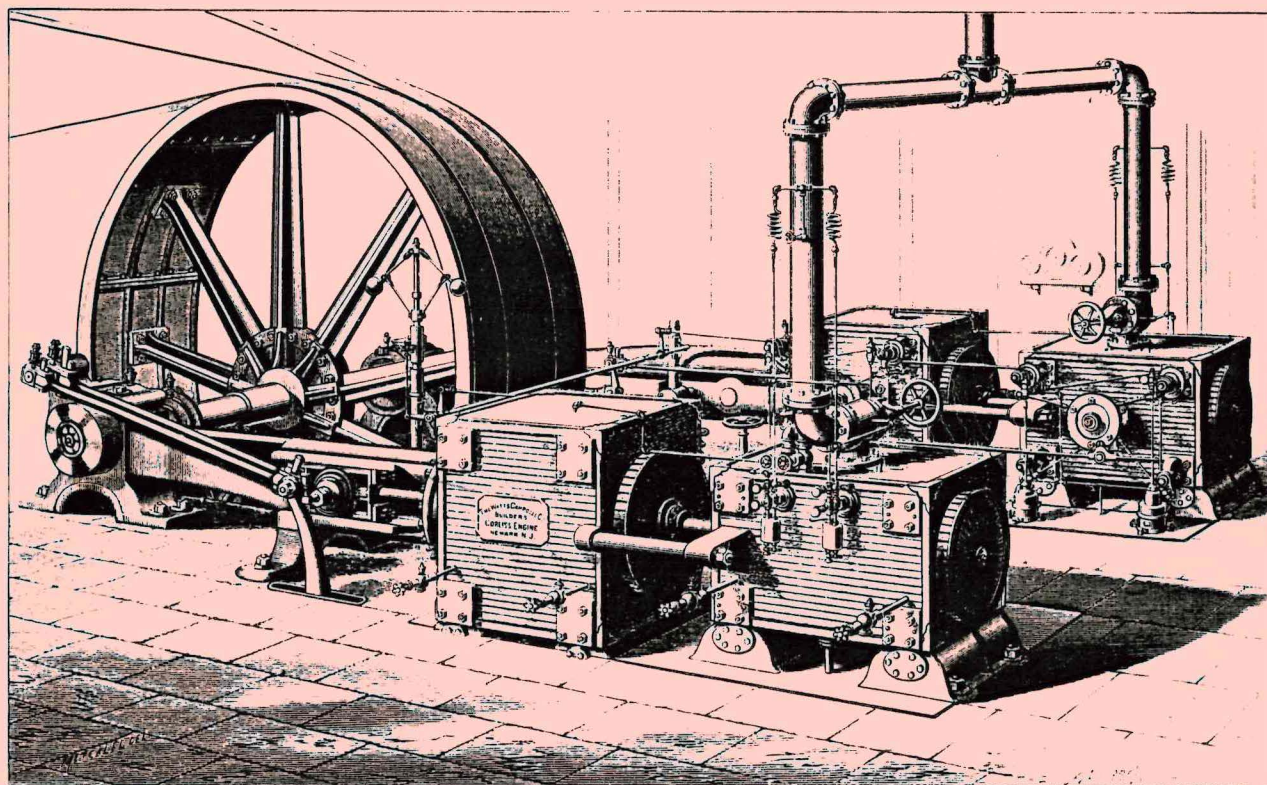


Ruttsch

INDUSTRIAL NEWARK



COMPILED BY TERRY KARSCHNER
FOR THE FOURTEENTH ANNUAL CONFERENCE
OF THE SOCIETY FOR INDUSTRIAL ARCHEOLOGY
MAY 1985



INDUSTRIAL NEWARK

Prepared by Terry Karschner for the 14th SIA Conference
With Sections written by Nanci Kostrub Batchelor,
Ingrid Wuebber, Richard L. Porter and Ruth Trocolli
May, 1985

Cover design by Dale Reynolds. Illustration of a
Watts-Campbell corlis steam engine ca. 1890.

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PREFACE

Numerous people contributed to this publication, many graciously, a few begrudgingly, and some unknowingly. Nanci Kostrub Batchelor wrote the section on jewelry; Ingrid Wuebber prepared the section on tanning and leather; Richard L. Porter turned out much of the foundry and machinery portion; and Ruth Troccoli prepared the brief section on electrical products manufacture. They are really devoted Roebling Chapter members and I apologize for the badgering and the many weekends and parties they missed in the preparation of this manuscript.

All other sections, for better or worse, were written by me, but legions of others supplied information and guidance on individual sites. Thanks go especially to Ed and Mary Jane Rutsch, William Bolger, Janet Foster, and Dorothy Guzzo. In the Newark Public Library, Charles Cummings and Bob Blackman were especially helpful. Happily, the New Jersey State Library staff was conciliatory in granting all my requests save for the one which involved a pair of scissors. Remarkably, the Office of New Jersey Heritage has put up with my frantic movements for the last six months. I suspect the administrator, F. Robert Perry, has been instrumental in staving off my proposed exorcism from the office.

New Jersey's Department of Environmental Protection's incredibly patient and proficient Word Processing Center, - Debbie, Sandy, Marilyn, Joyce, and Rosalie - is also acknowledged (I owe them at least a lunch).

In final analysis I remain responsible for all errors and shortcomings although if pressed I will probably suggest that the blame go elsewhere.

Industrial Newark was prepared for the 14th Annual Conference of the Society for Industrial Archeology, May 9-12, 1985. Its primary purpose is to give some sense of the depth and wealth of particular segments of Newark's industrial history. In a city presently undergoing a major social and economic transformation, hopefully, this select inventory, by looking at past industrial and engineering achievements, will also provide a vision to Newark's future development. While written as a guide to the city's extant industrial resources IN is intended to aid conference participants, but it is the Roebling Chapter's fervent wish that it stimulates further detailed work in Newark's transportation and manufacturing history.

Because of the density and diversity of industrial development in Newark, this select survey has been an ambitious undertaking. Further, although political, economic, and social research on Newark's history is commonplace there has never been a concerted effort to conduct a city-wide survey of significant industrial and engineering sites. Only a handful of the industrial facilities in the city have been individually recognized. Sans sources of published material most of the data contained herein is derived from primary sources and matched up with extant facilities. Fortunately, manuscripts of Newark's rich and proud industrial past have been preserved by the Newark Public Library, the New Jersey Historical Society (Headquartered in Newark), and the Newark Museum.

For this work select Newark industries were researched diligently - brewing, paint and varnish, leather and tanning, and the manufacture of jewelry. Foundries and related machine productions were also investigated rather thoroughly. These were Newark's major industries in the late 19th - early 20th century. Other important city industries such as clothing manufacture, food products, chemicals, and printing were selectively inventoried, but the breadth of these industries was barely scratched. Generally, the inventory is limited to extant industrial resources which predate 1930 unless an archeological site or a later facility establishes a broader historical context. All things being equal, physical survival usually persuaded inclusion. Each listing provides a historical sketch, a brief physical description, a geographic or street location, and bibliographic citations directly relating to the manufacturer.

Illustrations have been included whenever possible to help understand the plants and to generally make this a visual and livelier document. Map coordinates were not provided in anticipation of a UNIVERSAL TRANSVERSE MERCATOR (UTM) scavenger hunt at a future date.

The genesis for this industrial inventory was the 1976 Society for Industrial Archeology's Fall Tour of the Passaic River Valley brief excursion into Newark and Roebling Chapter's 1978 Tour of Newark. Newark has few IA sites listed on the NJ & National Registers of Historic Places - Murphy Varnish, Penn Station, Broad Street Station, Dock Bridge and the Morris Canal - and the information in the nomination application was used in an abridged or rewritten form.

IN borrows mercilessly from those who have preceded. Specific materials used are cited, but format and layouts were purely stolen, with thanks. This document has given those of us who worked on IN a healthy respect for Newark's prestigious place in America's industrial heritage.

INTRODUCTION

Settled in 1666 within tidewater on the Passaic River, Newark is the third oldest major American city. From its inception it has taken advantage of its access to New York Harbor by functioning as a major center of trade between the metropolitan area to the east and the American hinterland to the west. Given its role as a transshipment point, it is not surprising that Newark also became a locale for the processing of raw materials, both from the developing American frontier and from abroad. Although its location below the fall line of the Passaic did not endow the city with exceptional hydropower sites, Newark flourished industrially in the Age of Steam. Of the many steam engines manufactured in Newark, many remained there for use in its major industries: brewing, leather tanning and processing in the nineteenth century; and chemical processing and electrical machinery assembling in the early twentieth century. In keeping with the continuing revolution in America's industrial era, Newark has today been rejuvenated by New Jersey's participation in the Technological Age. It has remained the transportation crossroads of the region and has developed into a major insurance, financial, and educational center.

There are several major reasons Newark took an early industrial lead in New Jersey. Foremost among them is geography. Located on water and only nine miles from New York--with access to other ports at home and abroad--the town had obvious natural advantages. In addition, following the War of Independence, New York was fast becoming a great mart of trade, and Newark began to reap some of the benefits accruing from its proximity. Also, until 1797 Philadelphia had been the leading seaport in the new nation. Afterward, New York assumed the lead. Situated between the two cities, Newark was in a favorable position to profit from the interplay between them.

The period between 1826 and 1836 saw tremendous economic and physical growth in Newark. The population more than doubled. New industries were founded and old ones expanded. Young men from all over the country were drawn to this city to take advantage of the demand for apprentices and journeymen. Many stayed only a few years, but immigrants from abroad, lured by opportunities, came to stay. A committee report of 1830 lists Newark's leading industries of the day as the manufacturing of carriages, shoes, hats and saddlery hardware. Tanners, soap factories, iron and brass foundries, and malleable iron foundries were also mentioned.

When the Morris Canal was completed in 1832, it opened the way for steam powered machinery in Newark by providing a

direct easy, inexpensive way to bring anthracite coal from Pennsylvania to the city's industrial furnaces. Steam was a ready source of power and its use freed the factory from reliance on rivers. This quickly brought about a concentration of factories throughout the city. By 1846, there were one hundred steam driven factories in Newark; in 1840, there had been none. These industrial buildings were mainly located on the Morris Canal, which stretched from one end of the city to the other. Although the Morris Canal was primarily used to carry coal from Pennsylvania, it also made the interior more accessible to trade and industry.

Newark's remarkable growth as a leading industrial city during the first half of the nineteenth century was stimulated by the increasing demand for Newark products and the greater productivity which resulted from new technology. The decades which followed saw a rise of an urban and middle class able to afford luxury goods. Newark manufacturers aimed for this expanding market.

Newark's development during the second half of the 19th century was even more dramatic and many ways typical of the industrial and economic growth of many American cities. Newark's geographic location and subsequent transportation networks were two recurrent themes vital to the city's developments. Newark's earliest manufactories were located along the Passaic River, but while some shipping continues today, the narrow and winding Passaic River was never a favorite of area business. For a short time the Morris Canal stimulated Newark's industrial growth, but only a few years after it opened, two railroads had been chartered in Newark. Using Seth Boyden's improved steam engines, railroads quickly superseded the canal, roadways and river as the major method of transport. The paths of the railways became infested with manufacturing spurs and industrial plants.

BREWING

Despite Prohibition Newark has had a long and continuous tradition of brewing since the early 19th century. Beginning with the small family operated concerns of Cummings, Morton, and Schalk in the early 19th century; progressing to the larger enterprises of Ballantine, Krueger, and Feigenspan in the last half of the 19th century; savoring the peak of development in the early 20th century; passing through Prohibition with some decidedly intemperate industrialists; and settling on Pabst and Anheuser-Busch in the 1980's, the city's brewing history is formidable.

Colonial records establish there were breweries in New Jersey in the late 17th century, but the earliest documented breweries in the Newark area date to the late 18th century. An estimate of property ratables submitted to the New Jersey Assembly in 1784 included figures on taverns and breweries. Although there were 42 taverns in Essex County, no breweries were recorded (and only 6 in the entire state). Twenty-six years later, the 1810 census of Manufactures for New Jersey still shows no breweries in Essex County, but inexplicably over 17,000 gallons of beer were brewed. In 1773, the New York Gazette carried an advertisement for the farm of the late John and Elizabeth Bradberry, near the Third River, about five miles from present-day Newark. In addition to 240 acres of land and a large dwelling, a brewhouse and brewing equipment was offered for sale. This is the earliest documented Newark area brewery. The High Street Brewery was perhaps the first Newark brewery. Advertised for sale in the Newark Gazette and the New Jersey Advertiser in 1799, this brewery was founded by John N. Cumming, a prominent Newark figure. In 1819, Robert H. Cumming, probably John's son, placed an advertisement in The Centinel of Freedom for draught and bottled porter, double ale, single ale, at reduced prices. When Peter Ballantine came to Newark in 1840, he apparently leased the old Cumming brewery. Nothing survives of this early facility. Another of Newark's earliest breweries, Crane and Alling, was offered at a public vendue in 1814 as an already "old established brewery and malt house" on Market Street.

The ascendancy of breweries in Newark is clearly linked to increased German immigration. Before 1840, there were no more than five breweries in the city. Population estimates in 1836 show only 300 Germans of a total 18,000 Newark inhabitants. By 1870 there was a German community of 35,000, over a third of Newark's 100,000 residents. As the German population rose so did the number of brewers, who were themselves often German. The beer they preferred and manufactured was a lager beer contrasting the English porter

and ales. Overall, the English malt liquors, brewed with top fermentation yeast, were lusty, dark, and high in alcohol. Bottom fermented lager beer was lighter, more effervescent, highly topped, and lower in alcoholic content. Although technological innovations, changing tastes, and initial support of the temperance movement for a weak alcoholic beverage played a part, the German influence in the development of Newark's brewing industry cannot be discounted.

By 1870, there were over 30 breweries in the city of Newark. Leading production was the Ballantine and Sons Company with a yearly output of 60,000 barrels of ale. Brewer John Heinnickle, with only 162 barrels of lager beer a year, had one of the smallest breweries. Total production in the city exceeded 300,000 barrels of beer and there were 336 men employed in the industry. Many of the breweries were owned by Germans and most were making lager beer. Only a few firms, including Ballantine, still manufactured ale. Workers average yearly income was \$649 (High - \$983/yr. at the Trefz brewery. Low - \$491/yr. at the Schalk brewery). Beer sold for between \$6 a barrel for Traudt's ale to \$11 for a barrel of the Newark Brewing Company's beer. In general, lager beer sold for more than ale, again indicating its popularity.

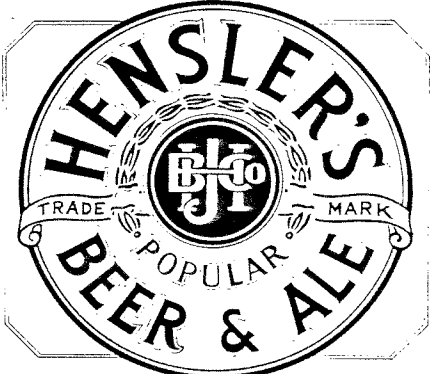
Many technological and scientific innovations, generally adopted after 1870-80, added the growth and development of the large breweries at the expense of smaller concerns. Steam power operated hoists, lifts, and pumps mechanized the process and reduced labor. Refrigeration enabled companies to age lager beer in cold storage buildings with controlled temperatures rather than in underground tunnels. This freed brewers from depending on natural ice and its uncertainties of supply and price. It also decreased labor and eventually economized space. Refrigerated railroad cars, shown at the 1876 Centennial Exhibition in Philadelphia, allowed breweries to develop their markets nationwide. Pasteurization and the subsequent development of pure yeast culture reduced the uncertainty of the final product. Pasteurization killed bacteria and its concept was quickly accepted, initially by Anheuser-Busch in 1873. Schlitz and Pabst began using pure yeast cultures in 1883 and 1887, respectively, but most brewers were not as progressive and did not adopt it until after Prohibition. Companies implementing these innovations undoubtedly increased efficiency and sales. Such modernization, however, was costly and the smaller local firms with limited capital for such expenditures were unable to compete.

By the turn of the century the trend towards consolidation and national breweries had become evident. Though the bulk of the more than 1,500 companies nationwide

In Jersey It's

Established
1860

Telephone
Mitchell
2-3900



On Draught
and in
Bottles

The JOS. HENSLE BREWING CO.
NEWARK, N. J.

JOSEPH HENSLE BREWING CO.
(No longer extant)
NEWARK DIRECTORY 1939, p. 37

were small local enterprises, it was the few large mechanized plants with wide merchandising that controlled the major part of the market. This concentration also happened in Newark. From more than 25 breweries producing several types of ales, porters, and lager beers worth \$4.5 million in 1880, the number of plants decreased by 1900, but product value had nearly doubled and total production increased dramatically. The 1174 brewery workers more than tripled the 1870 figure. The city of Newark, with a population of 250,000 in 1900, was the sixth largest manufacturer of malt liquor in the United States. Ballantine proudly announced in 1900 that its annual sales had gone over half a million barrels. Even so, the national companies - Pabst, Schlitz, and Anheuser-Busch - sold a million barrels apiece.

In the decade before Prohibition Newark had 14 breweries employing over 1,500 workers. The annual product value for 2.15 million barrels was over \$12 million, making brewing the fourth largest industry in the city. Just prior to Prohibition there were still seven breweries and 1,300 workers in Newark. The total value of the product was over \$15 million.

The Volstead Act, the enforcement legislation for the Eighteenth Amendment (which left the definition of alcoholic beverage up to Congress), declared the manufacture and sale of beverages in excess of $\frac{1}{2}$ of 1 percent of alcoholic content illegal. Prohibition virtually destroyed the brewing industry nationwide. In Newark, as elsewhere, most of the breweries closed, but a few turned to production of cereal syrup for bakeries, ice cream manufacture and refrigeration storage.

Facing considerable opposition to continued Prohibition, early in 1933 Congress passed the Cullen Act, which permitted the manufacture and sale of light wines and beer up to 3.2 percent alcoholic content. At the same time Congress proposed repealing the 18th amendment. By June more than 30 plants had resumed operation nationwide, even though the Twenty-first Amendment was not technically ratified until December 5, 1933. Only the largest Newark breweries had survived - Feigenspan, Hensler, Ballantine, and Krueger.

After 1935 it was apparent that the earlier trends toward nationalization and consolidation had prevailed. Clearly, fewer and fewer breweries were producing and selling greater quantities of beer. By 1940, the level of beer sales had essentially recovered, but many of those breweries that had come through Prohibition and the Depression were unable to further withstand the competition of the multi-facility national breweries. Succumbing quickly were Feigenspan and Hensler. Krueger and Ballantine finally followed.

Understandably, the two breweries still in operation in Newark are national companies - Pabst (1945) and Anheuser-Busch (1951) - developed after World War II. Today, Anheuser-Busch is the nation's number one brewery and in 1982 made 5½ million barrels of beer in Newark. Its Newark facility is one of the companies largest with 1,600 employees and has the world's largest single-source distributorship. Pabst's Newark plant employs 600 workers in producing 2½ million barrels of beer annually for distribution in the east. Pabst, recently purchased by G. Heileman Brewing Company of Milwaukee, is the third largest brewery in the United States. Both breweries are crucial to the economic vitality of the city. In the tradition of the original German brewery owners who often provided social and recreational facilities for their workers, Anheuser-Busch and Pabst contribute heavily to Newark's cultural and recreational programs.

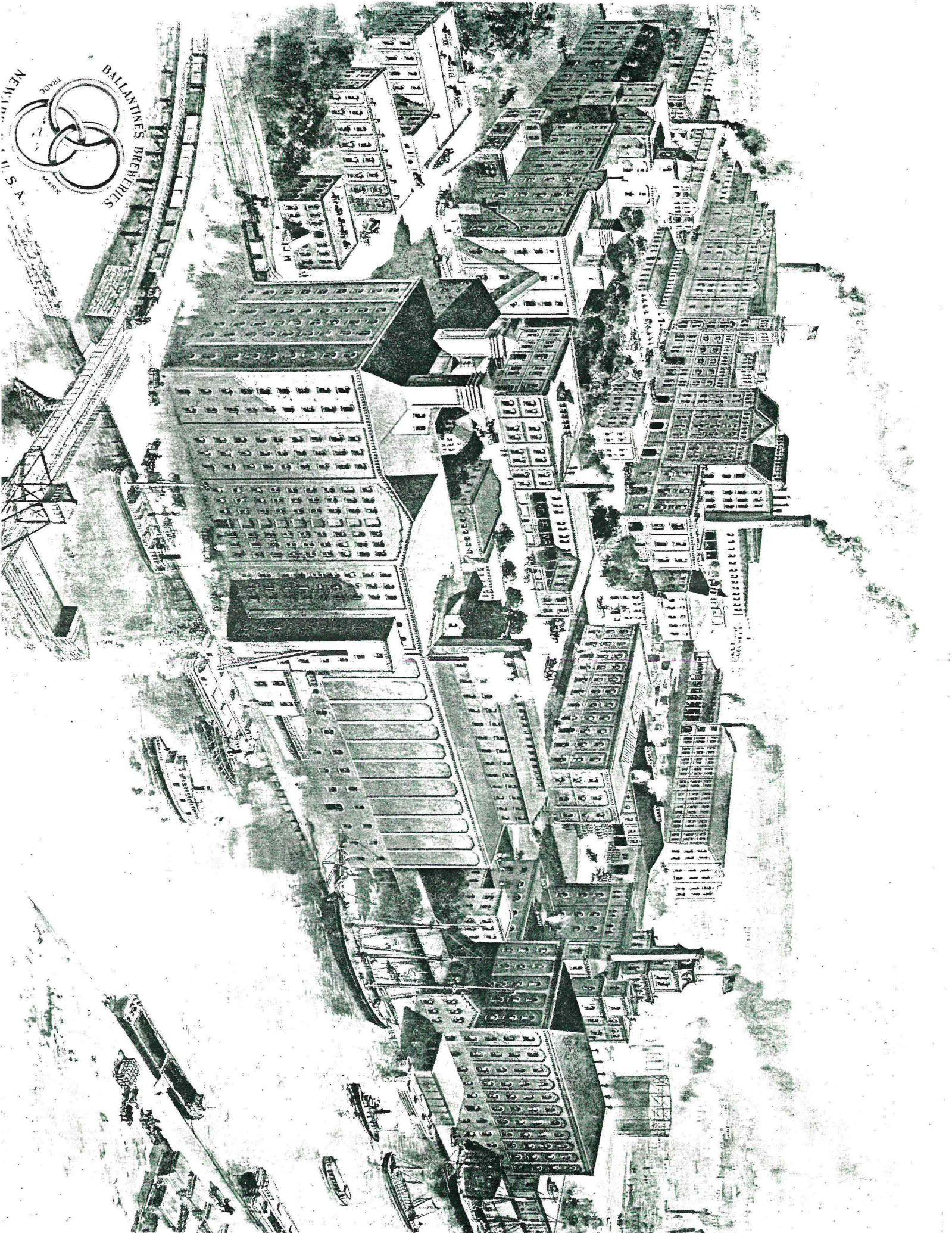
ANHEUSER-BUSCH BREWERY (1950)
 Route 1 & 9, near the Elizabeth Border
 Newark, Essex County, New Jersey

Today one of the city's biggest industries, and one of only two operating breweries in Newark, Anheuser-Busch's Budweiser plant is representative of a modern mid-20th century industrial facility. In 1950, after careful investigation, Anheuser-Busch decided to build its new \$27 million Budweiser plant in Newark. The plant had an initial capacity of 1½ million barrels annually, but after only two years of operation an addition increased this output to 1,600,000 barrels (at the same time a 3/4 million barrel capacity plant was begun in the San Fernando Valley of Los Angeles). The Newark plant is located on a 51 acre industrial campus on Route 1 & 9, near the International Air port, just short of the Elizabeth border. The plant consists of an irregular juxtaposition of cubic form interlocking masonry structures. Contrasting blank walls and large expanses of glass characterize this stark and severe facility.

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COMBINED VIEW OF BALLANTINE BREWERIES
 The older ale brewery and malt houses
 are along the river. Buildings in the
 background are the lager beer brewery.
 Meeker, 1906, p. 142.



NEW YORK, U.S.A.
TRADE MARK
BALLANTINE'S BEVERAGES

BALLANTINE BREWERIES

Ale: Rector, Fulton, & McCarter Highway

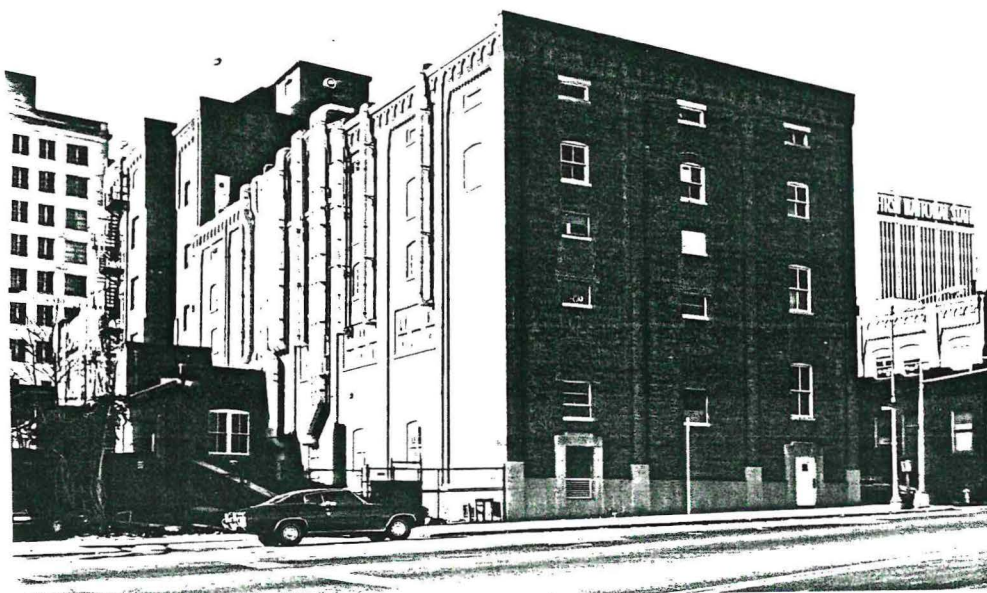
Lager beer: Ferry & Freeman Streets

Newark, Essex County, New Jersey

Established in 1840, the P. Ballantine and Sons Company was Newark's most successful brewery and ranked among the top ten leading brewers in the nation until its closing in 1972. The interlocking three ring trade-mark of Ballantine, adopted in 1879, was recognized throughout the United States. Peter Ballantine, the founder of the Ballantine Company, was born in Scotland in 1791 and came to the United States around 1830 where he first settled in Troy, New York. Training at Troy and then Albany, Ballantine formed a partnership in Newark with Erastus Patterson in 1840. "Patterson & Ballantine" dissolved their partnership in 1846 when Patterson removed to New York. Shortly after, Peter Ballantine purchased property along the Passaic River and with a convenient rail connection. Here, at the intersection of Front (now McCarter) and Rector Streets, he built a brewery and malt house and expanded marketing into New York City. Coincident with business growth Ballantine brought his 3 sons Peter H., John H, and Robert F. into the business. When Robert, the youngest, came of age in 1857 the company became P. Ballantine & Sons. During the next fifteen years business expanded. The policy of brewing high quality Ales & Porter and old stock ales brought a solid reputation and many new customers to the Ballantine product. Although Peter Ballantine produced less than 10,000 barrels of ale in 1850 he still had the largest brewery in Newark. By 1860 production was over 39,000 barrels, far above its nearest city competition. The 1870 records indicate Ballantine's annual output was 60,000 barrels of ale and 130,000 bushels of malt, which was sold to other breweries.

By 1871 a new brewing house was constructed on land north of the old brewery, offices, and salesroom. This plant was located at Front Street and the Passaic River. It remained the main office of the company until 1912.

Until 1880, Ballantine limited its product to Ale & Porter. Larger beer, however, a light, sparkling fermented malt liquor, was growing in popularity, apparently affecting sales of the heavier ales. The Lager Beer brewery on Freeman Street was started in 1878 with the purchase of the old Schalk brewery. Ballantine bought it, modernized the facility, and commenced lager beer brewing under the name of Ballantine & Company (to distinguish it from the Ale Brewery). In the same year Ballantine adopted its famous three ring trademark symbolizing purity, strength, & flavor. When Robert F. Ballantine assumed presidency of the corporation in 1895, he established two subsidiary investment



BALLANTINE ALE BREWERY
McCarter & Rector

Malt house



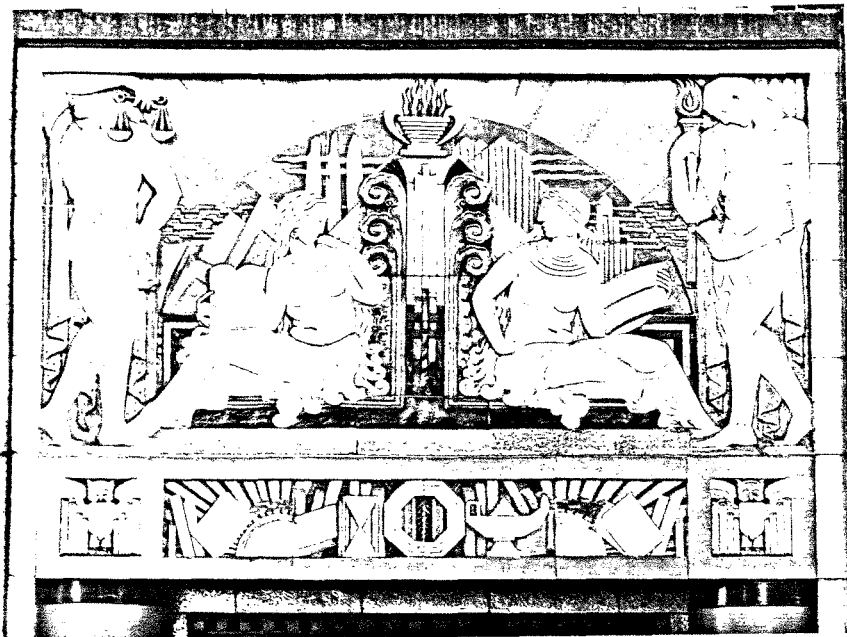
BALLANTINE ALE BREWERY
McCarter & Rector

Bottling building

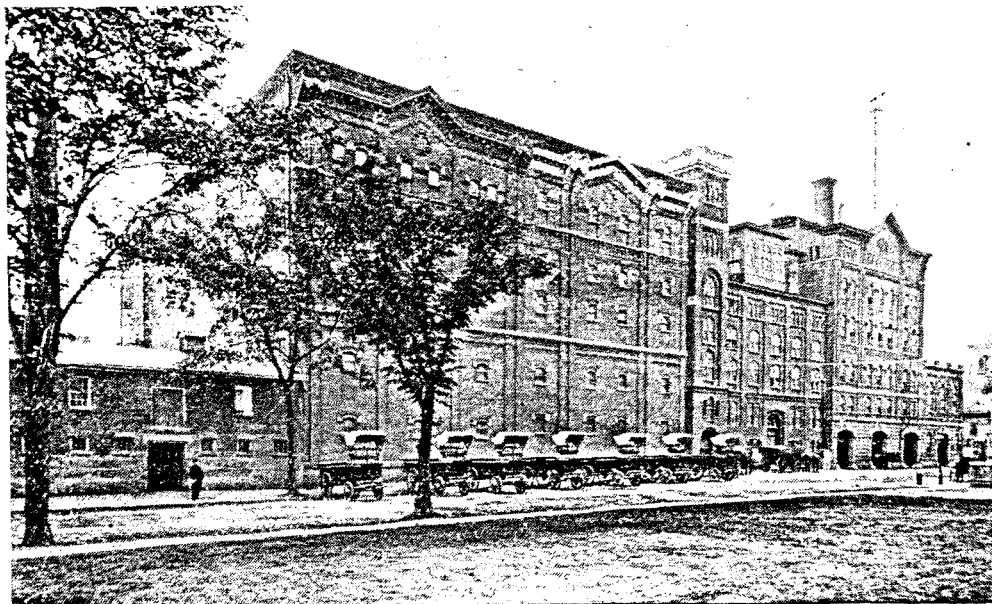
companies and began the manufacture of liquid malt - later known as cereal syrup. Ballantine saw cereal syrup as a potential substitute for fermented liquor should legal restrictions be placed on alcoholic beverages. It was Robert Ballantine's foresight which carried the company through Prohibition.

Just prior to World War I the Ballantine Company decided to purchase its malt and began phasing out its four malt houses. This ended nearly 50 years of selling malt to many of Newark's other breweries. About the same time Ballantine abandoned its old ale brewery on McCarter Highway. All the beer and ale brewing was then done at the Freeman Street plant. Annual production at this time totalled more than 500,000 barrels of beer and ale. During Prohibition Ballantine sold cereal syrup and leased many buildings to its subsidiary Passaic Transportation Company. Reopened in 1933, the Ballantine brewery reestablished its place as an important American brewery. After Repeal, Ballantine was purchased by Carl W. and Otto Badenhausen. The old established business was revived and broader regional markets were sought. In 1944 the company acquired the adjacent failing Feigenspan Brewery but apparently did nothing to resurrect the facility. Between 1937-1972 Ballantine was among the top ten breweries in the country with annual sales well over four million barrels. Ballantine maintained its popularity in the Metropolitan area for many years and was the major radio and television sponsor of the New Yorkers from the 1940's until the 1960's. Unfortunately, only a single plant brewery, Ballantine was unable to withstand the social unrest of the late 1960's, economic decline, strong competition, and a major labor strike. The Ballantine Company closed in 1972, but the brand name is still issued by the Falstaff brewery. Remnants of both breweries survive.

The Old Ale Brewery is located at McCarter Highway, Fulton & Rector Streets along the Passaic River and contains the malt and bottling buildings and, until 1983, the Essex warehouse. The malt house, circa 1860, at the southwest corner of Rector Street & McCarter Highway is a 3 to 6 story brick structure built in three sections but given a uniform composition on the north facade when the building received a major face-lift in the 1930's. The section along the highway is a five story brick structure. On the east and south facades brick pilasters divide the bays and the flat roof has a corbelled brick cornice. The center portion has an irregular roof line and a 6 story tower with a corbelled brick cornice. Only the corbelled cornice of the south facade of the western section betrays the circa 1860 construction data. The entire north facade of this structure received a major face-lift circa 1933 when the New Jersey Law School & the Seth Boyden School of Business merged with Dana



BALLANTINE ALE BREWERY
McCarter & Rector



LAGER BEER BREWERY OF BALLANTINE & CO.

BALLANTINE LAGER BEER BREWERY
NEWARK DIRECTORY, 1897

College & the exceptional Art Deco features were applied. In 1945 the school was absorbed by Rutgers and used as a chemistry laboratory. Essex County College leased the building from 1963-76. It is the present-day Newark Science High School. The Bottling building, 1899, is at the northwest corner of Rector & McCarter Highway. This two story rectangular brick structure is divided into bays of small paired segmental arched windows by shallow brick pilasters. The flat roof is highlighted by a corbelled brick cornice. The architect was Charles H. Nicoll. Demolished in 1983, the Essex Warehouse, circa 1870, was on the site of the 1849 brewery and malt house. This eight story brick structure was organized in a 3 part composition with a pedimented central bay, brick pilasters, and a corbelled brick roof cornice. Now a pile of brick rubble, its removal does illuminate the inactive Pennsylvania Railroad swing bridge.

The Ballantine Lager Beer Brewery, begun in 1878, probably utilized at least part of the old Schalk brewery. While this facility was remodeled the earliest sections were clearly discernable until a 1984 rebuilding which demolished most of the earliest features (The rusticated arch entrance surrounds of the brewery house survived).

There were two different offices; both are extant. The first, built in 1902 is now the St. Aloysius Parochial school. It is a 2 story brick structure at the southeast corner of Freeman and Fleming Streets. The pilastered front facade has seven bays - three center bays with a raised parapeted roof flanked by 2 bays. The windows are 2/2 wooden sash with segmental arches. The traditional Ballantine symbol in the gable has been replaced by a cross. Across the street is the later office. Used around 1915-1955, this is actually an earlier mid-19th century building. This excellent stuccoed, 3 story, hip roofed Second Renaissance Revival building has corner quoining, a prominent entrance surround and bracketed roof cornice. The only other surviving earlier structure is the 3 story brick carpenter shop at the corner of Fleming and Oxford. Built around 1900, the 6 bay central unit has a stepped parapet. In the gable is the Ballantine trademark. Behind this structure is the large ca. 1940's brick brew house and factory which engulfed much of the earlier brewery. The Moderne building has a vertical emphasis and few windows softened by rows of horizontal bands at the base and near the roof.

The major part of the 1940-50's rebuilding was across Ferry Street. These major warehouses, bottling, administrative, and canning buildings are 3-5 stories with strong evidences of Art Deco and the Moderne influences as expressed by cubic forms, flat surfaces, and uniformity. The



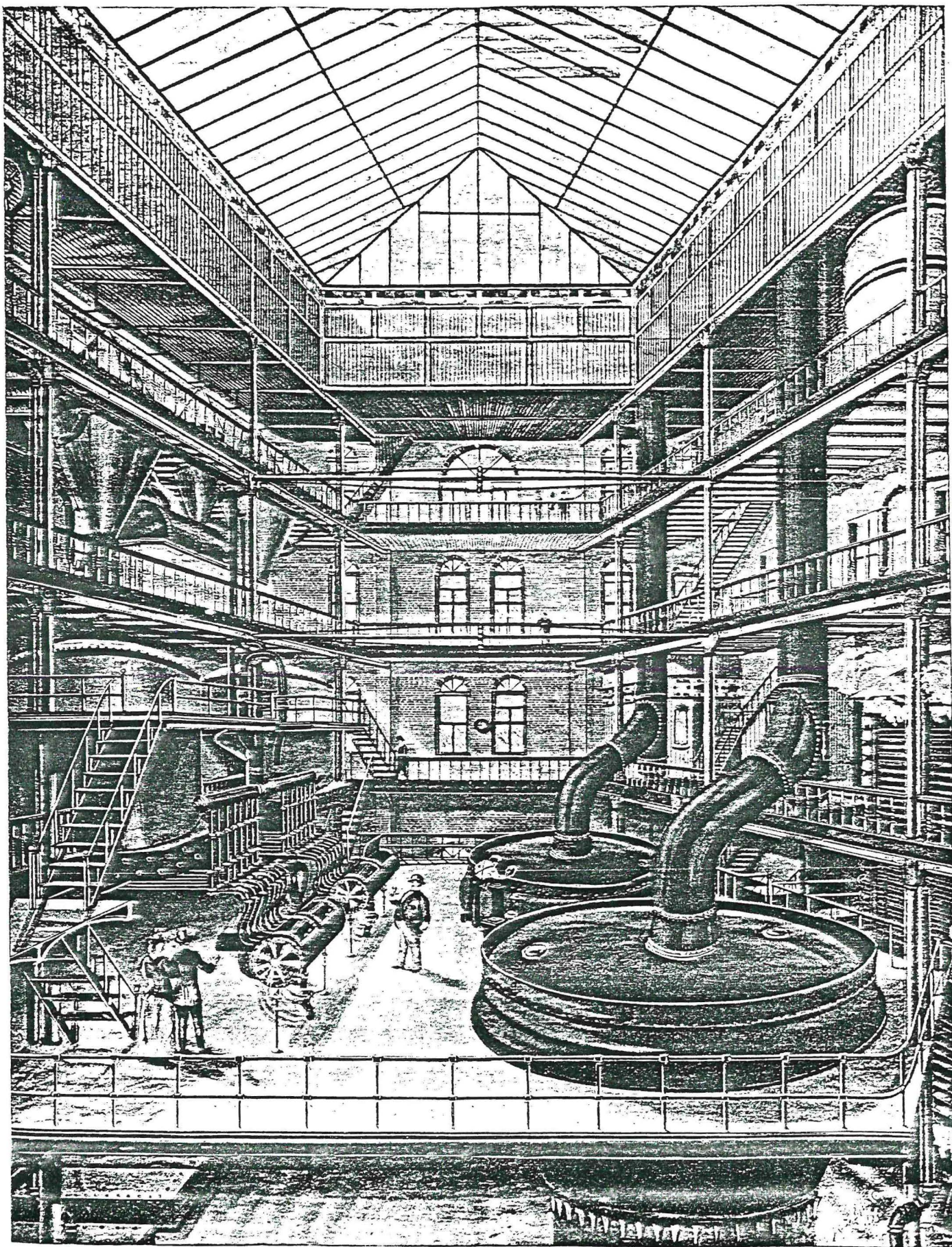
BALLANTINE LAGER BEER BREWERY
Freeman & Ferry



canning factory and the administration building are some of the best industrial expressions of Moderne style architecture in the city.

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FEIGENSPAN BREWERY (no
longer extant)
NEWARK, NJ ILLUSTRATED, 1893

CHRISTIAN FEIGENSPAN BREWERY SITE (1890's)
Between Freeman, Brill Fleming Avenues and Raymond Blvd.
Newark, Essex County, New Jersey

The Christian Feigenspan Company, established in 1869, was one of Newark's largest breweries and operated until 1944. The famous Feigenspan Pride of Newark (P.O.N.) beer and ale product, introduced in 1900, has become a prized item of beer memorabilia collectors.

German-born Christian Feigenspan acquired the lager beer brewery of Charles Kolb (est. 1866) at Belmont Avenue in 1869. Rapid growth resulted in a new brewery being built on Raymond Boulevard in the 1870's. The company grew in renown and at the 1891 Paris Exposition its export lager beer was awarded a silver medal. Following a fire in the 1890's the Feigenspan brewery was rebuilt. In 1900 P.O.N. beer was introduced. By 1910, the company advertized a capacity of 750,000 barrels a year. Inexplicably, shortly before Prohibition, Feigenspan gained controlling interest in the Dobler Brewing Company of Albany and the Yale Brewing Company of New Haven.

Despite forced inactivity at the brewery during Prohibition, Feigenspan earned national prominence as its brilliant P.O.N. sign remained lit. Revived in 1933, by 1939 the Feigenspan Brewery boasted that P.O.N. was the best selling ale in New York City and that the modernized plant could produce and bottle or can over 1,700,000 units a day. In 1944 Ballantine Company purchased and eventually closed the Feigenspan Brewery. The P.O.N. brand was reissued by Ballantine in the 1960's, but the plant never reopened.

The Feigenspan brewery, located between Freeman, Bill, and Fleming Avenues and Raymond Boulevard, enveloped nearly two full blocks. Although nothing survives of the manufacturing complex (demolished ca.1970), Christian Feigenspan's home, a 1905 Second Renaissance Revival style townhouse at 710 High Street is extant.

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THE RICHMOND NEWS LEADER, THURSDAY, JANUARY 24, 1935

FOR YOUR GREATER CONVENIENCE AND ENJOYMENT

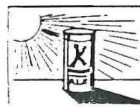
KRUEGER'S now presents the **KEGLINED CAN**

(Holds 12 ounces—the same as a bottle)

for ALE and BEER



LEFT—Wood and metal have long been COMPLETED LINED IN. Now in perfect shape, the new Keglined Can.



RIGHT—Now your Ale and Beer are FULLY PROTECTED FROM LIGHT—the enemy of Krueger's Beer and its smooth, light, gradually increasing flavor.



LEFT—Your personal container. NO DEPOSIT TO KEEP—NO BOTTLES TO RETURN. Economize! There's more the empty can.



RIGHT—Holds just as much as a bottle. TAKES ONLY HALF THE SPACE. Here's convenience you'll like—in your kitchen—in your car.



Here's the biggest news since repeal—it's the news of a modern way—a more convenient way—to enjoy Krueger's Cream Ale (formerly Boar's Head) in your home. Krueger's, always in the vanguard of brewing science, is the first to offer you the advantages of the new keglined can . . . advantages that are truly amazing.

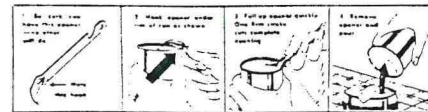
Imagine buying Ale or Beer for your home without paying a bottle deposit, without the trouble and effort of making bottle returns! Imagine being able to get twice as much in the same space in your ice-box! These are the modern conveniences made possible by the astounding keglined can. Of course, you can get your Krueger's in bottles as usual, but we urge you to be one of the first to enjoy the benefits of this remarkable

REG. U. S. PAT. OFF.

keglined can development. Get a can of Krueger's Cream Ale or Krueger's Finest Beer today! G. Krueger Brewing Company, Newark, N. J.

Richmond Distributor
CAVALIER DISTRIBUTING CORP. • RICHMOND, VA. • TEL. 4-8177

Be sure to ask your dealer for a "Quick & Easy" opener and learn the simple little trick of opening your can of ale or beer.



KRUEGER'S CREAM ALE

AND KRUEGER'S *Finest* BEER also in bottles and on draught

This advertisement is not intended to advertise or offer any other beverages for sale or delivery in any State, territory, or foreign country in the United States.

KRUEGER BREWERY

GOTTFRIED KRUEGER BREWING COMPANY (1865)
Between Belmont, West Kinney, Charlton and Montgomery
Newark, Essex County, New Jersey

Established in 1865, the Gottfried Krueger Company was one of the handful of Newark breweries which revived following Prohibition. Krueger made its mark in the industry by introducing canned beer to the world in 1935.

With the wave of German emigration to the United States, Gottfried Krueger came to Newark in 1852. Apprenticing to pioneer city brewers John Laible and Louis Adams, Krueger remained with the firm until it dissolved in 1855. He then was foreman of the Braun and Laible Brewery until 1865 when he and Gottlieb Hill bought the old brewery of Adams and established the company of Hill and Krueger. As sales increased from 4,000 barrels to 25,000 barrels a year between 1865-1875, the brewery expanded. Two new vaults, a new brewery stable, a 3 story brick malt and storehouse, a large fermenting room building and an ice house were built. In 1875 Hill retired and Krueger became sole owner of the growing brewery on Belmont Avenue. Between 1879 and 1883 other buildings were completed, including the malt and brewhouse on Belmont Avenue, the office and stables on West Kinney Street, the ice house on Charlton Street, and the yards on Montgomery Street. With his two sons, John F. & G.C. Krueger, the company was incorporated in 1889 and became part of the United States Brewing Company, Limited, New York, one of the many consolidates formed by British investors at the time. The Krueger family, however, retained control of the company and just before 1900 annual sales of lager beer surpassed 200,000 barrels. Although malt production was curtailed during Prohibition, Krueger apparently remained solvent by producing soft drinks. With the repeal of Prohibition, Krueger reactivated the brewery and shortly after gained distinction as the first company in the world to market beer in a can - a flat-top Krueger Cream Ale first marketed on January, 1935 in Richmond, Virginia, far beyond Krueger's normal market, was chosen just in case the joint venture with the American Can Company failed. Undoubtedly, the success of canned beer aided the revitalization of the Krueger Brewing since the plant was enlarged and modernized around 1940. The Krueger Brewing Company closed in 1960, but the Krueger brand name was purchased by the Narragansett Brewing Company of Rhode Island, which was later acquired by Falstaff.

The Krueger Brewery encompassed two blocks and fronted on Belmont Avenue between Morton and Montgomery. Surviving buildings include the 1879-83 office malt and brewhouse and storage building, assorted 20th century additions and the circa 1940 brewery and canning facility.



KRUEGER BREWERY



The vacant and deteriorating Victorian Gothic office on W. Kinney Street is a distinctive 4 story, 2 bay, brick structure with a hip roof flanked by 3 story Mansard roofed brick wings. The ice house, mid-block between Montgomery and W. Kinney, is engulfed by ca.1900-1940 additions, but still exhibits a massive patterned brick tower. The 1879-83 brick storage building and brew house front on Belmont. Early illustrations show a vaguely German half-timber massive tower with steep pitched roof atop the mid-block brew house. Today, this six story, 6 bay brick building with decorative brickwork, although altered on the first floor and shortened in the rear by the construction of the ca.1940 nine story brick brewhouse, is easily recognizable. Attached on the south is a ca.1883 four story brick storage building with spandrel buttressing. A fifth story was added around 1914. At the corner of Montgomery and Belmont is a massive ca. 1940 addition which has Moderne features. Most of the plant is currently vacant, but a small section on Charlton Street houses a community health center.

References:

H. Rich & Co. One Hundred Years of Brewing, 1903, p. 280.

Weiss, Harry B. and Grace M. Weiss. The Early Breweries of New Jersey 1964, p.66.

Salem, F.W. Beer, Its History of Economic Value as a National Beverage, 1880.

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Anderson, Will. The Beer Book, 1973, p. 56-57.

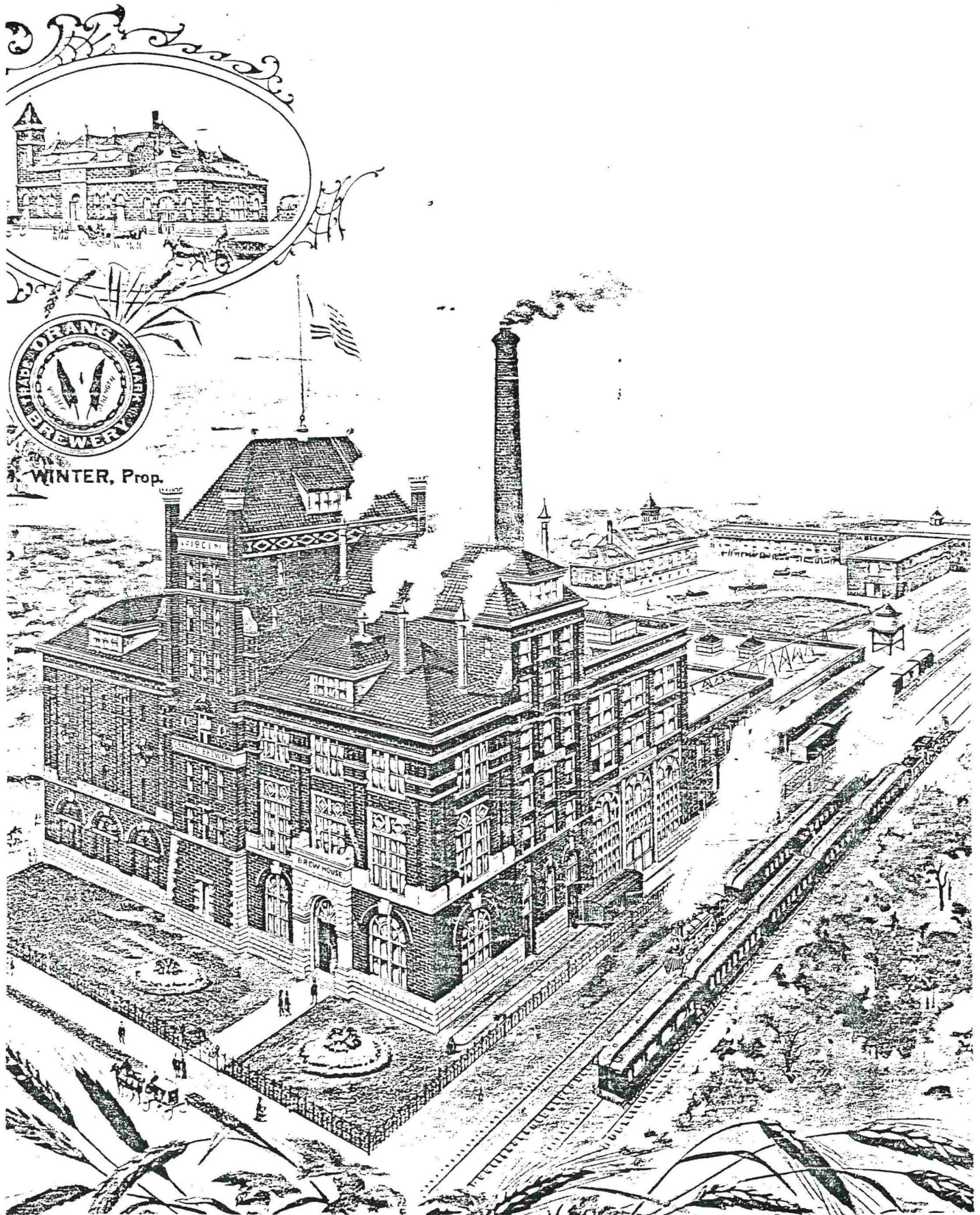
Baron, Stanley. Brewed in America, 1962, p. 327.

Newark Directories, 1878-1926. (1888, illus.)

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Newark, New Jersey Illustrated, 1894, p. 242. illus.



