operate a portion of its system from the Colorado Power Company. This building served as the link between Colorado Power and the Tramway system. In addition to its function of operating some of the system's trolley lines, the Delaware Street Substation was also used by the Platte Street Power Plant as a back-up power source to activate its direct current generator.[17] The use of the Delaware Street Substation was the preferred method of starting this generator, "providing the Delaware Station is in service, which is not always the case, owing to the transmission lines of the Colorado Power Company crossing the mountains where they are exposed to severe electrical storms. Another disadvantage being due to small generating capacity of the station, which is 1,500 K. W. per hour, while the average demand of the Tramway system is approximately 4,000 K. W. per hour."[18]

When it went into operation in 1914, the Delaware Street Tramway Power Substation, supplied power for two of the lines which served Denver's new suburban communities. The Colfax Avenue line, provided transportation for residents of Montclair and Aurora, and the Broadway line served the communities of South Denver and University Park. In addition, the availability of rapid transit in these areas led to the infill of vacant land

between Denver and her suburbs.

The Tramway trolley system went through a number of changes following the first world war. Gasoline buses were introduced in 1919, when the Fitzsimons Bus and Taxi Company transported passengers from the Tramway's Aurora terminus to Fitzsimons Army Hospital. Twenty years later, streetcars were being replaced by the trackless trolley coach. However, the electrically powered trolley served the metropolitan Denver area for half a century. The Delaware Street Tramway Power Substation remained a vital link in Denver's transportation system for thirty-six of those years -- until the trolley was replaced by diesel buses in the 1950s. On July 15, 1950, the Platte Street Power Plant was shut down for the final time.[19]

On November 15, 1950 the Delaware Street Tramway Substation was sold to Benjamin F. Stapleton, Jr. and Stanley H. Johnson.[20] According to Mr. Stapleton, the purchase was only a real estate investment, and the property was soon sold.

ARCHITECTURAL INFORMATION

The Delaware Street Tramway Power Substation is approximately thirty-three and one half feet (33', 6") tall. The building has a forty-seven foot (47') frontage, and a depth of forty-nine feet, two inches (49', 2"). An eleven foot, ten inch (11', 10") by seventeen foot (17') ell is located at the southeast corner of the main structure (sketch CO - 12 - 1). The

building is located on the northeast corner of Lots 13 through 15, Block 10 of Evans and Elbert's Subdivision of Block 10 in Evans Addition and Block 10 in Witter's First Addition to the City of Denver.

The Delaware Street Tramway Power Substation was constructed in a vernacular adaptation of the Romanesque Revival style. It features characteristic tall round arched window and door openings which pierce monochromatic brick walls. Brick string courses, a brick cornice, and circular windows provide the principal ornamental enhancements to the building. The arched windows complement those of the adjacent Mint building.

The substation rests on a concrete foundation and footings which replaced the originals in the 1964 conversion of the building to use as a coin stamping facility.[22] The walls are constructed of red brick, seventeen inches thick, and are covered with one-half inch of portland cement plaster on the interior.[23] The exterior of the building has been painted gray. The condition of the building is good, with only minor deterioration of the paint on the stone cap of the parapet wall.

The front facade is divided into three bays by tall slender piers which rise to a brick string course separating the cornice from the lower portion of the building. Centered on the two side bays are tall, round arched sash. In the center bay, the entrance echoed the arched motif of the windows. Above each of the arches on the front facade is a circular window. Round arched window

openings are also featured on the north, south, and east facades, however, circular windows were not included on the sides of the building. The center bay of the east, or rear facade was pierced by a rectangular dock door which also utilized the circular window motif. The window openings have sawn stone sills and brick hoods springing from sawn stones at the level of a brick string course. Brick window surrounds also ornament the circular windows.

Following the purchase of the Substation by Benjamin Stapleton and Stanley Johnson in 1950, the N. G. Petry Construction Company of Denver was hired to remodel the interior. The work consisted of "leveling floor [and] removing [the] concrete bases used to support equipment."[24]

The 1964 conversion project resulted in the replacement of the original arched windows with security sash, elimination of the east doorway, and an enlarged opening for an overhead door on the front facade. The original wood beams and wood deck on the flat roof of the building were replaced with steel decking, supported by new purlins and the original steel trusses.[25]

The interior of the substation was completely remodeled during the conversion. The existing floor was removed and replaced with a ten inch concrete slab which was raised to the level of the existing Mint buildings. Restroom facilities were added to the room in the ell, at the southeast corner of the building, and in the building's northeast corner. All of the existing mechanical systems were also replaced.[26]

END NOTES

1. Jerome C. Smiley, **History of Denver With Outlines of the Earlier History of tbe Rocky Mountain Country** (1901, reprint ed., Denver: Old Americana Publishing Company, 1978), p. 853.

2. **Ibid.**, p. 854.

3. **Ibid.**, p. 855.