ORANGE BREWERY
ca. 1910
Illustration
courtesy Newark
Public Library

ORANGE BREWERY (RHEINGOLD)
Hickory & Oakwood, between I-280 & the DL&WRR
Orange, Essex County, New Jersey

One of the few extant brewery facilities in the Newark area, the Orange Brewing Company plant was built in 1902 for Michael Winter, who came from Pittsburgh. The architect and engineer of the facility was Oscar Beyer of Chicago. Following prohibition, John T. Trommer bought and remodeled the plant and, after a generation, sold out to the Liebman Brewery in 1950. Until the early 1970's the Liebman Brewery was producing Rheingold beer. The site overlooks Interstate 280 on the southwest and the Morris and Essex Division of the Delaware, Lackawanna, and Western Railroad on the northeast. The once dominant seven story brick Victorian Romanesque Revival style brew house was enshrouded by a circa 1950 modernization. Since 1978 the brew house has been mutilated by removing the exterior brick walls in order to salvage the copper vats enclosed. The bottling house, is a reasonably intact two story brick structure. Several other early 20th century ancillary buildings also survive.

References:

- H. Rich & Co. 100 Years of Brewing, 1903, p. 467, illus.
Newark Directory, 1910.
Sanborn Insurance Maps. 1933, Newark, Volume III, p. 102.

PABST BREWERY (1945)
400 Grove Street
Newark, Essex County, New Jersey

The Milwaukee based Pabst Brewing Company has had its eastern operations in Newark since 1945. Pabst, founded in 1844, is one of the oldest national breweries in the United States. Its' Newark plant provides Pabst Blue Ribbon beer to most of the northeast and is one of only two breweries now operating in the city.

Pabst, re-established after Prohibition as a major national brewery, expanded rapidly in the following decades. Production of Pabst beer rose from 1,000,000 barrels in 1934 to well over 3,000,000 in 1946 to lead the industry. Profits were reinvested in expanding business by developing breweries at Peoria, Illinois and, later, Newark.



PABST BREWERY



Acquisition to the Newark Hoffman Beverage Company in 1945 provided Pabst with a modern facility and an established soft-drink business. Hoffman made soft drinks (notably root beer) in Newark since 1910 and its beverage plant (1924-34) was one of newest and best equipped facilities in the east. On his return from military service, Rudoff Pabst was selected President of the newly acquired Hoffman Company and Vice-President of Pabst. Management properly felt that the Hoffman plant could be easily adapted to brewing of malt liquor. With the opening of Newark's Pabst Brewery in 1946, Hoffman Beverage, then a subsidiary of Pabst, returned to New York where it continues to produce soft-drinks; while the Pabst Brewing Company competes for the beer market nationally.

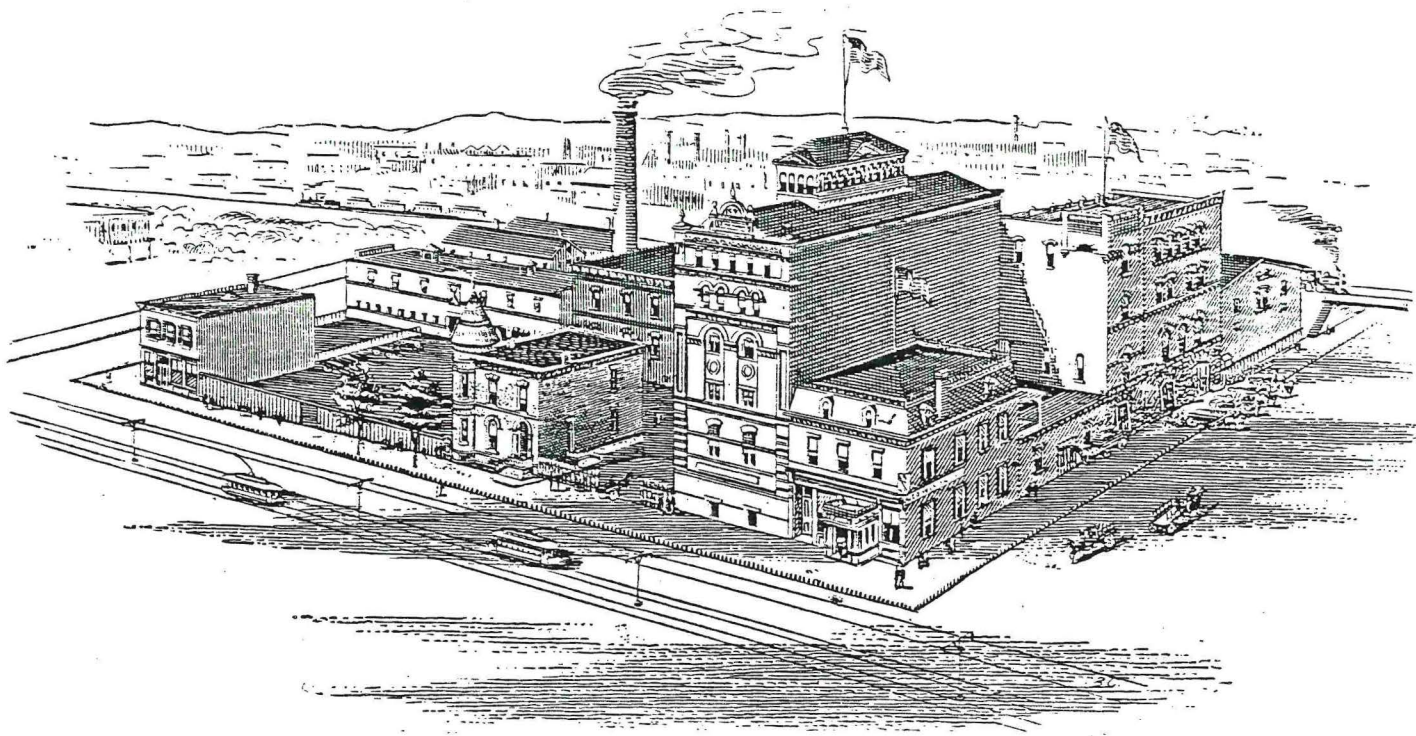
Today the Newark Pabst Brewery facility, still operating out of the Hoffman 1924-34 plant, has a totally modern brewing and fermentation process. The Pabst Brewery is located on both sides of Grove Street, between South Orange and Dassing Avenues. The majority of the steel and concrete structures are all faced with ceramic tiles and exhibit similar pilaster details and banded fenestration suggesting a Moderne style. Their construction was between 1924-34. On the north and south there are modern additions. The earliest building (1924) is the 4 bay, three-story bottling works sandwiched between a severe 1960's-70's addition on the south and the bridge walkway over Grove Street on the north. Directly opposite is the 1925 six-story, 3 bay office and one-story garage. The adjacent six-story, 5 bay garage and warehouse to the north was completed in 1929. Atop this structure is the landmark Hoffman Root Beer bottle, now painted to advertize Pabst. The 1934 Hoffman brewery is directly across Grove Street. It has a five bay, four-story ceramic tile facade and five additional concrete stories set back from the lower section.

References:

Cunningham, John. Made in New Jersey, 1954, p. 86.

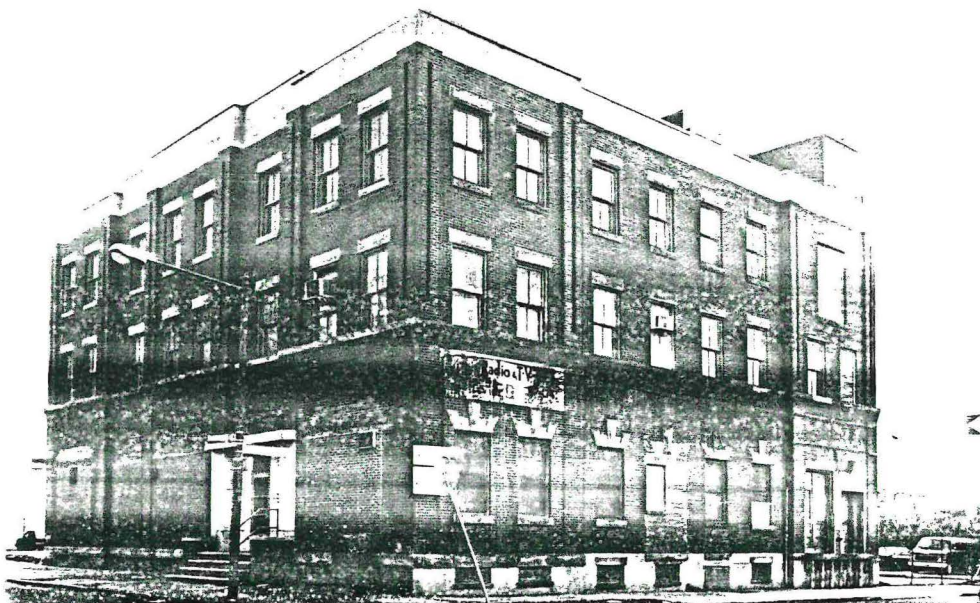
Cochran, Thomas C. The Pabst Brewing Co., 1948.

Sanborn Insurance Maps 1931. Newark, N.J. p. 570.



GEORGE W. WIEDENMAYER'S NEWARK CITY BREWERY, MARKET, CHAMBERS AND FERGUSON STREETS.

WIEDENMAYER BREWERY
NEWARK, NJ ILLUSTRATED, 1894



Bottling Plant- built 1903

WIEDENMAYER'S NEWARK CITY BREWERY (1879)
 604-618 Market Street
 Newark, Essex County, New Jersey

As early as 1850, the Wiedenmayer name was a small but well known family lager beer brewing concern in Newark. Christopher W. Wiedenmayer, one of the City's pioneer brewers, had a plant until 1880. His son, George W. Wiedenmayer, trained in his father's brewery, but established an independent business in New Brunswick in 1877. Returning to his birthplace in 1879, George W. Wiedenmayer apparently acquired the family business and developed it into one of Newark's most prominent breweries, operating until Prohibition in 1919. Wiedenmayer malt products included ales, porters, and lager beer.

Described in 1894 as a growing concern capable of producing 75,000 barrels of lager beer annually, advertisements promoted the aging, purity, brilliancy and healthful properties of Wiedenmayer beer. The plant had attractive and commodious offices, a five story stock house, a four story brew house, stables for 36 horses, and cold storage capacity of 20,000 barrels. The bottling plant was added in 1903. Originally occupying 1½ blocks bounded by Market, Ferguson, Somme, and backing on the Central Railroad of New Jersey (Newark & NY Branch), all that survives today of the large facility is the 1903 eight bay, 3 story brick bottling house at the corner of Chambers and Market. Presently an electrical company, the roof cornice of the building has been removed and much of the ground floor fenestration bricked-up.

References:

H. Rich & Co. 100 years of brewing, 1903.

Newark, NJ Illustrated, 1894, p. 244, illus.

Cunningham, John. Made in NJ, 1954.

Newark Directories. 1885-1926.

Sanborn Insurance Maps. 1908-28, Volume I, p. 46, 47.

Anderson, Will. The Beer Book, 1977, p. 55 illus.



I DRINK GEO. W. WIEDENMAYER'S BEER



I DID'NT.

WIEDENMAYER'S BEER
ADVERTISEMENT ca. 1900

LIST OF SOME OF THE MORE PROMINENT NEWARK BREWERIES

Louis Adam (fl. 1851-1868)

Brewery formed with J. Braun who died before in operation, John Laible became partner, separated 1855.

Anheuser-Busch's Budweiser Brewery

See separate listing

John Baier (fl. 1860-70)

See Union Brewing Co.

Peter Ballantine and Sons (fl. 1859-1960's)

See separate listing

Wm. Bauer (c. 1830)

John A Boppe Brewery (1860-80)

Later became Home Brewing Co.

John Cumming's High Street Brewery (fl. 1799-1840)

Eagle Brewing Company (fl. 1860-1919)

Joseph Harth (1860-1880); Gustav Schmid's Jumbo Brewery (1880-84); Balthaser Huemmer (1884-92); Fred Liesiewski's Eagle Brewery (1892-1919).

East Newark Brewery (fl. 1878-1888)

Emerald and Phoenix Brewing Co. (1869-1903)

Also known as F.J. Kastner Co. (1869-1889); E&P (1889-1903).

Essex County Brewing Co. (fl. 1862-1919)

John Hartman (1862-72); Stegmuller and Wehr (1872-79); Ferdinand Ziehr (1879-91); and ECBC (1891-1919)

Albert Fehleisen and Co. (fl. 1854-1903)

Frederick Kolb (1854-1879); AF (1879-1903)

Christian Feigenspan (fl. 1866-1944)

Charles Kolb (1866-1875); CF (1875-1944)

See separate listing

Peter Hauck and Company (fl. 1859-1960), Harrison

Joseph Hensler Brewing Co. (fl. 1852-1949)

Lorenz and Jacquillard (1852-1855); Lorenz and Hensler (1855-66); Hensler (1866-1949).

Joseph Harth (fl. 1860-80)
See Eagle Brewing Co.

Home Brewing Co. (fl. 1886-1919)
Newark Enterprise Brewing co. (1886-8),
Geyer's Enterprise (1888-90), Home (1890-1919).

John Laible (fl. 1860-70)
See Louis Adam

Krueger Brewing Company (1860-1972)
See separate listing.

Lyon and Sons Brewing Company (fl. 1869-1919)

Morton Brothers (fl. 1831-1888)

Pabst Brewery (fl. 1945-1985)
See separate listing.

Schalk Brothers Brewery (fl. 1850-1878)

Christopher Trefz Brewery (fl. 1866-1919)
Franz Ehehalt and Carl Seidel (1866-69); Trefz
(1869-1919).

Wm. Hills Union Brewing Co. (fl. 1860-1919)
John Baier (1860-1870); Hill and Piez (1870-1884);
Hill (1884-1919).

George W. Wiedenmayer Brewery (fl. 1879-1919)
See separate listing

PAINT AND VARNISH

Since the mid-19th century Newark has been the major producer of varnish in New Jersey and from the 1890's on has competed for national attention as one of the largest paint and varnish manufacturers in the United States. Today (1985), with nationals such as Benjamin Moore and Sherwin-Williams, regional Cook and Dunn, and the local firms of Dooner & Smith, Duralac, and Armitage, Newark continues to produce protective coatings for millions of customers yearly.

The varnish industry in Newark began rather modestly around 1836 in Samuel P. Smith's small varnish cooker on South Broad Street. Little is known of Smith or his move to Mulberry Street in the 1840's but full page advertisements in the Newark Directories extoll the virtues of his varnish, used in the local furniture and carriage business. Newark's carriages boasted wide markets, particularly because of their fine finishes, but most of the varnish used in the first quarter of the 19th century was imported from England. In the 1841-60 Directories Smith claimed his "extra durable elastic varnish ... equal to the English". Smith also made coach body varnishes, drying japan varnish, leather varnish, and furniture polish.

By 1850, besides Smith, Newark had five other varnish makers. Four were also located on Mulberry Street. The fifth, Pierson & Robertson, manufacturer of copal varnish and japan, was a few blocks away on Railroad Avenue. Just before the Civil War, Newark had ten varnish manufacturers, mostly coach and furniture products. While the war undoubtedly hurt the city's lucrative carriage sales to the south, varnish makers were able to compensate by taking advantage of markets in the north. Diminished carriage and wagon sales were more than offset by the increased demand for varnish on railroad cars.

Helping Newark become a major manufacturer of varnish by the late 19th century was its superior location and the excellent rail and shipping facilities, both for importing gum copals and resins and reaching regional markets. Between 1860-1880 Newark's varnish industry witnessed steady growth in product value. The next ten years, however, saw exceptional growth. Although the number of varnish factories increased only from 16 to 18 the value of the product more than doubled (from \$800,000 to \$1,900,000) as did the number of factory workers. Probably the most recognized company to emerge was Murphy Varnish. Established in the late 1860's, Murphy became the major manufacturer of varnish in Newark and gained a national reputation for quality products. John Armitage Company, still making protective coatings, began producing varnish in 1874. The Moses Bigelow Company, begun

in the 1850's, was the only varnish company to span the antebellum period and into the mid-20th century. These and some twenty other thriving companies met the twentieth century with considerable optimism. At the beginning of the century paint manufacture also became conspicuous in Newark.

The use of paint for protecting and highlighting structures dates well back into the Ancient World. Even the Greeks used the brightest possible primary colors to decorate their buildings. The tradition continued, but for centuries was limited only to a precious use of paint which was difficult and expensive to produce. The formulas for making paint were highly coveted and were largely the domain of the mysterious alchemists.

During the 17th and 18th centuries processes were developed which increased and improved the components of paint formulas. First, white lead pigment was developed and then zinc became the basic color agents in paints. Linseed oil and sulfuric acid were also brought into greater production and wider use. The production still remained small by today's standards, however, and cost prohibited common use of the product. Technological developments during the late 18th and 19th centuries succeeded in making paint available to a wide range of people.

Architectural paint, as developed by the mid-19th century, was an especially successful product in its ability to both protect and decorate wood and metal. The coatings -- consisting of pigments, vehicles, and hardeners -- were both durable and colorful. Lead and zinc, in various oxidized forms, were the basic pigments giving the plain opaque-white color to the clear linseed oil which was used as the vehicle into which the pigments were dispersed. These substances worked together to form a fairly durable coat. Varnishes were added as hardening agents, making it more durable and thinners were added as needed in order to make the mixture spread evenly and be absorbed by the undercoat. Color pigments were added to the basic white paint to produce a desired hue. By the mid-19th century an unprecedented selection of bright colors at comparatively low cost had appeared on the market.

The actual application of paint on buildings was carried on by craftsmen who were organized within formal trade guilds. Commonly called master house painters, they were highly skilled specialists in the mixing of paints. Until the 1870's most all paint was mixed on the work site from the basic components, the pigments, vehicles, thinners and hardeners. Even varnishes were often prepared as needed on the kitchen stove. In this way it was obviously the full responsibility of the painter to be able to select good raw

materials, combine them and apply them to properly bond and stay. The painter was in this respect a type of practical chemist.

Increased market demands and technological advances ran counter to the traditional honored craft of the master house painters, and the business of mixing paints on location gave way to factory-made ready-mixed products. Varnishes were generally prepared and packaged by 1860. They presented no problem regarding shelf life and were more efficiently made in large quantities. Paint was not as easily prepared and its composition was more susceptible to fraud. In 1867, D.R. Averill of Newburg, Ohio received a U.S. patent for the prepared or ready-mixed paint - an inferior emulsion paint which used caustic soda and water in the formula. Other companies, including the New Jersey Zinc Company were apparently earlier pioneers in pre-mixed paint products.

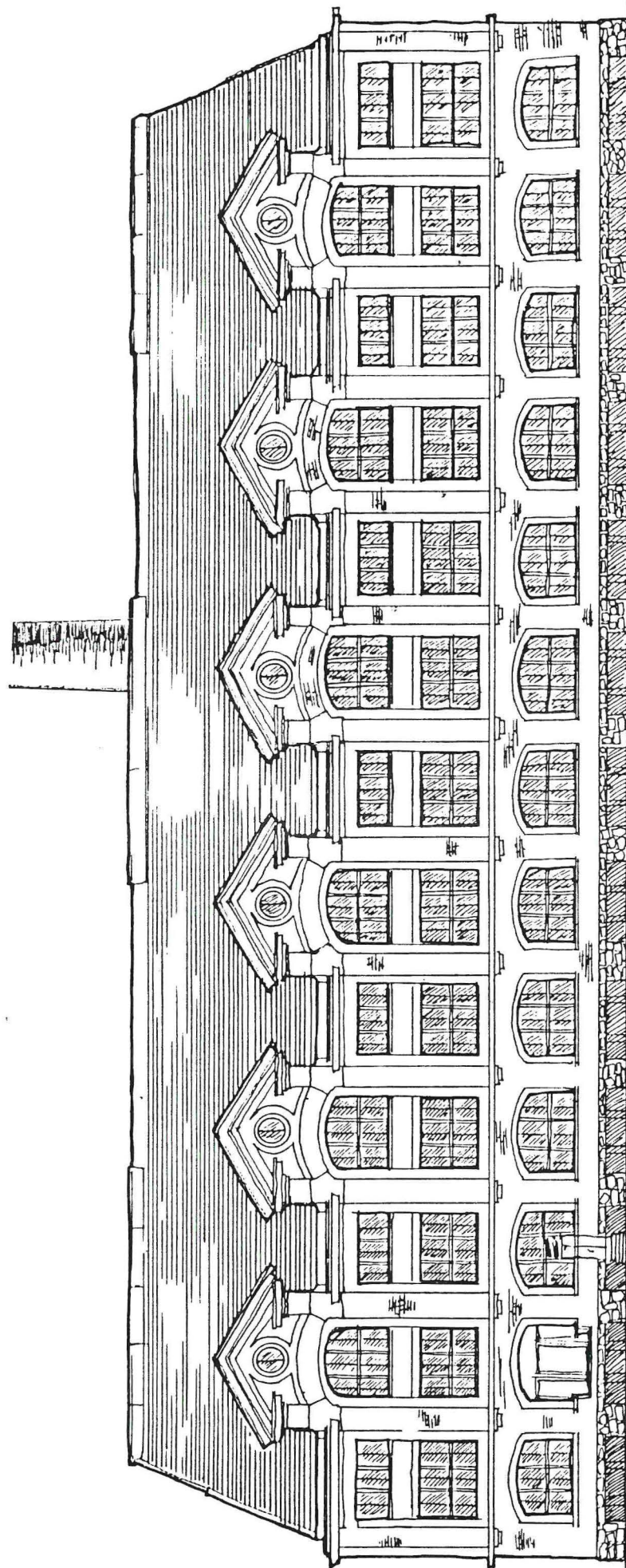
The late 19th century paint-making industry, burgeoning and unregulated, entered a phase of extensive degenerate practices including fraud or at least deceptive marketing. Barytes, or sulphate of barium, an inexpensive white crystalline material, was used as a substitution for lead and zinc in cheap paints. Turpentine was replaced with benzine which cost a fifth as much but was not as effective a thinner. Inferior oils were substituted for quality linseed oil. Manufacturers such as Sherwin-Williams, Benjamin Moore, Devoe, and Wetherill stood between the traditions of the master house painters and the unsound manufactured new paints. Their object was to develop a new and reputable extension of the paint-making industry. Progress was slow at first but by the early 1880's quality lines of ready-mixed paint were widely distributed and accepted. At this point, paint manufacturing and marketing had evolved to a logical end within the framework of the industrial revolution of the 19th century, setting aside the craft traditions and establishing the industry in its major features as we know it today.

The earliest paint company in Newark was probably the New Jersey Zinc Company. Using zinc mined from the Franklinite mines in Sussex County, the New Jersey Zinc Company manufactured zinc oxide, a crucial ingredient in the preparation of paint. The company began making zinc oxide in 1850 followed by zinc paint. They were arguably the first distributor of pre-mixed paint in the United States. Another early Newark paint product was Heller & Merz's ultramarine blue. Two other early city paint manufacturers were Israel Baldwin's Newark Paint Works (ca. 1850) and Boylan & Tuer's Oraton Paint Works (est. 1862). These more conventional companies supplied ingredients for paint to be mixed at the site by the master painter.



MIXING PAINT - NEWARK

JOURNAL OF FINANCE &
INDUSTRY, 1929



MURPHY VARNISH COMPANY
Chapman's 1905 reinforced
concrete building

Despite the success of a few early manufacturers Newark paint products did not begin to challenge varnish until the beginning of the 20th century when Newark attracted several national paint companies. At least one, Sherwin Williams, cited rail and shipping facilities and the excellent market as reasons for locating here. Certainly another positive factor was Newark's established reputation for quality varnish.

Newark maintained a prominent position in paint and varnish manufacture in the first quarter of the 20th century. During the period there were some 20-25 factories in the city engaged in the manufacture of paint and varnish products. Over 1000 workers were employed in the trade. Product value in 1909 was \$6,000,000. A decade later there were another 600 workers and product value had nearly tripled. The newer national firms - Sherwin Williams, Pittsburgh Plate Glass Co., Devoe and Reynolds, and Beckwith Chandler - played a major role in the growth, but many older established companies (Armitage, Murphy, Flood and Conklin, Bigelow, and Heller & Merz) also thrived.

In 1929, just before the Great Depression, Newark was ranked fifth in the production of paint and varnish in the United States. Its twenty-two plants manufactured protective coatings valued at \$25 million. Only New York, Chicago, Cleveland, and Philadelphia had greater paint product value.

While the superior marketing and distribution facilities initially attracted the large established paint manufacturers like Sherwin-Williams and Benjamin Moore (their plant was built in the 1920's, but a warehouse was here in 1905), the chemical industry, which began to substantially develop during World War I, provided added incentive to stay. Post-war technological paint innovations came out of the chemical research facilities.

Two major changes in the paint industry were interconnected - the development of nitrocellulose lacquer finishes used primarily on automobiles and the acceptance of research chemists as a vital cog in the manufacture of paints. With enormous leftover stockpiles of nitro-cellulose (used in producing smokeless powder) from World War I, E.I. DuPont de Nemours Company chemists developed an effective paint lacquer that carried color, flowed on surfaces smoothly, dried quickly, and did not crack. The auto industry quickly accepted these lacquers (finish paint work on a car was reduced from at least a week to a single day). Realizing the potential, many other paint companies established research facilities and created similar lacquers. At least one Newark Company, Armitage, supplied lacquer to an auto manufacturer.

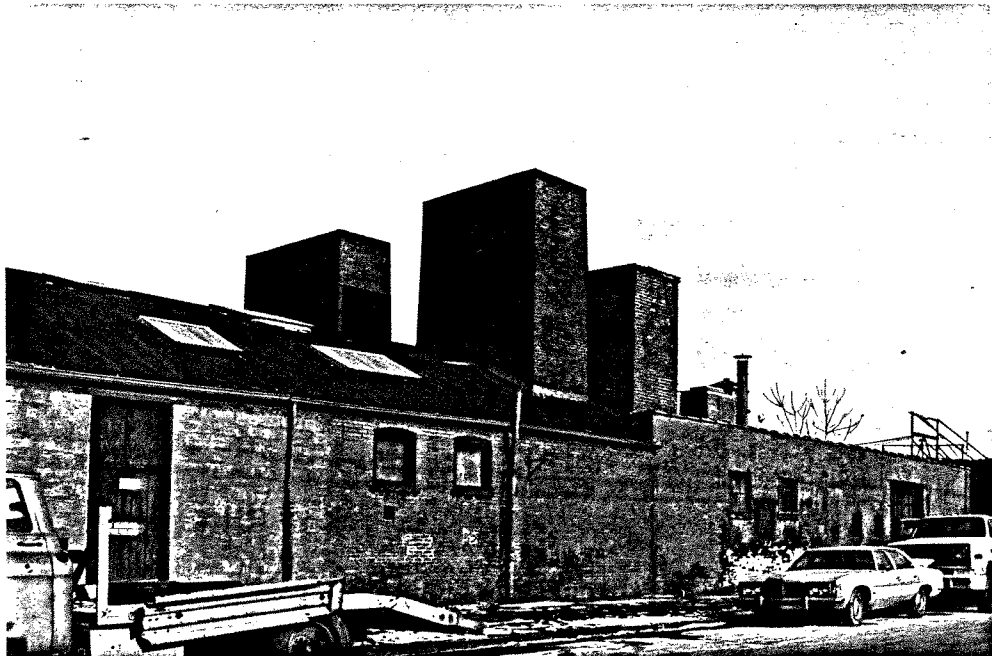
While Newark's paint and varnish industry suffered (along with nearly everything else) during the Depression, World War II demands pushed paint production to new heights. Most of the varnish companies by the late 1940's, however, had either closed or reorganized to manufacture paints.

In 1975 there were 150 paint and coating factories, seven thousand workers, and \$385 million in paints produced in New Jersey. This represented ten percent of the nationwide industry. The center of the states paint industry still is in the Newark region. Two of the nations largest paint companies are headquartered in the state: Cook & Dunn and Benjamin Moore. C&D offices and plant are in Newark. Benjamin Moore has its main office in Montvale, New Jersey but maintains a manufacturing plant in Newark. The Cleveland headquartered Sherwin-Williams has a major eastern facility in Newark.

As elsewhere in the country (and in other industries) corporate consolidation and syndication has driven down competition and enhanced profits of the national companies at the expense of the small paint producers. Newark's smaller paint factories have all but disappeared. Exceptions are the family-owned Armitage and Duralac firms which manufacture specialized paint coatings. The immediate future of the major companies in Newark is reasonably secure. Solid transportation facilities and access to major markets still offset the penchance for corporate relocation to the suburbs (especially in light of the organized suburban opposition to chemical paint manufacture).



JOHN L. ARMITAGE CO.



JOHN L. ARMITAGE & COMPANY PAINT & VARNISH WORKS (1882)
 245 Thomas & Dawson
 Newark, Essex County, New Jersey

Founded in 1874, the Armitage Company is the oldest surviving paint and varnish manufacturer in Newark. In the late 19th century Armitage produced varnishes and japans for the local cabinet, wagon, and carriage making trade. The company also manufactured speciality items associated with enameling. Following World War I, Armitage began producing paints. In the 1920's the company supplied paint to General Motors. While the larger varnish companies such as Murphy and Flood & Conklin have closed, Armitage continues to make paints and varnishes, primarily for industrial usage.

The earliest buildings of the Armitage Company are at the southeast corner of Thomas & Dawson. Dating to 1882 when the firm moved from Oliver Street, the original office and shipping facility is a two story 9 bay by 4 bay brick structure with corbelled cornice and gable roof. The small wood sash windows have round arches. To the rear of this office is a long 1-2 story gable roofed brick storage structure which ends in four massive brick chimney stacks where varnish was boiled. A new office building is mid-block on Thomas. Across the street is another large chimney stack now part of an auto sales garage, but originally associated with the Armitage coated specialties facility.

There are two major paint buildings on South Street - both 1920's reinforced concrete structures with large metal sash windows and brick panels between concrete piers. The four story four bay paint factory exhibits an unusual exterior mushroom column. The paint mixing building is a three story, 5 bay by 3 bay structure with a flat roof. A diamond brick and concrete pattern embellishes the roof cornice.

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Commerce, Manufactures & Resources of Newark , 1881, p.95

Newark Handsomely Illustrated , 1894 p. 148

Sanborn Insurance Maps, Newark 1908-28, Volume 1, p.26.
 1931, Volume 2, p. 262



BECKWITH-CHANDLER



COOK & DUNN

BECKWITH-CHANDLER COMPANY
193 Emmett, Avenue B and Wright
Newark, Essex County, New Jersey

A major manufacturer of paint and varnish in the first half of the 20th century, Beckwith-Chandler Paint Company had two plants in Newark. The company arrived in Newark around 1910 and was no longer in business by the 1950's. The varnish facility on Emmett is a cluster of several brick buildings. The corner office at 193 Emmett is a 3 story hip roofed 3 bay by 3 bay brick structure. The segmental arched windows are blocked up. Although the brick is painted, the old sign has bled through and reads, in part, "BECKWITH-CHANDLER VARNISH." This building was also used for mixing colors and storage. Attached to the rear along Emmett is a line of brick two story varnish tank rooms. Alongside the office on Avenue B are two one story narrow brick structures, originally a shipping facility and an engine house. In the rear of these buildings are tank rooms and a boiling house. On Wright is a one story brick building which was a boiling house, cooling facility, and storage. The boiling house has a bank of four 25 feet tall square brick chimneys.

References:

Cunningham, John. Made in NJ. 1954, p. 125-127.

Sanborn Insurance Maps. Newark, v. 1, p. 17.
1908-1928.

COOK & DUNN PAINT CORPORATION
Kossuth, Charles & Rome Streets
Newark, Essex County, NJ

Based in Newark, Cook & Dunn was founded in 1928 by Adam C. Dunn and Charles Cook. The company is a regional organization with its sales areas primarily in the Northeast. Cook & Dunn sells mostly interior and exterior house paints, all manufactured in Newark. The firms major market focus is on the do-it-yourself painter. Many of New Jersey's independent hardware stores carry the Cook & Dunn product. Adco Chemical and T&W, manufacturers of vehicles which go into paints (resins, etc) are wholly owned by Cook & Dunn and also Newark-based.



DEVOE & RAYNOLDS
Varnish Stacks

The Cook and Dunn Plant has several ca. 1940's nondescript brick structures. The one story storage and shipping garage has a flat roof and several large garage doors on Rome & Charles Streets. The adjacent manufacturing plant is also one story and has 3 metal chimney stacks on the south end. Several skylights set awkwardly atop the pitched roof of this building. The 148-154 Rome Street address is an essentially 1940's 2 story building with hints of earlier construction on the first floor. Atop the roof is a large sign advertizing Cook and Dunn.

References:

Juster, Jacqueline. New Jersey Business "Our Paint Industry Tops Nation." July, 1975, p. 15-23.

Cunningham, John. Made in New Jersey 1954, p. 127.

DEVOE & RAYNOLDS COMPANY
NJ Railroad Avenue, Oliver & Kinney
Newark, Essex County, New Jersey

The Devoe & Raynolds Company was in Newark in the late 19th century as the F.W. Devoe & Company Varnish manufacturer. The company began producing paint and enamel in the early 20th century and operated until the late 1930's. Four prominent square brick varnish stacks with corbelled caps amid the one story cooking house are all that survive of the original plant. The property is now a hardware company.

References:

Devoe & Raynolds. The Colorful Years, 1942
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Newark Directories. 1887, 1926, 1937



JOHN DOLPH



DOONER & SMITH

JOHN C. DOLPH VARNISH CO.
168 Emmett Street
Newark, Essex County, New Jersey

The John C. Dolph Co. made varnish at 168 Emmett Street from the early 20th century to just before the Depression. The office and laboratory was in a 2 story, 7 bay brick building with parapeted roof. Windows have segmental arches with stone sills but are all blocked up. The first floor has modifications. A 3 story, 3 bay brick tower is attached along the east. The 3rd floor appears to have been altered. All the segmental arched windows are blocked up. Through the alley can be seen the boiling house, a small one story brick shed with two varnish cart openings and a tall square brick chimney.

Reference:

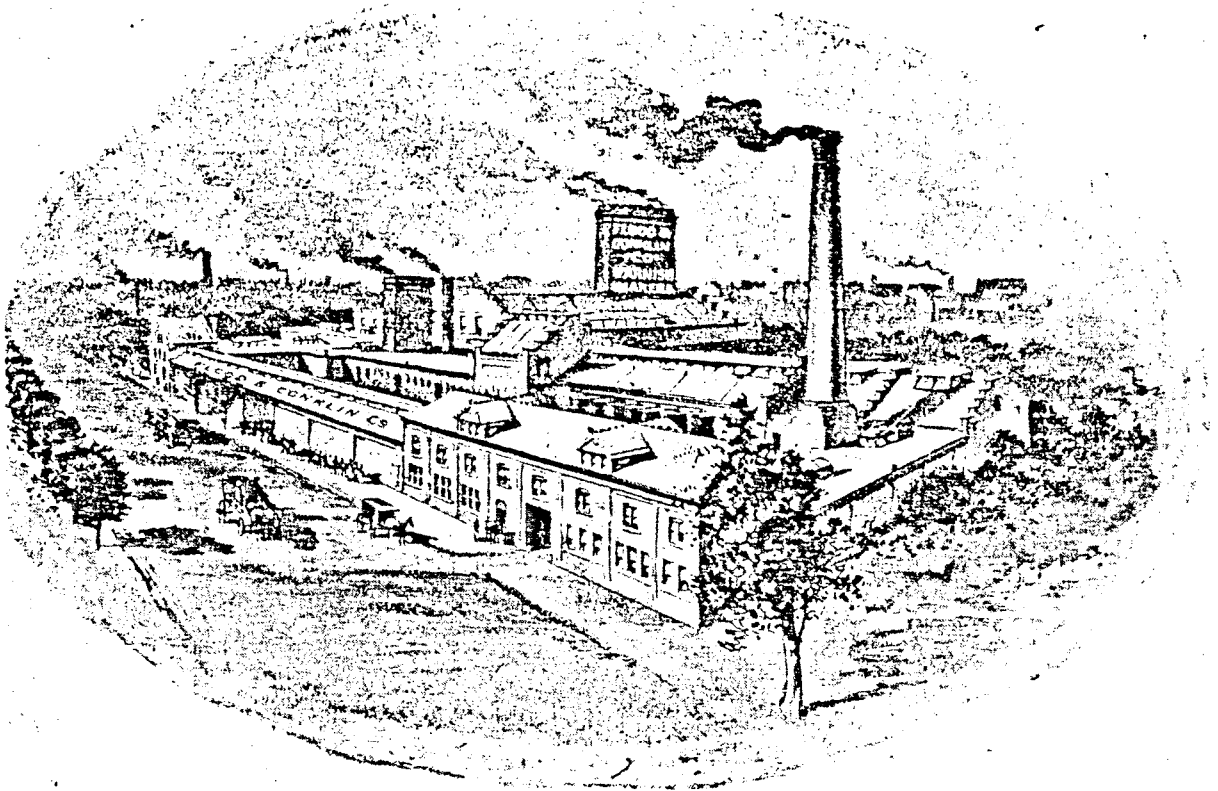
Sanborn Insurance Map. Newark. 1908-28. v. 1,
p. 13.

DOONER & SMITH CHEMICAL COMPANY
376 Mulberry Street, at McCarter & Chestnut
Newark, Essex County, New Jersey

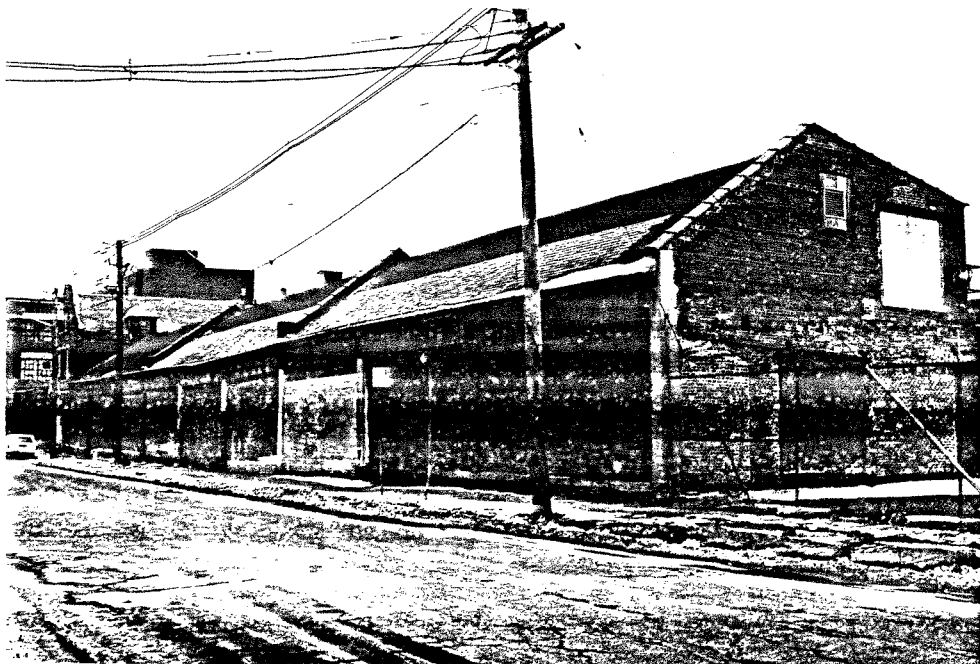
Begun in 1899, the Dooner & Smith Company manufactures and prepares acids, chemicals, solvents & paints. Originally tanning materials were also produced. Much of the facility was destroyed in the 1930's when McCarter Highway was widened. The office at 376 Mulberry is a 1½ story brick structure with gable end facing the street and a heavily modified front facade. A two story 1920's brick showroom and a one story brick storage building which rises to two stories in the rear flank the office.

References:

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FLOOD & CONKLIN
YEAR BOOK OF THE BOARD
OF TRADE 1902



FLOOD & CONKLIN
 Varnish Tanks

FLOOD & CONKLIN VARNISH COMPANY
 104-138 Chestnut, opposite Hermon Street
 Newark, Essex County, New Jersey

The Flood and Conklin Varnish Company is somewhat of an enigma. Begun in the early 1890's by Franklin Conklin Sr. and Peter A. Flood, the company flourished in varnish-conscious Newark until the 1960's, but little is known of the firm. Flood and Conklin got its start in the business by manufacturing varnish for Devoe & Raynold's Newark plant. Peter Flood died in 1907, but the company name was retained. By 1929 the company had grown larger than the adjacent Devoe & Raynolds facility. Franklin Conklin died in 1943 at the age of 85. Control of the company then passed on to his son Franklin Conklin Jr. and Ludolph H. Conklin. Flood and Conklin varnish reportedly matched Murphy's reputation for quality varnish. Most of the manufacturing plant has been destroyed and is presently an asphalt parking lot. The buildings that survive line Chestnut Street, opposite Hermon. They are-the late 19th century one story brick varnish tank storage, a 2 story brick structure, and the 1918 one and two story laboratory.

The varnish tank storage buildings are long 1½ story narrow brick structures with brick curtain walls between three sections. Each gable roofed section has three blank brick panel walls and no fenestration. Attached to the north is a 2½ story brick structure with its gable end facing the street. The side entrance is the only 1st floor opening but the second floor has 3 closely spaced windows. In the attic are round arched paired windows. The final building to the north is a one story brick laboratory with a second story rising in the rear. Constructed in 1918, this 5 bay structure has blank brick panel walls embellished by narrow pilasters and brick corbelling. The roof is flat with a glass skylight providing the only source of natural light to the building. (The varnish tanks also originally had skylights). The two story section in the rear was used as the laboratory for Flood and Conklin.

Behind this line of buildings was originally a long narrow corridor and then a large complex of factory buildings including varnish cook houses, oil and turpentine storage, and shipping facilities. All of these buldings are now gone.

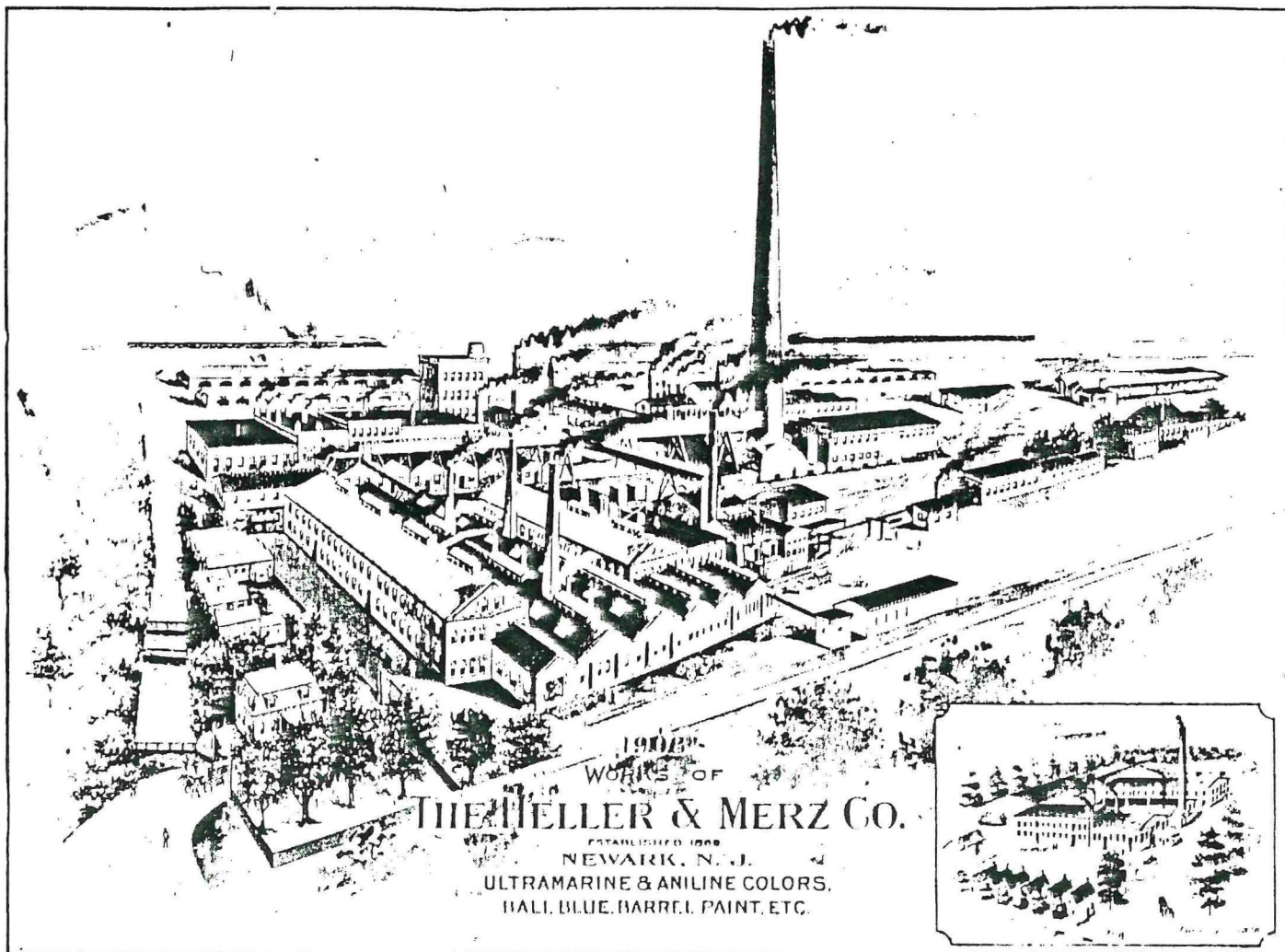
References:

Cunningham, John. Made in New Jersey, 1954. p. 123.
 Newark Board of Trade. Year Book of the Board of Trade,
 1902, illus.

Sanborn Insurance Maps. 1908-1928. Newark, vol. 1, p.
 12.

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 County ,New Jersey, 1925, p. 277.

Journal of Industry and Finance. April 1929.



HELLER & MERZ
NEWARK: CITY OF INDUSTRY 1912



HELLER & MERZ

HELLER & MERZ
338 Wilson Avenue and Avenue L
Newark, Essex County, New Jersey

According to local histories, Heller & Merz was the first successful manufactory of artificial ultramarine in the United States. Small quantities of natural ultramarine blue pigment were made from finely ground lapis lazuli, an expensive precious stone. An artificial ultramarine blue was developed in France in the early 19th century. In the 1830's the first factories were established in France and Germany. Later, factories were built in England, Belgium, and the United States. For color, quality, and brilliance ultramarine blue was superior to Prussian blue and Indigo, the only other blue pigments available in the mid-19th century. Heller & Merz was begun in 1869 by Frederick Heller and Henry Merz in a small factory at River Sheet. By 1872 the Company relocated to 10 acres of virtually desolate meadowlands along Hamburg (now Wilson) Avenue. In 1881 the company began also manufacturing coal tar dyes. By 1912 Heller & Merz owned 32 acres and over 70 buildings ranging from one to four stores. The power plant had a capacity of 1,200 horsepower. Operating its own machine shops, carpenter shop, and cooperage, Heller & Merz also had a half mile of railroad siding facilitating shipping and receiving.

Heller & Merz's ultramarine blue was used in the manufacture of paint, paper, printing inks, in calico printing and finishing, and for laundry purposes. Heller & Merz coal tar products were used to dye textiles, cotton, wood, juke, silk, paper and leather. The company closed around the time of the depression. American Cyanamid Company bought the plant in 1930 and manufactured ultramarine blue into the mid-20th century.

The production of ultramarine blue required heating. Raw materials were sulfur, a soda ash alkali, a siliceous material such as clay, and a carbonaceous reducing agent such as charcoal, pitch, or resin. In proper proportions, the mixture was heated in a crucible or muffle furnace to 1500°F for about 24 hours. The kilns were then cooled very slowly. The pigment formed was washed to remove water soluble compounds, dried, and finely ground. The shades of blue varied considerably depending on the silica, but all possessed a certain brilliancy not then obtainable in a blue pigment, although shade retention was a problem with exterior protective finishes. It was also unaffected by alkalies (but susceptible to acids). Because of its brilliance it was used extensively in the paint industry. In printing, ultramarine blue was used for die stamping and engraved inks, but was not satisfactory for letter press or lithograph work. Laundries

The Heller & Merz Co.

*American Ultramarine
and Globe Aniline Works*

Manufacturers of

Aniline Colors
Ball Blue



Ultramarine
Barrel Paints

Main Office:
505 Hudson Street, New York

Works: 338 Wilson Avenue
Newark, New Jersey

Branches

Chicago

Boston

Springfield, Mass.

Philadelphia

HELLER & MERZ
NEWARK DIRECTORY 1924

also used it to bleach clothing, and others employed it as a whitening agent.

Now Dewey Auto Salvage Company (this part of Newark has an incredible number of these) four late 19th century Heller & Merz buildings survive. All constructed of brick, the two end buildings are long 16 bay two story structures with small shed monitors on the gable roofs. The large door openings and small windows have segmental arches. Between them are two one story structures with full monitor roofs. In general, openings are small with segmental arches. Most of the other buildings, including the power plant, have been demolished, although there are two one story turn of the century brick structures at the rear, adjacent to the Newark and Elizabeth Branch of the Central Railroad of New Jersey.

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BENJAMIN MOORE AND COMPANY
134 Lister Avenue
Newark, Essex County, New Jersey

Benjamin Moore, one of America's greatest names in canned paint, has had a paint manufactory in New Jersey since 1903 when the company built its whiting plant in Carteret. By 1925 the growing list of products and increased sales nationwide dictated a major move and a modern high production plant in Newark. Today, the Eastern Division of Benjamin Moore comprises plants, laboratories and offices in Newark, Carteret, Jacksonville, and New York, and is the most productive unit of the corporation. The company is headquartered in Montvale, NJ.

Benjamin Moore, a Scotch-Irish immigrant, first worked in a Brooklyn paint factory in the 1870's, eventually becoming the plant superintendent. In 1883 he coventured with his brother, William, in forming Moore Brothers. Operating out of a small building in Brooklyn, the company produced calsom finish, a wall and ceiling paint. The building was destroyed in 1884, but Benjamin Moore quickly relocated.

In the 1880's, the company created a line of strictly pure oil colors. A product of uniform strength and purity, it received quick acceptance. Although Benjamin Moore was not trained in chemistry he was an empirical scientist with business acumen who demanded careful quality controls on his paint products. By 1889 Benjamin Moore and Company was incorporated.

As a result of its superior line of products, especially MURESCO, a unique wall and ceiling finish, Benjamin Moore emerged as a national firm. In 1897 a subsidiary corporation was established in Chicago. At the turn of the century, the Chicago plant and the original Brooklyn plant were expanded and in 1903 the whiting plant in Carteret was built. Within the next two years Benjamin Moore purchased a local paint factory in Cleveland and also entered Canada.

The Newark Benjamin Moore facility is along the Passaic River, superbly connected to rail and shipping transport and with adequate truck access. The two oldest buildings are 1920's flat roofed reinforced concrete long low structures with concrete piers and large metal windows. Evidence suggests the second floors were added, possibly at the end of World War II when plant capacity was doubled.

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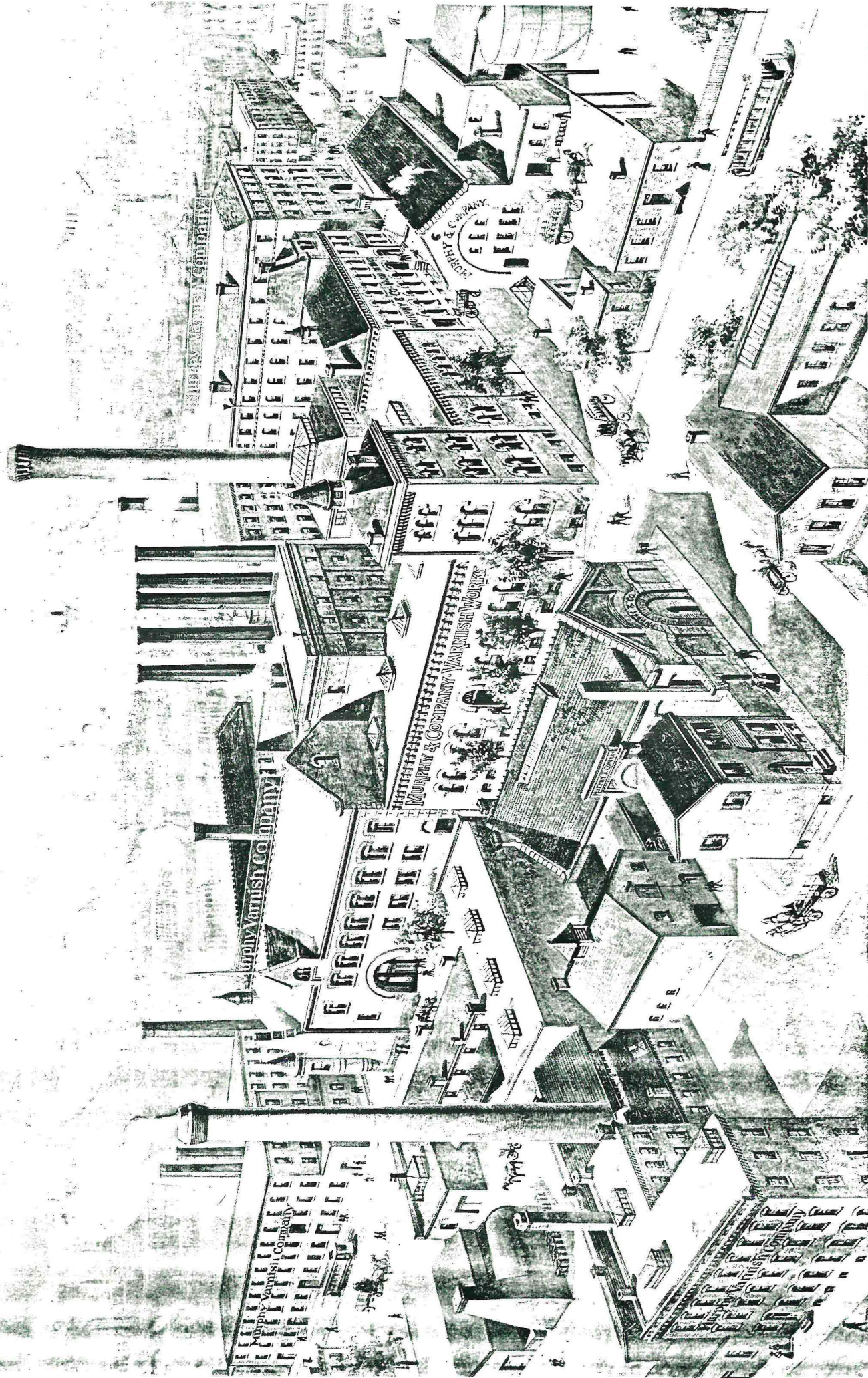
Cunningham, John. Made in New Jersey. 1954, p. 127

Foundations for the Future. The Story of Benjamin Moore. 1958.

Newark Directory. 1926.

MURPHY VARNISH COMPANY, MEEKER,
NEW JERSEY, 1906

All that survives of the central block is the tall chimney. The two structures with Murphy & Company in the round arches survive. Chapman's 1905 would be attached to the one in the foreground, just beyond the chimney.



MURPHY VARNISH WORKS (1870- ca. 1950)
 Chestnut & McWhorter
 Newark, Essex County, New Jersey

The Murphy Varnish Works was the largest varnish company in the City of Newark. Just after the Civil War Franklin Murphy formed a partnership with Thomas Price & Company, a producer of copal varnish. Years later Murphy reminisced that "Thomas Price was an old-fashioned varnish maker & his idea was to make varnish cheap & sell it dear... For two years we made mostly poor varnish." When the Murphy Varnish Company was established around 1870, Murphy was a novice, but he gradually developed a uniformly high quality varnish used for finishes on carriages and railway coaches. Murphy Varnish went out of business around 1950.

Contrary to general 19th century practice, Murphy built a research laboratory and hired a chemist in an attempt to supply consumers with "nothing short of the best". The company's insurance and pension plans for employees were also progressive. In 1901 Franklin Murphy was elected Governor of New Jersey after serving many years in the Newark City Council & the New Jersey Legislature.

Originally Murphy produced only varnish, gradually adding other related products. The Newark factory grew to about the size of two city blocks. There were also factories in Chicago, Cleveland, and Montreal. Murphy Varnish Works' importance to the city can be seen in an article by the Newark Board of Trade in 1912 which states:

"No other manufacturing industry in Newark has done more than Murphy's Varnish Company to make the city widely known. Its ads have appeared systematically in Journals of international prominence, circulating in every village in the U.S. Its staff visit at regular intervals, every town in the country of 1000 population or more and many towns numbering even less. The important cities of Europe are even cared for and several of its important brands can be found on the dealers and consumers' shelves abroad with the company's label printed in the language of the country, heralding the name of Newark."

The buildings of the Murphy Varnish Company were built during a thirty year period and embodied the architectural styles of the times - a two story 1870's factory in the Italianate style, followed by Newark architect James Lindsey's buildings in the 1880's inspired by the Richardsonian Romanesque, then a 1890's Victorian Renaissance firehouse and architect Howard Chapman's 1905 reinforced concrete factory.



MURPHY VARNISH COMPANY



NEW JERSEY ZINC COMPANY SITE
Lister Avenue, opposite Albert
Newark, Essex County, New Jersey

The New Jersey Zinc Company was the first American entry into the zinc oxide market and a pioneer in the manufacture of zinc paint. The Mining Magazine a trade publication begun in 1853 stated "The two great zinc paint manufacturing companies in the world, are the Vielle Montaigne [sic] of France, and the New Jersey Zinc Company of New Jersey." The use of zinc paint became quite common in the latter half of the 19th century, but was superseded by other paint formulas in the 1920's.

Zinc paint is really zinc oxide, the superfine particles which result from the combustion of zinc. This powder, when collected and mixed with drying oil, makes a serviceable white paint. Differing ore compositions also produce naturally colored zinc paints, namely light blue and brown, but zinc white can also be mixed with other pigments to produce colors. Zinc-based paint is non-toxic; particularly good for protecting metals; it does not discolor when exposed to hydrogen sulphide; its white has a high hiding power; and it has generally been cheap throughout its manufacturing history. From the moment of its creation, zinc paint was seen as an alternative to hazardous lead paint.

The French experimented with zinc oxide in the early 19th century, and produced it first in small quantities as an artist's pigment. In 1845, Leclaire began to produce zinc oxide on an industrial scale near Paris, and by 1850, the oxide was regularly made as an oil paint.

French zinc paints were introduced to America in 1849, and received praise for their brilliant whiteness which did not discolor on exposure to polluted urban air. They were very expensive, however, and not widely used. Fortunately, in that same year, the Sussex Zinc Company was building a factory in Newark, in an attempt to manufacture zinc products from the then unique zinc mines in northwest New Jersey. After the Civil War, other deposits were discovered, but the Sussex County zinc deposits remained one of the richest, and the closest to major manufacturing cities and markets. The raw ore was taken by cart and mule overland eleven miles to the Morris Canal. The Canal ran west-east across northern New Jersey, and the Sussex Zinc Company was able to build their factory along the Canal next to the Passaic River in Newark.

Initially the Newark plant experienced difficulty in smelting zinc, so the company decided to try to produce zinc

oxide and built a furnace for making zinc white in Newark. The process required that zincite be separated from the franklinite, and the zincite alone be reduced in retorts similar to those used for making spelter. The vaporized zinc was then burned to form oxide of zinc as it escaped the retorts. All this was possible because the anthracite coal used in this country burned relatively "clean", that is, free from unwanted gases which could combine with the zinc ore to form impurities. It was possible also because of the very high pure zinc content of the Sussex County ores. This was a cheaper method than the French used, which required that the ore be smelted into pure zinc metal, then vaporized to form zinc oxide. The Sussex Zinc Company's zinc oxide was described to the American Association for the Advancement of Science at a meeting in 1850, and the properties of their zinc paints produced from the oxide extolled.

Samuel Wetherill and Samuel Jones were employed by the Sussex Zinc Company, and seem to have been the "Research & Development" arm of the company, for they each patented several improvements in the production of zinc oxide. Samuel Wetherill was the grandson of Philadelphia Quaker Samuel Wetherill, who founded a business in manufacturing and selling white lead for paint in 1789. Young Samuel Wetherill worked for the family paint business from the age of seventeen. When he was thirty he left to join the Sussex Zinc Company as superintendent of the Newark plant. Wetherill experimented with the 1850 zinc oxide process, seeking to improve both the quality of the oxide, and the efficiency with which it could be produced. He finally arrived at the method which bears his name, the "Wetherill Process" for making zinc oxide, and it is still the basic method for zinc oxide production used today.

Also known as the "American Process", it enabled zinc oxide to be directly produced from the ores without first separating them, or smelting the ore into metal as the French did. An item in the May 1876 American Institute of Mining Engineers explained the process:

"The furnace is operated by spreading over the grate-bars a layer of anthracite coal (commonly the size of either "pea" or "nut" coal), which after thorough ignition, is covered with a stratum of mixed crushed ore and anthracite dust, in the proportion of the two parts by weight of the former to one of the latter. The usual charge is about 600 pounds of the mixture indicated; the weight of the bedding coal is from 250 to 300 pounds. The charge is elaborated in about six hours' time.

In the furnace, under the conditions indicated, there is a rapid reduction of the zinc oxide of the ore to vapor, and an almost simultaneous reconversion of the metallic vapor into oxide. This reduction and oxidation of the zinc, taking place pari passu, as it were, in the same furnace chamber, constitutes one of the interesting features of the method, which Wetherill notes, in describing his furnace, as "a compound reducing and oxidizing furnace."

The Wetherill process was aided by Samuel Jones' invention of a means of capturing the oxidized zinc. A fan blew the oxidized zinc up into a tower, where it passed into muslin bags. The oxide condensed, and adhered to the inside of the bags, while the other vapors passed through the mesh and out the smokestack.

Records of the Company indicate that in 1852, a new factory for producing zinc oxide was built on the outskirts of Newark. By April 1852, the paints were being vigorously marketed in New York City, and meeting with some success. The New Jersey Zinc Company was created at this time from a merger of the Sussex Zinc Company and the N.J. Mining and Exploring Company. As stated in the company history, "...the white oxide of zinc constituted the best pigment for white paint, and the Company directed its attention exclusively to the manufacture of that oxide...There has always been a large demand for its paints, at good prices, and its factory for more than twenty years has been practically in constant operation."

The earliest advertisement of the New Jersey Zinc Company appeared on May 27, 1854 in the New York Tribune and indicates that the New Jersey Zinc Company mixed some of their zinc oxide into paint and sold it to the dealers that way. This was a minor revolution in the industry, for it marks the beginning of the ready-mixed paint industry. Statistics tell the story of the Company's subsequent rapid growth. In 1860 the New Jersey Zinc Company reported a capital investment of \$1.2 million, 110 male employees, and a yearly profit of \$165,000. By 1874, the Company was described as the "largest manufacturer of zinc oxide in the United States", and zinc white its principle product. In the 1880's the New Jersey Zinc Company's history was related in a county history book. "The works of the company are located at the foot of River Street, and cover an area of 17 acres, and cost \$150,000." They were rebuilt in 1856, enlarged in 1867-68, and in 1884, with 275 men employed at the factory, produced 6,000 tons of oxide of zinc. The annual sales were said to exceed \$1.3 million. There were 80 furnaces to produce the zinc oxide at this time, and it

was "unrivaled for quality and purity, and [had] no superior in American or European markets."

In 1897, the New Jersey Zinc Company acquired the stock of three other companies. The consolidation finally returned the Sussex County ores to one owner, and also brought together several patents and processes for manufacturing zinc metals and zinc oxide. After the Civil War, new processes had at last been developed to enable the Sussex County ores to be made into zinc metal. Although this was a return to the intent of the original company, by that time zinc oxide was in such high demand that oxide, not metal, remained the company's primary product through the 19th century.

Zinc white mixed so well with other substances that the New Jersey Zinc Company, with others, sought to develop new paints and pigments based on combinations with zinc. In the 1920's, Lithipone was developed as a mixture of zinc sulphide and barium sulfate. It made the first "washable" interior wall paint, and was extensively used in the 1940's and 1950's. Although Lithipone gave high hiding power, the chemicals deteriorated with time. Lithipone is now relegated to undercoatings.

New Jersey Zinc Company's zinc oxide went into many products other than paint, such as ceramics, and particularly in the manufacture of rubber. In World War I, zinc oxide was used as an antidote to German poison gases.

Although the company was in operation until the late 1940's the Newark plant appears to have closed in the 1920's. Virtually nothing survives of the facility. In its stead is a 1940's-50's public housing plant.

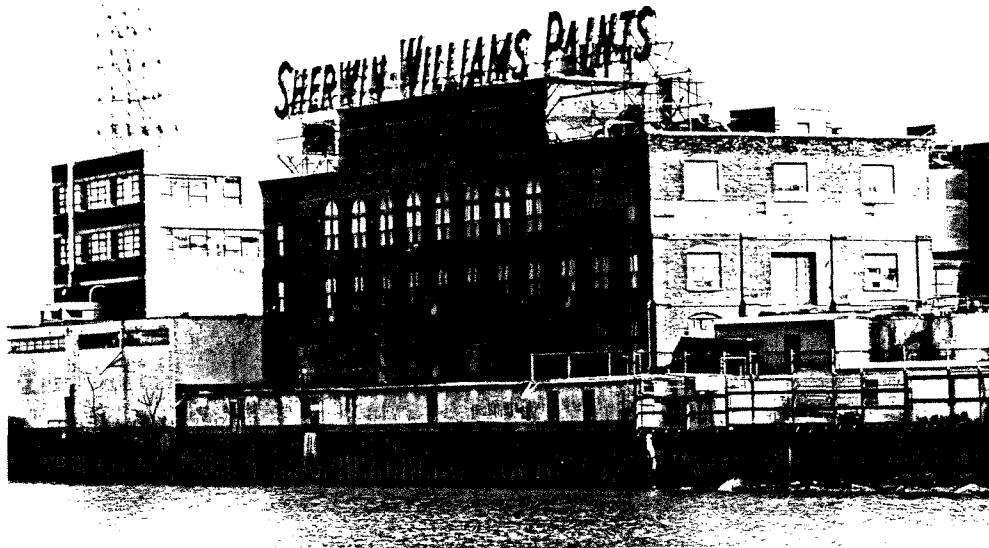
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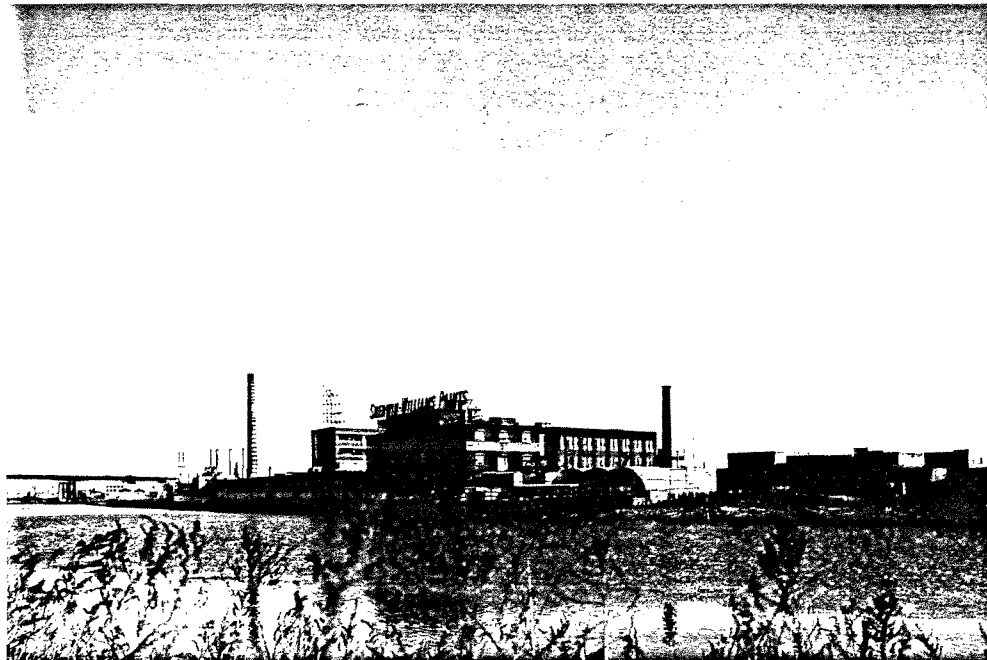
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SHERWIN - WILLIAMS
from the Passaic River



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SHERWIN WILLIAMS COMPANY

Lister Avenue at Brown, on the Passaic River
Newark, Essex County, New Jersey

In 1866 Henry A. Sherwin established a wholesale and retail paint and varnish business in Cleveland, Ohio. The Sherwin-Williams name was adopted in 1870 and the company began manufacturing paint in 1873. Sherwin developed a ready-mixed paint which when first marketed in 1880 met with great success. The company took particular pride in its full line of finishes for railroad equipment - locomotives, passenger and freight cars, and stations. Chiefly motivated by the railway business, a second plant was opened in 1888 next to the Pullman Palace Car Company in Chicago.

By 1901 Sherwin-Williams built a new paint varnish manufacturing plant in Newark. Enlarged several times, it remains the company's major manufacturing and distribution facility on the east coast. This plant, with superior marketing facilities, contributed to the companies success as one of the world's largest paint and varnish manufactures.

Sherwin-William's Newark plant is linked to its world-wide markets by rail and shipping. Trucking transport, while available, seems to have been an after- thought. The original part of the facility actually abutts the Passaic River. It is a 4 to 5 story brick structure with a built up center section and flat roof. The windows are paired wood sash with segmental arches on the main floors and round arches at the top level. Brick pilasters divide the bays. The 13 bay bulkheaded front is capable of docking and loading. The side facade is three bays. Off the rear of this building, along the railway is another early 1900's three story brick building attached by a concrete passage.

The segmental arched double window bays are divided by buttressed brick pilasters. Jutting out the back is a tall octagonal chimney stack. The plant has been updated regularly by additions and new buildings. Of particular note is the five story brick-faced reinforced concrete warehouse. Built in 1937 by the Austin Engineering Company this structure expanded Sherwin-Williams storage capacity, fronts on the Passaic River, and serves a spur of the Pennsylvania Railroad. Horizontal bands of stone trim and large span metal sash windows make this a light and airy building. Several other post-1920's-1930's masonry structures complete the complex.

References

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Schroeder, Luther H. The Story of Sherwin-Williams. 1955.

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Juster, Jacqueline. "Our Paint Industry Tops Nation". New Jersey Business. July, 1975.

The Architectural Forum. March, 1937.

WILSON IMPERIAL PAINT & VARNISH REMOVER COMPANY
115 Chestnut & Hermon Streets
Newark, Essex County, New Jersey

Virtually surrounded by defunct paint and varnish works, the Wilson Company, established in the late 19th century, has produced several types of chemical solvents for industrial and retail markets for nearly 100 years. This well maintained facility has a two story 3 bay by 6 bay brick corner location. The roof is flat with a corbelled cornice and parapet. Windows on the first floor have segmental arches and the second floor window heads are flat; all are 6/6 wooden sash. The two story 6 bay southern section along Hermon is identical to the corner building save the closer spaced windows and the absence of a belt course and roof parapet. On Chestnut Street is a 3 story hip roofed brick tower and a two story seven bay addition with intersecting cross gable.

References:

Newark Directories

Sanborn Insurance Maps. Newark 1908-1928. v.1, p. 11.



WILSON IMPERIAL PAINT
REMOVER CO.

LIST OF SOME OF THE MORE PROMINENT NEWARK PAINT AND
VARNISH MANUFACTURERS.

- Price, Bond & Co., - Varnish & Japaning Mfr.
fl. 1856-1892 255, 275 RR Ave.
(David Price, Theophilus Bond, Charles C. Price and
Clarence C. Bond)
- D. Price & Fitzgerald - Copal Varnish Mfr.
fl. 1855-1878 314, 315-17, 367 Mulberry
(Daniel Price & John D. Fitzgerald)
- E. B. Hedden - Copal Varnish Mfr.
fl. 1859-1892 317-9, 329-9 RR Ave.
(and Pierson, 1869; and Wheeler, 1878; Franklin
Hedden and Oscar Wheeler, 1887)
- Samuel P. Smith - Varnish Mfr.
fl. 1841-1867 317-23 Mulberry
(adv. as 26 yrs. in business in 1867)
- Price & Bigelow - Varnish Mfr.
fl. 1850 - 1950's 310-12, 356-8 Mulberry,
87 Oliver
(David Price & Moses Bigelow, 1850; Moses Bigelow &
Co., 1860; Bigelow Varnish Co., 1926)
- Pierson & Robertson - Varnish Mfr.
fl. 1850-1887 225 RR, 124-8 Chestnut
(Sylvester C. Pierson & Elias C. Robertson)
- C.T. Shipman & Son - Varnish Mfr.
fl. 1860-1887 306, 352 Mulberry
(C.T. Shipman, Chas. H. Shipman; C.H. Shipman &
Nephew, 1878; Shipman & Chas. Bolen, 1887)
- D.B. Crockett - Varnish Mfr.
fl. 1860-67 Corner NY Ave. & McWhorter
- Hewson Bros. & Co. - Varnish Mfr.
fl. 1878-87 5 NY Ave. & McWhorter
(Theodore C. Hewson)
- Murphy Varnish Company - Varnish Mfr.
fl. 1870-1940 224, 238 McWhorter
See separate listing.
- John J. Reid - Varnish Mfr.
f. 1878-1892 354 Mulberry

- Steffens, Julius - Varnish Mfr.
 fl. 1878-1892 84-90 Vesey
 (became Herbert & Dax by 1892)
- Heller & Merz - Ultramarine Paint Mfr.
 fl. 1887-c. 1926 Hamburg Pl., 338 Wilson
- John Armitage & Co. - Paint & Varnish Mfr.
 fl. 1874-Present 56 Dawson, 245 Thomas
 See separate listing.
- Philo W. Smith - Varnish Mfr.
 fl. 1878-1892 213 NJ RR
 (became F.W. Devoe & Co.; ca. 1887)
- Fisher Varnish Co. - Varnish Mfr.
 fl. 1887-1892 137-43 Chestnut, c. McWhorter
- Fitzgerald & Co. - Varnish Mfr.
 fl. 1887-1892 365-7 Mulberry
- A.W. Palmer & Co. - Varnish Mfr.
 fl. 1887-92 53 Oliver
- Ethan D. Stiles - Varnish Mfr.
 fl. 1887-92 135-9 E. Kinney
- Anglo-American Varnish Co. - Varnish Mfr.
 fl. 1892-Present 53 Johnson, c. Herman
- Flood & Conklin - Varnish Mfr.
 fl. 1892-1950's 112, 132 Chestnut, 111 Delancy
 (also Newark Varnish Works)
 See separate listing.
- Dooner & Smith Chemical Co.
 fl. 1908-Present 71-81 Chestnut, 248-62 RR, 374-8
 Mulberry
 See separate listing.
- DuPont DeNemours EI & Co. - Paint Mfr.
 1926 256 Vanderpool
- Frank M. Kennedy - Paint & Color Mfr.
 fl. 1922-37 275-9 Passaic
- Benjamin Moore & Co. - Paint Mfr.
 fl. 1925-Present 134 Lister
 See separate listing.

Pittsburgh Plate Glass & Color Co. - Paint Mfr.
fl. 1918-50's 16 Orange

Sherwin-Williams - Paint Mfr.
fl. 1900-Present Lister Avenue, corner Brown
See separate listing.

Beckwith Chandler - Varnish Mfr.
fl. 1908-50's 20 Ave. B, Delancy, c. Rutherford
See separate listing.

Devoe & Reynolds Varnish Mfr.
fl. 1908-37 34 Oliver
See separate listing.

John C. Dolph Varnish Mfr.
fl. 1908-37 168 Emmett
See separate listing.

Palmer-Price Varnish Mfr.
fl. 1908-50's 136 Chestnut

Cook & Dunn Paint Mfr.
1937-Present 109-115 St. Francis

Duralac Chemical Corp. - Paint Mfr.
1937-Present 84 Lister

LEATHER AND TANNING by Ingrid Wuebber

Dating from Newark's earliest settlement, the city's manufacture of leather products ranked among the nation's leaders from the mid-19th century until the Great Depression. Newark's leather production has always been varied, whether it was the tanning itself or the manufacturing into a finished product.

Newark established itself early as a shoemaking center when Moses Newell Combs sold 200 pairs of his sealskin shoes to a Georgia planter in 1790. Charles Basham's 1806 Map of Newark stated "It (Newark) is noted for its cider, the making of carriages, of all sorts of coach lace and men's and women's shoes. In the manufacture of the last article, one-third of its inhabitants are constantly engaged." Newark's shoe industry was crippled by the Panic of 1837 and later dealt a further blow by New England, which took away much of Newark's shoe business. However, Newark retained supremacy in tanning. In the value of tanned, curried and finished leather products, Newark ranked third in the nation in 1921. The Newark Board of Trade unabashedly reported, in 1912, that Newark contained 3/4 of New Jersey's tanneries. Perhaps exaggerated civic pride, but the city easily led the state in the tanning and manufacture of all types of leather. Newark's leather industry had taken advantage of its location to rail and sea transportation facilities to enter the worldwide trade network. Newark leather and its finished products were exported to South America, Europe, the Orient, South Africa and throughout the United States and Canada.

Tanning was first begun in New Jersey by John Ogden, who settled in the Elizabethtown vicinity in 1665. Elizabethtown began exporting dressed hides to other colonies as early as 1678. Tanners were attracted by the low prices for which Indians sold their skins and the abundance of bark, lime and salt used in tanning. The Newark-Elizabethtown area was also noted for its good water supply originating from the springs on the uplands to the west. By 1700 Newark had achieved importance as several tanners congregated at "the Watering Place". Also called "the Swamp", this area was located south of Market Street between Mulberry and Broad Streets. Abundant water was a prime consideration in early tanning.

The tanning process changed little until the late nineteenth century. Cowhides were split down the middle, making two "sides", while calves, sheep, goats, and other small animals provided skins which were tanned whole. To prepare the hide, the tanner soaked it in water to remove any dirt, after which the flesh layer of the skin was scraped. The hides were then put into a lime pit containing limewater.

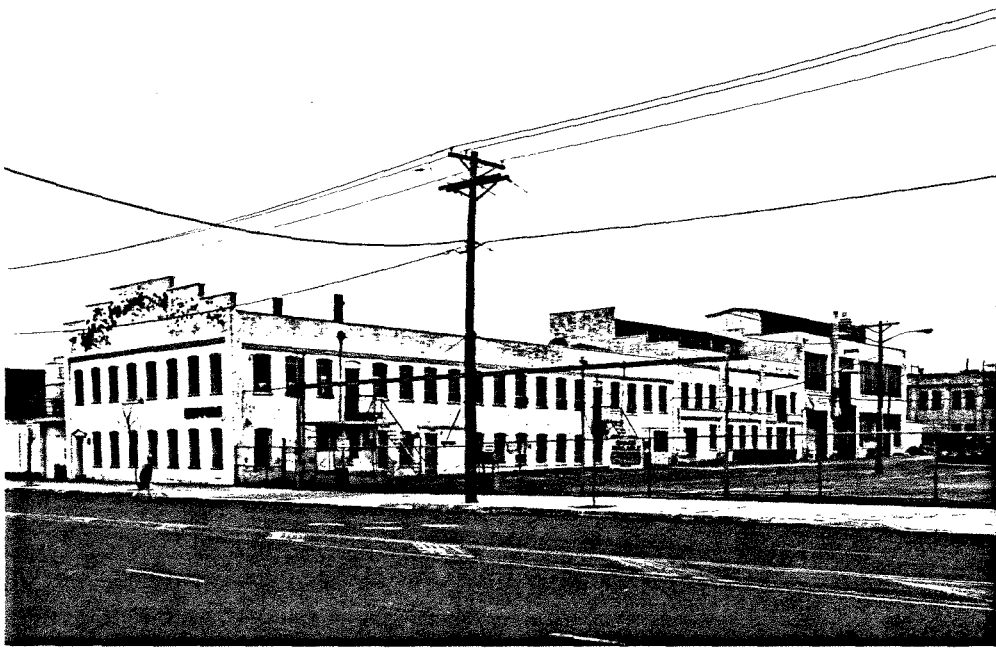
This "liming" process loosened the hair. The hides needed to be drawn out, drained and then returned to the pit everyday. Once the hair was loose, the hides were "beamed", a term describing the special tools used to scrape any remaining hair. The tanning solution would be inhibited by the lime which had impregnated the hides so a "bating" process was required. The bating vat usually contained a mixture of hen or dog manure, salt and water. After a period of time the hides were scrubbed and rinsed and ready to be tanned. The tanning solution would be made up of various vegetable materials such as the ground bark of oak, hemlock, or sumac. The entire tanning process could last up to two years. In the early nineteenth century, the chemistry of the tanning process was just beginning to be understood in Europe where they experimented with various "chemical" methods for reducing the length of time in the different stages. Machinery was also introduced into the tanning craft.

Seth Boyden, Sr. arrived in Newark in 1815 hoping the tanning community would be interested in his hide splitting machine. Between 1790 and 1847 no less than twenty-one patents were granted to inventors for splitting machines. This type of machine allowed a hide to be split directly from the lime pit and thus to be tanned more quickly. While in Newark, Boyden experimented with duplicating a piece of European "glazed" leather. Europeans considered this "enameled" leather to be of little commercial value because of its brittleness. Seth Boyden succeeded in producing a better version of the "japanned" leather in 1818 and began merchandising it in 1822. By 1828 his annual sales reached \$21,000. Unlike the name this leather is now commonly called, "patent" leather was never patented by Boyden. Newark tanners were quick to adapt this new technique and by 1860 90% of all patent leather manufactured in the United States was made in Newark. Patent leather was used primarily in the shoe, carriage and harness trades and later supplied much of the upholstery for automobile interiors and furniture covering.

Many Newark companies produced Fancy leather, which applies to a large group of grained or distinctively finished leathers whose purpose is chiefly ornamental (ie. alligator). Fancy leathers were used for many purposes such as, footwear, handbags, luggage, and bookbinding. Newark tanneries specialized in such leathers as kangaroo, kid, buckskin, alligator, seal, horsehide, reptile, shark, pig, porpoise, sheep, walrus and calf. Early in the 19th century Newark gained national prominence in saddlery and harness manufacture, and also trunk and traveling bag manufacture. Leather became an important component in the development of Industrial Belting and Newark had as many as ten companies simultaneously involved in the manufacture of belting.

In 1858 a mineral tannage system was introduced. Chrome tanning called for the hides to be pickled with a solution of acid and salt once they have been bated and washed. However, this process required a series of complex immersions and was not made practical until Martin Dennis, of Newark, developed a "one bath" system of chrome tanning in 1893. The importance of chrome tanning lies in the chemical control it affords the tanner.

Early in the 20th century many leather factories moved to the open spaces along Frelinghuysen Avenue, in close proximity to the Pennsylvania Railroad. This section in the southeastern corner of Newark was called Waverly. The greatest concentration of manufacturers was along the 400 block. Since 1908, no less than forty-three leather companies have occupied an address on Frelinghuysen Avenue. Although the tanning and leather industry today pales in comparison, a number of companies still have their plants in Newark, including Radel (Seton) Leather, Ocean Leather, Dreher Leather, Aztec Leather and Aristocrat Leather Companies.



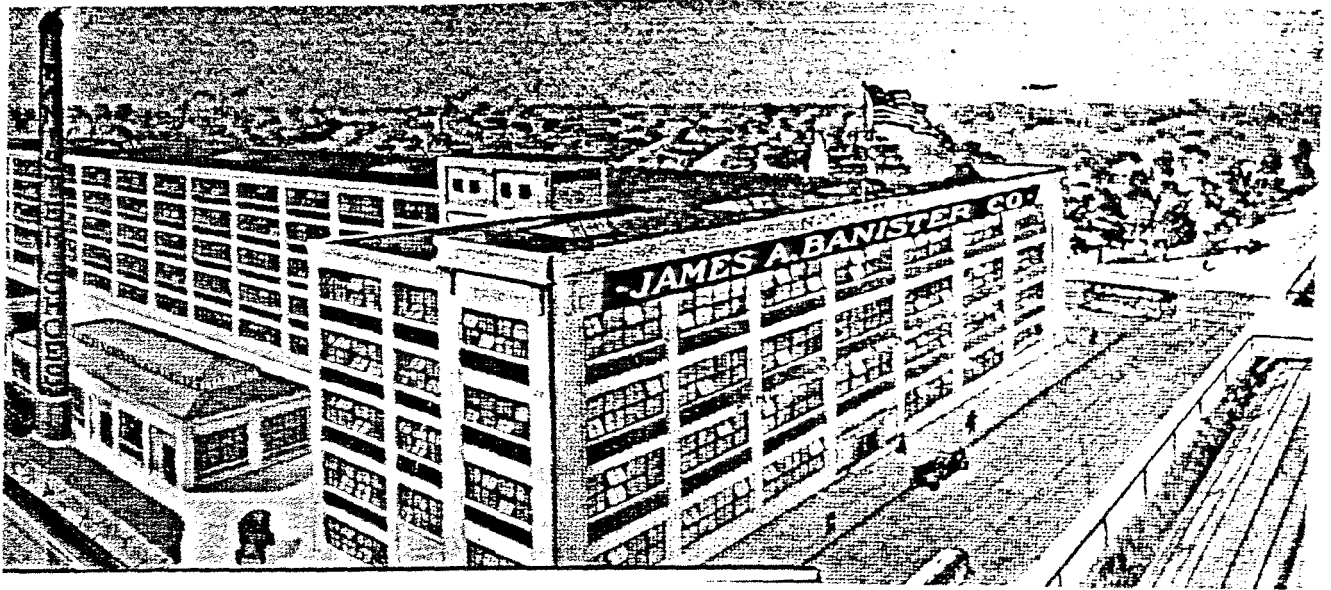
AMERICAN PATENT LEATHER CO.

AMERICAN PATENT LEATHER CO. (1849-c.1927)
 488 Frelinghuysen Avenue
 Newark, Essex County, New Jersey

Charles H. Harrison began his leather business in a small japanning and currying shop on New York Avenue. A few years later, in 1852, J.D. Harrison bought an interest in the firm. The two brothers added an oak and hemlock tannage to their operation and manufactured patent leather for the carriage, shoe, harness and furniture trades. The premises covered two acres. The principal buildings were a three-story brick structure, covering 30 x 100 feet, used as a splitting and curling department; another three-story brick building 32 x 100 feet in area, used for a japanning department; a two-story brick structure 36 x 60 feet also used for japanning; a series of one, two and three-story structures housing the tannery, covering an area of 86 x 140 feet; and a two-story brick bark house, encompassing an area of 45 x 50 feet. The plant's productive capacity was 500 hides per week. They traded with Australia, Brazil, Italy, England, Germany and the East Indies. In 1893 the works were bounded by NY Avenue, McWhorter and Garden Streets close to the Penn. R.R. Incorporated in 1897 as the American Patent Leather Manufacturing Co., the firm shortly relocated to 488 Frelinghuysen where they made automobile, carriage, furniture and sole leather. Around 1919 the plant seems to have moved their operations to 1-3 Nuttman Street. The business ended 1925-1931.

References:

- Leary, Peter J. Newark, N.J., Illustrated. 1893, p. 86
- Newark, The Metropolis of New Jersey, at the Dawn of the Twentieth Century. 1901, p. 65
- Meeker, Ellis R. New Jersey: A Historical, Commercial and Industrial Review. 1906, p. 122
- Price & Lee Business Directory, 1920 & 1925
- Newark Made Goods. 1913, #46



JAMES A. BANISTER CO.
Folsom, Municipalities of Essex County,
1925, p. 277.

JAMES A. BANISTER CO. (1845-c.1930)
 Orange & First Streets
 Newark, Essex County, New Jersey

Isaac Banister was a fourth generation shoemaker when he made the transition from a shoemaker's workshop to an industry by establishing a company at at 218-220 Market Street in 1845. He made men's and boy's boots and shoes from imported French calfskin, kid and morocco leather. In 1850 his company employed 30 persons and made 20,000 pairs of boots and shoes. His son, James A. Banister, was made a partner of the firm in 1851. The firm's name was changed from Banister & Son to Banister & Tichenor in 1865, when Lymans Tichenor was made a partner. Tichenor died in 1881, leaving James A. Banister as sole proprietor. (His father, Isaac Banister, had retired some years before). The company was incorporated as James A. Banister Co. in 1892. Four years previously, Banister had erected a four-story brick factory on the north bank of the Morris Canal, fronting on Washington Street. It was two hundred eighty feet deep and thirty-five feet wide. The company had found it necessary to erect the new factory after a fire had destroyed their Market Street operation.

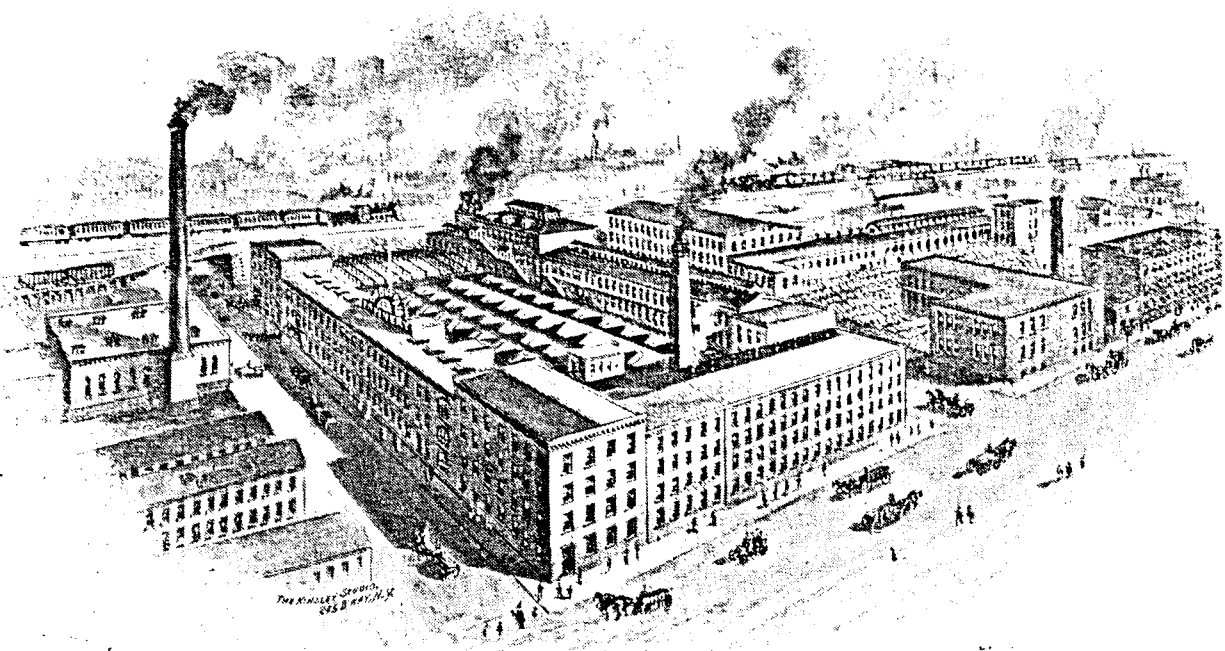
A larger factory was built at Orange Street along the Morris Canal. This building was erected just before World War I and is a large four story L-shaped reinforced concrete building. The large metal sash multi-pane windows with brick panels below are separated by concrete piers. The canal (now the subway) facade has 7 long bays. The Orange Street facade has 13 bays. James A. Banister Co. moved out of the Washington Street factory and was replaced by the Boyden Shoe Co., who had also been burned out of their previous location. The new Banister shoe factory was equipped to turn out 3000 pairs of shoes a day. James A. Banister died soon after the move. In 1918 the West Side Realty Co. was incorporated to take over his holding and the Washington Street factory was sold to developers.

References:

Newark Sunday Call. May 27, 1923.

Leary, Peter J. Newark, N.J., Illustrated. 1893,
 p. 103-104

Ford, William Industrial Interests of Newark, N.J.
 1874, p. 45



Plant of Blanchard Bros. & Lane
Newark, N. J.

BLANCHARD BROS. & LANE
Meeker, 1906



BLANCHARD BROS. & LANE
on Frelinghuysen

THE BOYDEN SHOE CO.
185 Washington Street (1844-c.1930)
Newark, Essex County, New Jersey

Lorenzo Boyden was a shoemaker, originally with a small shop at 302 Broad Street. His shoes were so popular that he was able to establish a factory at 206 & 208 Market Street. By 1850 L. Boyden & Co. was producing 10,000 pairs of boots and shoes annually. Lorenzo Boyden died in 1886 and his estate sold the business to George Ahrens and William Overman who incorporated in 1896 as the Boyden Shoe Co. because the name was associated with a high quality product. That same year the company erected a five-story brick building on South Canal Street. Four thousand pairs of shoes were produced each week. The company had a sales department in New York and representatives in London and Paris. At the turn of the century Boyden shoes were sold throughout the United States, Canada, Mexico, South America, Europe and South Africa at a cost of \$6-\$10 per pair.

References:

Ford, William. Industrial Interests of Newark, N.J.
1874, p. 46

Newark, N.J. The Metropolis of N.J. At the Dawn of
the Twentieth Century. 1901, p. 126

BLANCHARD, BRO. & LANE (1860-c.1959)
408 Frelinghuysen Avenue
Newark, Essex County, New Jersey

Noah F. Blanchard settled in Newark in 1847 to learn the leather business with T.P. Howell & Co. One of four brothers apprenticing as a tanner and japanner, Noah worked for Howell until 1860 when he went into business for himself on Bruen Street. Large army contracts during the Civil War helped make the enterprise immediately successful. F.S. Blanchard and P. Van Zandt Lane were made partners. The plant expanded to cover two city blocks bounded by Bruen, Hamilton and McWhorter Streets, but nothing survives. Noah F. Blanchard died in 1881 and the company merged into Blanchard, Bro. & Lane. The rapid increase of the automobile industry in the early twentieth century increased the demand for leather upholstery. Blanchard Bro. & Lane was one of largest outlets for this product. In 1912 they counted 300 persons on their payroll. The business was moved to 408 Frelinghuysen Avenue in the late 1930's into the General Leather facility. The building, circa 1915, is a 4 story reinforced concrete structure with slightly projecting five story corner towers.



JOHN V. DIEFENTHALER
TANNERY

The towers are capped by heavy decorative concrete brackets. All windows are large multi-pane metal sash running 22 bays deep.

References:

Ford, William. Industrial Interests of Newark, New Jersey 1847, p. 33

Leary, Peter J. Newark, N.J. Illustrated. 1893, p. 85

Newark, The City of Industry. 1912, p. 100

Newark Sunday Call. Dec. 13, 1936.

N.J. DEMAREST & CO. (1827-c.1900)
NJRR Avenue, Lafayette & Bruen Streets
Newark, Essex County, New Jersey

Daniel Demarest established this harness making concern in 1827. His son, N.J. Demarest, assumed control of the company in 1865. Seventy types of harness were manufactured, all hand sewn. The French government awarded a large contract to Demarest during the Franco-Prussian War. Their 100 employees produced 200 sets of harness per week. The company marketed their harness throughout the United States, Europe, the Indies, Australia and Japan.

References:

Ford, William. Industrial Interests of Newark, N.J. 1874, p. 39-40

Leary, Peter J. Newark, N.J. Illustrated. 1893, p. 109

JOHN V. DIEFENTHALER (1908-c.1914)
90 Hamilton Street
Newark, Essex County, New Jersey

John V. Diefenthaler established a tannery in 1908. He processed leather for the automobile, carriage and furniture trades throughout the United States, Canada and Europe. His plant consisted of eight one to three stories buildings located on the block between Hamilton, Bruen and McWhorter Sts. The tannery ceased operation during World War I.

References:

Newark, The City of Industry. 1912, p. 107

Newark Made Goods. 1913, #334.

Holbrook's Newark City & Business Directory. 1916.

GEORGE DOUGHERTY (1834-1876)
 265 Washington Street
 Newark, Essex County, New Jersey

George and John Dougherty were one of the first morocco manufacturers in New Jersey. Morocco leather is made from goat skin, or if imitation morocco is desired, from sheepskin. The skins were tanned with sumac and later dyed. The leather was principally used to make ladies shoes. Philadelphia is credited with beginning morocco production in this country in the late eighteenth century. George and John Dougherty, natives of Ireland, bought Charles T. Shipman's morocco factory on Washington Street in 1834. Shipman had produced morocco on a small scale. A few years after the Dougherty brothers had established their factory John Dougherty withdrew and went into business in New York. George Dougherty took one of his clerks, John Young, into the partnership with him. In 1838 John Young withdrew to start his own firm. George Dougherty continued on until his retirement in 1876 at the age of 73. By 1873 his company was producing 240 finished goat skins per day and had an annual product value of \$150,000.

References:

Welsh, Peter C. Tanning in the U.S. to 1850. 1964,
 p. 88-90

Ford, William. Industrial Interests of Newark, N.J.
 1874, p. 36

Atkinson, Joseph. The History of Newark, N.J.
 1878, p. 213-214

Bryan, Ralph B. ed., Hide, Leather and Shoe Encyclopedia
 of the Shoe and Leather Industry. 1941

GOLDSMITH LEATHER CO. (1928-1980)
 117 Paris Street
 Newark, Essex County, New Jersey

In 1928 Bernard Goldsmith established a tannery for reptile skins in a tar-paper shed at 290 Oraton Street. Working alone in that first year he tanned five thousand reptile skins. He moved to larger quarters at 117-121 Paris Street in 1930. In 1934 Goldsmith imported 800,000 reptile skins from around the world. These included: domestic and foreign alligators; Indian oval and round grain lizards; ermines, which are deep sea water snakes from Vietnam; karung, which are river snakes from the Dutch East Indies; South American rajah lizards; boa constrictors; South American anacondas; and pythons from the Dutch East Indies or Vietnam. Sometime in the late 60's early 70's Goldsmith Leather Co. moved to 470-482 Mulberry Street. By 1980 Goldsmith closed.

References:

Newark Star Eagle. Mar. 3, 1934.

Industrial Directory for N.J. 1967

Price & Lee Business Directory. 1975

MacRae Directory. 1980

GOOD BROS. INC. (1892-c.1966)
140-156 Frelinghuysen Avenue
Newark, Essex County, New Jersey

R.E. & H.B. Good were born to a tanning family in Louisville, Kentucky. Their apprenticeship took place at American Oak Leather Co., one of the largest tanneries in the world, located in Cincinnati. The Good Brothers established a business in Cincinnati in 1892, but two years later moved the Company to quarters on Marshall Street in Newark. The Company expanded beyond the limits of their address so they established a plant at 140-150 Frelinghuysen Avenue. In 1896 the plant comprised a four-story brick building (35 x 100') with a two-story brick annex (20 x 100') and a two-story corrugated iron building (24 x 100'). The firm manufactured insole leather for the shoe & horse collar trades. During World War I R.C. & H.B. Good changed the company name to Good Bros. Leather Co. Carl F. Good was president of the firm in the 1960's before its closing. Unfinished leather upholstery and luggage were manufactured.

References:

Holbrook's Newark City & Business Directory. 1916

Newark Industrial Directory. 1964

Newark Made Goods. 1913

Newark, The Metropolis of New Jersey at the Dawn of the Twentieth Century. 1901, p. 75

J. H. Halsey & Smith, Ltd.

MANUFACTURERS OF

FINE CARRIAGE AND SHOE LEATHER

(OAK LEAF BRAND)

OFFICE, 24 TO 28 SPRING STREET

NEWARK, N. J.

Newark Directory, 1926

L. GRAF & BRO.
 Leopold Graf (1857-1891)
 44-54 Lincoln Street
 Newark, Essex County, New Jersey

Leopold Graf established his shoemaking enterprise in 1857 and grew rapidly into one of the largest boot and shoe manufacturers in the country. Leopold Graf and his brother, Herman sold fine and medium grade men's and boy's machine and handsewn boots and shoes. In the early 1870's they moved their operation out of 31-33 Springfield Avenue and into the extensive four-story brick factory on Lincoln Street, which would later become the home of Johnston & Murphy. By 1880 they had 440 persons in their employ and produced nearly half a million pairs of shoes annually. Their shoes were sold throughout the United States and Europe, particularly Germany.

References:

Ford, William. Industrial Interests of Newark, N.J.
 1874, p. 47-48

Shaw, William H. History of Essex and Hudson Counties.
 1884, p. 574

J.H. HALSEY & SMITH (1836-1915)
 185 Washington Street
 Newark, Essex County, New Jersey

James Harvey Halsey came to Newark in 1824 to learn the tanning and currying trade from his uncle, Joseph A. Halsey. Joseph, a brother of Samuel Halsey, (see S. Halsey & Son) had set up a tannery on Market Street in 1819. J.H. Halsey established his own business in his Uncle Joseph's factory in 1836, forming a partnership with James Tucker. The firm of Halsey & Taylor employed 30 persons and jappaned 20,000 calfskins in 1850. Outgrowing the factory on Market Street in 1860, the firm moved to 185 Washington Street. James Tucker died in 1863. James Harvey continued on his own until 1879 when he admitted James Smith, Jr. as a partner. In 1880 the firm employed 78 persons and produced 40,000 sides of patent leather valued at \$420,000. Their patent leather was sold under the "Oak Leaf" trademark for the carriage, automobile, furniture, harness and saddlery trades. At the turn of the century the company relocated to Spring Street on the corner of Sussex Avenue. They moved a few years later to the intersection of New and Nuttman Streets.

References:

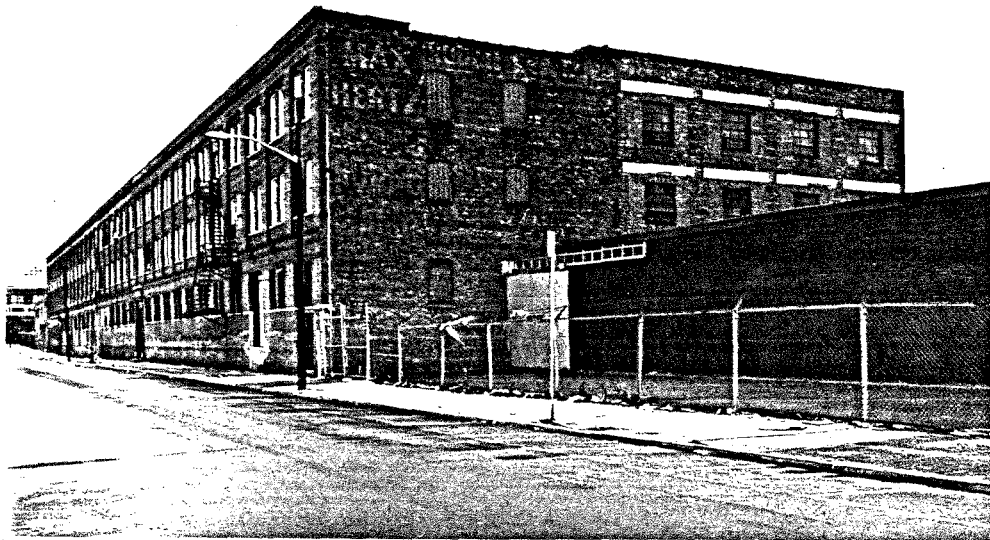
- Newark: The City of Industry. 1912, p. 96
- Shaw, William H. History of Essex and Hudson Counties, New Jersey. 1884, p. 575
- Industrial Directory of New Jersey. 1901, 1906.
- Newark Can; Newark Will. An Industrial Exposition.
1914
- U.S. Census. 1850, 1870, 1880. Industrial Schedule.

S. HALSEY & SON (1826-c.1905)
 Corner of Shipman Street & Springfield Avenue
 Newark, Essex County, New Jersey

David B. Crockett, a former employee of Seth Boyden, Sr., began manufacturing patent leather on the corner of Shipman Street and Springfield Avenue in 1826. His enterprise was not successful and so in 1840 he sold his business to Samuel Halsey and Charles Taylor. By 1850 they were producing 7000 sides and hides of patent leather annually. Charles Taylor retired from the business in 1866 and was replaced by Samuel Halsey's son, George. The firm's name changed from Halsey and Taylor to S. Halsey & Son. In 1873 they employed 100 persons and yielded \$450,000 annually. The patent leather S. Halsey & Son produced was sold to the carriage and shoe trades.

References:

- Atkinson, Joseph. The History of Newark, New Jersey.
1878, p. 211-212
- Ford, William F. The Industrial Interests of Newark.
1874, p. 34
- Newark, The Metropolis of New Jersey, At the Dawn of the Twentieth Century. 1901, p. 61-63
- U.S. Census for 1850 & 1880. Industrial Schedule



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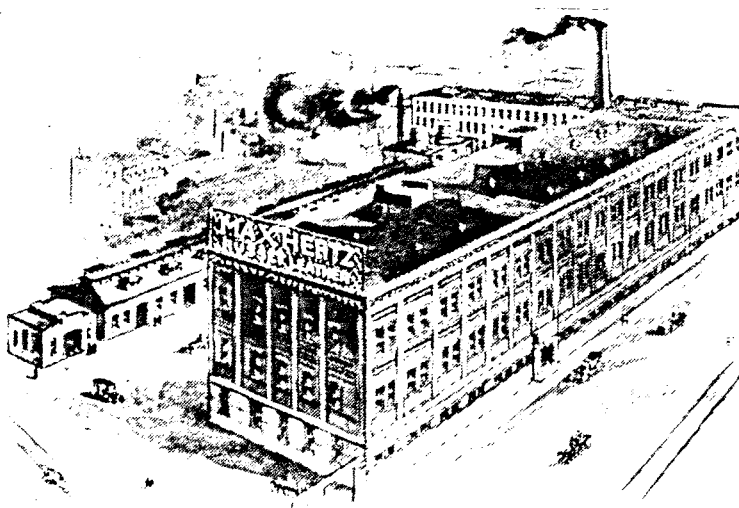
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Newark Directory, 1926

MAX HERTZ LEATHER CO.