4. **Ibid.**

5. Frank Hall, **History of the State of Colorado**, vol. III (Chicago: Blakely Printing Co., 1889-1895), p. 32

6. **Ibid.**

7. **Ibid.**

8. Carolyn Hendericks, "Brief History of the Denver Tramway Power House, Now Known as the Forney Museum," (Denver: The Coff Corp., n.d.), p. 3.

9. Smiley, p. 869.

10. **Ibid.**, p. 866.

11. **Ibid.**

12. **Ibid.**

13. **Denver Times**, March 30, 1901, p. 1, and **Denver Times**, May 18, 1901, p. 1.

14. **The Tramway Bulletin**, vol. I, no. 12, September, 1909, p. 38.

15. W. G. Matthews [Superintendent of the Line Department], "A Little Noise from the Overhead Department," **Tbe Tramway Bulletin**, vol. VI, no. 4, January, 1914, p. 18.

16. Charles E. Wibel, "From the Generator to the Street Car Motor," **The Tramway Bulletin**, vol. IX, no. 7, April, 1917, p. 7.

17. E. Clemmons, "Preparedness at the Power House," **The Tramway Bulletin**, vol. X, no. 8, May, 1918, p. 4.

18. **Ibid.**

19. Hendericks, pp. 5-6.

20. Real Estate Records, Office of the Denver County Clerk and Recorder, Book 6837, Page 406.

21. Interview with Banjamin F. Stapleton, Jr., July 28, 1983.

22. Ketchum, Konkel, Ryan and Fleming, Consulting Engineers, "Conversion of Power House to Stamping Plant, 1964," a file in the Office of Plant Engineering, U.S. Mint, Denver, Colorado.

23. **Ibid.**, Specifications, p. 2-1.

24. "Building Permit # 19569," 1950, Denver Public Library, Western History Department.

25. **Ibid.**, Drawing No. 27 - 3 - 75.

26. **Ibid.**

BIBLIOGRAPHY

Primary and Unpublished Sources

Building Permit #19569, 1950, Denver Public Library, Western History Department.

Sanborn Insurance Map, 1929, revised to 1955, Denver Public Library, Western History Department.

Rocky Mountain News, April 22, 1934, Section D, p. 10.

Secondary and Published Sources

Clemmons, E. "Preparedness at the Powerhouse," **The Tramway Bulletin**, May, 1918, p. 4.

Denver County Clerk and Recorder's Office. "Real Estate Records," Book 6837, Page 406.

Denver Times, March 30, 1901 and May 18, 1901.

Hall, Frank. **History of the State of Colorado**, Chicago: Blakely Printing Co., 1889 - 1895, vol. III.

Hendericks, Carolyn. "Brief History of the Denver Tramway Power House, Now Known as the Forney Museum." Denver: The Goff Corp., n.d.

Ketchum, Konkel, Ryan and Fleming, Consulting Engineers. "Conversion of Power House to Stamping Plant, 1964." Office of Plant Engineering, United States Mint at Denver.

Matthews, W. G. "A Little Noise from the Overhead Department," **The Tramway Bulletin**, January, 1914, p. 18. Colorado Historical Society Library.

Smiley, Jerome C. **History of Denver With Outlines of the Earlier History of the Rocky Mountain Country**. Denver: Old Americana Publishing Company, 1978, reprint ed. of 1901 volume.

Stapleton, Benjamin F., Jr. Interview July 28, 1983.

Wibel, Charles E. "From the Generator to the Street Car Motor," **The Tramway Bulletin**, April, 1917, p. 7.

Likely Sources Not Yet Investigated

Goeddertz, Henry, "Early Public Transportation in Denver." **The Colorado Magazine**, 26 (April, 1949), pp. 125-127.

Hochmuth, Arthur, "Denver's Student Conductors." **The Colorado Magazine**, 40 (October, 1963), pp. 271-277.

Miller, Fern V. "A Summary of the History and Operations of the United States Mint in Denver, Colorado." n.p., 1962.

Denver Treasury Dept., Denver County Assessment records.

United States Archives & Records Service.

Sources Investigated with No Results

Denver Real Estate Blockbook Collection, Denver Public Library, Western History Department.

Denver Times, December 21, 1901, p. 5, col. 3.

Dillon, John F. **The Denver City Tramway; Opinion of Franchise**. New York: Evening Post Job Printers, 1904.

Jones, William C., Wagner, F. Hol, Jr., Gene McKeever, and Kenton Forrest. **Mile High Trolleys**, 2nd ed., rev., Boulder: Pruett Publishing Co., 1974.

Forrest, Kenton, "Denver Tramway." **Motor Coach Age**, 21 (June, 1969), pp. 5 - 23.

Lusky, Sam. **101 Years Young: The Tramway Saga**. Denver: A.B. Hirshfeld Press, 1968.

Martin, Bert (ed.). **Souvenir of the Denver City Tramway Company and Employees.** Denver: The Reed Publishing Company, 1904.

Regional Transportation District, Research and Records Division.

Stearns-Roger, Inc.

United States Attorney's Office.

United States Mint File Book, Denver Public Library, Western History Department.

United States Treasury Letterbook, Denver Public Library, Western History Department.