Newark City of Industry, 1912



HAMBURG CORDOVAN LEATHER WORKS
 THE ECLIPSE TANNING CO. (1877-1917)
 99-115 Sussex Avenue
 Newark, Essex County, New Jersey

R.G. Salomon came to Newark from his native Germany when he was seventeen. In 1870 he entered business on his own in a small plant on High Street. He manufactured all kinds of horsehide leather known by the trade-mark name of Cordovan, which he had originated. Salomon set up the largest alligator tannery in the United States. He also specialized in porpoise hides, kangaroo and goat skins. All his operations were carried out at 99-115 Sussex Avenue, 14-38 Nesbitt Street and 22 Avenue C, a large building which had formerly belonged to Morocco Manufacturer, Christy Nugent. Salomon called his company the Hamburg Cordovan Leather Works and maintained branch offices in New York, Boston, San Francisco and Chicago. Six hundred and fifty people were employed providing the company with an annual production rate of \$2,000,000. In 1909 the Hamburg Cordovan Leather Works merged with the Eclipse Tanning Co. and incorporated under the latter title. The Eclipse Tanning Co., Inc. was the largest producer of patent colt skin leather in the United States.

References:

Leary, Peter J. Newark, N.J., Illustrated.
 1893, p. 91

Newark, The Metropolis of N.J., at the Dawn of the
 Twentieth Century. 1901, p.74

Newark, The City of Industry. 1912, p. 97

Shaw, William H. History of Essex and Hudson Counties,
N.J. 1884, p. 579

MAX HERTZ LEATHER CO. (1892-c.1959)
 54-78 Oliver Street
 Newark, Essex County, New Jersey

Max Hertz was the proprietor of a russet leather factory, located on 54-78 Oliver Street, that manufactured russet buffing, rough splits, and russet grains for the automobile, furniture, carriage and bookbinding trades. The plant consisted of a three-story building (225 x 50'), a four-story building (100 x 25') an L-shaped building (60 x 150') and a one-story building (225 x 50'). Hertz's russet leather was sold throughout the United States and exported to Europe.

T. P. HOWELL & Co.,

MANUFACTURERS OF

PATENT AND ENAMELED

LEATHER,

*Bridle Leather, Sheepskin Skivers, Roans,
Harness Leather, Buck & Chamois,
Wax Calf, Oil Tanned Leather;*

—ALSO—

FANCY SHEEPSKIN MATS,

Cor. Wilesey & New Sts.,

NEWARK, N. J.

Salesroom, 77 Beekman Street, New York.

Constructed around 1890, the Max Hertz facility is a 3 story brick structure with brick pier construction. The roof has a corbelled brick cornice. The long Oliver Street facade has pairs of double hung sash windows enframed by brick pilasters. There is a heavy elegant ground floor entrance entablature. The painted side wall reads, in part - "Max Hertz". It appears the east end was shortened and the west end lengthened. There is also a 1920's three story brick addition to the rear.

References:

Newark, The City of Industry. 1912, p. 100

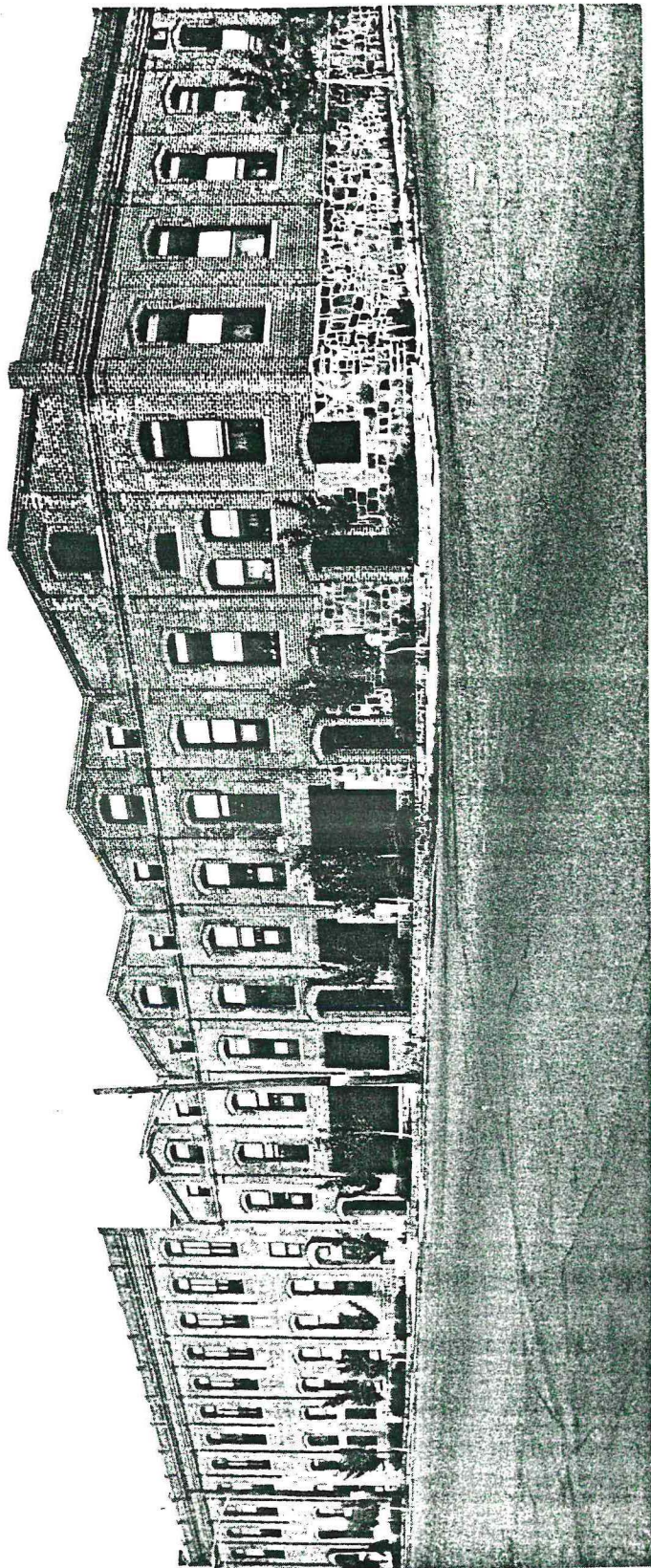
Newark Made Goods. 1913, #625

Price & Lee Business Directory. 1951, 1957

Industrial Directory of N.J.. 1960

T.P. HOWELL & CO. (1845-1917)
New, Wilsey & Nuttman Streets
Newark, Essex County, New Jersey

Widely touted as the largest leather manufacturer in the world, Howell developed one of the first major industrial facilities in Newark along the Morris Canal. Theodore P. Howell came to Newark in 1828 at the age of nine and lived with his uncle, S.M. Howell, who was a tanner and currier. After leaving school Theodore apprenticed with the harness making establishment of Smith & Wright. In 1840 Theodore went into partnership with his uncle in a tannery located at the corner of Washington and Market Streets. They produced forty hides per week, specializing in patent leather. Eight years later the frame tannery burned down and a new tannery was erected on the outskirts of the city on a five acre tract of land along the Morris Canal at New, Wilsey and Nuttman Streets. S.M. Howell died soon after their move. In 1850 the firm produced 14,400 sides of "Japanned" leather with the help of eight employees. Theodore organized the T.P. Howell & Co. in 1855. In 1873 T.P. Howell tanned the nation's first Russia leather, which is a birchbark tannage of calf leather. This leather originated in Russia and was noted for its peculiar and not unpleasant odor. In 1874, Howell's sons, Samuel and Henry, joined the firm. They carried on the company after their father's death in 1878. At that time T.P. Howell & Co. employed four hundred workers and tanned 225,000 calf, sheep and deerskins annually. The firm also



T. P. HOWELL & CO.

owned a slaughterhouse in New York City and a tannery in Middletown, N.Y. where Russia and other leathers were produced. T.P. Howell products bearing the Lion brand trademark were exported to Europe, South America, China, Japan and Britain's colonies, as well as sold throughout U.S. and Canada.

In 1884 Howell tanned 40,000 cowhides, 150,000 sheep, 10,000 deer and 10,000 calf skins. T.P. Howell & Co. was still a thriving concern up until the first World War. In 1981 a portion of the extant plant was converted into low cost housing called the Lock Street Apartments.

References:

Newark, The City of Industry. 1912 p. 96

Ford, William. Industrial Interests of Newark, N.J.
1874 p. 27, 34-35.

Leary, Peter J. Newark, N.J. Illustrated. 1893,
p. 84

Newark, The Metropolis of New Jersey, At the Dawn of
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Commerce, Manufactures and Resources of the City of
Newark. 1881, p. 14-15

Cunningham, John T. Newark. 1966, p. 181

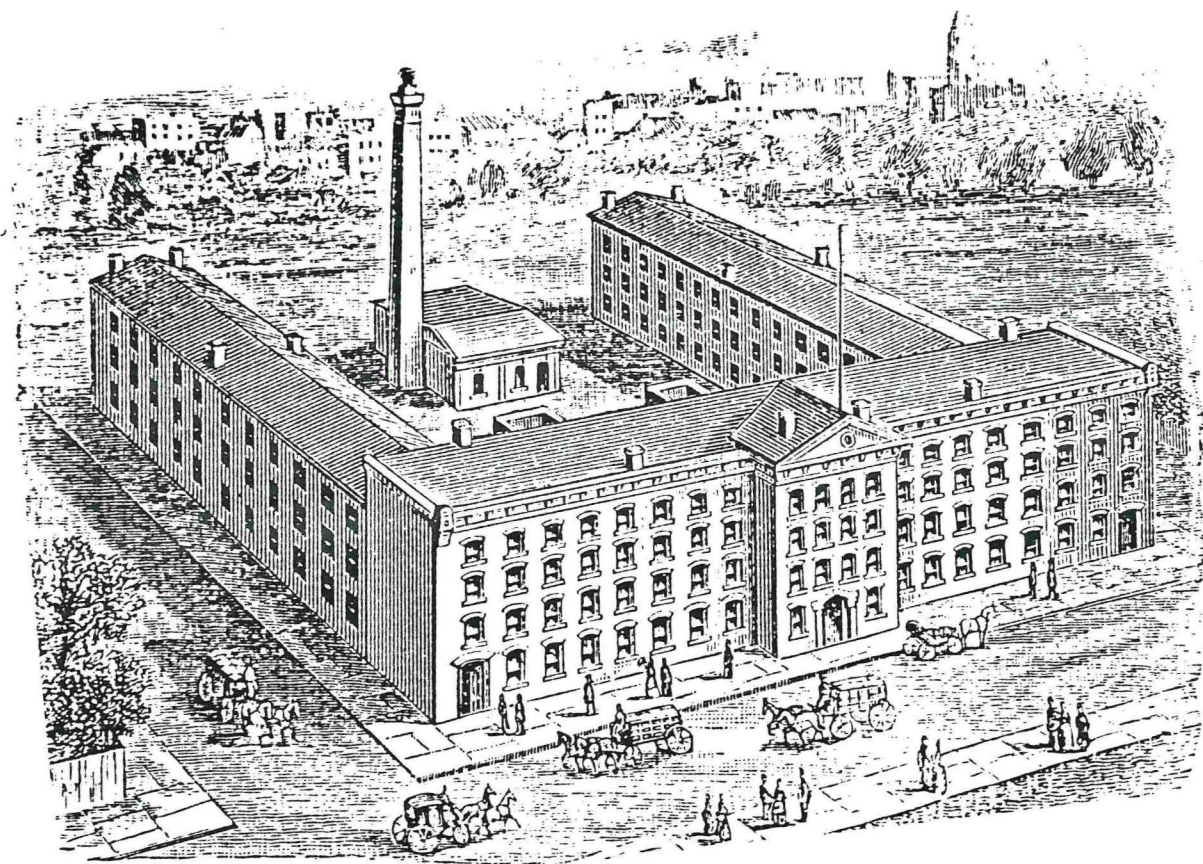
Bryan 1941

Shaw, William H. History of Essex and Hudson Counties,
N.J. 1884, p. 575

1850 U.S. Census. Industrial Schedule

JOHNSTON & MURPHY (1850-1957, in Newark)
42-54 Lincoln Street
Newark, Essex County, New Jersey

A major manufacturer of shoes in the United States, the Johnston & Murphy company was founded by William J. Dudley in 1850. Dudley hailed from the shoemaking center of Northampton, England, from where he also exported many of his workmen. Dudley manufactured men's, boy's and youth's boots, shoes, and gaiters for the southern market. In 1870 the company produced 15,500 pairs of shoes. In 1873 annual



JOHNSTON & MURPHY
Newark, NJ, 1894, p. 186

production value doubled to \$140,000. This rapid expansion necessitated a move to larger facilities. In the late 1870's the firm moved to 268 Market Street on the corner of Lawrence Street. James Johnston was admitted to the firm at this time and two years later he became sole proprietor of the business. Johnston concentrated production on handmade Goodyear welted, cable wire and English riveted boots and shoes for gents and boys. In 1882 William A. Murphy was made a partner in the enterprise. The manufacturing layout was expanded from three to seven floors at 268 Market Street and the workforce tripled. At this time, Johnston and Murphy were manufacturing firemen's shoes, pump and toilet slippers, specializing in patent leather footwear. Two thousand pairs of shoes and slippers could be turned out each week. The company needed more room to expand even further and therefore a large plant was rented at 42-54 Lincoln Street to which they moved in 1891. William Murphy disposed of his interest in the company, but the company name of Johnston & Murphy was retained and copyrighted. The new plant was a four-story brick structure (150 x 50') with two three-story wings (50 x 100') providing 60,000 square feet of floor space, enough room for 500 employees to produce 5000 pairs of shoes in an average week. The J&M trademark became synonymous with quality and the company was proud to produce the highest priced shoes in the country. Their shoes were sold throughout the United States, England, Germany and South America. In 1925 the plant doubled its size. The J&M factory on Lincoln Street was closed in 1957 because of the lack of skilled workmen and the condition of the 75 year old factory. J&M shoes continued to be produced in Nashville, Tennessee.

References:

Newark Star Ledger. Nov. 16, 1941.

Newark News. Oct. 11, 1957 and Jan. 15, 1950.

Commerce, Manufactures and Resources of the City of Newark. 1881, p. 39-40

Ford, William. Industrial Interests of Newark, N.J. 1874, p. 46-47

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Newark, The Metropolis of NJ At the Dawn of the Twentieth Century. 1901, p. 125-126

Quarter Century's Progress of New Jersey's Leading Manufacturing Centers. 1887, p. 66



KAUFHERR & CO.

KAUFHERR & CO. (1880-c.1937)
 126½-146 E. Kinney and 105 Hamilton
 Newark, Essex County, New Jersey

Daniel Kaufherr was born in Bavaria and apprenticed in the leather trade in his native country. Kaufherr worked for August Loehner upon arriving in Newark and afterwards for J.F. Hesselbarth. Hesselbarth had a small tannery at 36 Garden Street since 1862. Kaufherr had just established a business of his own when Hesselbarth died. Daniel Kaufherr bought the plant on Garden Street and expanded it to double its original size. Daniel Kaufherr and August Loehner formed a partnership in 1880 with an aim to manufacture calf leather for shoes. Loehner died in 1891 and Kaufherr in 1897. Mrs. Kaufherr conducted the business after her husband's death with the help of the plant manager, Frank Schwarzwaelder. At that time 65 employees were responsible for tanning, currying and finishing such fancy leathers as alligator, lizard, snake, monkey, elk, etc. A stock company was formed in 1907 with August Loehner's son, Julius, as president and his other sons as officers of the company. The plant occupied 34-52 Garden Street and Nos. 126-146 East Kinney Street in the Ironbound. Kaufherr and Company fronts on East Kinsey Street. The main building is a four story brick structure (ca. 1900) with sets of paired windows between four brick piers. The sash windows have flat stone lintels and sills. The plain side facade has various small double hang sash windows and a fading painted sign advertising "CALF LEATHERS FOR SHOES." A round 112 foot chimney stack has "K & Co." imbedded in the brickwork. This building was used as a tan yard on the first floor and finishing, dyeing, and storage on the upper levels.

References:

- Holbrook's Business Directory. 1916
- Industrial Directory of N.J.. 1931
- Newark, The City of Industry. 1912, p. 99
- Newark Made Goods. 1913, #732
- Newark, The Metropolis of N.J., at the Dawn of the Twentieth Century. 1901, p. 74
- Price & Lee's Business Directory. 1917

HENRY LANG (1874-1917)
17th Avenue, Boyd and Lillie Streets
Newark, Essex County, New Jersey

Henry Lang was born in Scotland in 1829. He immigrated to America while a small child and apprenticed in the leather dressing establishment of John R. Crockett. In 1870 he founded an extensive patent leather manufactory at 195-199 Plane Street, along the Morris Canal. He produced trunk, bag, shoe, harness and bridle leather, but his specialty was fancy colored leather for pocketbooks and traveling bags. Relocated in the 1890's, the new plant was comprised of eight large structures with a total capacity of 1000 hides per week. Goods were sold in England the Continent, Mexico and Australia. The leather works covered 29 city lots at its 17th Avenue, Boyd and Lillie Streets address.

References:

Ford, William. Industrial Interests of Newark, N.J.
1874, p. 28

Newark, The City of Industry. 1912, p. 101

Newark, the Metropolis of New Jersey, at the Dawn of the Twentieth Century. 1901, p. 68

Newark Made Goods. 1913, #792

Shaw, William H. History of Essex and Hudson Counties, N.J. 1884, p. 578

J. LICHTMAN & SON (1888-1970's)
241 Frelinghuysen Avenue
Newark, Essex County, New Jersey

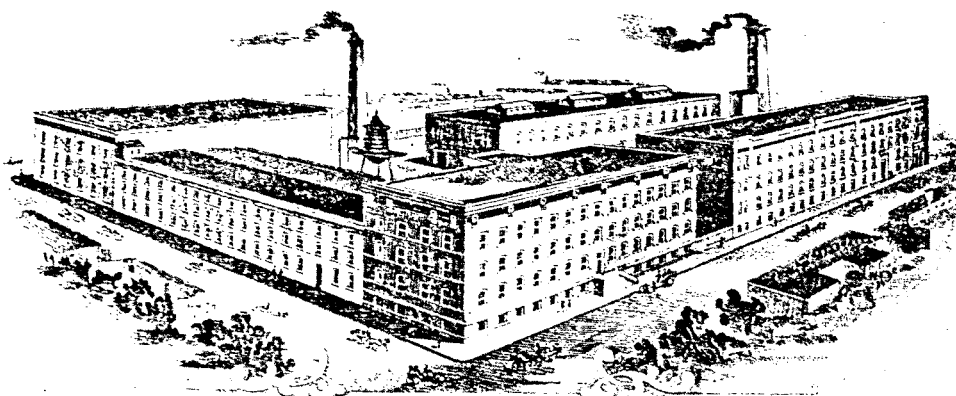
The firm was established by Julius Lichtman on Arch Street in 1888. It was moved in 1907 to a block bounded by Frelinghuysen Avenue, Sherman Avenue, Conrad Street and Peddie Street, incorporating seventy-two city lots. The company's production was geared towards rough and half tanned leather, pickled splits, russet grains and skiffings. Julius Lichtman & Son maintained a sales office in Paris. In the late 1970's they closed up their Newark factory and moved to Millburn, in Essex County.

References:

MacRae Directory. 1985

Newark, The City of Industry. 1912, p. 106

Newark Made Goods. 1913, #832



CHARLES & JOHN NIEDER CO.
Newark: City of Industry,
1912, p. 98



A. LOEHNBERG & CO. (1867-c.1922)
 62 Liberty Street
 Newark, Essex County, New Jersey

August Loehnberg was a native of Germany who arrived in Newark in 1866. The next year he established a factory at 292 Norfolk Street for the manufacture of trunk leather, inner soles and shoe splits. He marketed his goods in New York and the rest of the Eastern Seaboard. By 1880 Loehnberg had expanded his business to more spacious quarters at 332-336 Plane Street, while still maintaining a part of his plant on Norfolk Street. In 1896 the business was moved to 62 Liberty Street. Loehnberg died the same year and his widow, Lizzie Loehnberg, and partner, Max Lauch continued the business. A. Loehnberg & Co. was relocated to 145 N.J.R.R. Avenue where pickled splits and rough leather were manufactured. The factory at 62 Liberty Street was operated by M.W. Lauch & Co. to produce Fancy leathers for the bookbinding trade.

References:

Commerce, Manufacturers & Resources of the City of Newark. 1881, p. 39

Ford, William. Industrial Interests of Newark, N.J. 1874, p. 29

Newark Made Goods. 1913, #844 & #798

Newark, The Metropolis of N.J. at the Dawn of the Twentieth Century. 1901, p. 76

CHARLES NIEDER AND JOHN NIEDER & CO. (1886-c.1959)
 Intersection of 225-235 Emmet Street,
 Avenue C & Wright Street
 Newark, Essex County, New Jersey

John Nieder established his first fancy leathers manufacturing plant in 1886. He manufactured bookbinders' and pocketbook brands of leather, specializing in seal and walrus. Charles Nieder's factory abuted that of his brother. Charles Nieder also manufactured fancy leather products, in particular, bookbinders' and pocketbook leather. His factory employed 30 persons and handled to 12,000 sides of leather per month.



OCEAN LEATHER CORP.

The early 20th century Nieder factories are at Emmet and Wright Streets and Avenue C. There are 3 major surviving buildings. The corner building is a 3 story brick structure with corbelled cornice, 4 by 14 bays. The segmental arched wooden double hung sash windows are broken or the openings have been blocked off. The entrance on Emmet has a raised porch and stone entablature. Further west on the street is another 3 story brick building some 16 bays long with a parapeted roof. There is a tall square chimney in the rear. The final building, at Wright & Avenue C, is a small 3 story brick structure - 6 bay by 12 bays and with a corbelled cornice.

References:

Industrial Directory of N.J. 1918

Leary, Peter J. Newark, N.J. Illustrated. 1893, p. 102

Newark, The City of Industry. 1912, p. 48,98.

Newark Made Goods. 1913, #1087, #1086

Price & Lee Business Directory. 1917

OCEAN LEATHER CORP. (c.1924-)
42 Garden Street
Newark, Essex County, New Jersey

Ocean Leather is one of the world's largest processors of sharkskin. Specializing in the tanning of sharkskin, Ocean Leather also tan pigskin and cowhide. The company began processing sharkskin around 1919. Interestingly, sharks do not have scales, but denticles or miniature teeth. Once removed, the grain of the sharkskin is revealed. When Theodore H. Kohler & Dr. Allen Rogers, leather and industrial chemists at Pratt Institute developed a method of easily removing this sand-paper like surface in 1925-27, Ocean Leather expanded its sharkskin tanning operations. Certain species of shark are sought for tanning; the leopard or tiger, dusky, brown, sand, sandbar, blacktip, mackerel, hammerhead, nurse and sawfish. Sharkhides are one of the toughest on the market. Ocean Leather Corp. has patented their process. The treatment requires a month's work. Shark leather was used for the tips of children's shoes, women's sports shoes, luggage, men's belts, billfolds, brief cases, handbags and bookbinding. In 1939 80,000 shark hides were tanned by Ocean Leather Corp. In 1969 the company was reported the world's leading producer of shark leather.

Employing approximately 150 workers in 1969, Ocean Leather tanned, dyed, and finished various exotic animal skins (shark, buffalo, seal). The Ocean Leather Corp. operates their tannery today at the same location. Ocean Leather is in non-descript two story brick and frame buildings. Appearing on the 1908 Sanborn map as the beam house, office, and storage building in the rear of the Kaufherr & Company Tannery, these buildings have been altered over the years.

References:

Newark Call. Oct. 3, 1937 and April 9, 1939

MacRae Directory. 1985

Newark Industrial Directory. 1964

Biemiller, Carl. "Sea-Going Leather." New Jersey Business. March, 1969.

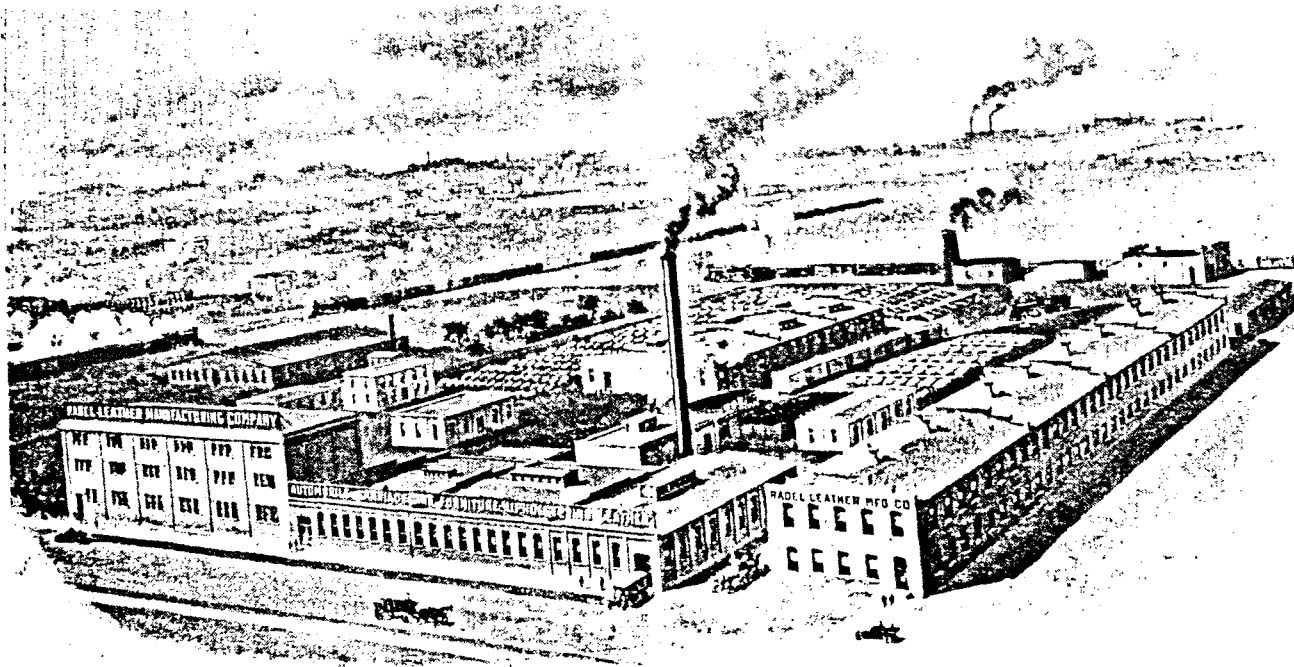
T.B. PEDDIE & CO. (1835-c.1900)
132 Market Street
Newark, Essex County, New Jersey

In the 1830's Thomas B. Peddie, a native of Scotland, started a trunk manufacturing business in a basement of 355 Broad Street. Soon thereafter he formed a partnership with John Morrison. Peddie and Morrison produced trunks, carpet bags and valises. As Peddie and Morrison's business grew larger facilities were sought. In the late 1840's, the firm occupied 104 Market Street. By 1850 the company employed 150 men and produced trunks and bags worth \$180,000 in total. Morrison died in 1861. In 1874 the T.B. Peddie Co. was organized with new partners, G.B. Jenkinson and R. Dod. Their factory at 132 Market Street consisted of two four-story brick buildings, each four hundred feet long. At its peak, the company had 430 people in their employ and manufactured \$875,000 worth of products annually. Around 1900 the company closed.

References:

Ford, William. Industrial Interests of Newark, N.J.
1874, p. 52-53

Atkinson, Joseph. The History of Newark, N.J.
1878, p. 222



RADEL LEATHER MANUFACTURING CO.
Newark: City of Industry,
1912, p. 105

RADEL LEATHER MANUFACTURING CO. (1907-)
 Wilson Avenue at Hyatt Avenue
 849 Broadway
 Newark, Essex County, New Jersey

Radel is only one of a handful of leather manufacturers still operating in Newark. The Radel & Mentz Leather Co. was established on Hamburg Place Rd. (now Wilson Avenue) on the corner of Hyatt Avenue in 1907. One hundred men helped manufacture automobile, carriage and furniture upholstery leather. The goods were exported to Europe as well as sold in the United States. Radel Leather Manufacturing Co. became a division of Seton Leather Co. around 1969 and moved to the same address as Seton now occupies. Radel Leather had a large facility on Wilson Avenue, just east of the CRRNJ line. The largest building was a 2 story brick structure with stepped parapeted roof on the front 5 bay facade. The long low building with a low-pitched gable roof had 32 bays (brick firewalls every eight bays). The major building facing Wilson Avenue was a four story flat roofed brick pier construction building with 6 groupings of three small windows. Attached was a one story brick structure with brick firewalls and skylights. Several elements were in the rear including a power plant and railroad siding. The improved concrete roadway bridge over the railroad obscures the view of these buildings, but elements are extant.

References:

Holbrook's Newark City and Business Directory. 1920

Industrial Directory of N.J. 1918

MacRae Directory. 1985

N.J. State Industrial Directory. 1970, 1975

Price & Lee Business Directory. 1930

Newark, The City of Industry. 1912, p. 105



JOHN REILLY CO.
Newark, NJ Illustrated, 1893,
 p. 92. extant building is
 at far left



THE JOHN REILLY CO. (c.1870-c.1930)
40 Ave. C
Newark, Essex County, New Jersey.

John Reilly came to Newark from his native Ireland while still very young. He served an apprenticeship in a Newark tannery around 1870 and began to manufacture patent leather in a small building on Ave. C and Murray St. His business expanded gradually until the plant covered the entire block between Ave. C, Murray and Astor Sts. By the turn of the century, Reilly was finishing 1200 pieces of leather weekly. His patent leather supplied the carriage, harness, shoe and furniture trades throughout the United States. In 1897 Reilly incorporated the company with himself as president and his son, B.J. Reilly, as vice-president. The company ceased operations in the early 1930's.

References:

Leary, Peter J. Newark, N.J. Illustrated. 1893, p. 92

Newark, The Metropolis of New Jersey, At the Dawn of the Twentieth Century. 1901, p. 67

Industrial Directory of New Jersey. 1931

Price & Lee City Directory of Newark. 1935

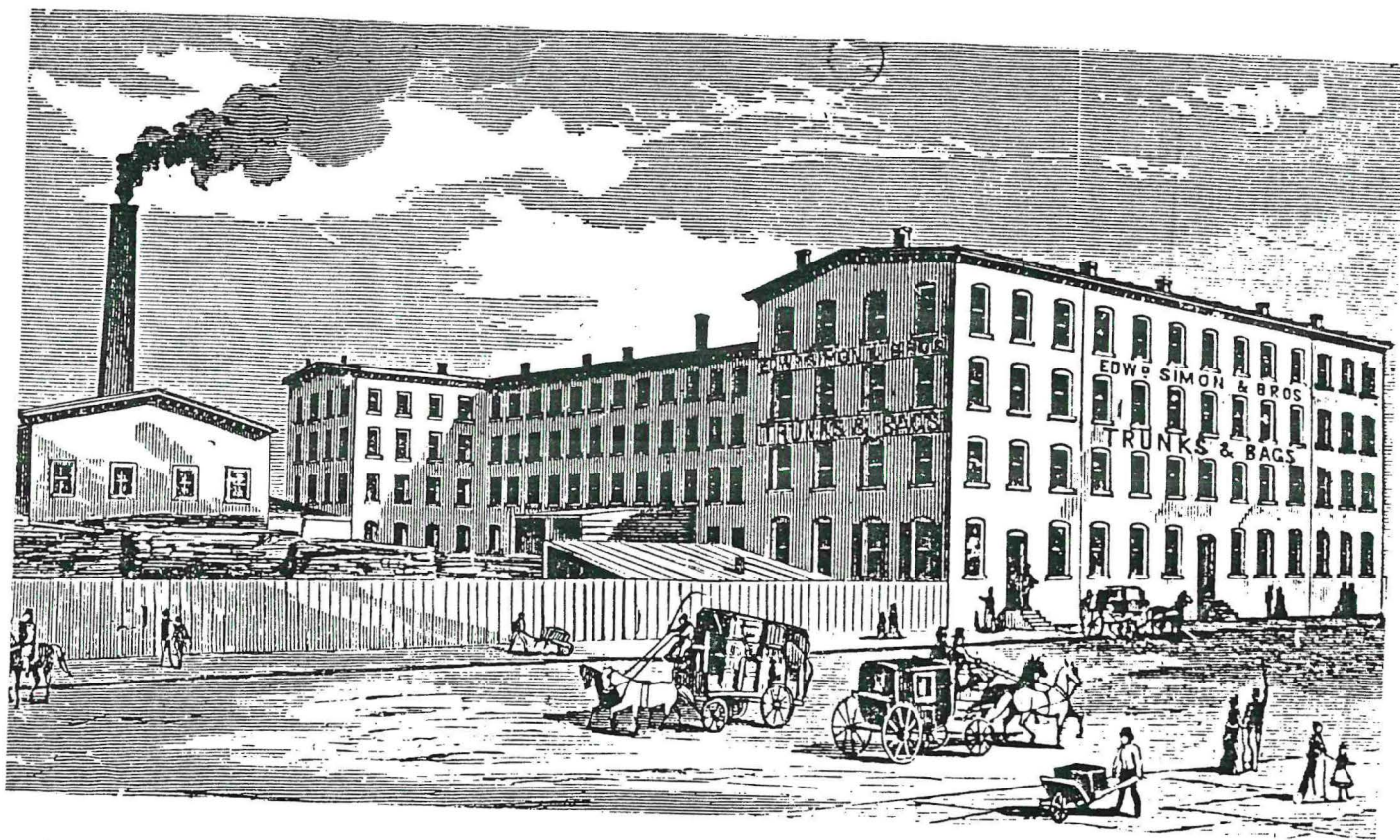
SETON CO., INC. (1906-)
849 Broadway
Newark, Essex County, New Jersey

The Seton Co. was founded by Joseph Kaltenbacher, Joseph V. Clark and Philip Murray in order to tan and process patent leather. It was located at 62 Verona Avenue. Seton Co. expanded twelve hundred feet down Oraton Street to Broadway. Patent leather was manufactured until World War I when war contracts took precedence. Seton became a public company in 1927. In the 1940's the factory produced leather for the shoe and handbag trade. In 1956 patent leather was still 40% of annual output. Seton Co. moved to Broadway address in the late 1950's.

References:

Newark Evening News. April 15, 1956.

MacRae Directory. 1985



EDWARD SIMON & BROS.
Newark Directory, 1887

EDWARD SIMON & BROS. (1858-ca.1900)
77 St. Francis Streets
Newark, Essex County, New Jersey

Edward Simon began manufacturing leather goods in a small shop on Market Street in 1863. In 1865 he was joined by his brothers William and Samuel. Edward Simon & Bros. manufactured military belts, pistol holsters, saddle bags, cartridge boxes, shot belts, gun cases, bullet pouches, dog collars, fishing tackle, etc. Business increased quickly during the Civil War when they were awarded government contracts. Moses Schwerin joined the firm in 1869. They built a plant on Main and St. Francis Streets the next year. It was four stories high with frontage on both Main and St. Francis Streets. They were situated very near to the Newark and New York Railroad line. The firm manufactured everything in the trunk and bag line. The plant had its own saw and planing mills, manufactured their own hardware, and even did their own plating. 1873's annual product value was \$500,000. Their goods were shipped throughout the United States, South America and Europe. In 1885 William and Samuel Simon withdrew from the company. In 1890 Edward Simon died leaving Moses Schwerin as proprietor. The company appears to have gone out of business around 1900. The Simon & Brothers factory was a four story U-shaped brick building with a low pitched gable roof. The windows were all small segmental arched double hung sash.

References:

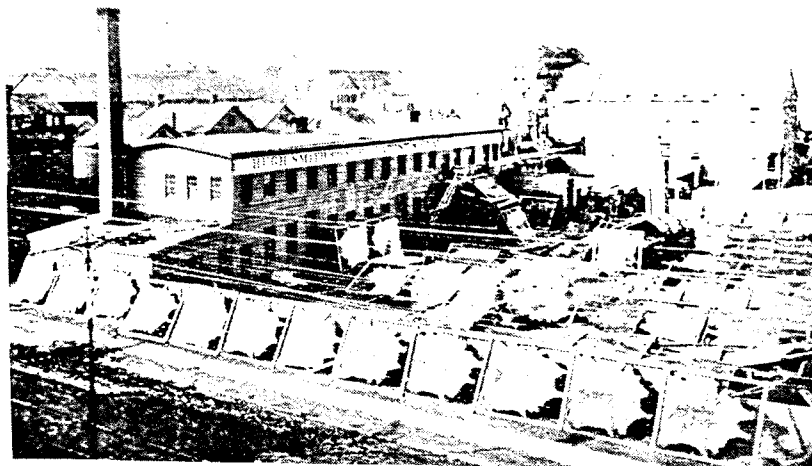
Pierson's Directory of City of Newark. 1865-1866

Ford, William. Industrial Interests of Newark, N.J.
1874, p. 54-55

Leary, Peter J. Newark, N.J. Illustrated. 1893,
p. 212-213

HUGH SMITH, INC. (1862-1917)
Central Avenue, Hoyt, Bleecker & Lock Streets
Newark, Essex County, New Jersey

Hugh Smith emigrated from Ireland in 1854 at the age of 14. He apprenticed with a currier and leather manufacturer. He and his brother, Charles, began a small business together in 1862 at the corner of Hoyt Street and Central Avenue. They sold shoe and bag leather to New York and the home market. Hugh Smith invented fancy colored cowhide leather which was extensively used by bag, bookbinders and pocketbook manufacturers. In the early 1880's the plant consisted of a 66 x 125 foot four story frame building and a 30 x 75' 2



HUGH SMITH
Newark, NJ Illustrated,
1893



STEINHARDT LEATHER
(now Aztec Leather)

story frame building in which were housed a tanning and currying department and a japanning and coloring department. The annual production value was between \$400,000 and \$500,000. By 1900 the tanneries took up three city blocks between Central Avenue, Bleecker, Hoyt and Lock Streets. Their patent, enameled and fancy colored leather was sold under the "Durham Brand" trademark throughout the United States, and in England, Germany, Australia, France, Italy, China and Japan.

References:

Commerce, Manufactures and Resources of the City of Newark. 1881, p. 31-32

Ford, William. Industrial Interests of Newark N.J.. 1874, p. 32

Leary, Peter J. Newark, N.J. Illustrated: A Souvenir of the City and Its Numerous Industries 1893, p. 88

Shaw, William H. History of Essex and Hudson Counties, New Jersey 1884, p. 578

Newark, The City of Industry. 1912, p. 102

Newark, The Metropolis of New Jersey, at the Dawn of the Twentieth Century. 1901, p. 66

STEINHARDT LEATHER CO. (c.1903-c.1970)
195-203 McWhorter Street
Newark, Essex County, New Jersey

Gustave Steinhardt began manufacturing bookbinders and pocketbook leathers on McWhorter Street at the turn of the century. He continued until the Aztec Leather Corp. replaced him in 1970. Aztec tans and finishes cowhide with the help of the twenty employees. The business and structure is extant. Aztec Leather is in a flat-roofed, four story, seven bay brick building. Large multi-pane metal windows with brick panels below are separated by rusticated brick pilasters. Most of the fenestrations in the first and second floors has been filled. The roof cornice carries the name STEINHARDT.

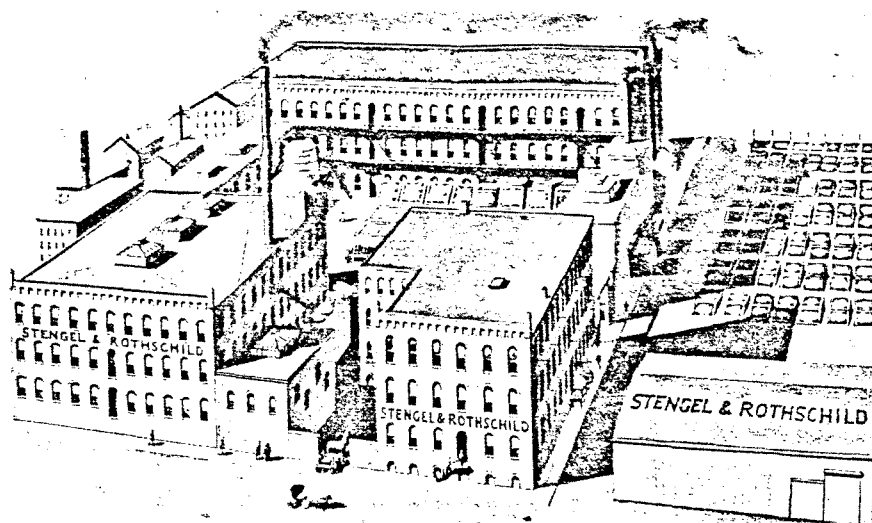
References:

Holbrook's Newark City and Business Directory. 1920

Newark Made Goods. 1913, #1404

MacRae Directory. 1980

Price & Lee Business Directory. 1970



, Stengel & Rothschild ,

NEWARK, N. J., U. S. A.

STENGEL & ROTHSCHILD

Year Book of the Newark
Board of Trade, 1902



STENGEL & ROTHSCCHILD (c.1887-c.1927)
 Merit Strap Co. (c.1927-c.1965)
 133 Kossuth Street
 Newark, Essex County, New Jersey

Sometime in the late 1880's the Stengel & Rothschild leather plant was established on the corner of Kossuth and St. Francis Street. They expanded their plant on the block bounded by Main, Kossuth, St. Charles and Berlin (Wilson) Sts. They produced patent and enameled leather for the automobile, carriage, furniture and saddlery trades. In the late 1920's Stengel & Rothschild was replaced by the Merit Strap Co. In the Mid 1960's the Mutual Brief Case Co. shared the address. Merit produced pouches, straps, men's luggage and brief cases. The company ceased operation c.1965.

References:

Newark Made Goods. 1913, #1407

Price & Lee Business Directory. 1930, 1965

Newark Industrial Directory. 1964

Holbrooks Newark City & Business Directory. 1885, 1890

STERLING LEATHER WORKS (c.1903-c.1968)
 329 Frelinghuysen Avenue
 Newark, Essex County, New Jersey

Sterling Tanners was founded around 1905 by Frank Schwarzwaelde, the former manager of Kaufherr & Co. The tannery was renowned for their handling of exotic hides, such as zebra, elephant or hippopotamus. The hippopotamus hide needed more than eighteen months in the tanning solution because of its three inch thick hide. Schwarzwaelde's sons, F. Eugene and Herbert operated the tannery after their father. During the Depression Sterling maintained a workforce of one hundred men. The bulk of their manufacturing was in fancy leathers, especially alligator.

References:

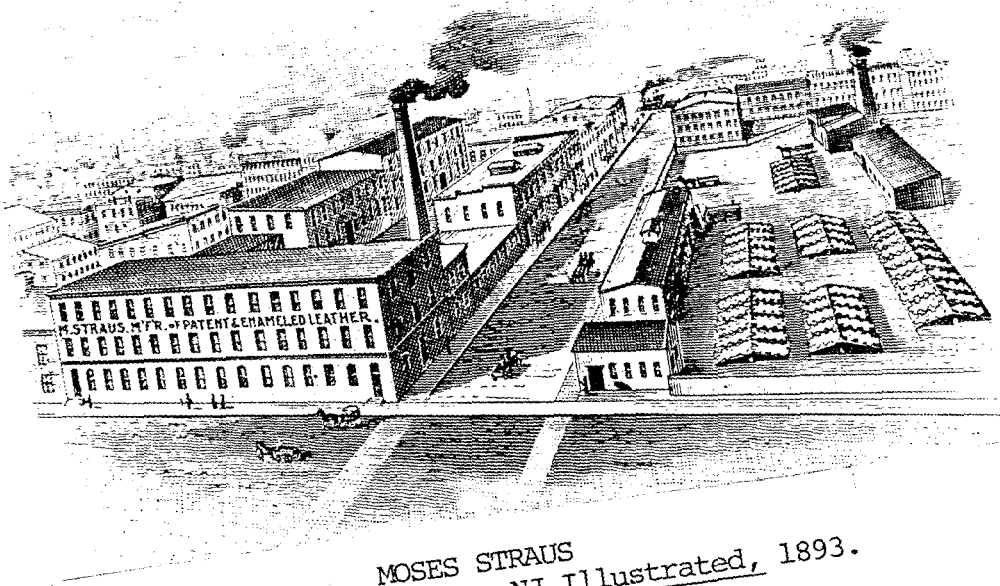
Newark News. Oct. 2, 1940.

Newark Made Goods. 1913, #1410

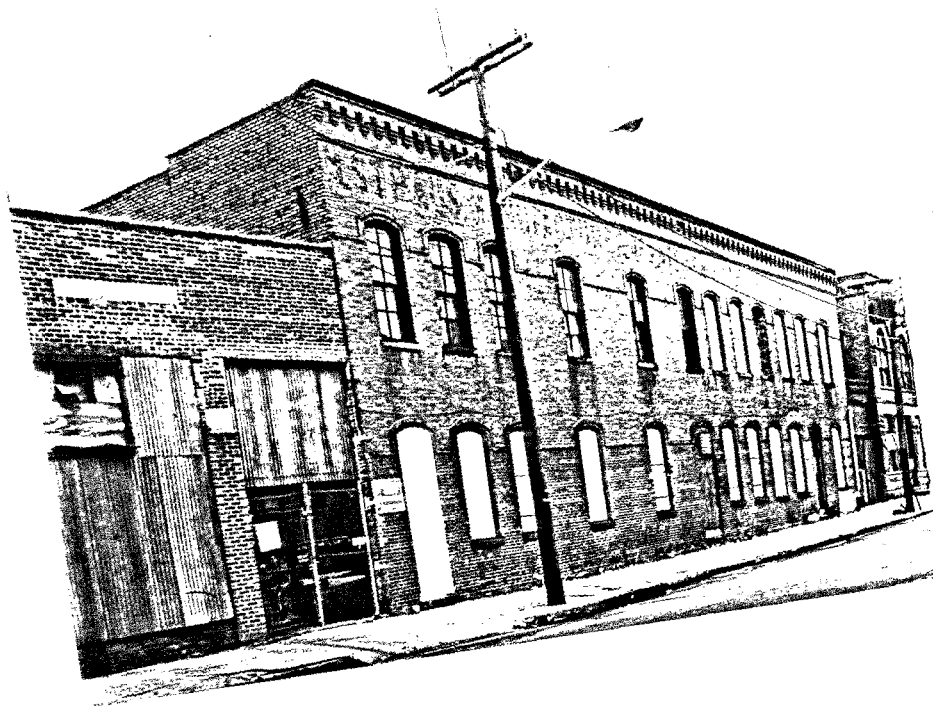
Industrial Directory of N.J.. 1967

Price & Lee Business Directory. 1970

Newark Industrial Directory. 1964



MOSES STRAUS
Newark, NJ Illustrated, 1893.
Herman & Vesey



MOSES STRAUS (1867-c.1928)
 39-41 Vesey Street
 440 & 506 Frelinghuysen Avenue
 Newark, Essex County, New Jersey

Moses Straus came to Newark from his native Germany around 1849. After an apprenticeship with a Newark tanning and currying firm, he established his own patent and enameled leather business at 39-41 Vesey Street. In 1873 Straus produced 8,000 hides of various leathers. Chiefly, patent and enameled but also bag, russet, trunk and belt leathers were manufactured. His manufactory was a three-story brick and frame structure (100 x 137'); used for engine and boiler house and drying room. His annual output was \$200,000 in 1881 and found a market in West and Southwest United States. Moses Straus saw the field of carriage and saddlery as largely undeveloped and therefore arranged his plant for their manufacture. In 1893 he was turning out 350 hides per week with the help of 25 employees. The 19th century factory at 39-41 Vesey Street is a two story brick building with a corbelled roof cornice. The windows and doors are highlighted by a brick label mold. There are 12 bays of 4/4 double hung wood sash windows although many openings are now closed. Beneath the cornice is a fading painted sign that reads "M. STRAUS MANUFACTURER OF PATENT ENAMELED LEATHER." An adjacent building at 35 Vesey, possibly an office, is late 19th century Second Renaissance Revival style brick building with embellished round arch openings on 2nd floor, rusticated stone foundation, and richly detailed moldings. Moses Straus & Sons moved to 440 Frelinghuysen Avenue in 1907. They manufactured leathers for automobile, carriage, and furniture upholstery, as well as patent leather. The 440 Frelinghuysen Avenue property, circa 1910, is a long two story blond brick building with small segmental arched 6/6 double hung wood sash windows. The flat roof has brick corbelling at the cornice. Several openings on the ground floor have been modified. It is unclear whether Straus maintained facilities in all or just a portion of this building. In the early 1920's the corporation moved down the street to #506 Frelinghuysen Avenue.

References:

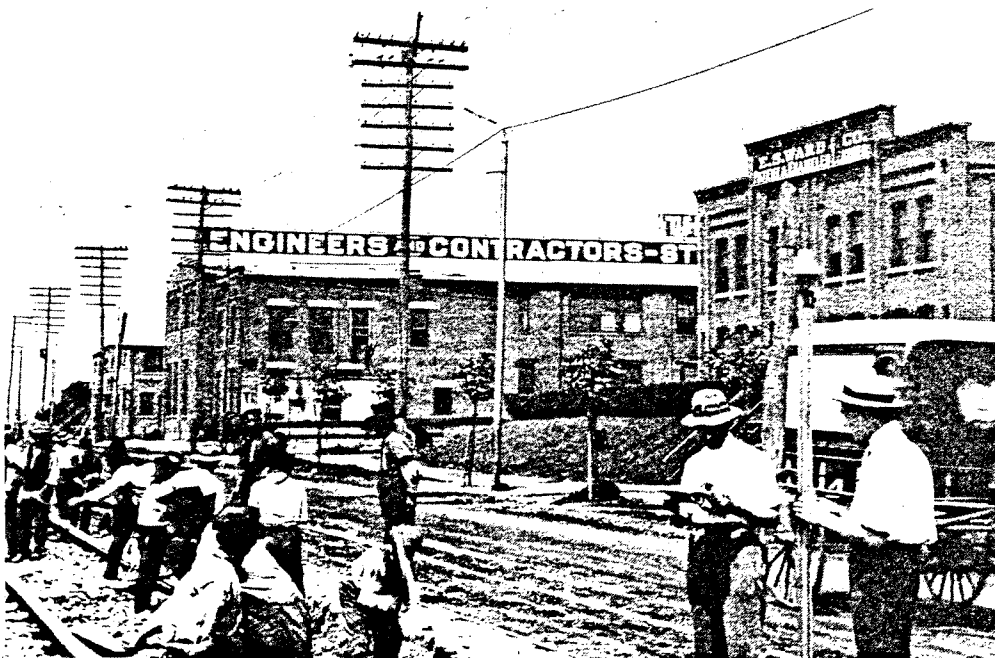
Commerce, Manufactures and Resources of the City of Newark. 1881, p. 83

Ford, William. Industrial Interests of Newark, N.J. 1874, p. 32

Leary, Peter J. Newark, N.J. Illustrated: A Souvenir of the City and its Numerous Industries. 1893, p. 95



E. S. WARD & CO.
Work on roadbed on
Frelinghuysen, ca. 1910



Newark Made Goods. 1913, #1422

Industrial Directory of N.J. 1901

Holbrooks's Newark City and Business Directory. 1920

Price & Lee Newark Business Directory. 1925

E.S. WARD & CO. (1879-1918)
414-420 Frelinghuysen Avenue
Newark, Essex County, New Jersey

Elias S. Ward established a business for himself in 1879. His brother, Edgar B. Ward, was made a partner in the patent leather concern a short time later. The plant on Frelinghuysen Avenue consisted of a three-story building, a two-story building and three one-story buildings. E.W. Ward & Co. specialized in patent leather for the carriage, upholstery and furniture trades. They sold their leather throughout the United States and Canada.

Ward's factory on Frelinghuysen was built in 1900 and is a two story gable roofed brick structure with pier construction and stepped parapet facing the street. The front facade has 8 segmental arched small windows broken into pairs by double pilasters. The building is 9 bays deep (2 windows each bay) with an additional one story brick wing. Most of the side windows have been closed.

References:

Newark, The City of Industry. 1912, p. 102

Commerce, Manufactures & Resources of the City of Newark. 1881.

WEIGAND & DOERZBACHER, INC. (1881-c.1972)
 54-56 Morris Avenue
 Newark, Essex County, New Jersey

Robert R. Weigand and Peter A. Doerzbacher established a fancy leather factory at 2 Pierson Street in 1881. They manufactured bookbinders, pocketbook, and bag leathers in all fancy colors. Business expanded to two floors of the building at 62-64 Marshall Street where they employed 25 men. In 1907 the business moved to 54 Morris Avenue where they remained until the early 1970's.

References:

Newark, The Metropolis of N.J. at the Dawn of the Twentieth Century. 1901, p. 77

Holbrook's Newark City and Business Directory. 1908

Price and Lee Business Directory. 1970, 1975

Newark Industrial Directory. 1964

ZIEGEL, EISMAN & CO. (1889-c.1962)
 121 Paris Street
 Newark, Essex County, New Jersey

Louis Ziegel and Max Eisman entered into a partnership in a shoe leather manufacture in 1889. Originally, located at 26 Longworth Street, in 1897 the partnership of Ziegel, Eisman & Co. built a plant at 99 Frelinghuysen Avenue. The factory was three for four stories high and covered an area 90' x 200'. Their specialty was Kangaroo shoe leather but goat skin were also tanned. The company imported nearly a million kangaroo hides in 1939. A hide took forty days to process into a piece of finished leather. Kangaroo provides one of the strongest leathers in the world. Ziegel, Eisman & Co. became a division of Goldsmith Leather Co., Inc. around 1959.

References:

Newark, the City of Industry. 1912, p. 101

Industrial Directory of N.J.. 1960

Newark Sunday Call. April 6, 1939.

JEWELRY MANUFACTURE

by Nanci Kostrub Batchelor

The origins of the city's jewelry industry can be traced to the 1792 establishment of Benjamin Cleveland's gold and silversmith shop. Ephraim Hinsdale, however, is generally recognized as the pioneer of Newark's dynamic jewelry industry. His six-man shop established around 1801 on Broad Street near Lafayette Street, was the first in this country to engage in the exclusive manufacture of jewelry. Hinsdale died in 1811 but his company continued as a viable and innovative concern, attracting no less than fifty workers in 1830 and 100 in 1836. This firm, which later became Taylor and Baldwin Jewelers, was the first in the country to mass-produce quality jewelry.

The industry continued to make modest strides until the Panic of 1837 adversely affected the jewelry trade. Poor times, however, did not deter James Madison Durand, a twenty-four-year-old jeweler in the employ of Taylor and Baldwin, who set up his own shop in 1838. His depression-born business was to become one of the country's leading factories. Durand's innovative designs and methods did much to counteract the prevailing notion that American-made jewelry was provincial. It was, in fact, common for Newark jewelers at that time to stamp "Paris" or "London" on their products.

Between 1840 and 1860 the number of jewelry establishments quadrupled and the industry was the fastest growing one in Newark. The 1860 census showed 808 persons employed in 27 separate jewelry factories. Durand's success had apparently encouraged others and many repeated the same cycle: first apprenticeship, many with the original Taylor and Baldwin; then a bench in someone else's factory; then their own factory in an upstairs loft. One of these, Aaron Carter, established his own firm in 1841. The business kept expanding with a succession of partners and in 1850, Carter became the first jewelry maker to use a steam engine, buying one Seth Boyden had made for an exhibit in New York's Crystal Palace.

The prosperity of the area drew Edward Balbach, a forty-four-year-old German immigrant who came to America and to Newark seeking his fortune in 1848. Two years later, Balbach established a silver and gold refining plant, principally to handle the gold-filled sweepings from Newark's jewelry factory floors. No other plant in America could handle such sweepings; before 1850 jewelry makers sold their floor dust to speculators, who in turn took the dust to

European refiners. Quickly Newark jewelry makers turned to Balbach, "to escape the rapacity of the speculators".

Soon other cities sent their sweepings, too. By 1861 Balbach handled silver from as far away as Mexico, but the firm's major growth came after Edward Balbach, Jr. patented "Balbach's Desilvering Process" in 1864, permitting rapid separation of precious metal from base metals. Only Balbach's and the U.S. Government mints and assay offices could do such work, and often Balbach could do more than the government.

The introduction of steam power led to other technological improvements in the industry and increasing demands for more products forced jewelry manufacturers to specialize. Inspired by both of these forces, Ferdinand J. Herpers, an expert on dies and piercing tools, invented a machine in 1865 capable of mass-producing settings.

During the 1870s, the growth of Newark's jewelry industry quietly gained momentum and the city became known as "the great jewelry workshop of the American continent". By 1880, sixty-five jewelry manufacturers employed over 2,000 workers in the city. Unlike many industries, most employees were skilled craftsmen whose relatively high wages reflected the respect and importance accorded their art.

At the dawn of the Victorian Era, local promoters and advertisers boasted that Newark was the "city of gold and precious stones". Allied industries, such as manufacturers of jewelers' tools, optical supplies, clocks, and watches were also attracted to the city. The Victorian custom of wearing big, heavy watches hung at the end of solid gold chains spread across the vest gave rise to one of those allied industries, the manufacture of watchcases. The last twenty years of the nineteenth century saw a tremendous increase in watch case manufacturers in Newark, led by the Crescent Watch Case Company, which moved to the Roseville section of the city from Chicago in 1891 to make gold-filled and solid silver watch cases. Other firms, including Essex Watch Case Company, Thomas Benfield, and Newark Watch Case Company, also helped swell the total New Jersey manufacture to hundreds of thousands of watch cases every year. As a matter of fact, Newark firms were responsible for supplying almost all American watchcase material throughout the 1890s. Henry Blank and Company, founded in 1886, manufactured slide watchcases, many of which were brilliantly enameled. Their strap watch was one of the first made after that style became popular around 1916.

Celluloid collars with collar buttons were also popular in the 1890s. George Krementz, who founded his jewelry firm

in 1866, was convinced that the easily-fractured soldered button could be improved. A cartridge-making machine which he had examined at the Philadelphia Centennial Exposition in 1896, fired Krementz's imagination. Using similar concepts, Krementz finally perfected a machine capable of producing a one-piece solid-gold collar button. The result was so superior that this Newark firm came to produce almost all American collar buttons and sold them throughout the world. Krementz One-Piece Collar Buttons spread over the country, guaranteed "against everything but loss". Fortunately for the firm, George Krementz kept expanding his line, so that when collar-attached shirts all but eliminated detachable styles in the early 1920s, the company was not caught holding a bag filled only with collar buttons.

As Newark's reputation as a jewelry center increased, New York firms moved their laboratories across the Hudson River. Tiffany's built a castle-like fortress in the north ward of Newark to house its sterling silver plant in 1896. Tiffany continued to produce some gold articles, social stationery and leather products in addition to silver up until 1984. Most jewelry firms, however, were located just east of the downtown area, or in the Ironbound section.

The 1890s also saw the rise of platinum refining in Newark, with Baker and Company the first in America to handle that precious ore from Russia's Ural Mountains. Baker was not only the first in America to refine platinum commercially, but for years was the only one to do so. In fact, the presence of Balbach's refinery and the New Jersey Zinc Company probably contributed to Newark's development as a paint producer, since the Zinc Company furnished zinc oxide and Balbach's supplied pure lead, both basic paint ingredients.

At the turn of the century, Newark boasted ninety-eight establishments devoted to the production of jewelry. Ranking third only to leather and beer industries, the value of manufactured jewelry products totaled over seven million dollars. Within ten years, the value of products doubled and the jewelry industry surpassed beer in its importance to Newark's commerce.

World War I boomed the jewelry industry, since workers bought rings and necklaces and earrings and brooches as well as silk shirts. A 1919 survey had 165 establishments reporting jewelry as their major line of production, however, the survey revealed that only a few of the old names remained - including Krementz, Lelong, Nesler and Balbach. Firms such as Shiman Industries (1906), Jabel Ring Company (1916), and Church and Company (1922) came to the forefront as leading jewelry manufacturers.

The recession of 1922 set the jewelry makers back some, but it took the crash of 1929 and the black years of the early 1930s to close all but a few of the strongest firms. Many of the small firms sold their interests to the larger, more stable manufacturers. Others simply went out of business, but those which survived the depression were solidly established for many years to come. Still, most of the jewelry houses that have survived base their reputation on classical designs and traditional motifs. Although some processes have been mechanized, many phases of jewelry production are done by hand just as Ephraim Hinsdale did in 1801. The secret of the vitality of Newark's jewelry industry over the years is quality. American jewelry as produced in Newark stands unrivaled in excellence of workmanship, beauty of design, and cost of manufacture.

Jewelry factories in the main do not employ great numbers of people, and most of Newark's jewelry makers were small firms with only a few employees working in a second- or third-story loft. Roughly half of these were one, two or three-man operations. The larger firms occupy one or more floors in the loft buildings. The jewelers were prone to stick together and it was not unusual to find more than one firm located in the same building. Not only did they rent space in the same buildings but they were constantly moving. As soon as one of the larger firms built a factory with space for rent that had up-to-date features, the owners of several firms would quickly relocate their operations.

Jewelry manufacturers were mobile. The production of jewelry does not require a large amount of heavy machinery, mostly workbenches and a few other items. One result of this ease in movement was the rapid change in partnerships in many firms. Many partnerships lasted less than 5 years, some only 1 year. The lack of long term commitment to one firm could possibly be attributed to: 1) the clash of ideas for designs. Jewelers see themselves as artists and disagreed over the styles and types of designs being produced; 2) disagreement over management of the firms; or 3) lack of capital and the ability to sustain a profitable business. Whether the frequent change in partners is due to any of these theories is unknown.

Workers in the jewelry factories felt themselves to be artisans, and were, of course. Newark attracted skilled jewelry makers from Italy, France, Germany and England, most of whom preferred Newark to New York because of lower living costs.

Machines are prominent in the jewelry industry today. Nevertheless, nearly all of Newark's jewelry factories have long "benches" where products are finished by hand.

Today, less than one dozen jewelry manufacturers are operating in Newark. The desire to leave the city for the suburbs and the merger of several smaller firms left only a few of the oldest factories still manufacturing their goods.

ALLSOPP AND ALLSOPP
18 Columbia Street
Newark, Essex County, New Jersey

Allsopp and Allsopp was founded in 1887 by two brothers, Henry and George A. Allsopp. Born in England, they moved to Newark in the early 1880's, and became acknowledged leaders in the manufacture of diamond rings and fine gold rings with precious stone settings. All their rings had their trademark, a capital A with a five pointed star stamped on the inner surface. In 1892 they located at 60 McWhorter Street and adopted the name of Allsopp Brothers, previously trading under the name H. Allsopp and Company. In 1887 they had 3 employees, but by 1901 they had over 35 employees and four travelling salesmen. Between 1906 and 1912 the firm moved to 18 Columbia Street. In 1925 there were three brothers listed as active in the firm; Thomas Allsopp, president; Albert E. Allsopp, treasurer; and Edmund F. Allsopp, vice-president. In 1955 the firm operated using the name A.E. Allsopp and employed upwards to 25 people. There is no information available on the firm after 1964.

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ANY SIZE ANY HARDNESS

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REFINERS, SMELTERS and ASSAYERS of PLATINUM, GOLD and SILVER

AMERICAN PLATINUM WORKS
N. J. R. R. Ave., at Oliver St. NEWARK, NEW JERSEY
NEW YORK OFFICE, 36 CHURCH STREET CHARLES ENGELHARD

Newark Directory, 1926



Newark, City of Industry
1912, p. 116

AMERICAN PLATINUM WORKS

New Jersey Railroad Avenue and Oliver Street
Newark, Essex County, New Jersey

One of the oldest established firms engaged in the refining and manufacturing of platinum and its allied metals, American Platinum Works was founded in 1875 and operated for almost 100 years. They originally occupied space at 251 New Jersey Railroad Avenue, but in 1909 a need for additional space brought about purchase of 225-231 New Jersey Railroad Avenue. In 1920 the final phase of expansion was completed with the erection of a five-story reinforced concrete building on the vacant lot next to their first building. The items produced by the firm were used in the jewelry, dental, electrical, surgical, chemical, gold pen manufacturing and many other lines and consisted of platinum and platinum metals in all their different forms, gold, silver, and many alloys of the various precious metals. Seamless platinum tubing was one of their specialties. The firm employed over 250 people in 1955 and was owned by Englehard Mining and Minerals, one of New Jersey's largest industries.

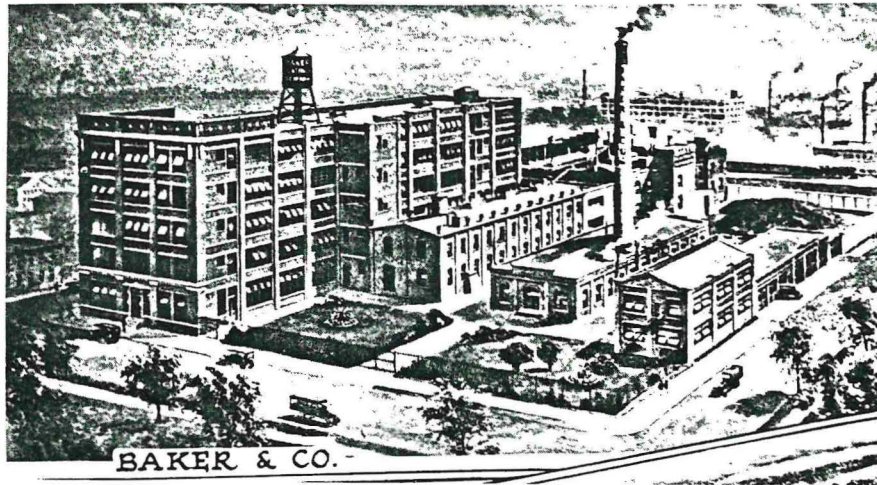
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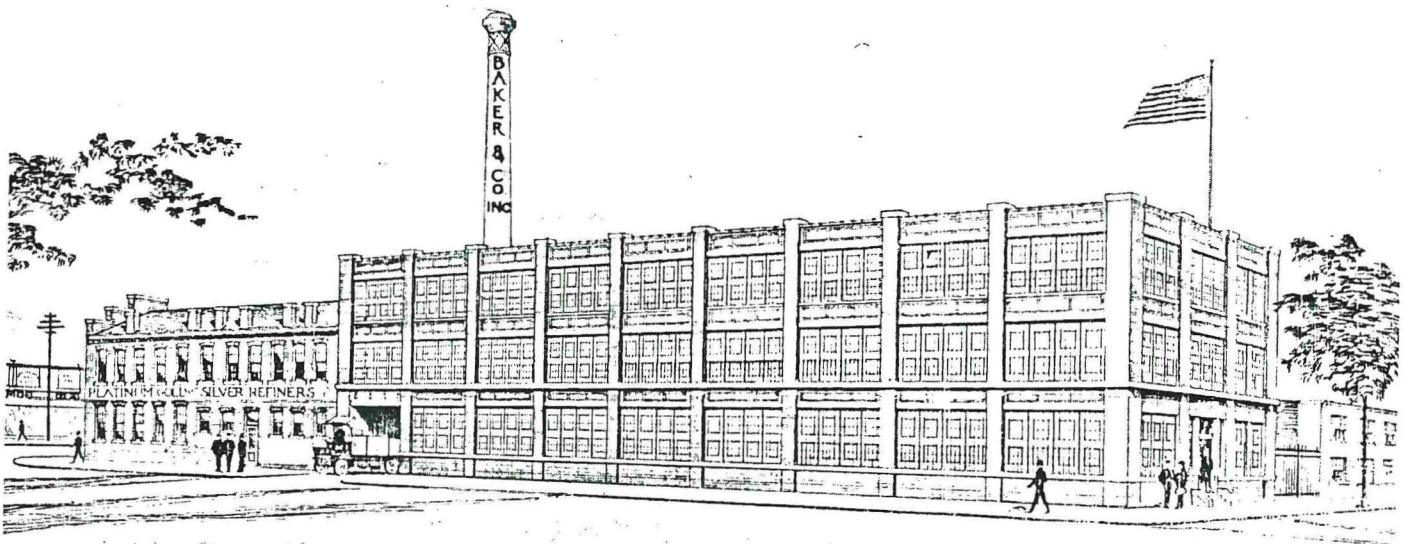
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TWO VIEWS OF BAKER & CO
(no longer extant)



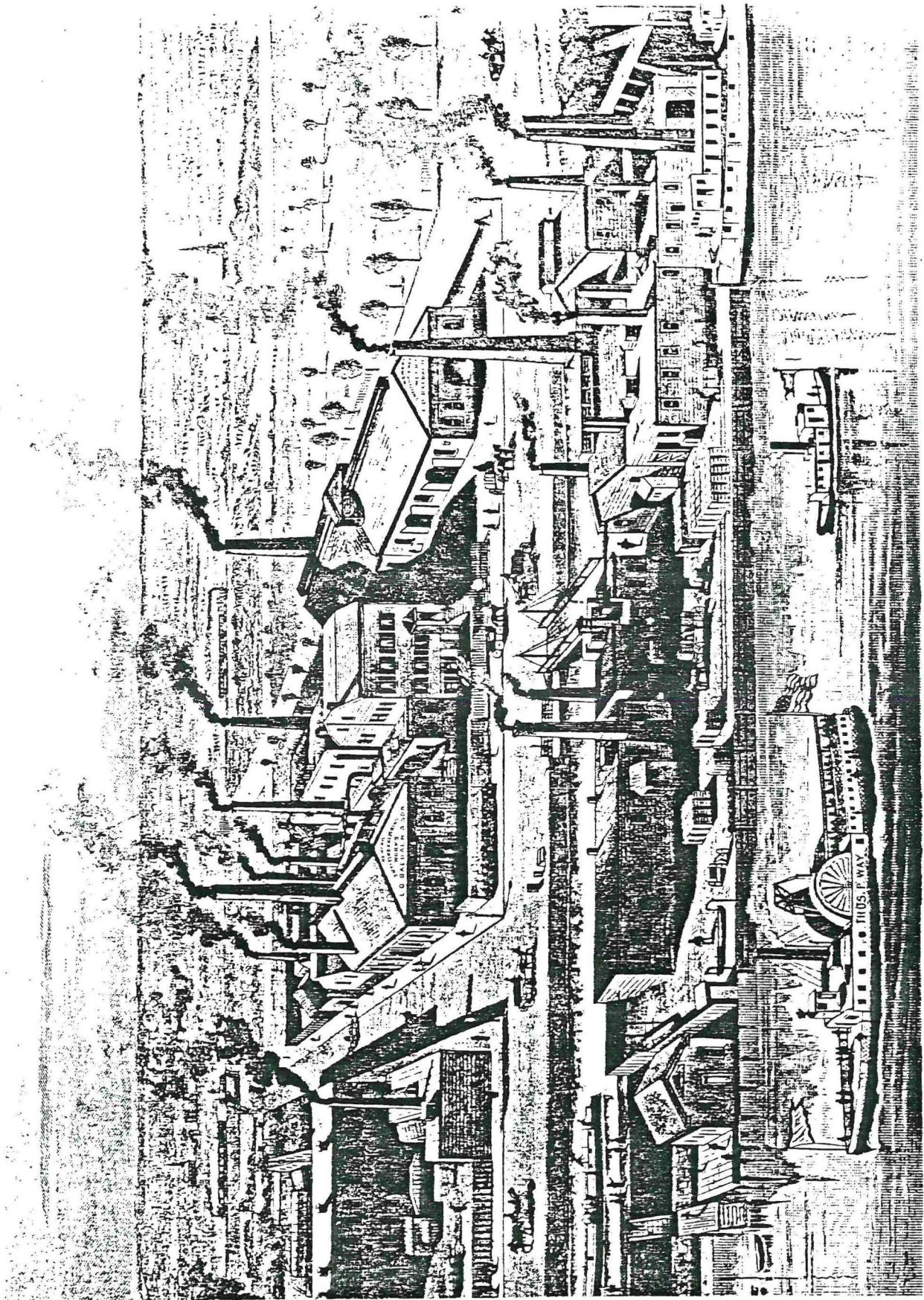
Newark, City of Industry
1912, p. 115

BAKER AND COMPANY, INC.
 408-414 New Jersey Railroad Avenue (McCarter Highway)
 Newark, Essex County, New Jersey

Baker and Company was established in 1867 by Daniel W. Baker at 65 Hamilton Street. The original products were gold rings and cameos. In 1874 Baker employed 12 workers and had a weekly payroll of \$150. The ever-increasing demand for platinum in the arts and sciences, especially in the electrical and dental fields, was recognized by Baker who decided to develop this branch of business. In 1904, Baker & Company, Inc. was established under the guidance of Cyrus Baker and his brother Charles Baker. The plant they built covered an entire city block and consisted of four main buildings with an aggregate of ten floors of work space. In addition to the business offices, the main building was used for general manufacturing departments where the metal was worked into wire, sheet, tubing, rivets, etc. Building No. 2 was devoted to the refining, assay and research departments. Building No. 3 was used for the manufacture of jewelers' settings and findings in both gold and platinum. In 1912 they erected a three story reinforced concrete factory and office building (180 x 50 feet). The refining process included not only the separation of platinum, but also iridium, osmium, ruthenium, rhodium, palladium and others. The principal use for iridium is the pointing of gold pens, because of its hardness and ability to withstand abrasion. In 1893 Baker and Company was the only firm in the country to be in the business of refining platinum. In 1925 they were said to be one of the largest platinum refineries in the world. In the 1950's Baker and Co. still employed over 1,000 workers. The firm was purchased by Englehard Mining and Minerals who operated the plant until the late 1960's. Unfortunately, the entire complex was subsequently demolished.

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NEWARK SMELTING
& REFINING WORKS
(Balbach & Son)
1876

BALBACH SMELTING AND REFINING COMPANY SITE
 (Newark Smelting and Refining Works)
 Market Street, adjacent Jackson Street Bridge
 Newark, Essex County, New Jersey

The Balbach Smelting and Refining Company was founded in 1851 by Edward Balbach who had been in the business of smelting and refining for many years. In the mid-19th century a great deal of difficulty had been experienced in separating gold and silver when combined in small proportions with the baser metals, especially lead and zinc. The processes were slow and expensive and the waste of precious metals was considerable. Edward Balbach Jr. was determined to devise a process whereby gold and silver, when occurring in small proportions with other metals, could be withdrawn and refined quickly and at a comparatively small expense. In 1864, Balbach succeeded with his experiments and patented his de-silverizing process which virtually revolutionized gold and silver smelting and refining in this country. With his method the gold and silver are separated from the lead and concentrated. Balbach's process was used by nearly all the gold and silver smelting works in the United States and he also patented the process in Europe. In 1874 the plant covered over two-and-one half acres of ground, and was the second largest smelting operation in the United States. Over \$40,000 worth of gold and silver was refined each week, and over 150 tons of lead were produced at the same time. The work force consisted of 125 people with a payroll of \$1,500. In 1899 the annual output of lead was over 35,000 tons. The complex was located on both sides of Passaic Avenue extending from Market Street to the river, and from Van Buren to Polk Streets. They had over 500 feet of waterfront on the Passaic River and the Morris Canal. In 1901 the work force was listed being over 500 men. In 1903 a new plant on Newark Bay was started as a branch and gradually the entire works moved there. Little is know of their operation after that time.

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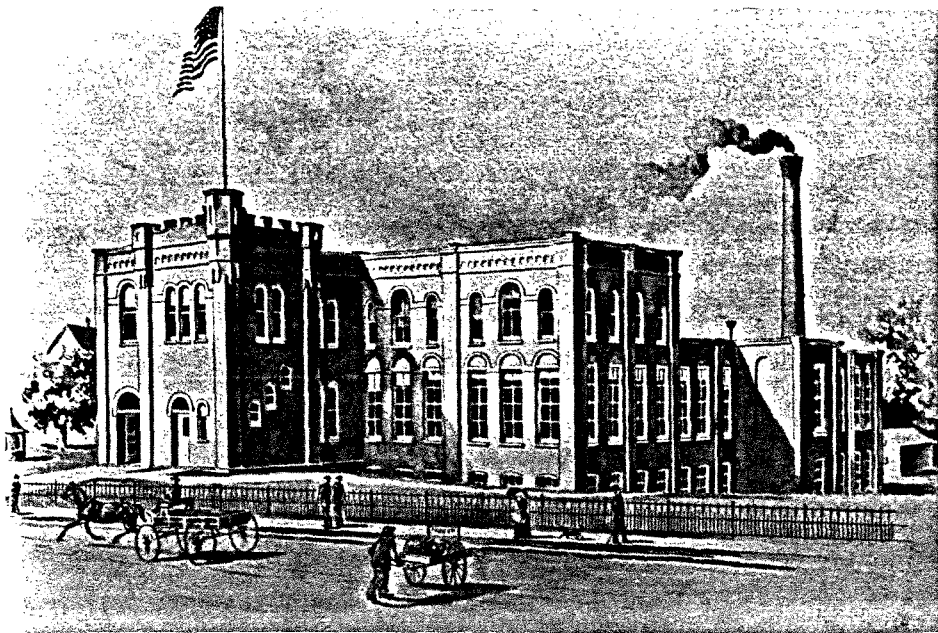
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PLANT OF THOMAS BENFIELD
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THOMAS BENFIELD
757 Summer Avenue
Newark, Essex County, New Jersey

Little is known of the operation of Benfield at this location. Thomas Benfield began the manufacture of watch cases in 1882 in New York City. In 1890 he erected the building at this location. At the time of its construction, it was considered to be one of the finest factory buildings in the city. It is 165 x 135 feet, three stories in height and cost over \$65,000 to construct. Benfield believed that an employer should provide recreational offerings for his employees. To this end he provided his workers with reading rooms, billiard and pool rooms and other social activities in the factory building. The building was added to in later years but still retains its original appearance. It is currently the home of Universal Metal Chain and Wythe Engineering.

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BIPPART, GRISCOM & OSBORN

BIPPART, GRISCOM & OSBORN
 2 Garden Street
 Newark, Essex County, New Jersey

Established in 1885 by Messrs. Archill Bippart, Theophilus Roos and Andrew Kienle as Bippart & Co. Kienle died in 1896, and Benjamin Griscom and Benjamin Osborn Jr., became partners in 1897 and 1898. Originally located at 32 Marshall Street, the firm moved to the address above in 1910. This building was much larger than their original, having over 9,300 square feet of floor space. The firm was considered to be one of the most important jewelry concerns in Newark. In 1912 the company had over 125 skilled workers and exported many of their products to Europe. Little other information is available on the firm which ceased operation in the 1930's. The building was also occupied by Church & Co. and Jones and Woodland, both well-known jewelry manufacturers.

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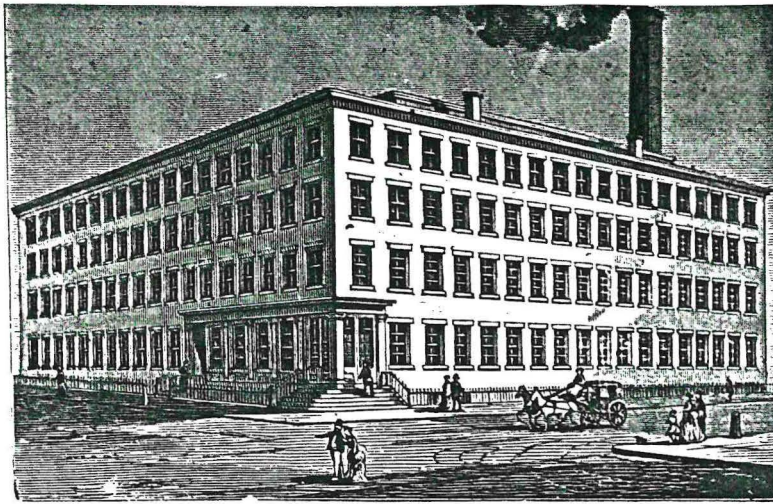
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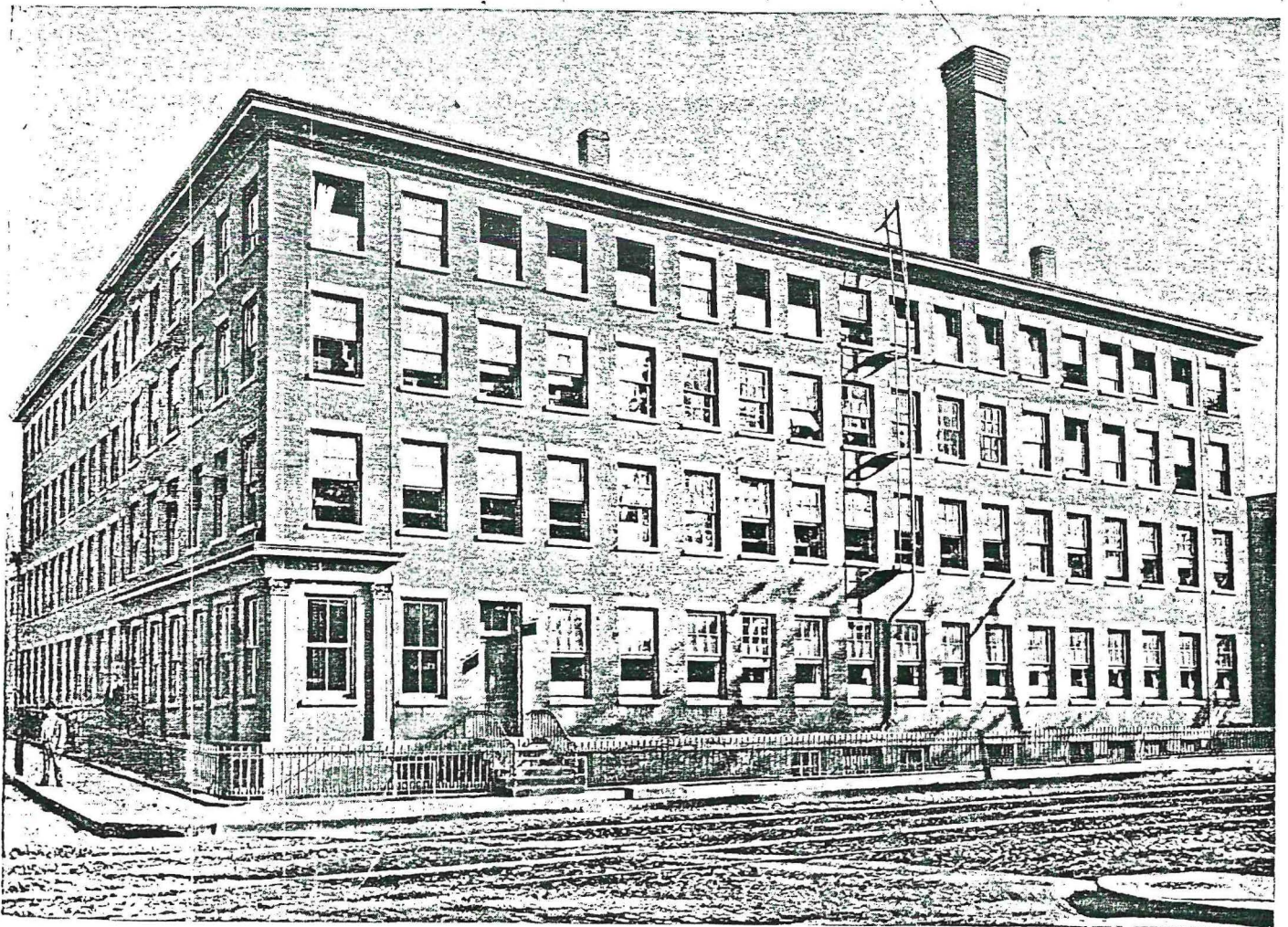


Aaron Carter
Courtland E. Hastings

Carter, Hastings & Howe
MAKERS OF FINE JEWELRY

George R. Howe
Wm. T. Carter
William T. Gough

Newark Directory, 1897



CARTER, SLOAN & CO., MULBERRY AND EAST PARK STREETS.

CARTER, ET AL

Leary, Newark, Illustrat
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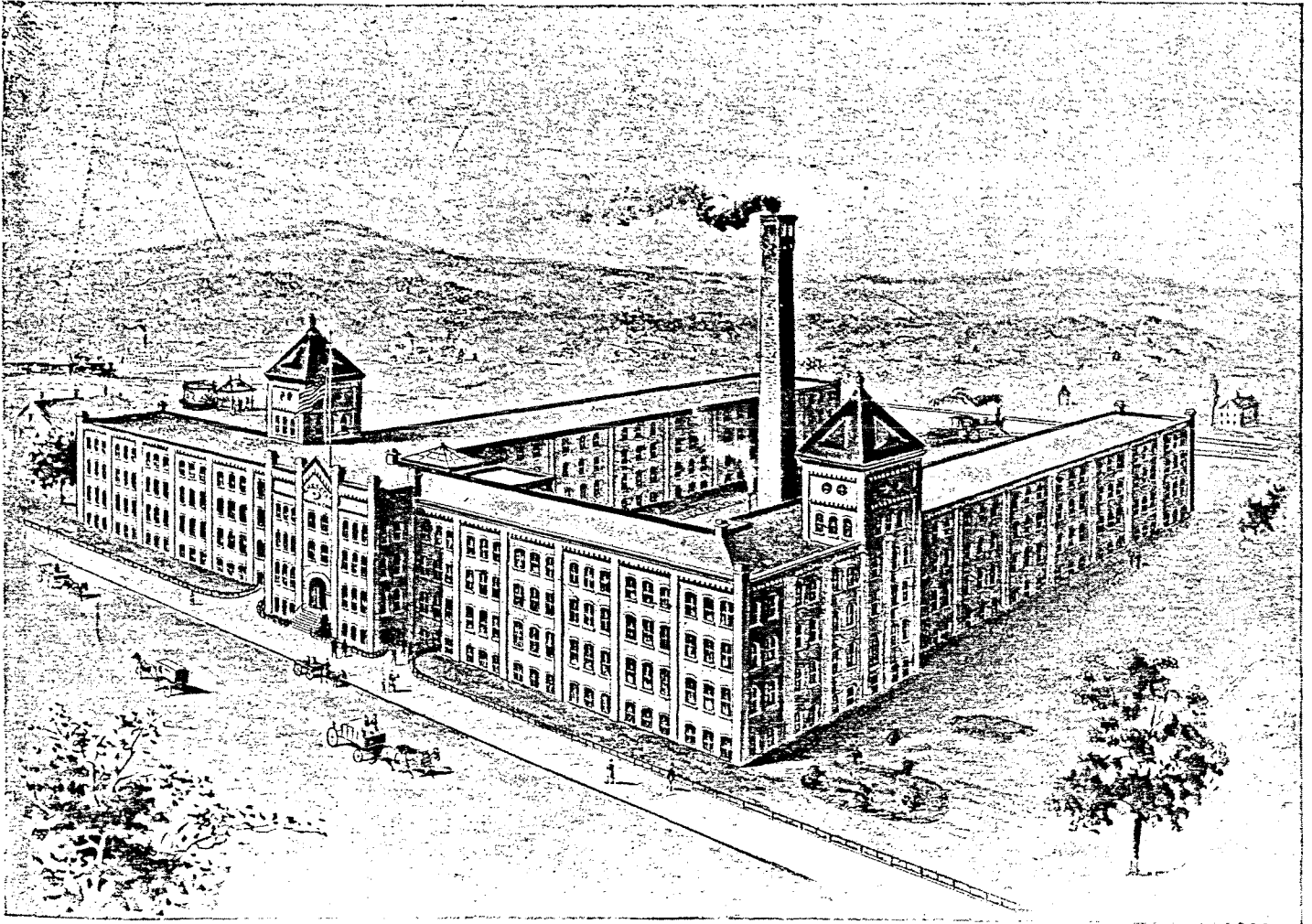
CARTER, GOUGH & COMPANY
 CARTER, SLOAN & COMPANY
 CARTER, HOWKINS & DODD
 Mulberry and Park Streets
 Newark, Essex County, New Jersey

This firm was one of the oldest and largest jewelry manufacturing concerns in the city of Newark. Carter was the first manufacturer to use steam power and for years the machinery of his plant was powered by an engine built by Seth Boyden. Carter's association with the jewelry industry began in 1832, when he served as an apprentice for Taylor & Baldwin, the first jewelry manufacturers of Newark. In 1838 he became a journeyman and continued to work for the firm until 1841 when he formed a partnership with Messrs. Pennington and Doremus, using the name Pennington, Carter & Doremus. The firm began production in the rear of Carter's home. In 1844 both Pennington and Doremus withdrew from the partnership and Carter continued alone as Aaron Carter Jr. & Company. In 1846 he acquired Anthony Beam as a partner. Beam retired in 1848 and John R. Pierson became a partner. In 1849 they changed the name to Carter & Pierson which they used until 1854 when, with the addition of Seth W. Hale as a partner, the name was again changed to Carter, Pierson & Hale. They also moved to the building at the intersection of Park and Mulberry Streets in 1854. When they purchased the building it was more than adequate for their needs, but in 1872 they more than doubled its size. In 1859 with the departure of Pierson, the name became Carter, Hale & Company and included new partners consisting of: John W. Steele, M.H. Gallagher, Samuel B. Sanford and William Howkins. John Pierson formed a partnership with William Sayre and operated a refinery and smelting operation for many years. In 1867 another new partner, David Dodd and another change in name - Carter, Howkins & Dodd. By 1875 it was Carter, Howkins & Sloan; in 1881 Carter, Sloan & Co. and in 1896, Carter, Hastings & Howe. Carter was extremely interested in the prevention of waste of the materials of his trade. Nothing was overlooked in the effort to reclaim the waste products, the sweepings of the floors, the brooms that were used to sweep the floors and the workmen's aprons were sent to the smelters to reclaim any particles of gold that could be found. The water used by the workmen in washing was filtered through several thicknesses of cotton to collect any fine particles of gold. In 1874 they employed over 500 people, had a weekly payroll of \$6,000 and an annual production figure of \$2,000,000. They were believed to have employed more hands in the manufacture of solid gold jewelry exclusively, than did any other manufacturer in this country, England, France or Germany. To continue the succession of names: in 1902 it was Carter, Howe & Company; in 1915 Carter, Gough & Company. Despite its size and apparent success, the

firm ceased operations in the 1930s, and the building was demolished.

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CRESCENT WATCH CASE CO
Leary, Newark, Illus-
trated, 1893, p. 123

CRESCENT WATCH CASE COMPANY
Thirteenth Street and Sixth Avenue
Newark, Essex County, New Jersey

This firm became a leading Newark industry in 1891 with the construction of their large plant at the above address. Originally located in Chicago, trading under the name the Chicago Watch Case Company, from 1882-1885. The firm relocated in Brooklyn, New York in 1885, where they remained until the Newark plant was completed in 1891. The complex, constructed entirely in brick, consists of a main four-story building 212 x 34 feet with two extensive wings, each 150 x 32 feet. There are large towers constructed on one of the wings and the main building. There are also three additional one-story buildings, one of which is 60 x 30 feet, another 42 x 36 feet and a third 30 x 24 feet. They had over a quarter mile of siding on the Montclair branch of the Lackawanna railroad. The entire plant has over 70,000 square feet of floor space and employed 400 workers in 1901. They had salesrooms in New York, Boston, Chicago, and San Francisco. The popularity of wristwatches made for a sharp decline in the need for watch cases and the firm closed in 1927.

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DAY, CLARK AND COMPANY

DAY, CLARK AND COMPANY
449 Washington Street
Newark, Essex County, New Jersey

The firm was established in 1874 under the name of Obrig, Day & Co. in a building located at the corner of Marshall & Halsey Streets. In 1877 Samuel Clark became John Day's partner with Obrig's departure. In 1880 they were listed as having 30 people on the payroll with an annual production of \$30,000. In 1906 they stated their work force as 88 people. Around 1913 they moved to 449 Washington Street, a three-story brick structure which they occupied until they ceased operations in 1942. The building continued to be used for the manufacture of jewelry by Garrigus & Co., Inc. from 1942-1964 (3rd Floor), and Baldwin & Miller in 1972.

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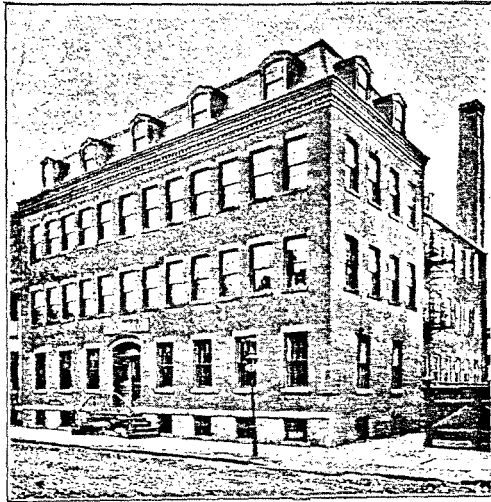
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Durand & Co., Manufacturing Jewelers

DURAND & COMPANY
Year Book of the Newark
Board of Trade, 1902

DURAND AND COMPANY
49-51 Franklin Street
Newark, Essex County, New Jersey

Along with Carter, Sloan & Company, the firm of Durand & Company enjoys the distinction of being one of the earliest in the city. James M. Durand began his association with the jewelry manufacturing profession with the firm of Taylor and Baldwin in the early 1830s. In 1846 along with Isaac Baldwin, he formed Baldwin & Durand, listed as watch case manufacturers. In 1851 Baldwin ended his association with the firm and John Annin became a partner, and they used the name Durand & Annin. Only two years later Annin left the firm and it was known as James M. Durand. In 1857 with the addition of J.J. Carter and M.C. Doremus, the firm became Durand, Carter & Company. It was at this time that they expanded into the manufacture of jewelry as well as the watch cases they had been producing for 20 years. The name of Durand & Company was finally adopted in the mid-1860s. In 1874 the firm was among the largest importers of precious stones, and was unmatched in the production of diamond sets. By 1880 they were listed as having 115 employees and an annual production of \$350,000, in 1906 they had 73 employees. In 1925 the firm was being managed by the seventh generation of Durand family. The operation was located in a three-story building, 60 x 40 feet in dimension, with an extension of 40 x 85 feet, also three stories in height. The firm ceased operations in the 1930s and the building is no longer extant.

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W.C. EDGE JEWELRY CO

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W.C. EDGE JEWELRY COMPANY
480 Washington Street
Newark, Essex County, New Jersey

William C. Edge began his association with the manufacture of jewelry in Newark when he worked for Durand & Company in the 1860s. After a brief period with the Miller Brothers he joined the firm of Smillie and Dorrance in 1872 and the name was changed to Smillie, Dorrance and Edge. After several different names including Smillie & Edge, Dorrance & Edge, Edge established his own firm under the name W.C. Edge and Sons in 1884. The firm was located at 46 Green Street. In 1894 he incorporated, using the name W.C. Edge and Company, Inc. In 1906 the firm was listed as having 54 employees. In 1910 they located at 480 Washington Street occupying the 2nd Floor of the four-story building. The speciality of the firm was woven wire fabrics of 14 carats. The firm continued to operate into the 1970s, employing 25 people.

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ESSEX WATCH CASE COMPANY
 COURVOSIER-WILCOX MANUFACTURING COMPANY
 47-51 Chestnut Street/13th Street and 6th Avenue
 Newark, Essex County, New Jersey

The Essex Watch Case Company was organized in the fall of 1886 with George Courvosier president of the company. In March 1889, the firm was bought by a group of investors. The pioneer of the watch case industry in Newark, the Essex Watch Case Company was the leading producer of watch cases because their products were well known for their beauty, strength and low cost. They derived the strength by constructing the cases of three separate and distinct plates of metal as follows: On the outside a heavy plate of solid 14 karat gold of sufficient thickness to allow for engraving or carving, and to withstand the general use of the case; this is backed by a second plate of hard composition metal for strength, and then it was covered by a third plate of solid 14 karat gold to prevent oxidation. The cases were referred to as gold-filled or stiffened. The durability and lower cost of this type of watch case soon made them more popular than the solid gold case which had previously been the leader in watch cases. The success of this firm is seen by the fact that when they began in 1886 they employed 12 people but by 1890 they employed over 100 and had moved to 47-51 Chestnut Street (now Krementz Jewelry) and produced over 100 watch cases each day. In 1894 the Essex Watch Case Company was bought by the Courvosier-Wilcox Manufacturing Company, a jewelry manufacturing concern which began in New York in the 1870s. It was at this time that they moved the operation to the plant at 13th Street and 6th Avenue already occupied by the Crescent Watch Case Company. In 1896 they added the manufacture of silver novelties to their line. The firm closed in the 1920s.

References:

Newark, the Metropolis of New Jersey at the Dawn of the 20th Century, 1901, p. 104-105.

Leary, Peter, J. Newark, NJ Illustrated, 1893, p. 122.

Newark City Directories, 1889-1929.

Garrison, Winton, ed. Industrial Directory of New Jersey, 1906, p. 159, 529.



GEORGE W. HEATH & CO., FIRST STREET.

Newark, City of Industry
1912, p. 116



FERDINAND J. HERPERS

GEORGE W. HEATH & COMPANY
206-210 First Street
Newark, Essex County, New Jersey

Originating in New York City in 1892, in May 1912 the firm moved to Newark and occupied the building they had erected on First Street. The company was engaged in the manufacture of fountain pens, known as Heath's Tribune Fountain Pens. Besides fountain pens the company also manufactured gold pens, gold and silver pencils and art metal goods. All of their products bore the imprint "Made in Newark". The building, a two-story brick structure with large windows for lighting, has been altered on the front facade but still maintains its basic design. It is owned today by Pettiford and Pettiford Contractors.

References:

Newark, the City of Industry, 1912, p. 116.

FERDINAND J. HERPERS
18 Crawford Street
Newark, Essex County, New Jersey

Increasing demands for jewelry forced manufacturers to specialize, leading directly in 1865 to the invention by Ferdinand J. Herpers of machines capable of making settings. Herpers, an expert in die work and piercing tools, began manufacturing settings in quantity in his shop, becoming the first man in the United States to make jewelry findings by machine. The firm was housed in a three-story brick building with one-story extension running the length of the factory. The firm operated under the name Herper Brothers beginning in 1877 when Ferdinand Herpers I retired. In 1903 the sons of Ferdinand Herpers II took over the operation of the firm. In 1906 they had 20 employees. In 1930 the firm closed and Charles Keller & Company occupied the building until the late 1930's.

References:

Ford, William. Industrial Interests of Newark, 1874, p. 154.

Cunningham, John, T. Made in New Jersey, 1954, p. 59.

"Newark, the City of Gold and Platinum and Precious Stones", 1925.

Garrison, Winton, ed. Industrial Directory of New Jersey, 1906, p. 145.

Newark City Directories, 1873-1939.

"Craftsmen of Elegance: The Newark Jewelry Industry", 1979.



JABEL RING MANUFACTURING
COMPANY

JABEL RING MANUFACTURING COMPANY
 401-407 Mulberry Street
 Newark, Essex County, New Jersey

The Jabel Ring Manufacturing Company was organized in 1916 with its first quarters located at 23 Marshall Street. In 1923 they moved to the Mulberry Street location. The firm was founded by Joseph J. Abelson, who began his association with jewelry manufacturing at age 14 as an apprentice in stone setting. Abelson was a pioneer in several areas of the ring manufacturing business, among his innovations were: remount services, a diversified line, and a continuous flow of new designs. In 1920, Jabel issued its first compendium of designs which jewelers could trace in handling customer remounts. The system was new, easy to manage and attractive. Three basic rings which could be used in three different ways and a small catalog illustrating the many variations made up the compendium. For a total outlay of \$45, the retail jeweler had a \$2,500 inventory. Despite the effects the Depression had on many of the jewelry manufacturers in the area, Jabel kept a staff of 60 working 15 to 20 hours a week. This, in spite of the fact that in 1931, one half of the capital was sacrificed because of customers' inability to honor their debts. During World War II, Jabel temporarily ceased its ring production and turned to the manufacture of bomb-sights. The firm moved its headquarters to Irvington, New Jersey in 1954 where it is still in production today.

References:

"Newark, the City of Gold and Platinum and Precious Stones", 1925.

"Jabel's Golden Years", American Gem Society, 1966, p. 1-3.

Cunningham, John T. Made in New Jersey, 1954, p. 62.

Newark City Directories, 1916-1972.

JONES & WOODLAND
 2 Garden Street
 Newark, Essex County, New Jersey

The firm began operation in 1895 at 49 Chestnut Street (Krementz Building). Both W.H. Jones and Theo. M. Woodland had been employed by the firm of Larter, Elcox & Company for several years and were partners in that firm for 5 years prior to establishing their own business. The speciality of Jones & Woodland was the manufacture of 14 and 18 karat gold rings for ladies, gentlemen and children. The patenting of their "Spring back studs" was the catalyst to the establishment of their own firm. Along with the studs, the firm manufactured rings. In 1901 they employed over 55 workers and had two full time traveling salesmen. In 1903 they moved their production to 365 Market Street and in 1910 they relocated to 2 Garden Street. In 1939 they moved to 49 Chestnut Street where they operated until the early 1960s. Another jewelry firm, Church & Company maintained its operations at 2 Garden Street from 1945 until the late 1960s when they moved to Bloomfield, New Jersey.

References:

Newark City Directories, 1901-1972.

Garrison, Winton, ed. Industrial Directory of New Jersey, 1906.

Cunningham, John T. Made in New Jersey, 1954, p. 62.

Newark, the Metropolis of New Jersey at the Dawn of the 20th Century, 1901, p. 86.

"Craftmen of Elegance: The Newark Jewelry Industry", 1979.



KENT AND WOODLAND

KENT & WOODLAND
 480 Washington Street
 Newark, Essex County, New Jersey

The firm of Kent & Woodland had its beginnings in the 1850s firm operating as Ball, Barnard & Parsell. When William Ball died in 1899, Messrs. Stephen B. Kent and A. Lyndon Woodland became the proprietors of this long established jewelry concern. Kent had been a salesman and the financial manager for Ball & Barnard for 23 years prior. The firm specialized in gold bracelets, both plain and set with precious stones. The earlier firm occupied manufacturing space at 1 Franklin Court for 30 years, but in 1889 moved to 46 Hill Street. In 1890 Kent & Woodland relocated to 211 Mulberry Street. In 1903 they occupied space in the Enos Richardson building at 50 Columbia Street where they remained until 1910 when they located at 480 Washington Street. (see W.C. Edge Jewelry Co.) The firm ceased operation in the 1930s.

References:

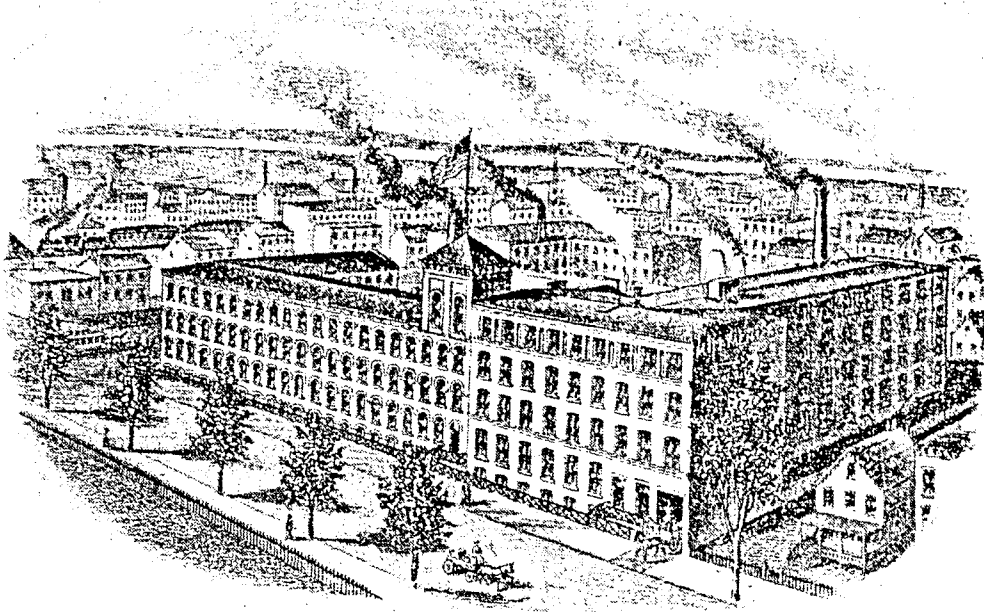
Newark City Directories, 1855-1939.

Ford, William. Industrial Interests of Newark, 1874,
 p. 151.

Newark and Its Attractions, 1911.

Newark, the Metropolis of New Jersey at the Dawn of
 the 20th Century, 1901, p. 90-91.

Garrison, Winton, ed. Industrial Directory of New
 Jersey, 1906.



Kremenz & Co.'s Factory—Manufacturing Jewelers, Newark. N. J.
New York Office, No. 1 Maiden Lane, cor. Broadway

KREMENTZ AND COMPANY
Meeker, 1906, p. 243



KREMENTZ & COMPANY
49 Chestnut Street
Newark, Essex County, New Jersey

One of the most unique inventions of the 19th century was the one-piece collar button, manufactured by Krementz & Company. The firm was established in 1869 by Messrs. J.A. Lebkuecher and his cousin, George Krementz, with the partnership operating under the title of Krementz and Company, the name it still uses. A complete line of solid gold jewelry was already being produced by the firm in 1874 by a workforce of 110 people, with a weekly payroll of \$1,500. The present factory was purchased by the firm in 1875, enlarged and remodeled and occupied. Krementz began his association with jewelry manufacturing as an apprentice with Alling, Hall & Dodd. Lebkuecher went on to be elected mayor of Newark in 1894. In 1901 the firm was considered to be one of the largest in the United States engaged in the manufacture of gold jewelry. Their products include brooches, pins, chains, bracelets, and cuff links. The one piece collar button, available in gold, silver and plate, was patented by George Krementz in 1884 and was the only one on the market because the patent covered the production of a collar button without solder joints. Krementz was so proud of the durability of his solid gold product that he advertised: "We will pay the cost of assay and furnish one dozen Krementz One-Piece Collar Buttons for every one which falls below the standard stamped upon it". The collar buttons were guaranteed "against everything but loss." At one time the firm manufactured 99% of all American collar buttons. Fortunately for the firm, George Krementz kept expanding his line, so that when collar-attached shirts eliminated detachable styles in the early 1920s, the company was able to sustain the loss in income. Today the firm is a major U.S. manufacturer of costume jewelry.

References:

Newark and Its Attractions, 1911.

Meeker, Ellis. New Jersey, A Historical, Commercial and Industrial Review, 1906, p. 243.

Cunningham, John T. Made in New Jersey, 1954, p. 59-63.

Leary, Peter, J. Newark, NJ Illustrated, 1893, p. 117.

"Newark, the City of Gold and Platinum and Precious Stones", 1925.

Krementz & Co.

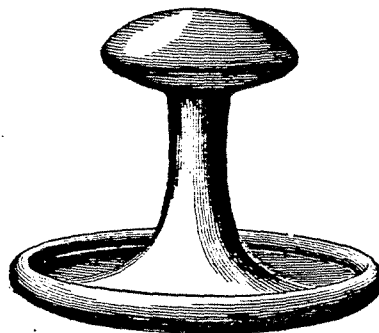
49 CHESTNUT STREET
NEWARK, N. J.

MANUFACTURERS OF
14-K JEWELRY
AND

THE KREMENTZ

ONE-PIECE

COLLAR BUTTON



THE STANDARD AMERICAN COLLAR BUTTON



GENUINE KREMENTZ COLLAR BUTTONS ARE
STAMPED ON BACK AS FOLLOWS:



Year Book of the Newark
Board of Trade, 1902

Newark, the Metropolis of New Jersey at the Dawn of the 20th Century, 1901, p. 84.

Newark, the City of Industry, 1912, p. 110.

Ford, William. Industrial Interests of Newark, 1874, p. 154.

Newark City Directories, 1870-1972.

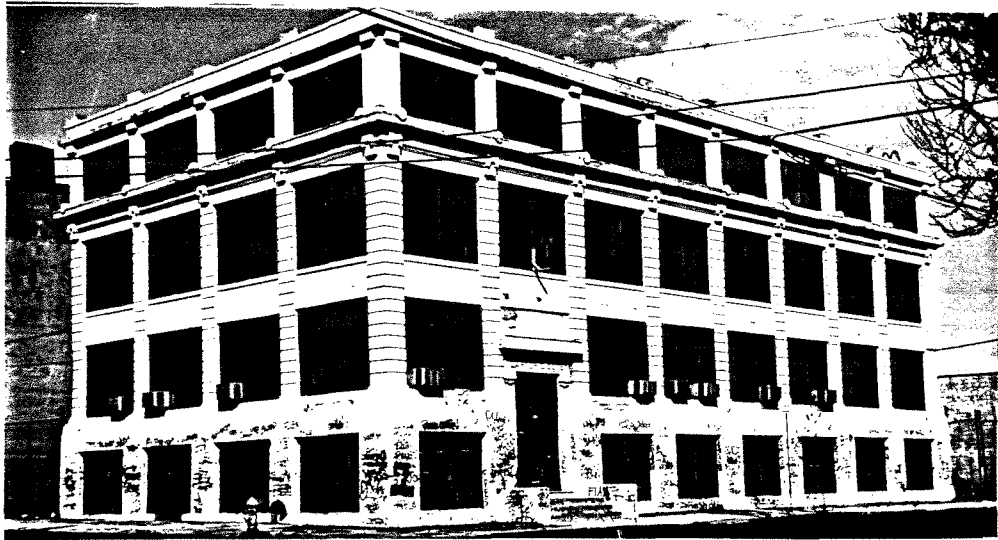
Garrison, Winton, ed. Industrial Directory of New Jersey, 1906.

Cunningham, John T. Newark, 1954.

"Craftsmen of Elegance: The Newark Jewelry Industry", 1979.

Atlas of the City of Newark, NJ, Scarlett & Scarlett, 1889.

"Newark's 24-Karat Business", 1971.



LARTER AND SONS

LARTER AND SONS
88 Parkhurst Street
Newark, Essex County, New Jersey

In the 1980s there are still almost one dozen Newark firms engaged in the manufacturing of jewelry, Larter and Sons is one of them. The firm's origins date to 1865 when the firm of Davis and Elcox was formed. Upon Davis' retirement in 1873, F.H. Larter became a partner in the firm, along with change in name to H. Elcox & Company. Henry Elcox was the brother-in-law of F. Larter. Elcox died in 1887, but his widow retained his interest in the firm. Larter's two sons, Harry C. and Halsey M. Larter, were admitted to the partnership and the firm's name was changed to Larter, Elcox & Company in 1895. William J. Jones and T.M. Woodland were also partners in the firm in the early 1890s, but withdrew in 1895 to form Jones & Woodland. (see separate entry). In 1905 the Elcox family interest in the firm was purchased and the firm of Larter and Sons was established. The firm started in a building on Mulberry and Chestnut Streets across from Krementz, but in 1910 they built the three-story reinforced concrete building they still occupy today. In 1901 they employed 80 workers in the production of gold jewelry and had four traveling salesmen. The firm designed the "Larter Shirt Stud", a leading product of their operation sold throughout the United States. The company specializes in men's jewelry and today employs about 50 people.

References:

Cunningham, John T. Made in New Jersey, 1954, p. 62.

"Newark, the City of Gold and Platinum and Precious Stones", 1925.

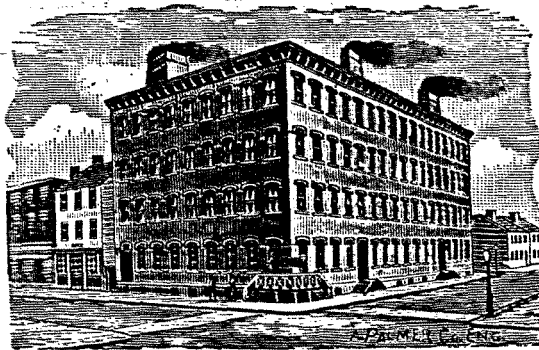
Newark, the Metropolis of New Jersey at the Dawn of the 20th Century, 1901, p. 85.

Newark City Directories, 1874-1972.

Garrison, Winton, ed. Industrial Directory of New Jersey, 1906.

L. LELONG & BROTHER,

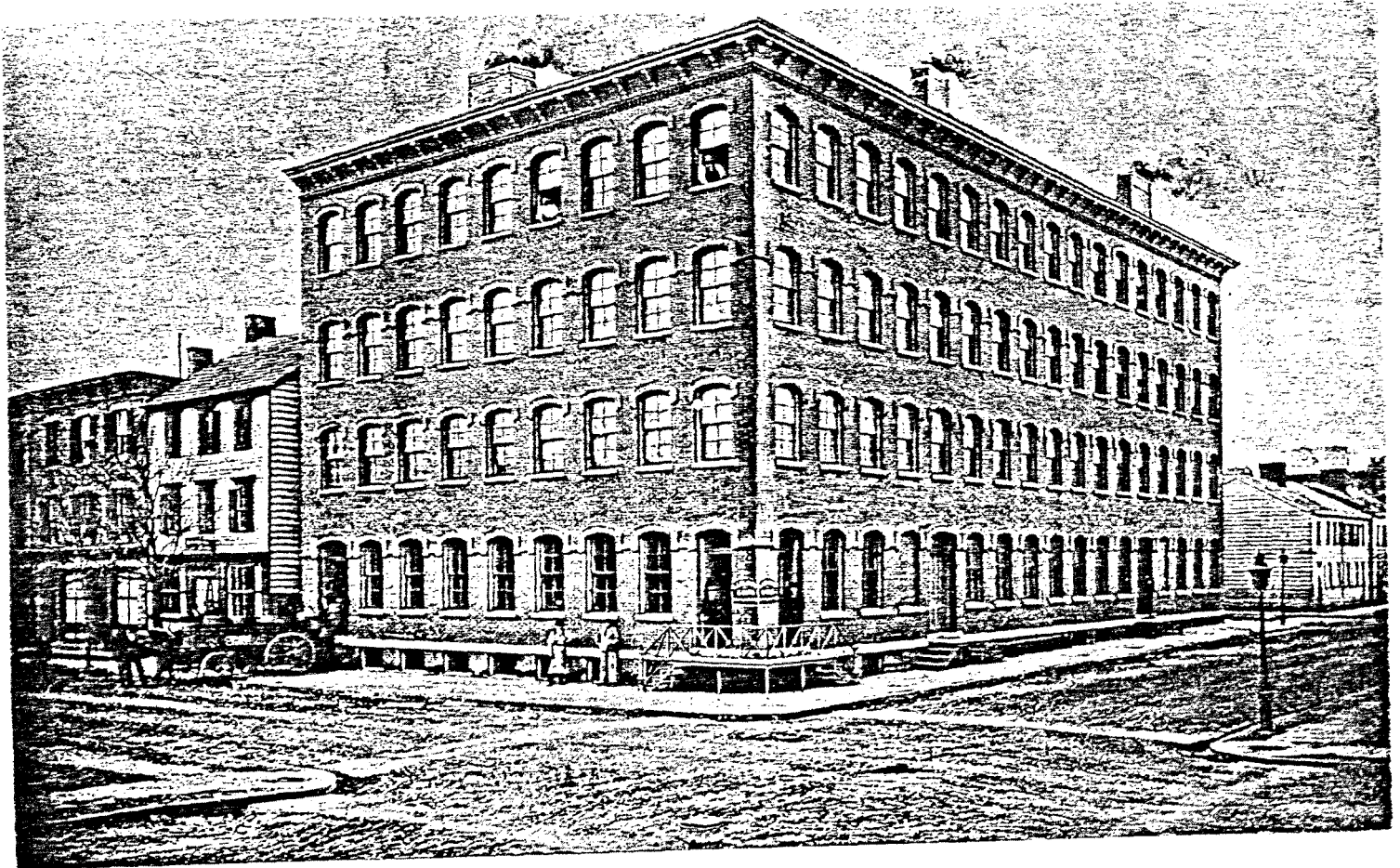
GOLD
AND
SILVER
Assayers



REFINERS
AND
SWEEP
Smelters

345 and 347 HALSEY STREET, Corner MARSHALL.

Newark Directory, 1888



L. LELONG & BROTHER
Leary, Newark, Illus-
trated, 1893, p. 131

L. LELONG AND BROTHER
Halsey & Marshall Streets
Newark, Essex County, New Jersey

The firm of L. Lelong and Brother was established in 1858 for the smelting and refining of gold and silver for the jewelers' and silversmiths in the Newark area. In the early 1860s they built a four-story brick structure 54 x 100 feet in dimension. Lelong had originally been a practicing physician, but entered the jewelry industry in 1858. Their reputation and success was such that in 1874 their annual business revenues was over one million dollars. The firm refined gold, silver, assaying ores, metals and alloys of many varieties. Lelong & Brother moved to 449 Washington Street in 1940, but operated only until 1942. In 1939 the Enright Refining Company took over the operation on Halsey Street and continued to refine ore there until the early 1960s when they moved to Euclid Avenue. The building and Marshall Street no longer exist.

References:

Ford, William. Industrial Interests of Newark, 1874, p. 145.

Newark and Its Attractions, 1911.

"Newark, the City of Gold and Platinum and Precious Stones", 1925.

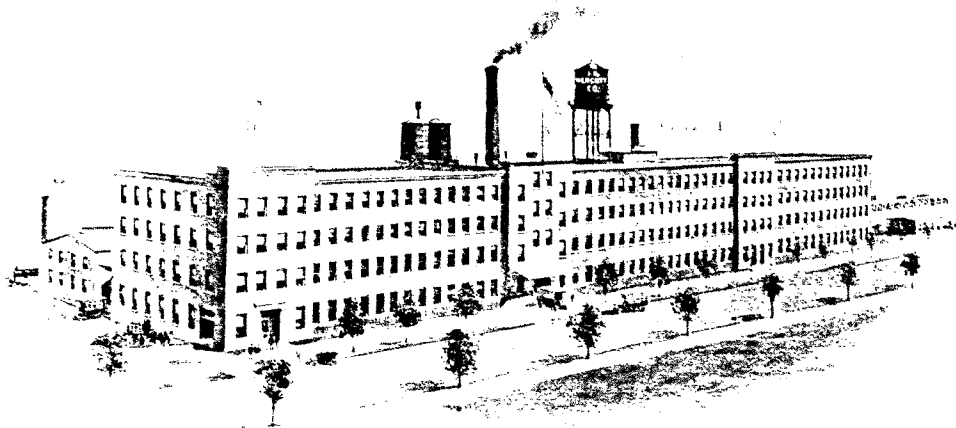
Leary, Peter, J. Newark, NJ Illustrated, 1893, p. 131.

Newark, NJ, Handsomely Illustrated, 1894, p. 167.

Newark, the Metropolis of New Jersey at the Dawn of the 20th Century, 1901, p. 107.

Successful Businessmen of Newark, 1873.

Newark City Directories, 1860-1964.



THE J. E. MERGOTT COMPANY, JELLIFF AVENUE.

J.E. MERGOTT COMPANY
Newark, City of Industry
 1912, p. 118



NEWARK JEWELRY NOVELTY
 COMPANY

J.E. MERGOTT COMPANY
 Jelliff Avenue
 Newark, Essex County, New Jersey

The J.E. Mergott Company produced bag, purse and pocketbook frames and other metal specialties. The business was founded in 1878 by J.E. Mergott in a small shop on Green Street in Newark. Two additional moves later the firm was located in Irvington, New Jersey until 1905 when they building they were located in was destroyed by fire. The concern to avert future fire hazards influenced the construction of the new large facility on Jelliff Avenue. The complex consists of a main mill which is four-story brick construction, 375 x 50 feet, an adjoining two-story fire-proof building which is 150 x 40 feet, and some smaller buildings used for storage. The power house, located within the building was 90 x 79 feet, had a 250 horsepower engine and three boilers of 150 horsepower each. The plant was protected from fire by an automatic sprinkler system and a fire alarm system installed with a direct line to the city's fire department. In 1912 the firm employed over 600 workers. While there was great concern for fire safety during the time the plant was in operation, the building suffered from a disastrous fire. Despite the considerable damage, an effort is underway to rehabilitate and reuse the building.

References:

Newark, the City of Industry, 1912.

Robinson's Atlas of the City of Newark, NJ, 1926.

Newark City Directories, 1905-1939.

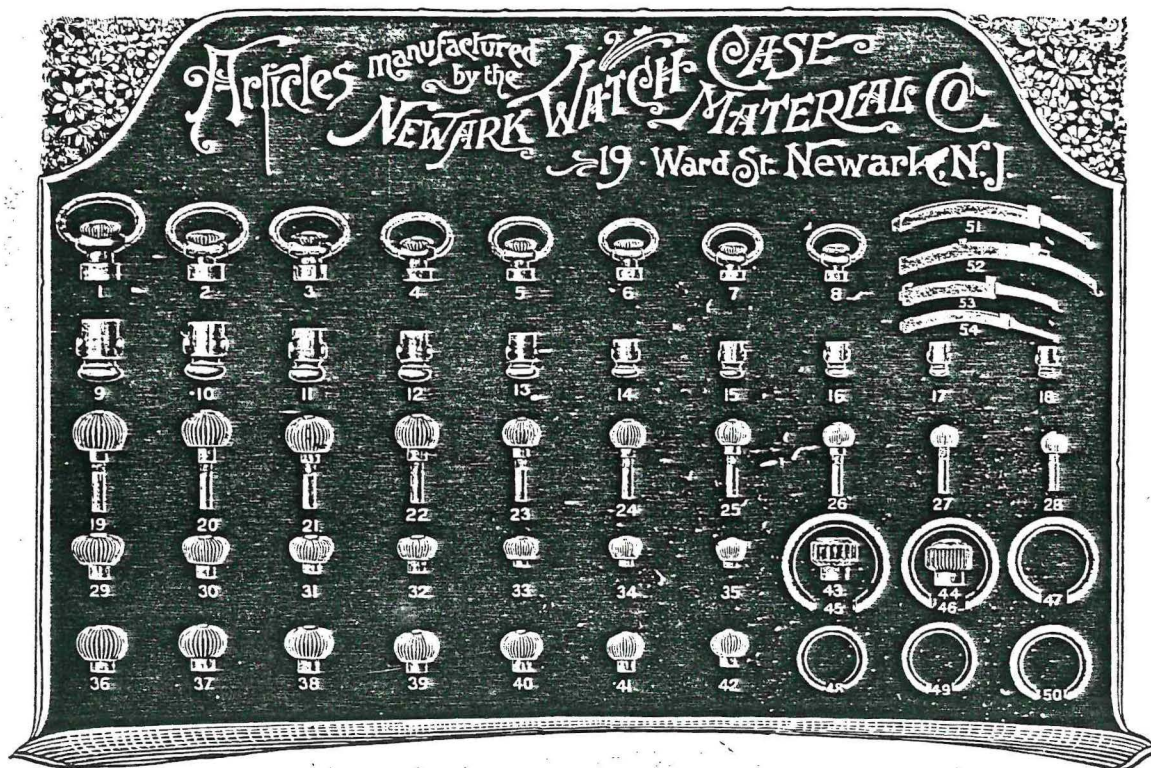
NEWARK JEWELRY NOVELTY MANUFACTURING COMPANY
 18 Columbia Street
 Newark, Essex County, New Jersey

Founded in 1892 for the manufacture of Britianna trimmings for manufacturers, chemists and perfumers, the firm operated for over 60 years. Originally located at 249-253 New Jersey Railroad Avenue, they employed over 70 people in 1901 to manufacture campaign and society buttons, cuff holders, bracelets and a general line of jewelry novelties. In 1910 the firm rented space in the Enos Richardson building at 50 Columbia Street, but in 1918 they moved to 18 Columbia Street, (see F.A. Schlosstein) where they remained for over 40 years. The founder of the firm was Julius Gerlach. The company ceased its operations in 1959.

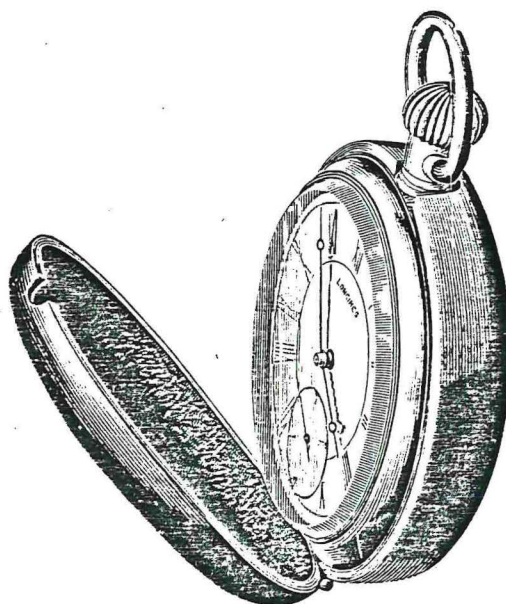
References:

Newark, the Metropolis of New Jersey at the Dawn of the 20th Century, 1901, p. 91-92.

Newark City Directories, 1902-1964.



NEWARK WATCH CASE
 MATERIAL COMPANY
 Leary, Newark Illustrated,
 1893, p. 126-7



AJAX WATCH PROTECTOR.

NEWARK WATCH CASE MATERIAL COMPANY
 Ward and Mechanic Streets
 Newark, Essex County, New Jersey

Alexander Milne and M. Jourdain established this business in 1888 after dissolving their partnership with H.G. Lefort. (See separate listing). Their operation were located in a four-story brick building on the corner of Ward and Mechanic Streets. When the pocket watches of the 19th century changed from the use of a key for winding to the use of a stem winding apparatus, the stems were mostly imported from Switzerland. Milne, realizing the potential for business in this country, decided to establish a firm for the production of stems. His first move was to associate himself with a Swiss who had some practical experience in the production of watch cases. The firm also was responsible for the invention and patenting of the "Ajax Watch Protector", a device designed to protect watches from magnetism, and from the daily wear and tear caused by friction in the pocket. The firm had an average of 50 employees for the length of its existence. The decrease in demand for watch cases caused the firm to close in 1929.

References:

Newark, the Metropolis of New Jersey at the Dawn of the 20th Century, 1901, p. 104.

Newark, NJ, Handsomely Illustrated, 1894, p. 237.

Leary, Peter, J. Newark, NJ Illustrated, 1893, p. 126-127.

Garrison, Winton, ed. Industrial Directory of New Jersey, 1906.

Cunningham, John T. Made in New Jersey, 1954, p. 60.



RICHARDSON MANUFACTURING CO.

RICHARDSON MANUFACTURING COMPANY
50 Columbia Street
Newark, Essex County, New Jersey

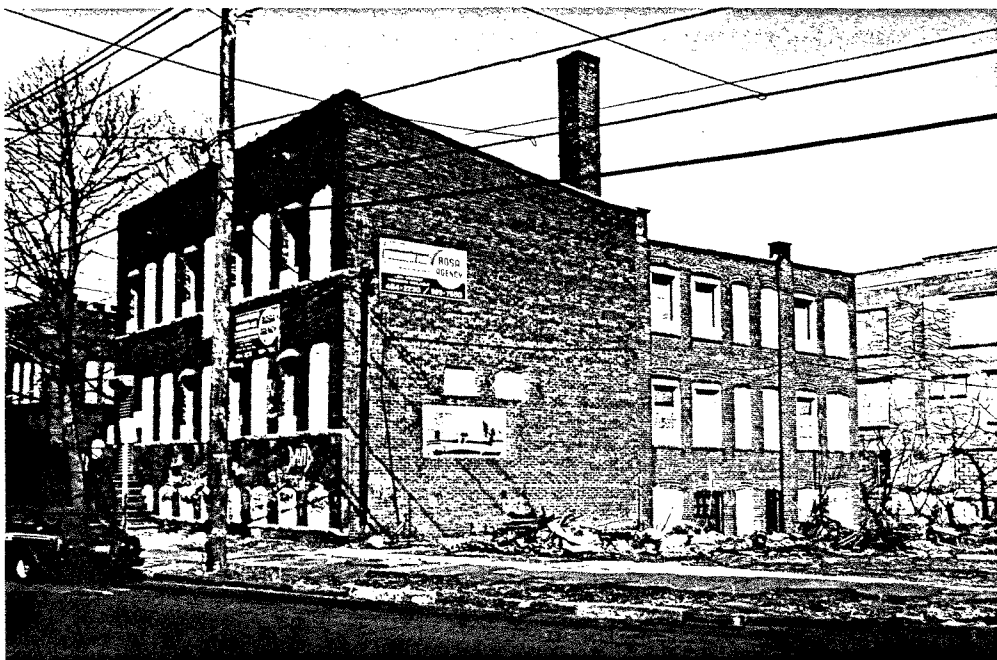
This is one of the oldest jewelry manufacturing concerns still in operation in Newark. Founded in 1849 by J.L. Palmer, J.B. Palmer, John R. Wilson and Enos Richardson, the firm first operated using the name Palmer, Richardson & Co. The site of this first plant was 40 Columbia Street, just across from the location of the firm today. Both Messrs. J.L. Palmer and John Wilson left the firm in the 1850s. In 1859, W.D. Maxwell became a partner in the firm and in 1869 with the departure of J.B. Palmer the firm began using the name Enos Richardson & Company. In 1870 Richardson relocated to 52 Columbia Street. The firm was extremely successful from the very beginning, and in 1880 reported having over 360 employees and an annual production of \$500,000. In 1892 the firm incorporated and the name Richardson Manufacturing Company was adopted. The success of the operation made it necessary to expand the facilities in 1900 and the building was more than doubled in size. It is six stories in height, 110 x 90 feet and in 1900 was one of the largest buildings in the city of Newark. The Richardson Manufacturing Company occupied two floors and the basement for their operation, but rented the rest of the building to other manufacturers, primarily jewelers since its construction. Among the jewelry manufacturers occupying space in the building were: Allsopp and Allsopp (1903-1906); Champenois & Co. (1903-1905); Kent & Woodland (1903-1910); Abig & Schleckser (1905-1943); Frisch Brothers (1905-1922); Aldolph Rosenberg (1905-1951); Martin Wiedmann (1906-1910); Max Alexander (1907-1947); Newark Jewelry Novelty Manufacturing Company (1910-1918); Henry Schneider (1910-1961); The Fourteen Karat Jewelry Manufacturing Company (1913-1922; 1924-1935); The Kohler Company (1918-1922); Automatic Cuff Button Co. (1920-1924); Climax Chain Company (1925-1929); George Bessinger & Company (1912-1947); Artcraft Jewelry Company (1941-1960); Paramount Wedding Ring Company (1941-1972); American Jewelers (1951-1975); and many others. Today, the Richardson Mfg. Co. manufacturers chains, bracelets, pins, brooches, buttons and charms.

References:

Ford, William. Industrial Interests of Newark, 1974 p. 157.

Newark, the Metropolis of New Jersey at the Dawn of the 20th Century, 1901, p. 101.

US Census, 1880.



SCHARLING & COMPANY



F. A. SCHLOSSTEIN

Garrison, Winton, ed. Industrial Directory of New Jersey, 1906.

Newark City Directories, 1858-1972.

Shaw, William H. History of Essex and Hudson Counties, 1884, Vol. 1, p. 604.

SCHARLING & COMPANY
755 Summer Avenue
Newark, Essex County, New Jersey

This firm, founded in 1885 under the name J. Scharling, specialized in silver deposit ware. Originally located at 322 Market Street, increased business necessitated the move to larger quarters. The factory building on Summer Avenue was built for the firm in 1903. The firm continued to manufacture items in silver until 1960. The building is slated to be converted to condominiums.

References:

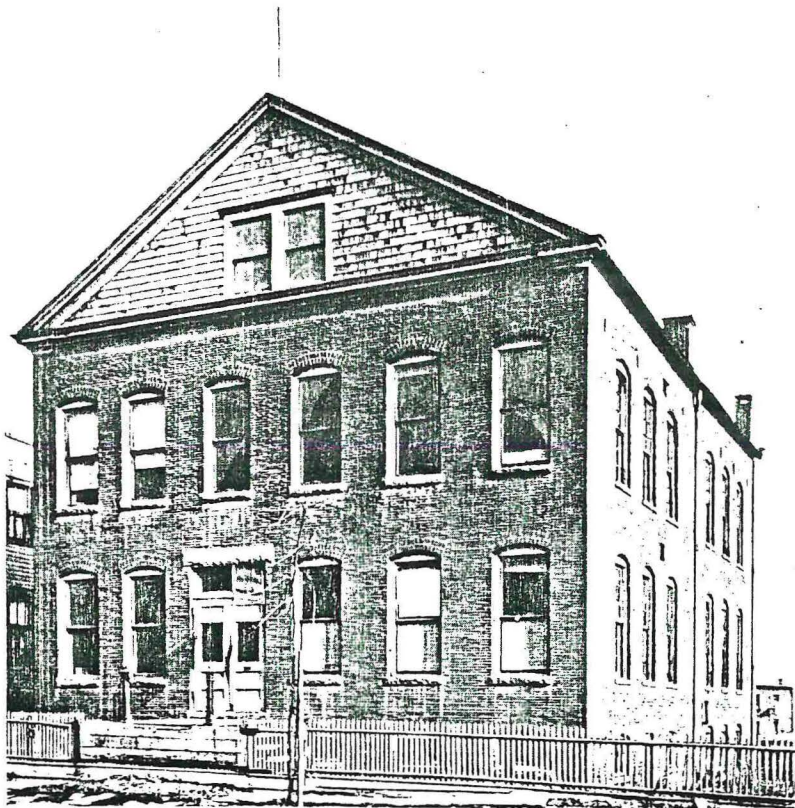
"Newark, the City of Gold and Platinum and Precious Stones", 1925.

Garrison, Winton, ed. Industrial Directory of New Jersey, 1906.

Newark City Directories, 1889-1964.

F.A. SCHLOSSTEIN
93-107 Lafayette Street
Newark, Essex County, New Jersey

The firm of F.A. Schlosstein was founded in 1885 when Schlosstein was 23 years old. Originally located at the intersection of Plane and Markets streets, in 1891 he built his own factory at 61 Arlington Street where he employed 40 workers. In 1899 he built the four-story building at the corner of Liberty and Lafayette Streets. The principal product of his firm was settings. In 1911 the firm was sold and became G.W. Fautz & Company which operated until 1929. Similar to Enos Richardson & Company, the building owned by the above mentioned firms has been the home of numerous jewelers manufacturers throughout the years. Today both



SCHNEFEL BROTHERS, SOUTH SEVENTEENTH STREET.

SCHNEFEL BROTHERS
Newark, City of Industry,
1912

Henry Blank & Company (1918-); and S. Fisher & Company (originally located at 14 Oliver Street, 1910-1950) (19 Liberty Street, 1950-), still manufacture jewelry in the building. The building because of its location uses several different addresses, including 18, 20 Columbia Street, 17, 19 Liberty Street, and 93-107, 101 Lafayette Street.

References:

Newark, the Metropolis of New Jersey at the Dawn of the 20th Century, 1901, p. 98.

Newark and Its Attractions, 1911.

Robinsons Atlas of the City of Newark, NJ, 1926.

Newark City Directories, 1885-1972.

Garrison, Winton, ed. Industrial Directory of New Jersey, 1906.

SCHNEFEL BROTHERS
684-688 South 17th Street
Newark, Essex County, New Jersey

While not manufacturing jewelry, the Schnefel Brothers produce another product which has more practical uses, manicuring implements. Founded in 1903 by A. Hinkel and Max Schnefel, and originally located at 60 Arlington Street, the present location was occupied in 1910. The original building is brick, two-and-one-half stories in height and 36 x 52 feet. In addition, there was a forge shop 30 x 32 feet. A large addition was added to one side in the 1940s. The manicuring implements produced by the firm today are packaged under the name "LaCross".

References:

Newark the City of Industry, 1912.



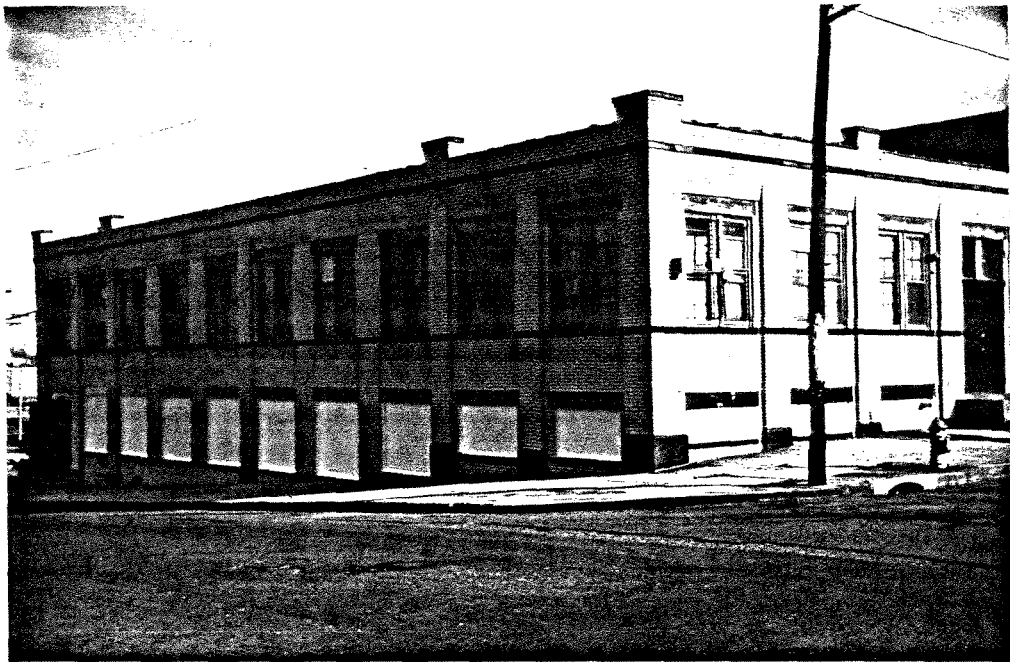
SINNOCK & SHERRILL

SINNOCK & SHERRILL
 126 South Street
 Newark, Essex County, New Jersey

This company can trace its origins to 1860 when Washington Tingley established a jewelry factory at 50 Elm Street. In 1870 W.P. Sinnock became a partner. Upon setting up their factory at 23 Lawrence Street, the firm began to manufacture seal and signet rings along with other lines of jewelry. In 1875 H.D. Sherrill joined the firm and in 1877 Messrs. Sinnock and Sherrill bought out Tingley's interest and changed the name to Sinnock & Sherrill. Three years later they moved to 46 Green Street where they occupied one floor, 25 x 100 feet and employed 35 people. By 1911 the need for larger quarters was necessary and the plant was moved to South Street. Ceasing operations in the 1930s, the building is still extant, although badly damaged by fire. In the 1970s it was occupied by a leather manufacturer.

References:

- Ford, William. Industrial Interests of Newark, 1874, p. 158.
- Commerce, Manufactures and Resources of Newark, NJ, 1881, p. 72.
- Newark and Its Attractions, 1911, p. 24.
- "Newark, the City of Gold and Platinum and Precious Stones", 1925.
- Newark City Directories, 1860-1972.
- Garrison, Winton, ed. Industrial Directory of New Jersey, 1906.



SLOAN & COMPANY

SLOAN & COMPANY
160 Mount Pleasant Avenue
Newark, Essex County, New Jersey

Sloan & Company has a long history beginning with Augustus Sloan's employment at age 15 with Carter, Pierson & Hale. In 1867 he became a partner with Carter, Howkins & Dodd. Sloan continued his association with Carter until 1896 when he established Sloan & Company. The firm manufactured a line of gold and silver jewelry including bracelets, brooches, pins, buttons, charms, hair ornaments, and buckles. They continued in operation until the early 1960s.

References:

Newark and Its Attractions, 1911.

"Newark, the City of Gold and Platinum and Precious Stones", 1925.

Newark, the Metropolis of New Jersey at the Dawn of the 20th Century, 1901, p. 95-96.

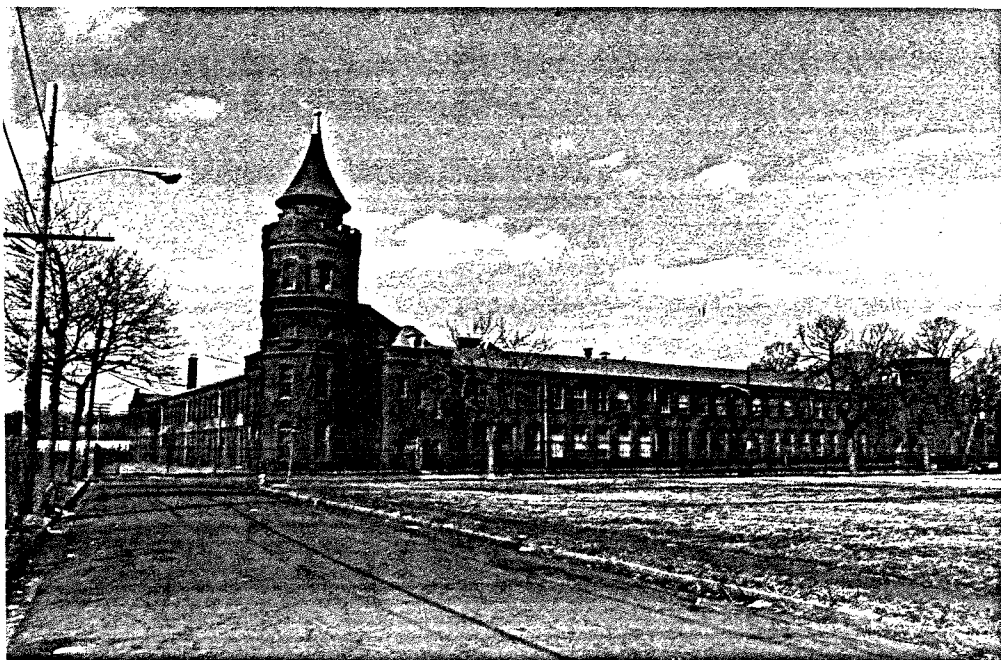
Garrison, Winton, ed. Industrial Directory of New Jersey, 1906.

Newark City Directories, 1865-1964.

Sanborn Insurance Maps, 1908-28, Vol. 4, p. 19.



TIFFANY AND COMPANY

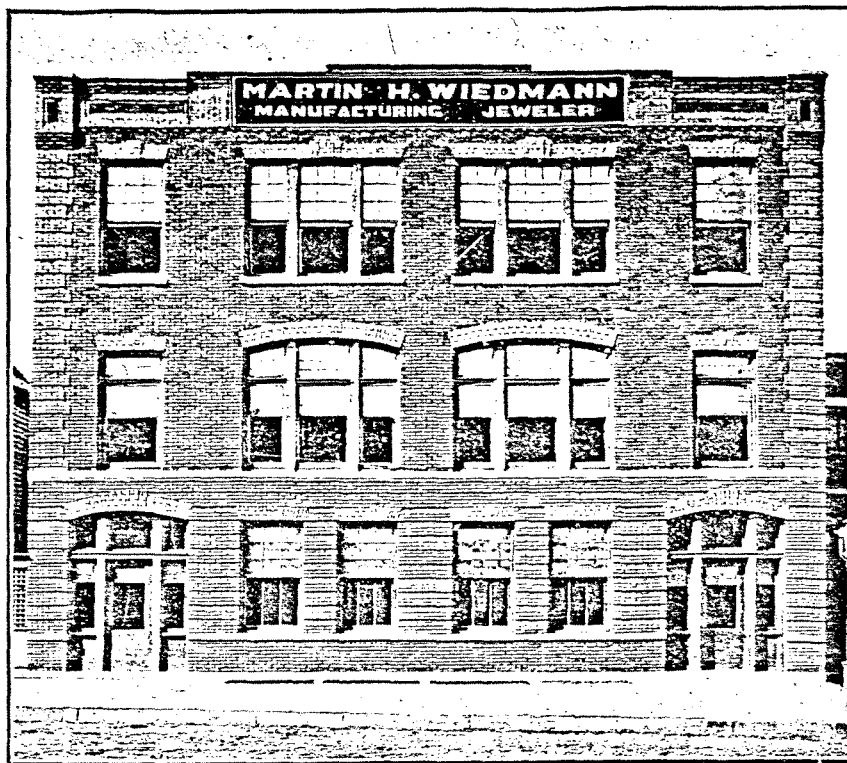


TIFFANY AND COMPANY
 820 Highland Avenue
 Newark, Essex County, New Jersey

One of the most attractive factories in Newark was built in 1896 by Tiffany and Company. Tiffany's placed its operations behind a twenty-one inch thick wall made with bricks imported from England. The building, complete with turrets, has a strong resemblance to a castle. The complex was designed to be as self-sufficient as possible. The Norman-like tower holds a 23,000 gallon water tank. There is also an artesian well in the courtyard which holds another 87,000 gallons of water. The only material which had to be brought in to operate the plant was coal, used for both heat and to generate electricity. The plant had all of its machinery electrified when they were installed. Most of the flatware sold in the New York store was made in this building. The factory furnished Tiffany's with almost all of its stationery. The factory glued its own envelopes using two kinds of glue: one for the 3 sides, where strength counts; and the other for the flap, for taste. Tiffany's has changed ownership several times over the last few years and the present owners decided to close the Newark plant in 1984. The building is currently for sale.

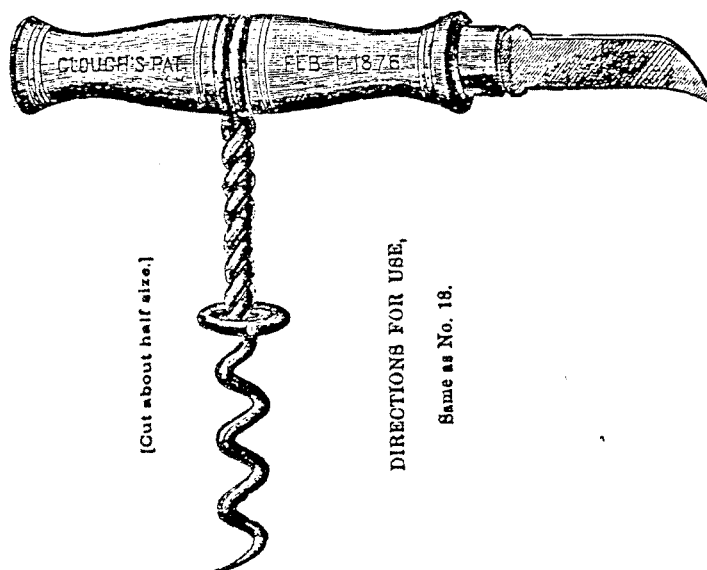
References:

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MARTIN H. WIEDMANN
Newark & Its Attractions,
1911.

STEEL WIRE
Power Cork Screw,
(Patented in America and Europe.)
Double and Twisted Shank,
WITH
WOOD HANDLE AND CHAMPAGNE OPENER.



Nos. 24 & 24+.

Per doz.
No. 24. —TINNED.... With Maple Handle and Champagne Opener.....\$6.50
24+. —NICKEL.... With Rosewood Handle and Champagne Opener.. 8.50

Warranted superior Cast Steel, hardened and tempered.

C. T. WILLIAMSON WIRE COMPANY
Farnham, Early Tools of New
Jersey, 1984, p. 178

MARTIN H. WIEDMANN
 154 Wright Street
 Newark, Essex County, New Jersey

Founded in 1905 by Charles Wiedmann for the production of settings for precious stones, the firm was originally located at 50 Columbia Street. In 1910 the firm moved to Wright Street and changed the name to Martin H. Wiedmann. The firm manufactured scarf pins, bar pins, medallions, brooches and pendants in 10 and 14 karat gold. The three-story brick structure remains mostly unchanged today except the brick facade has been painted. In 1922 the firm moved to 23 Longworth Street where they continued in operation until the early 1960s.

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Newark and Its Attractions, 1911.

C.T. WILLIAMSON WIRE NOVELTY COMPANY
 52-64 Badger Avenue
 Newark, Essex County, New Jersey

Claiming to be the "greatest corkscrew and novelty manufacturer in the entire world" this firm was founded in 1876. The specialty of the plant was the "combination cork extractor, crown opener, seal lifter and wire breaker", invented and patented by C.T. Williamson. In 1901 over four hundred million of the Williamson cork screws had been manufactured and sold all over the world. The firm employed over 125 workers in their plant on Badger Avenue. The three-story brick building was specially equipped with machinery constructed for the manufacture of their products. Many of the machines were designed by C.T. Williamson. The building is no longer extant.

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Newark the City of Industry, 1912.

PUBLIC SERVICE CORPORATION OF NEW JERSEY

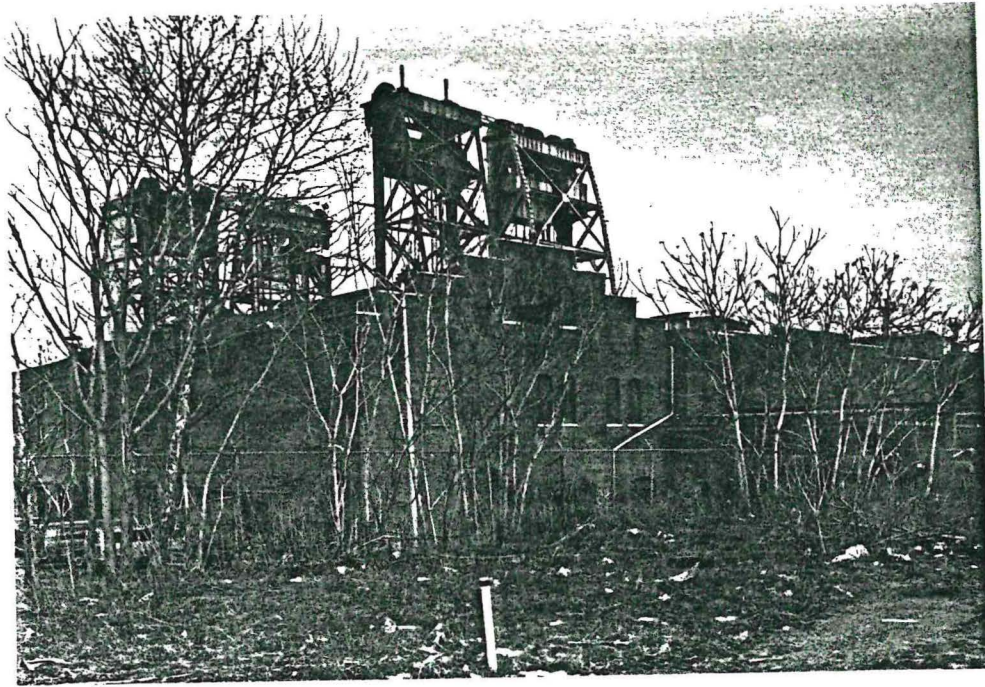
Since its formation in 1903, Public Service has had a major impact on Newark, its industries, its businesses, and its citizens. Providing gas and electric for all of New Jersey, Public Service has four power generating plants in the Newark Area - Hudson (1964), Linden (1957), Essex (1915) and Kearny (1926). Until a few years ago, Public Service was also the major public transit company in the state and had its Main Terminal Building and Electric Rail Maintenance shops in Newark.

Recognizing the great potential the Metropolitan area held for providing energy and public transportation to residential and industrial areas, the Public Service Corporation of New Jersey was incorporated in 1903 with Thomas N. McCarter (earlier NJ's Attorney General) as the first president. The organization was created because the myriad of existing street railways were in disarray; the electric properties were erratic, and the gas facilities, although financially sound, had exhausted their capacity for new capital.

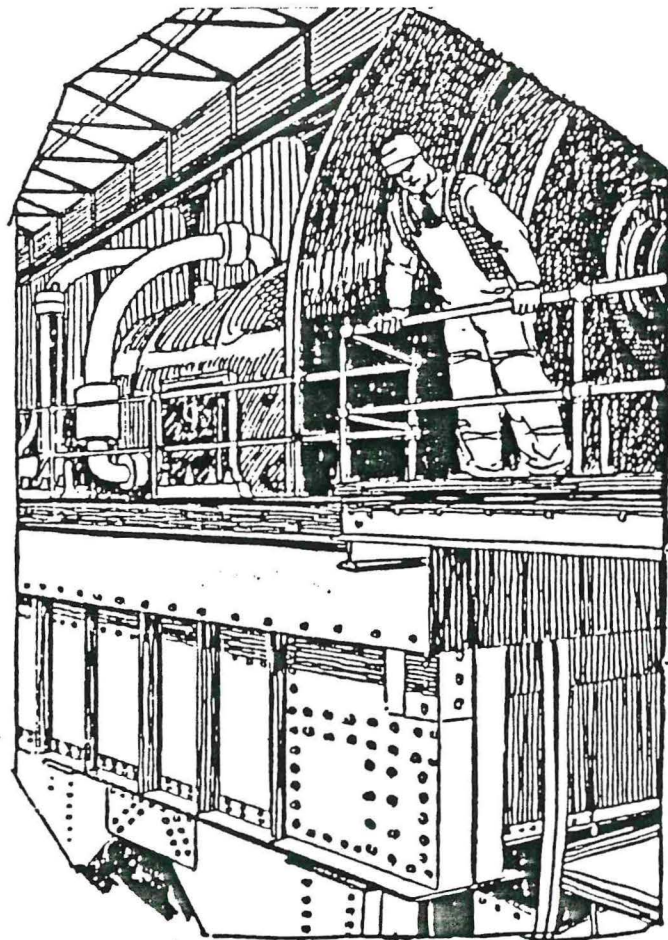
Public Service successfully remedied these problems by introducing \$10 million in capital, sound competent regional management, and technological innovations to the public utilities.

Shortly after formation the Corporation, based in Newark, founded the Public Service Railway Company (1907), the Public Service Gas Company (1909), and the Public Service Electric Company (1910). In 1924 Public Service's gas and electric companies, together with United Electrical Company of New Jersey merged to form Public Service Electric & Gas Company which continues to provide gas and electricity to most of New Jersey. In 1980, Public Service transit operations were taken over by New Jersey Transit.

Electricity. The first electric light and power company in New Jersey was the Newark Electric Light & Power Company, organized in 1882. The same year, Thomas Edison opened Pearl Street Station in New York City, the first American central station for generating electricity. Initially, electricity was used mostly for illumination, but as technology improved and power increased, factories began replacing their water turbines and steam engines with electric motors. In 1904 Public Service metered 42½ million kilowatts of electricity. By World War II that figure was nearly 4 billion kilowatts. In 1977, Public Service had a 28 billion kilowatt output.



CITY DOCK STATION



COAL STREET STATION TURBO
GENERATOR, Public Service
Review. 1924

In 1911, Public Service boasted 30 generating stations, mostly woefully obsolete in the rapidly evolving technology of steam turbines and electric dynamos. By the third decade of the 20th century, Public Service had consolidated its generating plants to four which were upgraded and repaired. The other facilities were transformed into substations or bus garages.

Public Service kept atop the increased demand by building new generating stations and improving the old ones. Although generating plants are throughout the state and interconnected, Public Service's major regional facilities include Essex, Kearny, Linden and Hudson.

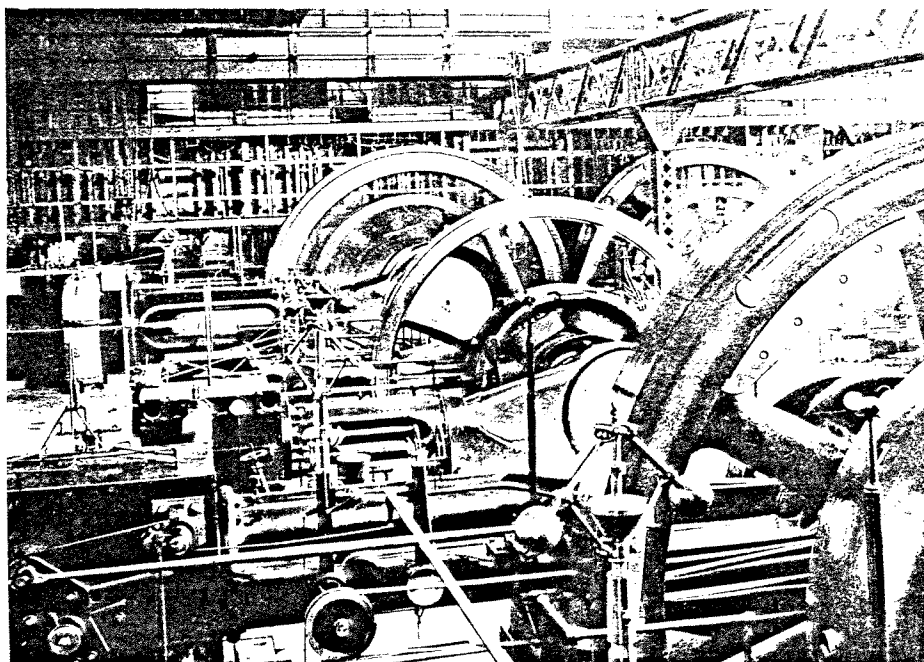
The earliest surviving power plants in Newark are the COAL STREET GENERATING PLANT, and the adjacent CITY DOCK STATION. The City Dock Station apparently began as Newark Electric Light & Power's (Passaic) River power station in 1891. The interests behind Newark Electric included Thomas McCarter and many other businessmen who a few years later controlled Public Service. River Street station was seriously damaged in a fire in 1898. Although resurrected, after a few more years the facility was completely rebuilt and following 1903 was known as the City Dock Generating Station. Actually a substation after 1922, City Dock operated in connection with the Coal Street Generating Station. City Dock provided most of the current used in the local street cars and was the largest substation on the extensive Public Service network.

Today, the City Dock Station stands abandoned alongside Penn Station on the Passaic River. The facility consists of four connected brick buildings. The three story office is trapezoidal shape and has small window fenestration. Behind are two two story engine and dynamo buildings with monitor roofs. Reportedly, this defunct facility still retains a ninety year old dynamo. The final building is a two story furnace room.

The adjacent COAL STREET GENERATING STATION was first placed in service in 1894 and had 10 generation units with a total KVA capacity of 15,550. When put in operation it was the largest and most efficient of PS's electric generating stations and remained as such until Public Service's Marion Station was put in service in 1906. As equipment was continually improved and expanded, Coal Street employed Public Service's first turbine generator in 1905. A year later Coal Street was put in parallel operation with Marion and Secaucus. Coal Street was primarily used to generate



COAL STREET STATION



COAL STREET STATION
Engine Room, 1916

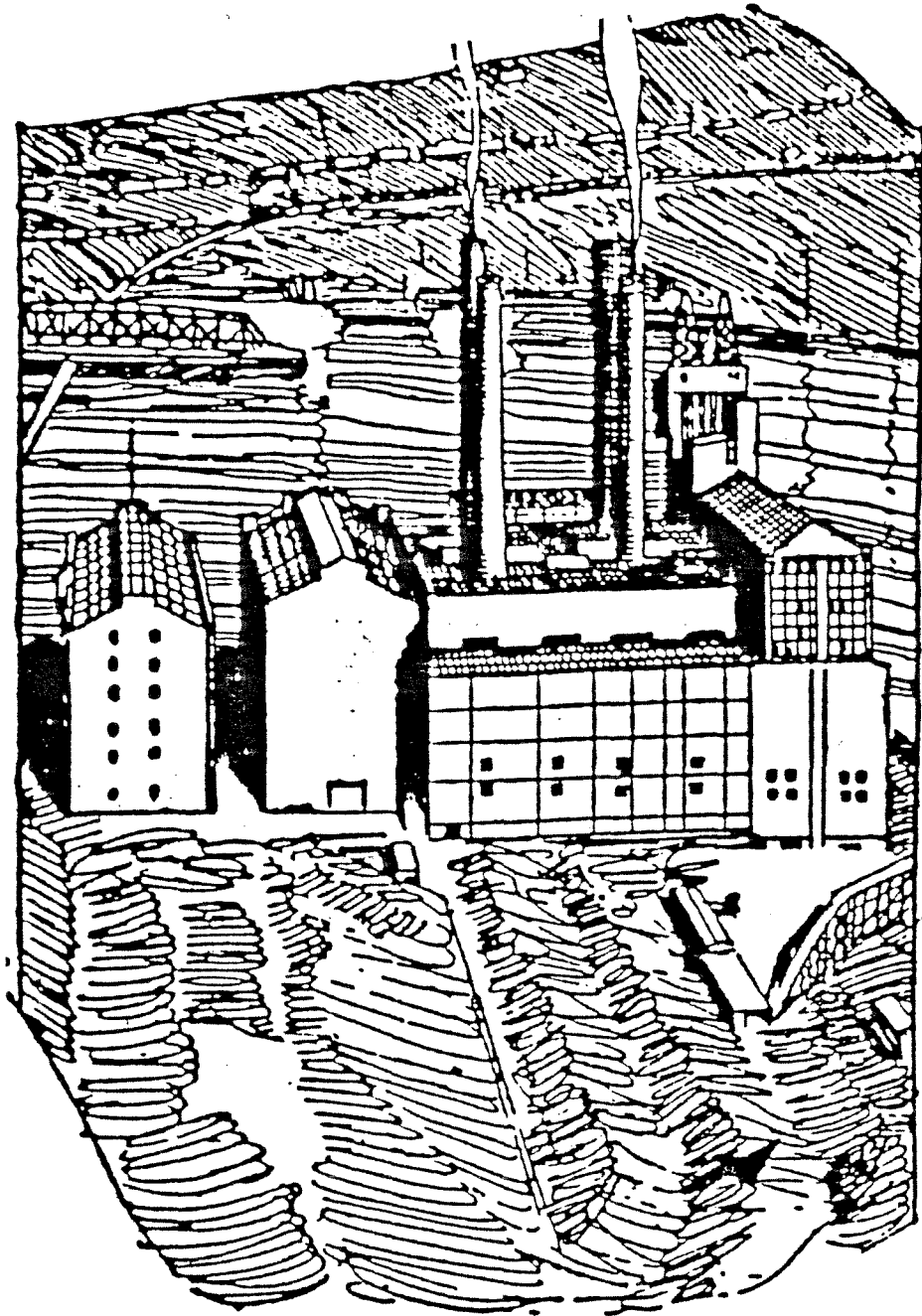
power for Public Service electric street cars, but once the Essex Station was placed in operation it became a minor generating plant and seems to have been taken out of service in 1928. By 1960 Coal Street Station apparently was a bus storage garage.

Coal Street Generating Station is a handsome brick facility. The street facade features 18 windows with embellished round arches broken into pairs or threesomes by buttressing. The roof cornice is corbelled. At the NW corner is a 250 foot tall round brick chimney with an octagonal base. This 300 x 100 foot building contained the furnace plant. In the rear is a taller brick structure (275' x 100') that held the engines and dynamos. The flat roofs have large iron clad monitors. The rear chimney is truncated.

The ESSEX GENERATING STATION stands between its two main load centers, Newark and Jersey City on the Passaic River, just east of the turnpike. It began service November 6, 1915, after only eight months into construction, with a single 22,500-kilowatt turbine to which a twin turbine 35,000 kilowatt unit was soon added. The plant earned engineering approval for its efficiency and for its layout, with the boiler room at right angles to the turbine room and with the switch-house detached. Public Service had designed Essex for ready expansion, and company engineers were clamoring to take advantage of that capability almost before the station had produced its first kilowatt.

Building Essex station was a hardship for Public Service, but it proved necessary. The war in Europe began to affect the utility in two ways - greatly increasing industrial demand for power and at the same time hindering the company's efforts to meet that demand. Starting in 1916, the war brought the company industrial contracts for enormous and unprecedented quantities of power. By 1917, 67 per cent of the utility's commercial power load was going to industrial customers whose work was directly or indirectly connected with the war. In 1918, that figure approached 90 per cent. Meanwhile, the Electric Company faced severe shortages of both coal and labor.

Public Service further expanded Essex station following the war, and installed up-to-date coal-handling equipment. The site of the station consisted of 45 acres fronting on the Passaic River and divided into two plats by a branch of the Pennsylvania Railroad. Originally huge quantities of fuel, received by both rail and barge, were raised to the coal bunkers by two large unloading towers. The buildings are



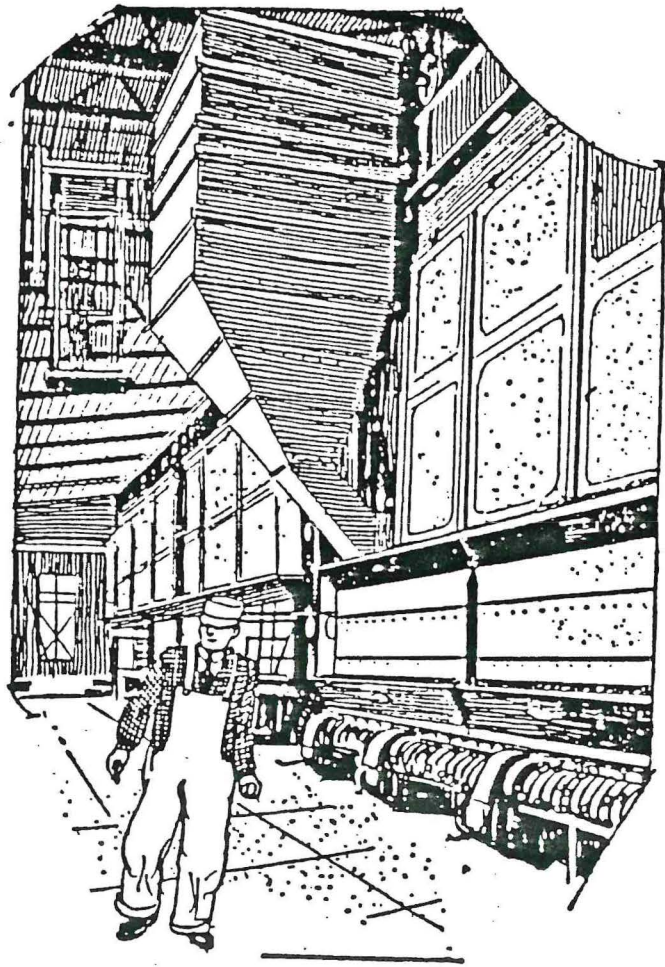
ESSEX STATION
Public Service Review, 1924

large scale red brick structures with Classical features such as contrasting stone lintels, stepped gable roof, and beltcourses. Large spans of metal sash windows are separated by brick piers. There are six tall chimney stacks emerging from the power plant.

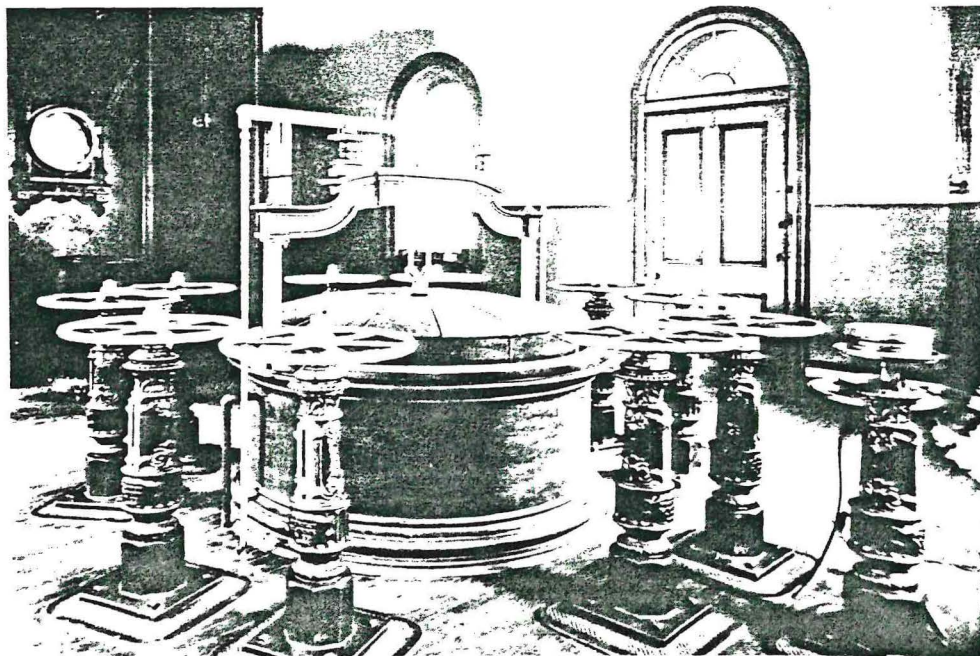
The decision to build the KEARNY GENERATING STATION was made IN 1923. Located on marshland, mid-way between Essex and Marion, in Kearny, Public Service had to drive pilings into the soil and provide huge quantities of concrete and brick for a firm foundation for the station. When first placed in service in 1926 the plant received plaudits from Electrical World for its economy and reliability of design provided to guarantee continuous service. Inter-connected with Essex and Marion and operating at a capacity of 500,000 kilowatts, Public Service boasted this was one of the largest and most efficient generating units in the country. Increased capacity enabled Public Service to abandon its earlier plants, including Coal Street, and initiate an interconnection with the Philadelphia Electric Company.

Later, in 1933, Public Service installed a GE Mercury boiler and turbine at Kearny. Based on a prototype plant at Hartford, Connecticut, it was the second mercury system in the United States. Using mercury vapor instead of steam, super-heated mercury was able to produce electricity at substantially reduced costs. In this system, fuel oil was ignited under a special designed boiler in which liquid mercury was placed instead of water. The mercury vapor then produced was conducted by pipes to a 20,000 kilowatt mercury turbine generator. Once through the generator, it was exhausted into a condensor which was also a steam generator. Here, the heat of the mercury vapor was transferred to water in a steam generator (while the now cooled liquid mercury returned to the boiler to start its cycle over) producing steam used to operate the steam turbine-generator. The mercury vapor produced 20,000 kilowatts and enough steam to develop another 30,000 kilowatts. In the 1920's the average system rates ran about 16,000 BTU per kilowatt hour. The mercury-turbine generator and its condensor boilers were able to generate electricity at a heat rate of 10,000 BTU per kilowatt hour.

Mercury, however, worked through the slightest impurity in the steel boilers and pipes and was often lost in the system. This continued loss and other improved technologies caused the mercury boiler to be taken out of service around 1950.



ESSEX STATION AUTOMATIC
STOKERS UNDER BOILERS
Public Service Review, 1924



NEWARK GAS LIGHT
Meter Room, 1895

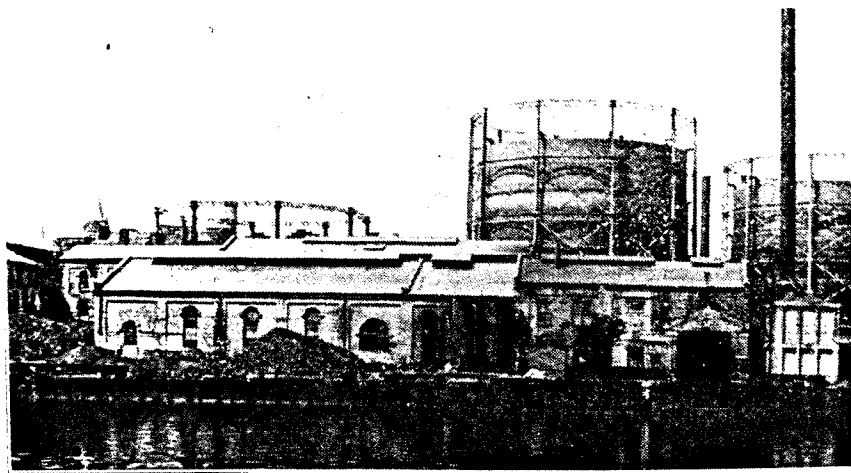
As built in 1926 Kearny Station had brick curtain walls on steel frames, concrete foundation, and reinforced concrete flooring. The composition included a bunker house (44' x 236'), boiler house (167' x 206'), turbine room (106' x 284'), switch house (52' x 184') and service building (48' x 128'); all units designed to be eventually expanded. There were 12 boilers fueled by coal and 5 turbo-generators (3 - GE, 2-Westinghouse). Although continually enlarged, the plant exhibits many Neoclassical features including major Palladian windows, keystones, and granite trim highlighting. Other dominant visual features included the obsolete coal loader, multiple chimneys stacks and transmission tower.

Gas. New Jersey's first gas company was the Paterson Gas Light Company incorporated in 1825, just nine years after the nation's first gas company in Baltimore. Paterson Gas Light, however, did not begin operating until 1847, the same year as the Newark Gas Light Company. Initially used for lighting, gas companies survived the competition of the electric light by developing efficient gas heating elements and adapting their product to manifold industrial purposes. Public Service had nearby gas manufacturing plants in Harrison, Jersey City, and Newark.

In 1934 Fortune reported how the Public Service of New Jersey manufactured gas:

"You can see the Gas Department splitting its wood at any of its plants any day of the year, day and night. Water-gas making proceeds with a huff and a puff, called the blow and run. First of all a traveling larry crane rumbles along and dumps a weighed load of coke into the generator - a tall wrought-iron or steel cylinder lined with fire brick. The lid is clapped on and the blow begins. Air is forced up through the burning coke, and the hot gas coming off passes on to two adjoining cylinders called the carburetor and the superheater. The superheater is filled nearly to the top with fire bricks laid checkerwise with two-and-one-half-inch openings between them (the carburetor, where bunker oil is used, is merely lined with these bricks), and the generator gas heats them to 1,500° Fahrenheit. It then passes through a waste-heat boiler where it makes some steam, and then goes through an escape valve up the stack.

When everything is heated to the right degree, the air blast is shut off, the stack valve is closed, and the run begins. Now steam (some of it from the waste-heat



FRONT STREET GAS WORKS
Public Service Review, 1924,
p. 54



FRONT STREET GAS WORKS

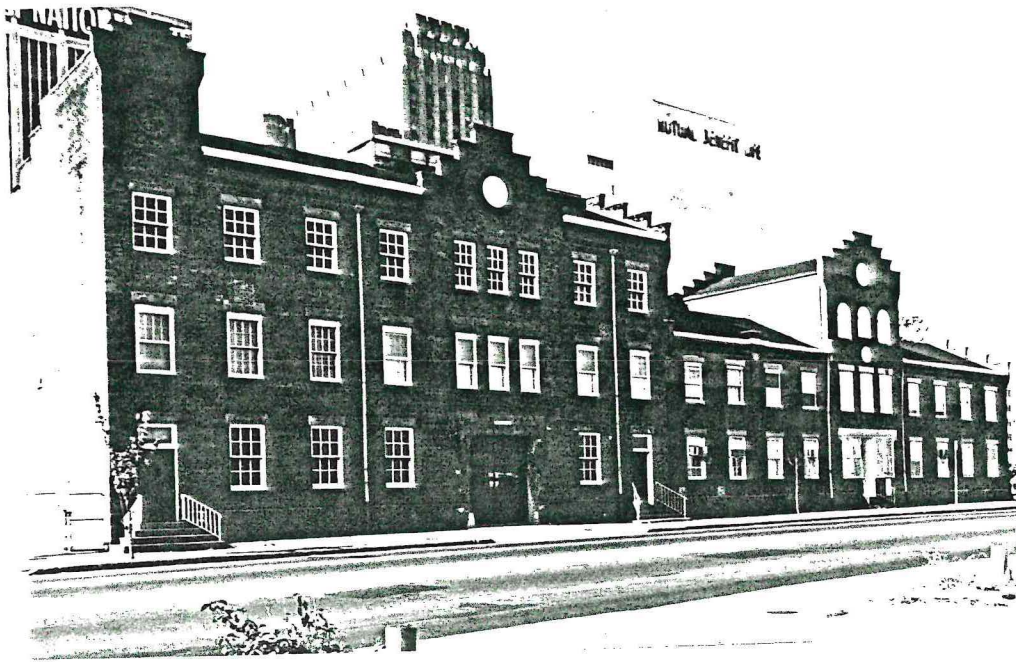
boilers) is forced through the generator's incandescent coke, turns (we have seen how) to water gas, and passes to the carburetor cylinder. Here oil, sprayed in the heated chamber, vaporizes and mixes with the gas. The mixture passes on through the bricks in the superheated cylinder and it is "cracked" - that is, the oil vapor is changed to oil gas. That's all there is to the run.

The hot, brown gas first passes through a water seal that prevents it from escaping back up the stack and then through a condenser. Here it drops most of its gummy tar and advances towards the mains. But since the blow and the run alternate at three to four minute intervals, its advance is intermittent. To keep that intermittency where it belongs, the gas goes into a relief holder, which stores sufficient gas to last the system from run to run. From the relief holder the gas is then exhausted through another condenser, through extractors that remove its last impurities, through mammoth meters, and thence into the distribution holders.

Gas holders are built to keep air out as well as gas in - for gas, though uninflammable by itself, likes to explode when mixed with ten parts air.

In the old days when mains weren't so long the pressure from these holders was enough to push the gas along. Today the Gas Department pumps its gas at pressures as high as fifty-five pounds per square inch, though most of it circulates at five. Some of the gas goes to twenty-eight auxiliary holders in outlying parts, but most goes direct from the mains to the service pipes that bring it to the meters. The mains are laid on a grade, to catch drip water. Along them, within manholes, are some 600 automatic valves (district governors) between high and low-pressure mains. They govern the gas flow and reduce it to domestic pressure about the waft of the human breath. What with laying and tending these mains the Gas Department has to employ some 1,200 permanent and 2,000 seasonal men, and a fleet of 340 automobiles. One of their worst jobs is to find leaks, the best tool for discovering which is still the human nose".

The FRONT STREET GAS PLANT had 3 large gas holders; a brick purifying house and meter house; an engine room; a retorts building; and a long monitor roofed coal shed. The daily capacity in 1924 was 2,300,000 cubic feet. (The Market



FRONT STREET GAS WORKS
OFFICES



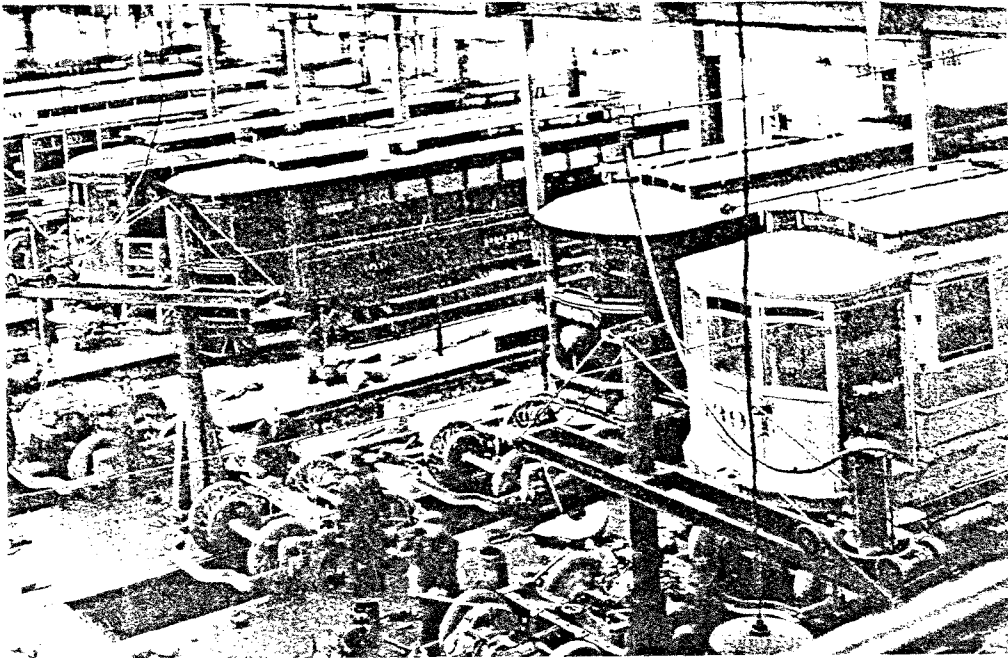
PUBLIC SERVICE TERMINAL
Public Service Review, 1924
demolished 1979

Street facility on Jersey along the Passaic River was much larger.) By 1939 the Front Street Works had become a distribution and holding station. The purifying houses and the meter building on Front Street were remodeled for garage and storeroom facilities. The Front Street Works are nearly gone, but the 1 story brick purifying house survives. Now with a round roof, this brick building has a late 19th century edifice with brick corbelling. Fronting this building is a small 1 story pusher house.

Across the street at the SW corner of Front and Lombardy is the distribution department and metering shops for the gas works. This late 19th century building is a 2½ story brick structure with a stepped parapet at the gable roof. Windows are small 6/6 wood sash with flat stone lintels. Attached along Front Street is a 3 story brick building constructed sometime after 1908. It has a corner tower and an intersecting stepped gable. Windows are 6/6 double hung wood sash with stone lintels. The Front Street Gas Plant is still used by Public Service as offices and garage facilities.

Public Transport. Public Service electric railways, begun in the early 20th century, were abundant by the 1910's but were being superceded by buses by World War I. Public Service, however, anticipated the change and established a bus division in 1917. New Jersey's public transport was one of the most developed state-wide systems in the Eastern United States, but encountered substantial difficulties - workers strikes, judicial restraints on increased passenger fees, and continued escalation of operational expenses. Public Service relinquished control of its public transit system, including the Newark subway, to New Jersey Transit Corporation in 1980.

New Jersey's first horse drawn passenger trolley, appearing around 1835, ran between Paterson and Clifton, but this line was later converted to steam and became part of the Erie Railroad. In 1859 the Orange and Newark Horse Car Railroad Company was organized. Although chartered as a railroad this was New Jersey's first street car company. The Newark Passenger Railway Company, in 1890, had the first electric street cars providing regular service in New Jersey and traveled along Springfield Avenue. Despite extensive railways companies throughout the state they were generally poorly managed, disorganized, disconnected, and in need of extensive track, car, and equipment repair. A major such company, the North Jersey Street Railway Company, publicly acknowledged its "financial embarrassment" in 1903.



NEWARK SHOPS
ca. 1910



NEWARK SHOPS

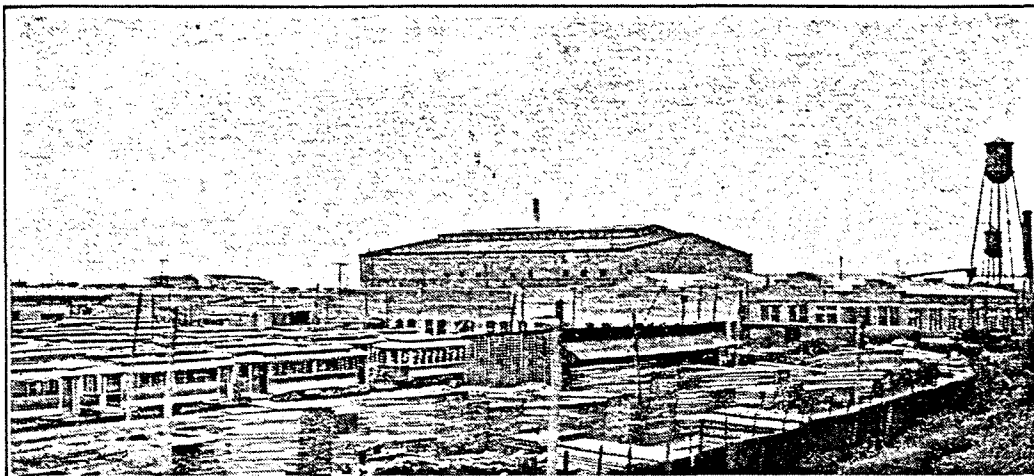
The weak financial condition of the electric street railways was a compelling justification for organizing the Public Service Corporation of New Jersey. At first Public Service operated some of the street railways while permitting others to retain their independence, but in 1907, the subsidiary Public Service Railway Corporation took over complete control of all street railways in New Jersey. The Corporation created the New Jersey Transportation Company to permit the operation of buses in 1917. In 1923, this name was changed to the Public Service Transportation Company. The railway and bus companies were consolidated in 1928 as the Public Service Consolidated Transportation Company. The Newark City Subway, operational in 1935, was part of this system. Public Service Transport was dissolved in 1980 and replaced by the New Jersey Transit Corporation.

During the peak of development of the trolley network in New Jersey Public Service's NEWARK (PLANK ROAD) SHOPS built and maintained much of the rolling stock of the electric railway cars for the transit network. In reality a major city industry and the largest electric railcar manufacturer in New Jersey, Public Service fabricated and repaired most of its trolleys for many years. The Public Service Railway Corporation became a separate subsidiary of Public Service Corporation in 1907 and consolidated most of the electric railways in New Jersey. By 1911 the utility built (or purchased and modified) nearly 1000 new cars. Its total fleet was over 2300 passenger cars. The company also remodeled and enlarged its already huge repair shops in 1911.

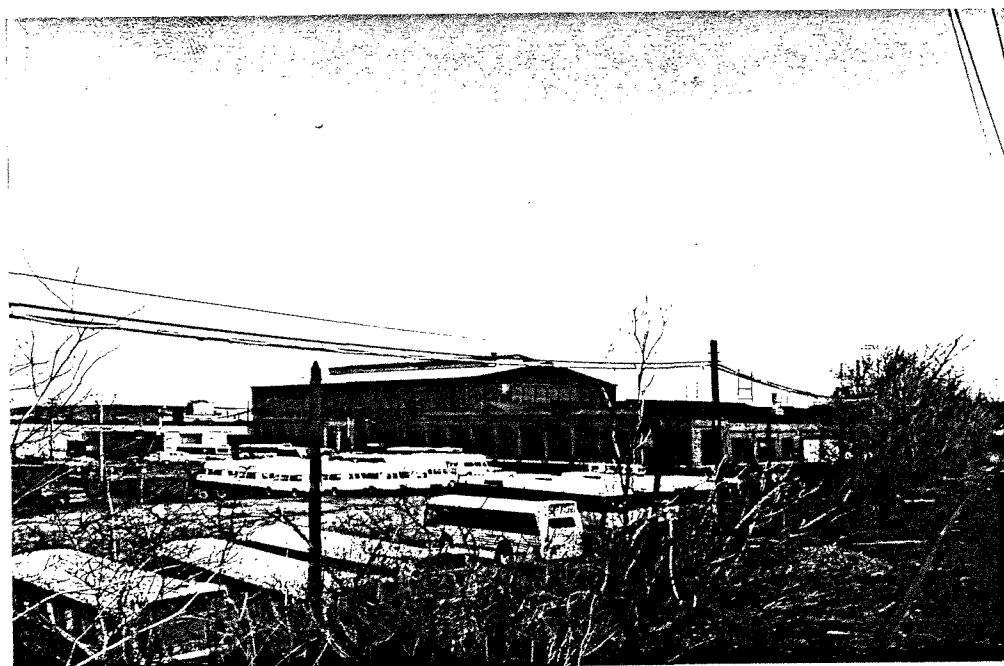
Maintenance was a constant transit headache but the Newark Shops were prepared to complete even the most difficult jobs. Among the best yards in the country, Public Service developed storage for 162 fifty foot cars an interior trackage of approximately five miles, an erecting shop, a paint shop and a machine shop. There was also a 100 car capacity trolley barn.

In 1934 Public Service boasted that their trolley cars could be rebuilt and modernized almost indefinitely. In fact, not one car had been purchased since 1918 as the rolling stock was refinished and rebuilt in the Newark Shops.

Located at the east end of Ferry Street, most of the Newark Shops survive. Possibly constructed shortly before Public Service's consolidation in 1907 the facility dates primarily from 1900-1929 and is still used by New Jersey's public transit network (NJ Transit) for bus repair and storage.



NEWARK SHOPS
Public Service Review, 1924



The paint shop at the end of Ferry Street is a massive, long (330') one story brick building with pier construction. The roof has a low pitch and is pierced by a sawtooth skylight (facing Ferry Street). The gable end has a stepped parapet. Broken into 22 bays on the Ferry Street facade each bay has paired windows enframed by brick pilasters. The old transfer table separates the paint shop from the flat roofed one story woodworking and erecting shop. This pier constructed brick building (140'x 250') has 6 sawtooth skylights, opening facing Ferry Street.

After another transfer table comes the machine shops. The first section is a two story brick building with low pitched gable roof and monitor roof (120' x 200'). The windows are small segmental arched, but with new sash. There is a corbelled brick cornice. An open gallery is featured on the interior. A large one story brick machine shop (140' x 160') is attached at the rear. Across Ferry Street is a long (approx. 450') low trolley barn with 5 garage door bays.

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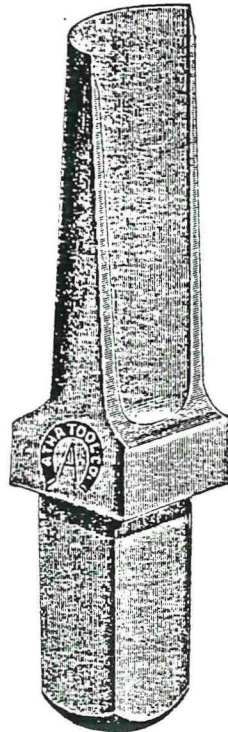
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FOUNDRIES AND MACHINERY MANUFACTURE
by Richard L. Porter

The intimately related iron and machinery industries of the City of Newark each trace their developmental origins to the first half of the 19th century. Two factors may be identified as primary catalytic elements in the early development of both industries: coal and iron ore provided by the Morris Canal and the genius of the noted Newark industrialist, Seth Boyden. Boyden arrived in Newark as a trained machinist, and in 1825 he built what is recognized as the city's first steam engine. In the following year Boyden successfully completed his work on a process for the manufacture of malleable iron and built the first malleable iron foundry in the United States. By 1830 there were nine foundries in Newark, several of which were employing Boyden's revolutionary process. With a growing iron industry assuring a steady supply of machine and engine parts, Newark's machinery industry also began to develop and expand before mid-century. The Hewes & Phillips machinery concern, the city's largest during the 19th century, was founded in 1846 by two former Boyden apprentices.

The arrival of the railroads provided not only fine transportation advantages to industrial Newark, but also a greatly increased demand for iron products. Railroad, machinery, and military production assured that Newark's iron and steel industry would continue to grow throughout the remainder of the 19th century and into the present century. The expansion of Newark's machinery industry during this period far outdistanced the city's iron and steel pursuits. By the time of the Civil War, with Hewes & Phillips and the Watts, Campbell Co. leading the way, Newark had joined the City of Paterson as New Jersey's primary center machinery industry. In subsequent years Newark emerged as the unrivaled leader of the industry. This dominance lasted into the middle of the present century as the state's powerful machinery industry was focused in the Newark region up to the time of the Second World War.

Toe Hardies.

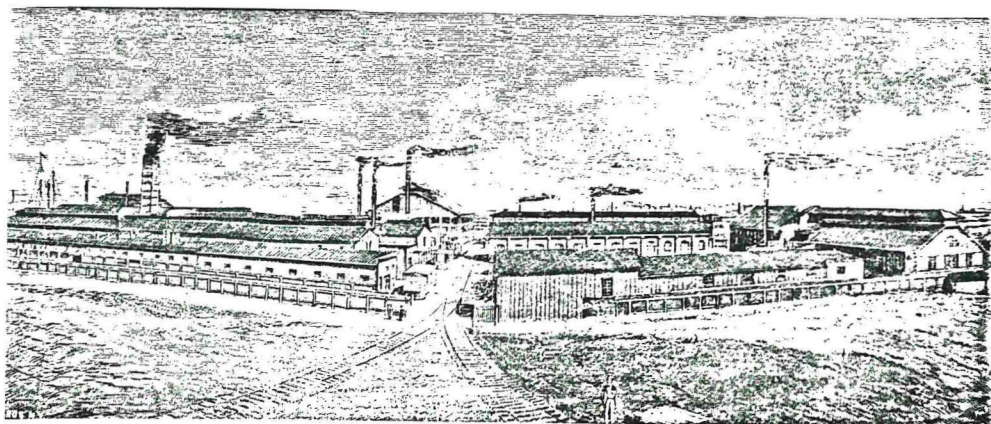


Top Swages.



Number,	1180B
Sizes of Shanks,	$\frac{1}{4}$ to $1\frac{1}{4}$ inches.
Price per lb.,	80 cents.

ATHA TOOL COMPANY
 (Newark Steel Works)
 Atha Tool Co. Catalogue
 1900



Newark Directory, 1887

ATHA TOOL COMPANY (STANLEY WORKS)
 Lister Avenue, corner Albert
 Newark, Essex County, New Jersey

One of the major New Jersey manufacturers of blacksmith and farrier tools in the late 19th- early 20th century, the Atha Tool Company was an outgrowth Benjamin Atha's Newark Steel Works, begun in 1864. The firm name became Benjamin Atha & Company in 1871. In 1875 Atha established a forging department to make hammer heads, originally from scraps of the steel mill. John Hausman, an experienced Philadelphia hammer maker, was made company foreman. Hausman's blacksmiths a hand-forged hammers until 1884 when drop-forge equipment was acquired from the defunct Ernest Hammer Company. By 1891, blacksmith tools had developed into a substantial business causing the Atha Tool Company to be incorporated. At the same time Hausman designed the company trademark a capital A inside a horseshoe. The company manufactured hammers, chisels, hardies, and tongs.

In 1913 Atha was sold to Stanley Rule and Level Company, now the Stanley Works. Permitted to continue using the company name and trademark, Atha Tool still forges hammers, but Stanley is closing the plant this spring.

The Stanley Works had its genesis in this early 1830's when brothers Frederick T. and William Stanley and three others formed a partnership to manufacture plate locks. Incorporated as the Stanley Works in 1853, the company built its major plant in New Britain, Connecticut in 1872. Since then the Stanley Work has grown through expansion and acquisition. In 1920 Stanley Works brought the independent Stanley Rule and Level Company (also a New Britain firm) founded in 1850 by Augustine and Gad Stanley. By buying other firms, Stanley Rule and Level had developed a complete line of carpenters and mechanics tools. Hammers were supplied by Newark's Atha Tool Company.

The Atha Tool Company has several large early foundry buildings set back from Lister Street, opposite Albert. The pattern shop/office (ca. 1900) is across Lister. It is a 2 story brick building with pier construction, 6 bays by 10 bays, and wide segmentally arched fenestration. The low pitched gable roof faces the street.

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Founders

ESTABLISHED 1826
THE OLDEST MALLEABLE IRON FOUNDRY IN THE COUNTRY

ARTHUR E. BARLOW

Successor to MORRIS & BARLOW

MALLEABLE AND GREY

Iron Foundries

SOFT GREY IRON CASTINGS A SPECIALTY

No. 28 ORANGE STREET, NEWARK, N. J.
One Block from Delaware, Lackawanna and Western Railroad Depot

TELEPHONE No. 876

BARLOW FOUNDRY
Newark Directory, 1901

BOYDEN/BARLOW FOUNDRY

West Side of Spring Street (now vacated) between Bridge
and Orange Streets
Newark, Essex County, New Jersey

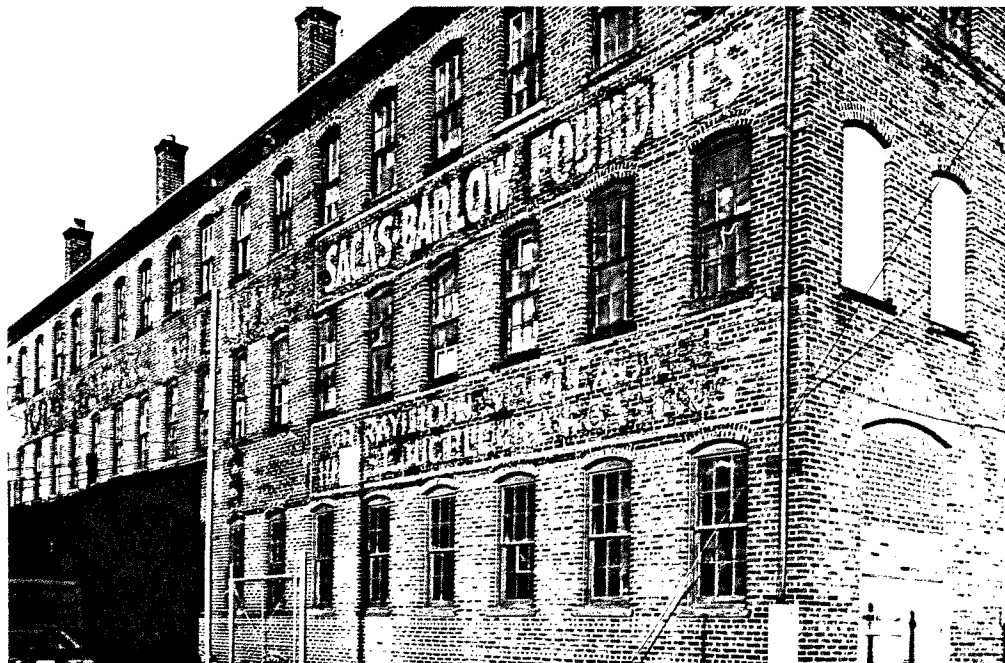
This site may be described as the "crucible" of the iron industry in the City of Newark. In 1826, Seth Boyden, noted for his contributions to several of the city's industrial branches, successfully completed his work on a process for the manufacture of malleable iron castings. Shortly thereafter he commenced operations on the north side of Bridge Street very near to the Passaic River in what is recognized as the first malleable iron foundry in the United States. Boyden remained involved in the production of malleable iron castings until 1835, at which time the Bridge Street foundry was sold off and the versatile industrial inventor moved on to other endeavors.

By 1838 the former Boyden foundry was owned by Daniel Condit and Joseph A. Bowles. The new owners commonly advertised themselves as the "successors to S. Boyden". In 1850 the Condit and Bowles Foundry employed about 40 hands and utilized 300 tons of pig iron, 400 tons of coal, and 50 cords of wood to produce 260 tons of malleable iron castings. By 1855 Daniel Condit was the sole proprietor of the foundry, and he continued his active involvement in the management of the business through the Civil War.

By 1867 the old iron works was under the control of John H. Barlow, a former employee there, and his partner, William Shove. Barlow's involvement in the management of the property began an association between the Barlow family name and the former Boyden works that would last for a half century and result in the site's common identification as the Barlow Foundry. By 1878 Barlow was running the works as sole proprietor, but by 1885 he had again established a management partnership (with Howard C. Condit and William G. Morris). At the end of the 19th century there was yet another change in the partnership as Arthur E. Barlow and Morris headed the firm. By 1901 Barlow had gained full control of the company and he took great pride in advertising his concern as "The Oldest Malleable Iron Foundry in the country." In 1906 the company employed some 115 iron workers in the production of both malleable and gray iron castings.



SACKS-BARLOW FOUNDRIES
359-391 Wilson



The Barlow Foundry Co. continued operations at the old former Boyden iron works until about the time of the First World War. At that time a new, larger foundry was constructed on New Jersey Railroad Avenue and Avenue A (near the present McCarter Highway viaduct between U.S. Route 22 and Broad Street). This new facility allowed for a modernized, large scale gray iron casting operation (malleable iron was no longer produced) and offered fine rail connections. By the 1930's the Barlow Foundry Co. had merged with the Louis Sacks Iron Foundry to form Sacks-Barlow Foundries, Inc. This new firm took over the management of the New Jersey Railroad Avenue foundry and of the former Sacks malleable and gray iron foundry on Wilson Avenue east of Avenue L. (also built during the era of the First World War) and remained active into the 1950's.

The Old Boyden/Barlow Foundry on Orange and Bridge Streets had been incorporated as part of the large Newark Milk and Cream Co. complex by 1927. This company was a subsidiary of the Aldemay Dairy Co. and was involved in the wholesale and retail distribution of dairy products. It seems likely that the old foundry buildings were used as warehousing during this period. This important site is presently located within the large parking lot which occupies a large section of the block bounded by Orange, Broad, and Bridge Streets and McCarter Highway. The Barlow Foundry on New Jersey Railroad Avenue is also no longer standing. Elements of the Sacks-Barlow Foundries, Inc. complex on Wilson Avenue, however, have survived intact.

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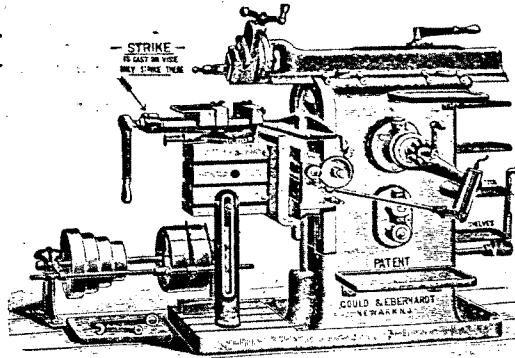
Garrison. Industrial Directory of N.J. 1906

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LONG DISTANCE TELEPHONE 803

GOULD & EBERHARDT
Newark Directory, 1897



GOULD AND EBERHARDT

New Jersey Railroad Avenue between Green and LaFayette
Streets (on the southeast side of the railroad)
Newark, Essex County, New Jersey

The noted machinery firm of Gould and Eberhardt had its origins in a small machine shop started by Ezra Gould at the Hedenberg Works on the Morris Canal in 1833. By 1840 Gould had entered into a partnership with Samuel Farrand, a noted Newark toolmaker, and was producing machinery at a foundry on Market Street near Washington Street. At mid-century Gould moved his machine shop to New Jersey Railroad Avenue between Green and LaFayette Streets. In 1859 Ulrich Eberhardt began work as an employee in the new shop, and by 1880 Gould had accepted his former apprentice as full partner in his business.

By the 1880's the Gould and Eberhardt machinery works employed approximately 150 hands. The plant included a large machine shop, a foundry, and a pattern shop and produced special machinery and machinist's tools for an international market. After the death of Ezra Gould the company's sole proprietor for many years was Ulrich Eberhardt. Gould and Eberhardt continued to expand during this period and by 1906 employed a work force of 225 men. This growth necessitated a related physical expansion of the old machinery works which resulted in the demolition of the existing structures and the construction of a larger machine shop. Despite these new facilities, however, continued growth soon required that an even larger plant be developed, and in 1917 Gould and Eberhardt relocated their operation in the neighboring City of Irvington. In 1918 the new Irvington plant was housing approximately 800 laborers. The old New Jersey Railroad Avenue factory was maintained as a rental property by the company for several years. The large machine shop structure still stands today and continues in the use for which it was designed as the home of the COS Machine Co.

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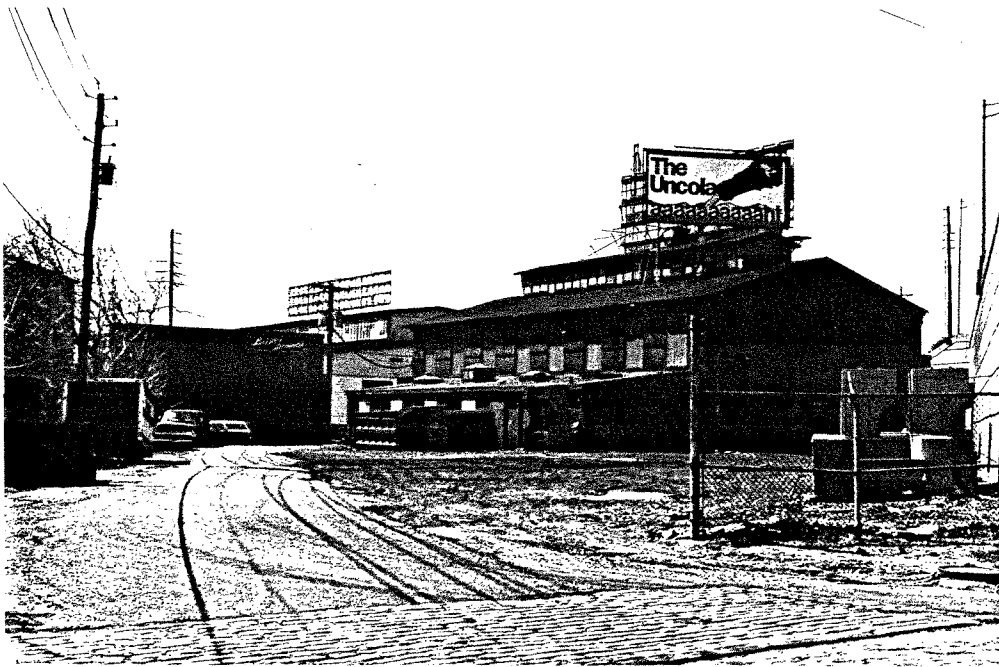
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HAY FOUNDRY

HAY FOUNDRY AND IRON WORKS

On south side of Roanoke Avenue between the New Jersey Turnpike and U.S. Routes 1-9; originally located on Alling Street near Market Street
Newark, Essex County, New Jersey

In 1838 James B. Hay and Andrew Roelefs built the Eagle Iron Foundry on Alling Street near Market Street (just east of today's Penn Station). Within a relatively short time Hay took over as sole proprietor of the new iron works, beginning a domination of the business by the Hay family that would last for many years. In 1850 the elder Hay accepted his brother Adam as his partner. James B. Hay retired in 1861, and his share of the business was passed on to his son Ebenezer C. Hay. In 1875 Adam Hay retired, leaving E.C. Hay as the sole proprietor of the Eagle Iron Foundry. During the era of the Civil War the iron works was rebuilt and expanded. In 1884 its two divisions, the foundry and the iron railing works, employed approximately 50 men producing a wide variety of castings and different forms of iron railing.

In 1889 the Harvey Steel Works was constructed on Plum Point Lane (now Roanoke Avenue) near the Central Railroad of New Jersey line in the Newark Meadows. This industrial complex was acquired by the Hay Foundry and Iron Works Co. during the mid-1890's and retooled as a combined wrought and cast-iron foundry and steel works. The old Alling Street works was eventually abandoned as the new complex steadily expanded in size. By 1906 the Hay operation was employing 400 men in the manufacture of structural iron and steel. Production increased during the First World War and the Hay Foundry and Iron Works continued to employ some 400 workers into the 1930's. Much of this complex remains standing and in use today, with the Bristol-Donald Co. machinery concern being one of several tenants.

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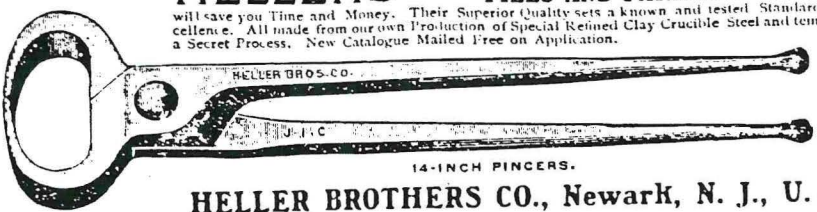
Newark City Directories

New Jersey Industrial Directories

Shaw. History of Essex and Hudson Counties. 1884

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"Tools That Wear" **HELLERS' CELEBRATED AMERICAN HORSE RASPS
FILES AND FARRIER'S TOOLS**
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Heller Brothers Catalogue
ca. 1900

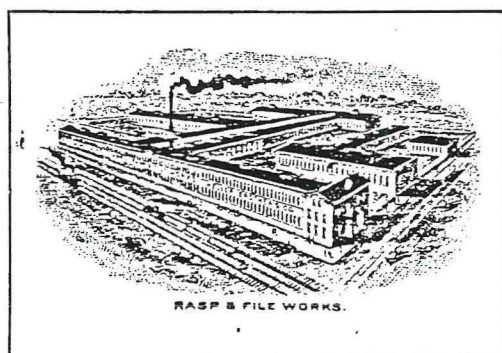
HELLER BROTHERS

Newark Board of Trade, 1902

Heller Brothers Co.

MANUFACTURERS OF THE CELEBRATED
AMERICAN

Horse Rasps,



Files,

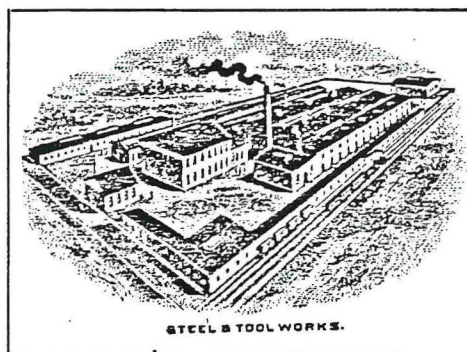
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Mount Prospect
Avenue



HELLER BROTHERS

Mt. Prospect, Verona and Highland
Avenues and the former Erie Railroad Line
Newark, Essex County, New Jersey

This noted tool-making concern traces its beginnings in Newark to the small file and rasp manufactory owned by Elias Heller in 1836. Shortly thereafter the elder Heller relocated his shop to West Orange, but in 1866 three of his sons, Lewis, Peter and Elias Jr., returned the business to Newark with the commencement of a new file and rasp factory on New Jersey Railroad Avenue. In 1874, Heller Brothers moved their tool works to a site on the Greenwood Lake Railroad (the Erie line) in the north end of Newark. This new location in a relatively undeveloped portion of the city offered room for expansion and crucial transportation connections. In 1880 the company, seeking to control the quality of the steel required for their file and rasp operation, constructed their own large steel works immediately adjacent to the tool works.

In succeeding decades Heller Brothers expanded both their extent of operation and products line, supplementing their line of files and rasps by moving into secondary line of various blacksmithing tools. Physically the steel and tool plant grew to encompass much of the block bounded by the rail line and Mt. Prospect, Verona, and Highland Avenues. In 1912 a major fire destroyed several structures within the Heller Brothers complex, but reconstruction was rapidly completed and operations were quickly resumed. In later years the Heller Brothers Co. abandoned their North Newark plant and relocated their tool-making business in Ohio. Much of the former Heller Brother complex remains standing today and continues to house metal-related industrial activities.

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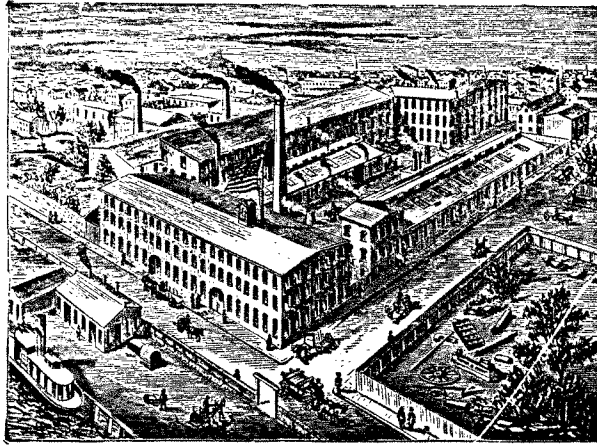
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HEWES & PHILLIPS IRON WORKS



OFFICE. 6 ORANGE ST.. NEWARK. N. J.

HEWES & PHILLIPS
Newark Directory. 1897



HEWES AND PHILLIPS IRON WORKS

Southwest corner of Orange Street and McCarter Highway
Newark, Essex County, New Jersey

The Hewes and Phillips works on Orange and Ogden Streets near the Passaic River was Newark's leading machinery concern during the second half of the 19th century. The company was formed by Joseph L. Hewes and John M. Phillips, both former employees at Sath Boyden's malleable iron foundry, in New York City of 1845. In the following year the new firm relocated in Newark, first, briefly, at the Hedenberg Works on the Morris Canal. In 1847 Hewes and Phillips rented a portion of the Oby Meeker and Co. foundry (also called the Union Iron Works). This foundry was located on the block bounded by Orange Street, Ogden Street (now McCarter Highway), Bridge Street, and Spring Street (now vacated here) immediately to the east of the former Boyden works.

In 1850, Hewes and Phillips, "Machinists" employed some 40 hands and a 25 horsepower steam engine at their rapidly growing Orange Street shop. In the previous year 57 tons of iron castings, 46 tons of wrought iron, quantities of cast steel and brass, and 300 tons of coal had been utilized in the production of six steam engines and a variety of machinist's tools. In 1858 the company purchased the northern half of the Union Works and consolidated their operation at the southwest corner of Orange and Ogden Streets. Government contracts gained during the Civil War allowed for a further expansion and the company's labor force grew to include some 400 workers. A variety of military contracts were fulfilled during this period, but by far the most notable was the manufacture of turret parts for the "Monitor", the famous Union ironclad.

Hewes and Phillips continued as one of Newark's leading industrial entities throughout the remainder of the 19th century. The works continued to employ 300-400 men during much of this period. The company's product line was extensive, including various types of steam engines (stationary, portable, marine, etc.), boilers, and a wide range of general machinery and machine parts. The company dock on the Passaic provided shipping connections to a market that was international in scope. Joseph L. Hewes died in 1873, and his heirs subsequently sold their share of the business to John M. Phillips. Phillips was sole proprietor of the company until his death in 1884, at which time management responsibility descended to his estate.

The John M. Phillips estate continued its management of the Hewes and Phillips Iron Works into the second decade of the 20th century. In 1906 the old shop was still employing approximately 200 laborers in the production of engines and general machinery. During the 1920's, however, the old company finally ceased to exist, and the old iron works was taken over by the New Jersey Machinery Exchange, dealers in new and used machinery and parts. By the 1960's the Acme Metal Goods Manufacturing Co. had occupied the old machine



HEWES AND PHILLIPS



shop and was involved in the manufacture of kitchenware and other metal products. Substantial portions of the old Hewes and Phillips Iron Works remain standing today as part of the Acme Metal complex on Orange Street and McCarter Highway. This survival is of particular significance as it is one of the few remaining vestiges of the early decades of Newark's iron and machinery industry.

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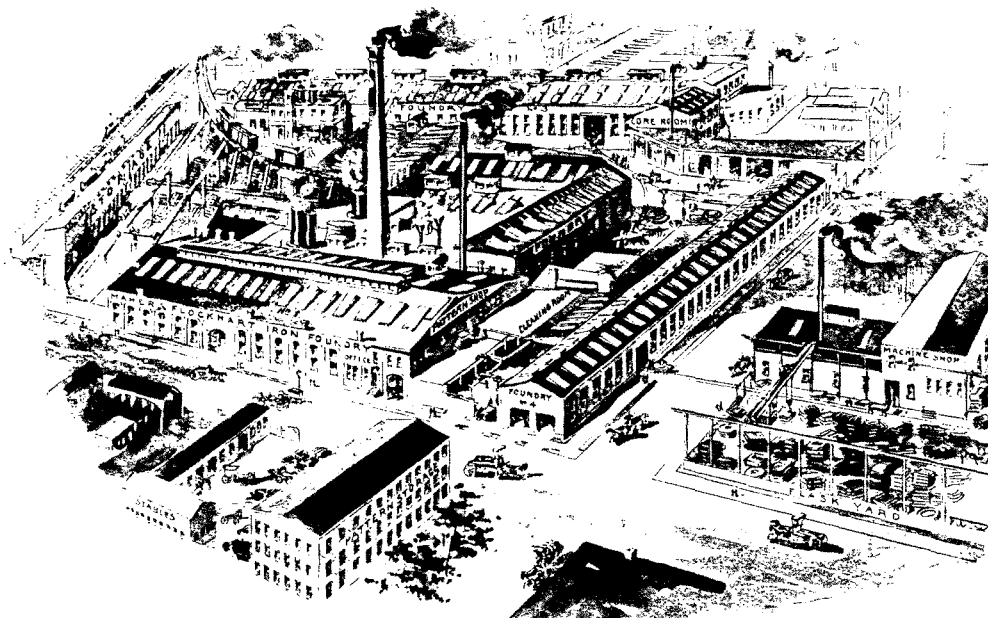
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MAHER & FLOCKHART
Newark, City of Industry
1912, p. 126



MAHER & FLOCKHART IRON FOUNDRY

Polk, Clover and Ferguson Streets and the former Central Railroad of New Jersey; also additional structures on Polk, Van Buren, and Merchant Streets Newark, Essex County, New Jersey

This concern was initially established as Maher, Robinson & Flockhart in 1882. The new company commenced operations in a small foundry on Polk Street, employing but one hand in the manufacture of grey iron castings for machinery parts. In 1889, with expansion necessary, the entire block bounded by Polk, Clover, and Ferguson Streets and the Central Railroad of New Jersey was purchased and construction began immediately. The primary foundry building, measuring 200' X 80', was erected on Polk Street between Clover Street and the rail line in 1889-1890. Additional structures were also built during the next several years, and the complex was connected to the Central Railroad line with its own spur, providing invaluable transportation connections. In 1892 Thomas Robinson retired from the firm, and the remaining partners shortened the company's name to the now more familiar Maher & Flockhart.

In 1906 the company was described as producing gray iron castings with a work force totalling some 250 employees. Physical expansion continued as lots in surrounding blocks were acquired and developed as adjuncts of the foundry's existing central core. By 1912 the complex encompassed approximately six acres and included numerous brick and frame structures. By this time Edward Maher was also no longer involved with the business, leaving James Flockhart as the sole proprietor. At this time Maher & Flockhart employed some 475 hands and was involved in virtually all forms of casting production. The company's area of specialization during this period was the manufacture of castings for urban public works. Maher & Flockhart manhole covers, sewer and catch basin frames and covers, and other products can still be seen in numerous northern New Jersey cities. Substantial portions of the Maher & Flockhart Iron Foundry remain standing today, including the 1889-90 primary foundry building and the later office structure on the northwest corner of Polk and Clover Streets. The bulk of this large complex is now dormant, but structural elements dating from the mid-20th century indicate the site's prolonged utilization.

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Garrison. Industrial Directory of NJ. 1906

S. J. MEEKER

MALLEABLE, GREY IRON AND BRASS

FOUNDRIES

REFINED MALLEABLE CASTINGS MADE FROM
AIR FURNACE AND CUPOLA

SMALL GREY IRON CASTINGS A SPECIALTY

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NEWARK, N. J.

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CORRESPONDENCE SOLICITED

TELEPHONE 600

MEEKER FOUNDRY
Newark Directory, 1901
p. 52

Sanborn Insurance Maps. 1908-1928. Vol. 1

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1889

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MEEKER FOUNDRY CO.

Clay Street between McCarter Highway and Spring Street
Newark, Essex County, New Jersey

The Clay Street foundry was in operation by the mid-1830's under the proprietorship of Oba Meeker and Co. By 1843 the latter concern had relocated to a second foundry at the corner of Bridge and Ogden Streets, and the Clay Street works had come under the central of Gardner, Harrison and Co. The latter company devoted their attentions to the production of malleable iron castings (during the Oba Meeker and Co. tenure it had been a cast-iron foundry) and employed a work force of 20 hands by 1850. The foundry's bellows were powered by a raceway which formerly ran to the north of Clay Street. In the previous year 100 tons of pig iron, 250 tons of coal, and 300 barrels of rosin had been utilized to produce 90 tons of malleable iron castings.

By 1857 David M. Meeker emerged as the primary figure in the operation of the Clay Street foundry. Meeker had been part of the leadership of Gardner, Harrison and Co. from its inception, and in 1861 he became the sole proprietor of the foundry that would bear his name for more than a century. Meeker expanded production to include gray iron casting in addition to malleable iron work. In 1873 Meeker accepted his son Stephen J. as a full partner, and the name of the firm was changed to D.M. Meeker and Son. David M. Meeker died in 1880, with his son accepting full responsibility as a successor.

By 1906 the firm was known as the Meeker Foundry Co. and employed 150 hands in the production of both malleable and gray iron castings. By the time of the First World War the company was again specializing in malleable iron production. The 1920's brought a continuation of this specialization but a reduction of the work force as only 75 hands were employed. Malleable iron production continued through the Second World War and into the 1960's. The longevity of the foundry operations on this Clay Street site are of particular note.

None of the former foundry structures remain standing today and the site is presently used for storage by a pallet manufacturer.

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OBA MEEKER & CO. FOUNDRY

Northwest corner of Bridge Street and McCarter Highway
Newark, Essex County, New Jersey

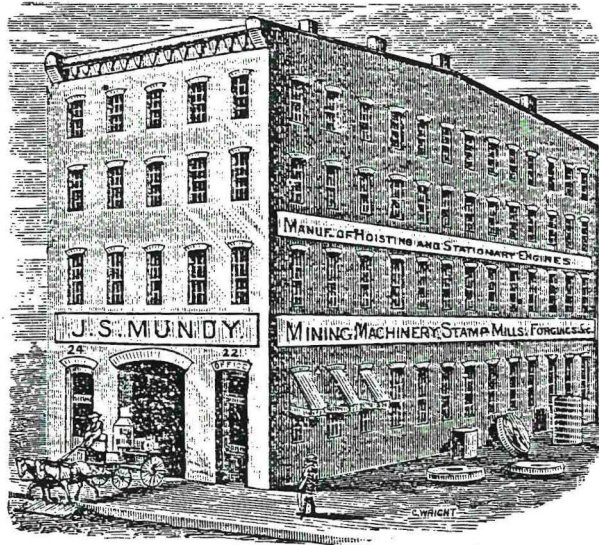
The firm of Oba Meeker and Co. had been formed by the mid-1830's and was involved in the production of cast-iron at their foundry on Clay Street between Ogden and Spring Streets. This iron works would continue to be known as the Meeker Foundry well into the present century. Oba and Elly Meeker, the principals of Oba Meerka and Co., sold the Clay Street foundry and by 1843 had established themselves at a second site on the block bounded by Bridge Street, Ogden Street (now McCarter Highway), Orange Street, and Spring Street. This second Meeker foundry was located immediately to the east of the noted Boyden/Barlow Foundry then owned by Condit and Bowles. In 1847 the Meekers rented a portion of their works to the Hewes and Phillips engine and machinery concern, and in 1858 they sold the northern portion of the block to Hewes and Phillips outright. Oba Meeker and Co. continued their foundry operation in the southern half of the block at the corner of Bridge and Ogden Streets.

Both Oba and Elly Meeker had gained reknown as the manufacturers of ploughs during their early years in Newark, and this form of production continued to play an important role in the company's business during the next several decades. In 1850 Oba Meeker and Co. and their 15 employees at their "Iron Foundry" utilized 200 tons of pig iron, 300 tons of scrap iron, 100 tons of coal, and a quantity of charcoal to produce 450 tons of castings, including ploughs, machine parts, stoves, and carriage parts. The company remained active at the Bridge Street foundry until the mid-1870's, at which time the Smith and Sayre Manufacturing Co. acquired the property and converted it for use as a large machine shop. Smith and Sayre remained for more than a decade, but by 1892 another machinery concern, the Isbell-Porter Co. had replaced them.

The Isbell-Porter Co. continued at the Bridge Street shop well into the 20th century. During their first two decades on the property the company maintained a work force numbering nearly 200 individuals involved in general machinery production. By the time of the First World War the firm had developed a specialization as manufacturers of gas works machinery and employed some 250 workers. The Isbell-Porter Co. continued this form of production into the 1930's, but the size of its work force declined steadily, and by 1931 the company employed only 23 people. This site is presently part of the large parking lot that surrounds the surviving Hewes and Phillips complex and borders on Orange and Bridge Streets and McCarter Highway.

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JOSEPH S. MUNDY
Commerce, Manufactures,
& Resources of Newark
 1881, p. 73



JOSEPH S. MUNDY, MACHINERY

Prospect Street between Ferry and LaFayette Streets;
original site on New Jersey Railroad Avenue between Ferry
Street and Edison Place (formerly East Mechanic Street)
Newark, Essex County, New Jersey

Joseph S. Mundy founded his general machinery concern in 1870 in a small shop on New Jersey Railroad Avenue. This structure, located very near the present Newark Station, had been removed by the early decades of the 20th century. In 1880 a new four story brick factory building was completed at 22-24 Prospect Street. In 1881 the Mundy concern was described as providing sufficient work for 30 employees and producing various types of engines and machinery for a national market. The company's most noted product was a special hoisting engine which had been patented by Mundy and successfully employed in the harbor of New York and elsewhere in the United States.

By the time of the First World War the Mundy operation had greatly expanded. Additional structures were built to supplement the original 1880 machine shop, and in 1906 the labor force totalled some 130 men. J.S. Mundy apparently continued as a manufacturer of engines and machinery into the 1920s. By 1928 the former Mundy complex was being utilized by several manufacturers, and in 1964 the site was occupied by the Newark Umbrella Frame Co. Portions of the former Mundy complex on Prospect Street remain standing today, most notably the 1880 machine shop.

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- Newark Board of Trade Annual Report. 1913
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- Newark Industrial Directory. 1964
- Cunningham. Newark. 1966.



NEWARK GEAR CUTTING
MACHINE COMPANY

Newark

Gears

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Telephone 2-7725 Market

69 Prospect St., near Ferry
Newark, N. J.

NEWARK GEARS
Newark Directory, 1930

NEWARK GEAR CUTTING MACHINE CO.

Northwest side of Prospect Street between Ferry and
LaFayette Streets
Newark, Essex County, New Jersey

In 1904 Henry E. Eberhardt, the brother of Ulrich Eberhardt of Gould and Eberhardt, founded a machinery concern on Prospect Street several blocks east of his brothers New Jersey Railroad Avenue factory. The new company was initially known as Eberhardt Brothers, but within several years it had been changed to the Newark Gear Cutting Machine Co. In 1918 the company was described as employing 52 men in the manufacture of machinery used for cutting gears. During the 1920's the business expanded as Eberhardt gained a number of government contracts both for gears and their gear cutting machines. The Newark Gear Cutting Machine Co. remained active into the 1950's. The Prospect Street factory still stands today and is fully in use by the Stahl Gear Co., a successor to the business started by the Eberhardts some eight decades earlier.

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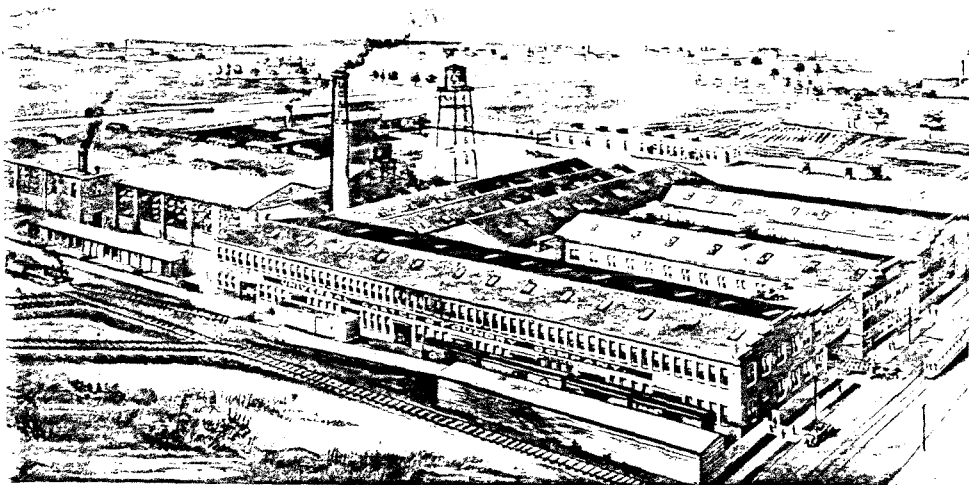
UNIVERSAL CASTER AND FOUNDRY CO.

Between Ferry Street and Raymond Boulevard adjacent to west side of Hayes Park East; original site in block bounded by Adams, LaFayette, Jackson, and Ferry Streets
Newark, Essex County, New Jersey

The Universal Caster and Foundry Co. was founded in 1903 as the end result of a merger involving three smaller firms. The company's original factory was a complex of brick structures that occupied much of the block bounded by Adams, LaFayette, Jackson, and Ferry Streets. In 1906 the company was described as employing 285 hands in the production of metal castors. By 1910, however, Universal required larger physical accommodations, and in 1911 a larger complex was constructed on a spur line of the former Central Railroad of New Jersey between Ferry Street and Raymond Boulevard. The original factory was subsequently rented out to various tenants. Although some portions of the first Universal factory have been razed, other sections remain standing and continue to house industrial operations.



UNIVERSAL CASTER & FOUNDRY
Newark, City of Industry
1912, p. 128



Universal's second castor manufactory and foundry was a far larger complex of brick buildings which occupied a site in excess of five acres in size. This larger plant allowed for an expansion of the work force, and in 1912 Universal employed some 500 workers. The company's primary product continued to be metal furniture and piano castors (which were shipped to markets all over the world), with the production of small gray iron castings serving as a secondary activity. By the mid-1920s, however, the Universal Castor and Foundry Co. had ceased operations and sold off its Ferry Street plant. Many of the structural elements of this former castor manufactory survive today and have been incorporated as part of the plastics concern presently occupying the site.

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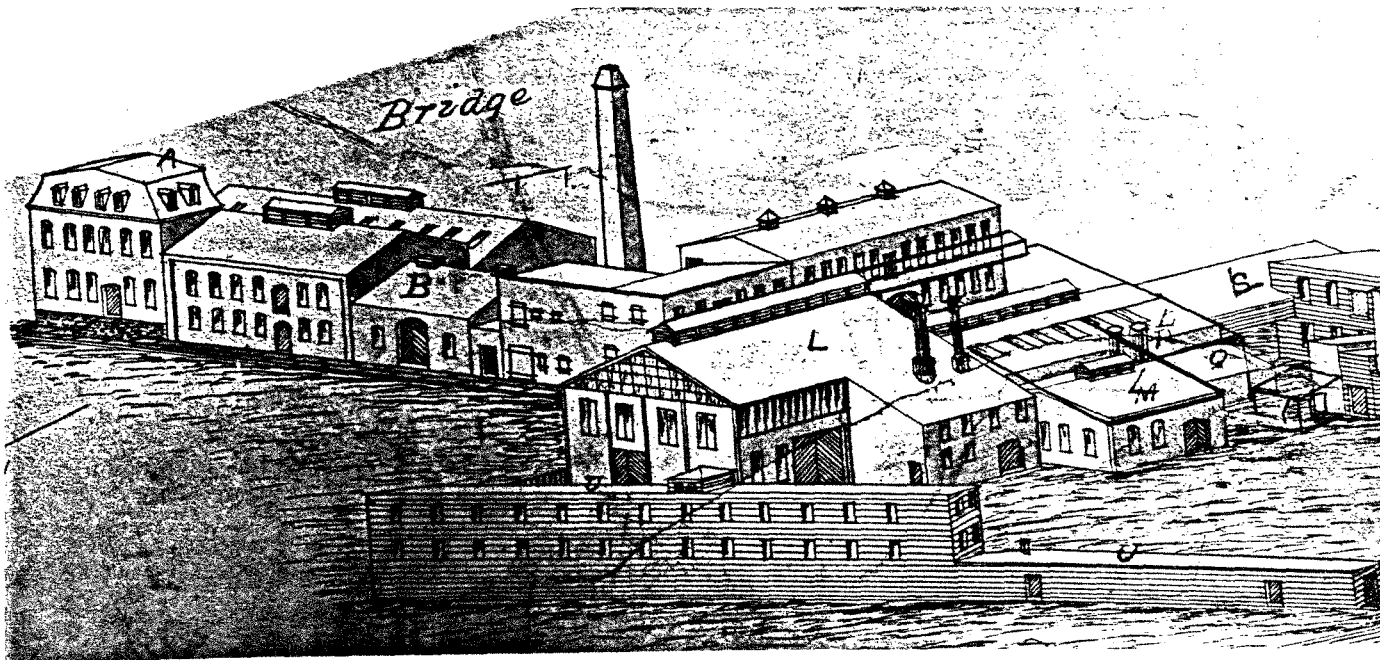
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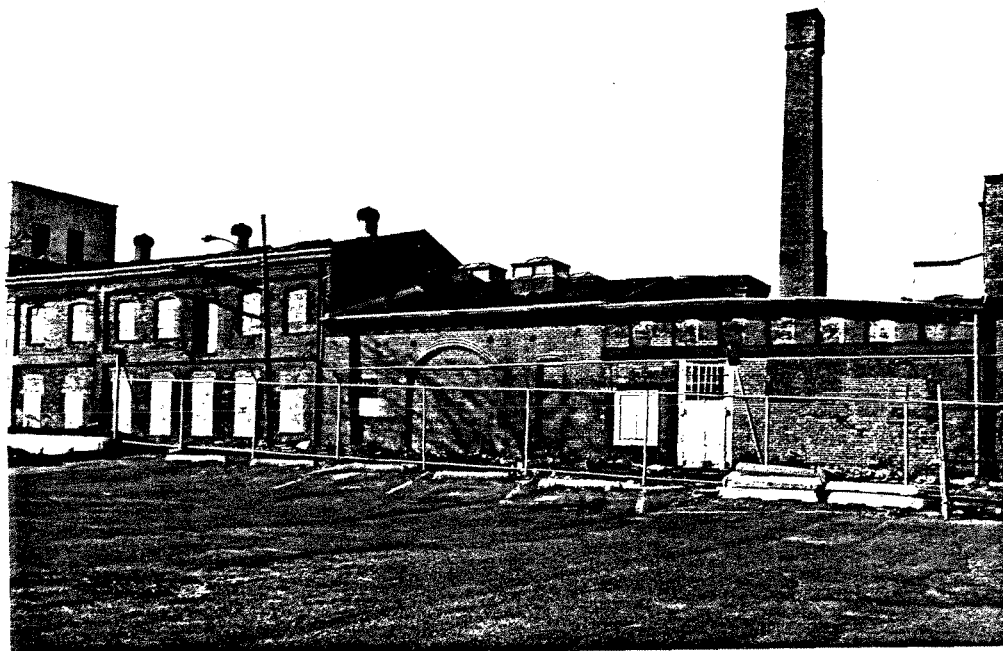
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WATTS, CAMPBELL COMPANY
(PASSAIC MACHINE WORKS)
Barlow Insurance Survey
ca. 1885



WATTS, CAMPBELL COMPANY

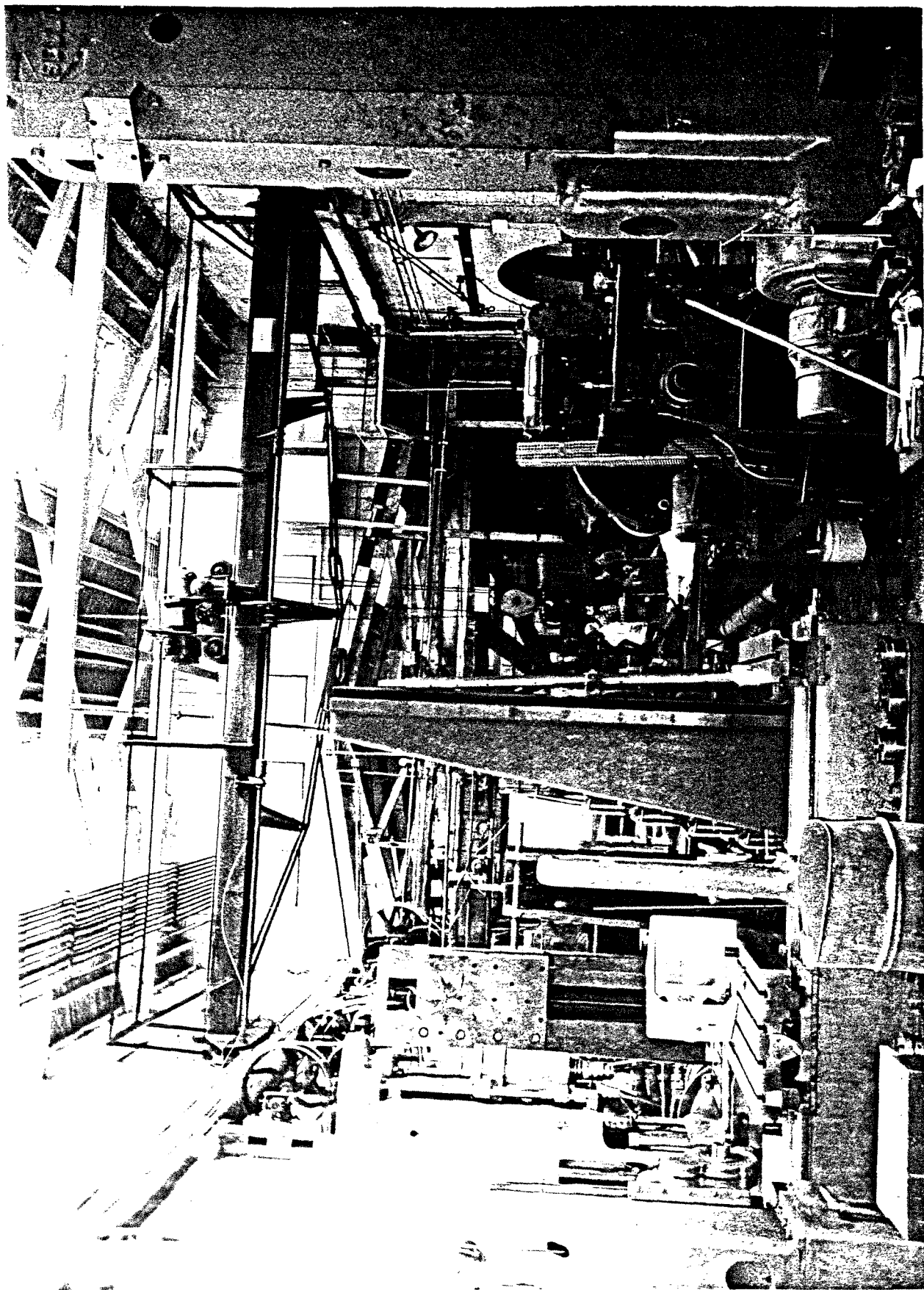
WATTS, CAMPBELL COMPANY
 (Passaic Machine Works)
 1270 McCarter Highway
 Newark, Essex, New Jersey

Possibly New Jersey's oldest machine shop in continuous operation under the same family ownership, Watts, Campbell manufactured steam engines from 1851 until c. 1930. The company is the oldest functioning industrial facility on the Passaic River in Newark. The firm not only retains extensive records of its own product, but also has many drawings of Hewes & Phillips steam engines.

Originally formed as the Passaic Machine Works in 1851 by William Watts and Zachariah Belcher, in two years they had moved from the old Washington Street factory to the present location at the corner of Ogden (now McCarter) and E. Mill Street on the Passaic River. Watts apprenticed in Seth Boyden's shops as a machinist. (Boyden made steam engines in Newark in the 1820's.) Belcher left the Company in 1855 after which it was operated by William and George Watts. Ten years later Daniel Campbell became a partner and the firm name was changed to Watts, Campbell and Company. William Watts died in 1883 and late in that year the company was incorporated as the Watts, Campbell Company with George Watts, Daniel T. Campbell, Merry Belcher and Charles Watts as proprietors.

The company manufactured primarily corlis steam engines. Steam powered machinery was an ideal solution for Newark's developing industry at mid century. The Passaic River was unable to generate sufficient hydropower below the fall line and the Morris Canal (opened to Newark in 1831), provided transport for Pennsylvania anthracite. Watts, Campbell and its neighbor Hewes & Phillips were the major producers of steam engines in Newark. At the Newark Industrial Exhibition of 1872 Watts, Campbell displayed vertical & horizontal steam engines. By 1880 the company employed 140 workers. Watts, Campbell engines were used extensively locally and also distributed throughout the United States. Prominent Newark companies who bought their corlis engines included Clark Thread, Ballantine, The Celluloid Company, Weston Electric, T.P. Howell Leather, and Wiss Shears. Watts, Campbell engines were also supplied to Waterbury, Connecticut, Buffalo, Wilmington, Savannah, San Francisco, Texas, Mexico, and Cuba. (Walter B. Clement of Notasulga, Alabama ran a 1905 single expansion Watts, Campbell corlis at the 8th Annual Conference of the Society for Industrial Archeology, April 1979).

According to the present owner, Chadd Watts, the company bought the patterns and drawings of its major competitor,



WATTS, CAMPBELL COMPANY
Interior view courtesy
Conrad Milster, 1978

Hewes & Phillips when they closed around 1913. Watts, Campbell discontinued marking steam engines in the 1930's but the firm still occasionally repairs old steam equipment.

The three story office is at the corner of McCarter and E. Mill Street, a company alley. Originally a Mansard roofed masonry building, in the 1930-1940's the roof was flattened, the main entrance of the alley moved around to McCarter and the entire building was stuccoed. The interior, however, was surprisingly unaffected and features late 19th century office equipment. A two story brick machine shop (ca. 1880) envelops the north and east facades of the office. This gable roofed building has a seven bay alley facade with segmental arched sash windows and first and second floor oversize batten doors. In the rear (north) it opens to a larger machine shop. This tall one story brick structure (ca. 1880) has skylights on its gable roof and extends from McCarter to Passaic Street. A rail curves through the facility. The roof has an open wood truss and a wooden overhead crane. Equipment dates from ca. 1880 to the 1920's and includes a wooden pivoting cantilevered hoist, large lathes, huge planer beds, and a vertical boring mill. The power is now generated by electricity, but much of the belt driven overhead shaft gearing survives. Also within the complex is a blacksmith shop and the steam power building, no larger functional.

The plant foundry, unfortunately, is no longer in operation. On the Passaic River, it is now Art Metal, USA Incorporated, a manufacturer of office furniture. Barlows Insurance Survey, in Chadd Watt's possessions, shows a large foundry with core ovens, a chipping shop, an erecting shop and pattern storerooms on this property around 1885.

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Watts, Campbell Company files and map cases.

Especially useful were the Barlow Insurance Survey, NY (#11,054, MSS undated, ca. 1885); Illustrated Circular of Improved Corlis Steam - Engines Built by the Watts-Campbell Co. (ca. 1887).

WISS COMPANY
33 Littleton Avenue
Newark, Essex County, New Jersey

Recognized as the premier name in quality shears, scissors, and snips, J. Wiss & Sons Company of Newark was founded in 1848 by Swiss immigrant Jacob Wiss and was headed by succeeding generations of family descendants until the 1970's when Cooper Industries bought the company. Although final assembly is now in Statesboro, Georgia and the variety of shears has been cut back, Wiss of Newark continues to manufacture superior quality drop forge industrial shears.

Jacob Wiss immigrated to the United States from his native Switzerland in 1847. At Newark, having previously apprenticed as a cutler and gunsmith, the thirty-year-old craftsman took a job in the cutlery factory of Rochus Heinisch, an Austrian who had come to America twelve years earlier and perfected a method of facing malleable iron with steel in manufacturing shears. Wiss soon opened his own small business forging out surgical instruments and shears.

Jacob Wiss was determined to make the finest shears and scissors available, regardless of cost. Few precision tools were made in America at that time. Within a few years the company outgrew its quarters and two moves were made to successively larger shops on Bank Street. Early products were shears, scissors, table knives, surgical instruments, and razors. By the Civil War, Wiss was an established rival of R. Heinisch Sons Company. During the war, Wiss made scissors for Union Army medical units and shears to cut uniforms. The introduction of power driven sewing machines in the manufacture of military uniforms, boots, and shoes brought those industries into the factory system, creating extensive new postwar markets for Wiss scissors and shears. The company benefited also from development of home sewing machines and from lowered textile costs. Improvement in crucible steel provided better raw materials for the manufacture of Wiss products.

As Wiss's children grew, the firm's name was changed to J. Wiss & Sons Company. The sons, in fact, were brought into the business at early ages. In 1880, Jacob Wiss died and Frederick became president at the age of twenty-two and, with his brother Louis, initiated an ambitious program of promoting Wiss products as superior to European imports.

Major 19th century products included several lines of shears and scissors, trimmers, pruning shears, and tin snips. Manufacturing and wholesale-lot shipping were supplemented by the company's own retail outlet. With its rapid growth of business, Wiss made plans for large-scale construction and

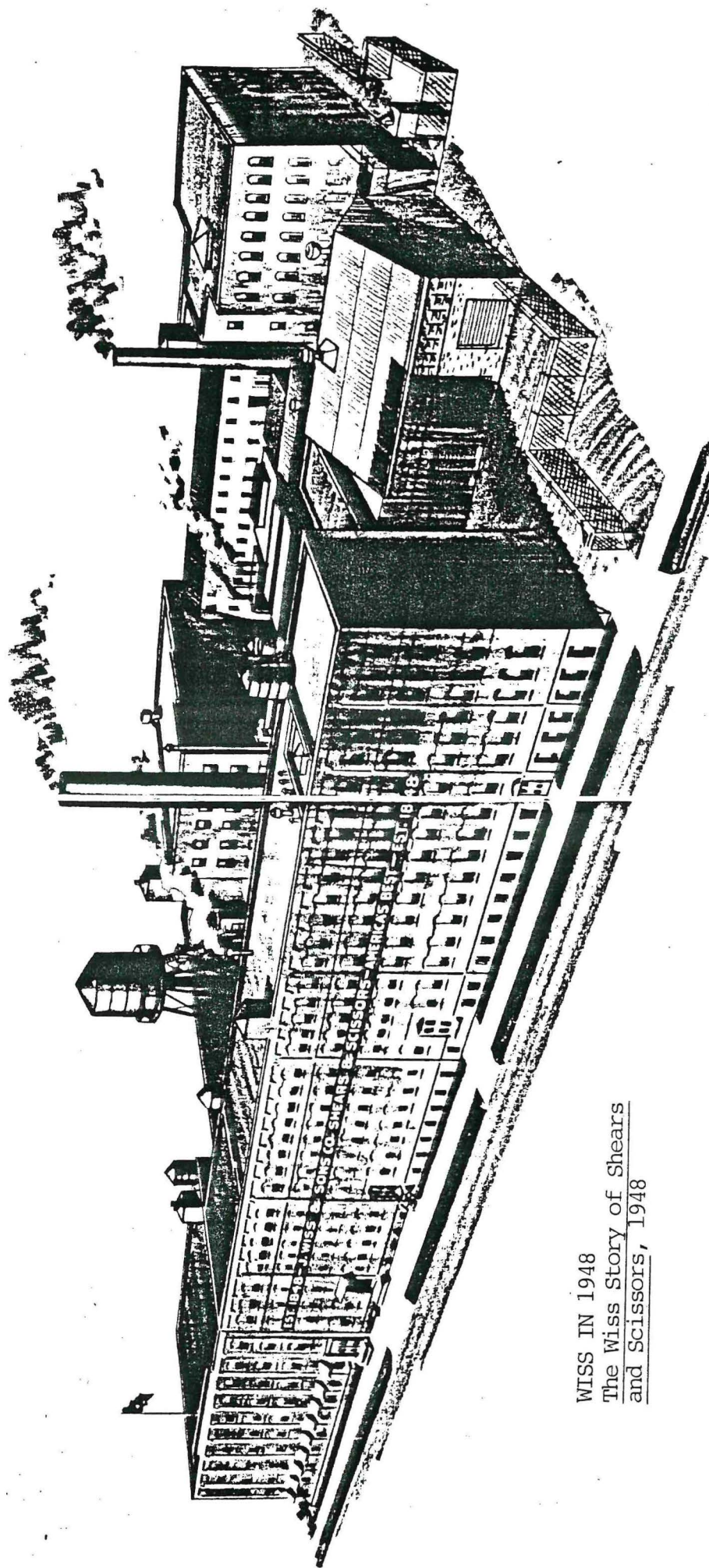
company realignment - a block of property at Littleton Avenue and West Market Street. When the two story brick plant opened in 1887, the company divided into three operations; manufacturing, retail, and real estate. All manufacturing was moved into the new building but the retail segment, Wiss Store, remained on Bank Street. Later it was moved to another location where it began specializing in jewelry. The third division, established in 1887, was Wiss Realty Corporation, a real estate holding company. Frederick Wiss explained the new manufacturing plant in a letter to customers.

"It is with pleasure we announced the completion of our New Works, the erection of which was found necessary to accommodate our constantly increasing trade, which has grown so rapidly. Our new factory has been supplied with everything needed in improved machinery, etc., and all departments enlarged to an extent that will enable us in a very short time to promptly meet all demands. We now have what is conceded to be as fine, if not the finest works of the kind in the world, and intend to fully sustain our well-known reputation of manufacturing only strictly first quality and fully warranted goods."

The Wiss chain of ownership was broken temporarily in 1898 when its manufacturing segment was purchased by the National Shears Company, better known as the Shear Trust. Organized in New Jersey but with main offices in Manhattan, Shear Trust quickly purchased five plants, among them J. Wiss & Sons. Three of the companies were closed, but by operating Wiss and Clauss Shear Company, the Trust controlled from 65 to 70 percent of the shears and scissors output in America. Success seemed assured, but in less than two years the organization was declared bankrupt. Production continued for a short time under receivership, but in May, 1900, the Wiss family bought back its factory. A few days later the business was incorporated as J. Wiss & Sons Company, and business continued with Frederick Wiss again the president-treasurer and Louis Wiss secretary.

Additional plant construction followed, and in 1906 power drop hammers for hot forging steel shear frames were installed, making it possible to weld tough high-carbon steel blades to softer, more malleable steel. This new process, which made shears and scissors virtually indestructible, prompted the Wiss brothers to launch the industry's first spirited national advertising campaign through popular magazines developing additional channels to the customer market through hardware and cutlery retailers.

Vigorous sales campaigning, bolstered by the national advertising, put Wiss products with inlaid cutting edges on



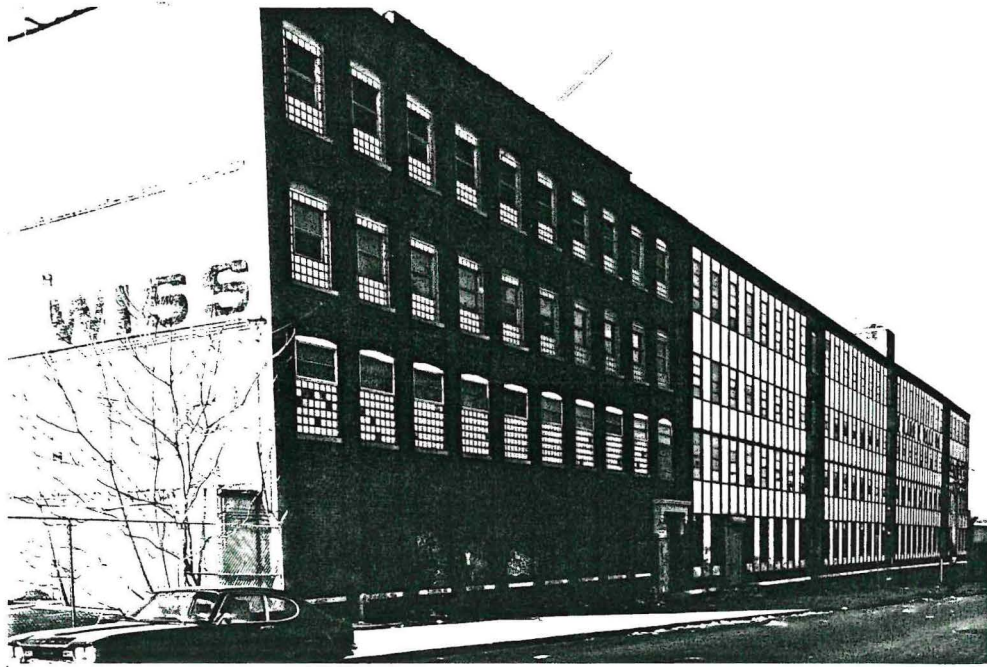
WISS IN 1948
The Wiss Story of Shears
and Scissors, 1948

counters and in show windows across the country. The push was accelerated in 1912 when the company perfected a process of forging steel handles. Until that time, the steel blades of tailors' shears were attached to handles made of malleable iron, which tended to crack. Contours of handles were considered too complicated for drop forging, but Frederick Wiss overcame a series of experimental failures to add another improvement to his scissors and shears. His "steel forged" process was completed with the welding of inlaid blades of high carbon crucible steel to the forged steel frames of tailors' shears.

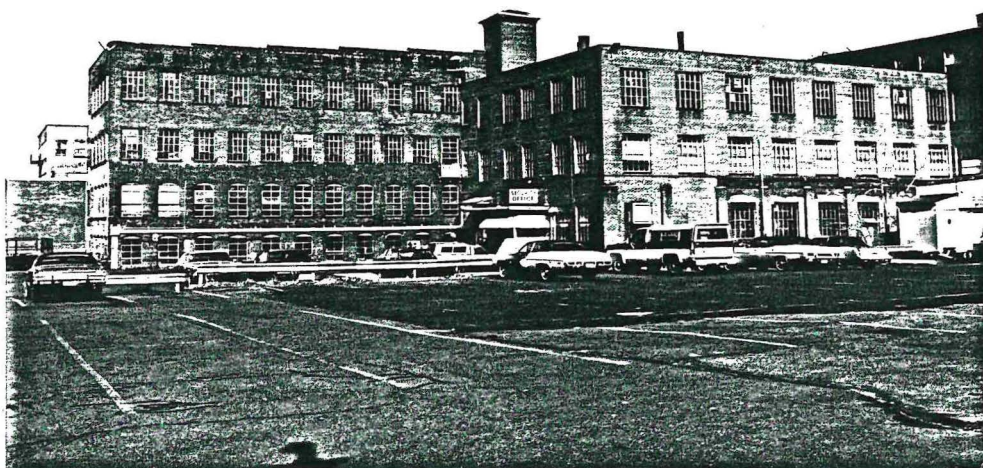
Still competing at prices above those of most other manufacturers, Frederick Wiss remained convinced that customers would pay more money to avoid pulling and tearing their fabrics. On the wall of his office was sign bearing the words, "The recollection of quality remains long after price is forgotten." The company even began making its own screws, bolts, and nuts since it was impossible to buy supplies that met the standard of what the president referred to as "watchmaker accuracy," and it became the first manufacturer to apply the technique of blade-edging to the production of garden cutting tools.

By purchasing R. Heinisch Sons Company in 1914, Wiss became the world's largest producer of fine shears and scissors. World War I brought further gains when imports from European cutlery centers of Sheffield, England, and Solingen, Germany, were halted. Production soared to plant capacity during the war and continued at a high level until 1920. Following WWI, however, in its haste to rehabilitate a defeated enemy and encourage payment of war debts, the United States permitted Germany to send large quantities of duty-free goods to American markets, including scissors priced at less than half the cost of domestic merchandise. Before the tariffs of 1923 rescued American industry, several plants had closed. Wiss was among the survivors, but many months were required to re-establish its position with a price conscious public amidst the leftover glut of cheap goods. One method it used was to direct a new sales effort toward department stores, which were growing rapidly in the '20s.

By the end of the decade, the company manufactured annually more than two million pairs of shears and scissors in 250 varieties. After Frederick Wiss died in 1931 and his eldest son Robert became president the third generation Wiss president faced a problem shared by most Americans, the Great Depression, which already had taken a heavy economic toll. Wiss did not close its doors, but employees worked what they dubbed appropriately "short weeks." Sometimes that meant two days a week, every other week, for a total of four days per



WISS COMPANY



month. The company set up a program where employees could spend non-working days selling products door to door. When at last the nation began to recover, Wiss helped encourage sales by introducing such new products as pinking shears with zig zag edges and a new Metal master line of industrial cutting tools.

Wiss products were converted to military applications during World War II, sometimes in unusual ways. Cuticle and nail scissors proved ideal for the manufacturer of precision radar and radio systems. Pruning shears were adapted to preparing poultry for overseas shipment, and pinking shears were utilized in the manufacture of airplanes. Metal snips were used building ships and tanks, and surgical scissors went to hospitals on every fighting front.

As sales reverted to civilian markets after the war, the company's position was strengthened by its military record, particularly in the manufacture of industrial shears. When the company observed its 100th birthday in 1948 five hundred men and women were employed at the Newark Plant and plans for expansion were in the blueprint stage. The manufacture of scissors and shears remained more manual than mechanical, however, and a large percentage of the draftsmen were veteran employees. As part of its centennial celebration Wiss publicized the art of manufacturing its products, explaining the approximately 176 operations required to make dies and tools, forge, grind, heat, treat, polish, finish, and test a pair of scissors or shears.

In 1954, Vice President Norman F. Wiss died. The following year, President J. Robert Wiss died and was succeeded by his only son Richard. Manufacturing continued to expand in 1957 with the purchase of the Kroyden Golf Club Company factory at Maplewood, New Jersey. As a division of Wiss, the plant produced snips and garden tools. In the decade that followed it bought the Crook-Miller Company of Hicksville, Ohio, manufacturer of wooden garden tool handles, and started a three-stage expansion program at the Newark plant. Construction of a warehouse, manufacturing facilities, and a new office was completed by 1970.

In 1973, Paul G. Richards was brought from a West Coast consulting firm to be president. Richards had cut back on unprofitable products and effected other efficiencies in the operation including increased mechanizations which cut the cycle time for producing a pair of shears or scissors from nine months to fifteen weeks. Induction hardening improved the process and a patented set-easy pivot provided individual adjustment of the cutting action. Yet some operations, such as final angling of blades, continued to depend on personal

craftsmanship. Wiss was purchased by Cooper Industries in 1976.

The recent announcement that The Cooper Group would move its Wiss manufacturing operations from Newark, to a recently purchased plant in Statesboro, Georgia, capped the relocation plan that had been in effect since the Cooper company's entry into the hand tools business. With Nicholson file manufacturing in the completion stage of a move to Cullman, Alabama, the Wiss relocation will mark the final step in vacating facilities of companies acquired by Cooper Industries.

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LAMBERT HOISTING CO



ESSEX (CENTRAL) FOUNDRY

Other noteworthy iron, machinery, and related concerns:

- WASHINGTON STREET FOUNDRY
On Washington Street opposite Washington Park.

This foundry is said to have been the first erected in the City of Newark. In 1810 the Second Presbyterian Church was built on the site of this early foundry.

- JACOB ALYEA FOUNDRY
On Market Street near Penn Station.

This foundry was among Newark's earliest and was apparently in existence by the 1830's. It was remembered in later years for having a set of bellows that was powered by oxen. This foundry appears to have been razed at an early date (probably during the second half of the 19th century).

- WASHINGTON FOUNDRY
On Halsey and New Streets.

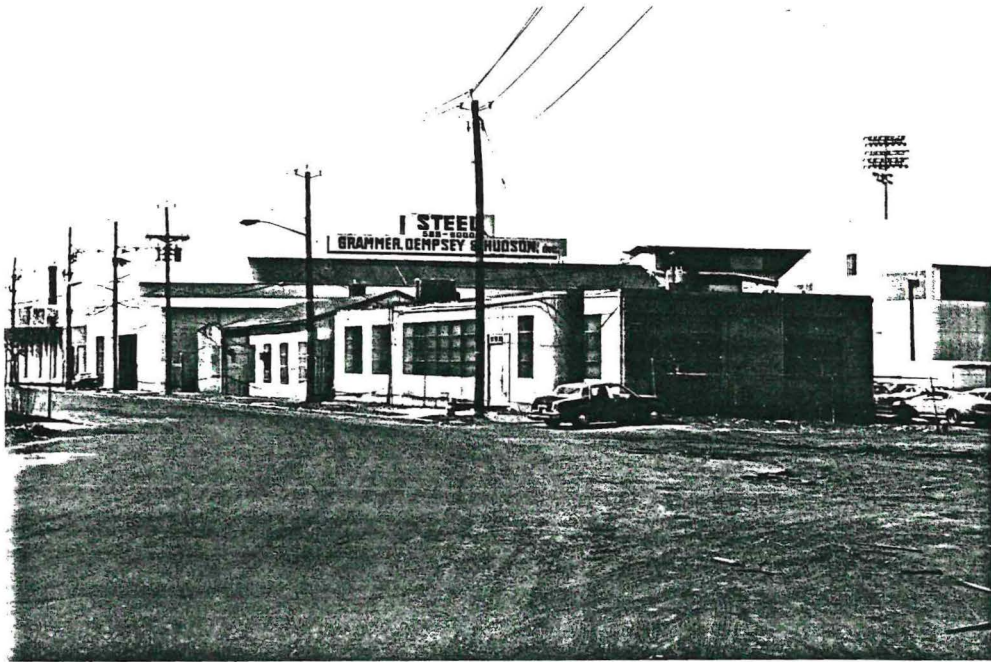
This foundry, another of Newark's earliest, was owned by Alexander Connison and John Heln and produced iron castings during the 1830's and 1840's. The site of this early foundry was later (c. 1900) occupied by a department store erected by Hahne and Company.

- HEDENBERG WORKS
On Warren and High Streets.

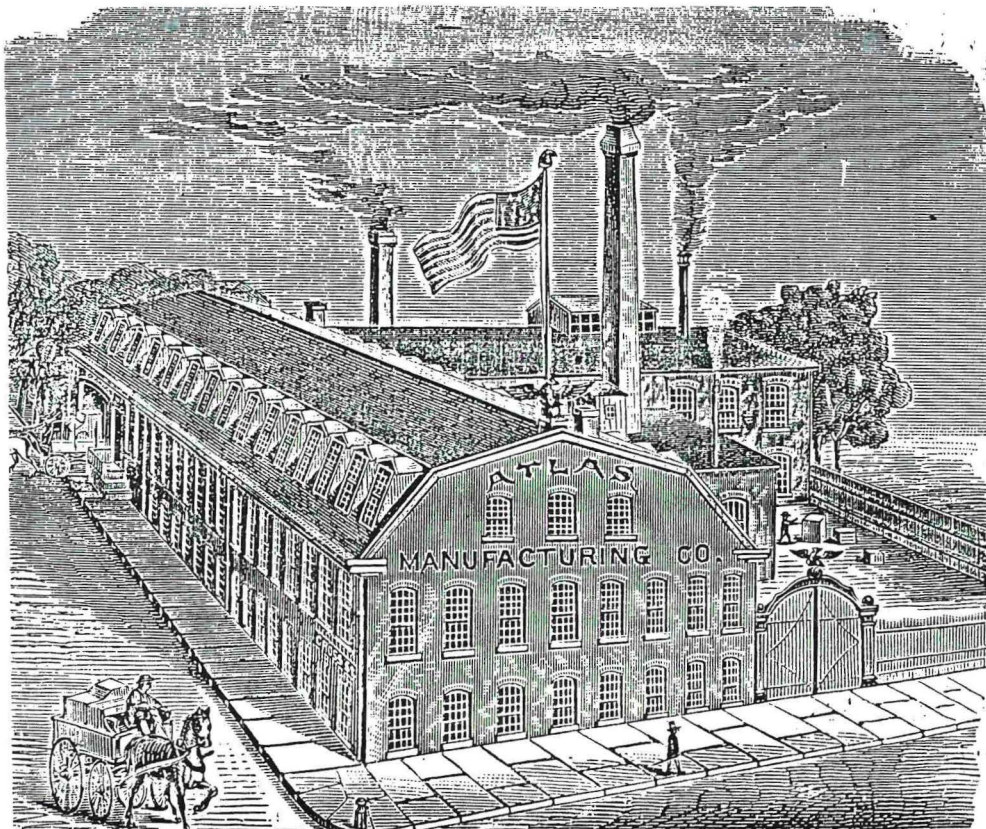
This ironworks had been constructed at the inclined plane on the Morris Canal (now Raymond Boulevard) by the mid-1830's. It had a number of notable industrial tenants through the years, including Hewes and Phillips and Ezra Gould, noted machinists. During the 19th century many foundry and machinery concerns located their business here.

- ESSEX (later CENTRAL) FOUNDRY
On Tompkins Point Road at the head of Pacific Street.

This large foundry was in operation by 1909 and employed approximately 165 ironworkers in the manufacture of cast-iron pipe. Expansion was rapid, and in 1927 the work force totalled some 475 individuals. By 1960 the complex was known as the Central Foundry and was producing general gray iron castings. Substantial portions of this complex remain standing today.



MORRISON-FLOCKHART
FOUNDRY



ATLAS MANUFACTURING CO
Commerce, Manufactures,
& Resources of Newark
1881

- MORRISON FLOCKHART FOUNDRY
On Rome Street northeast of St. Charles Street.

This foundry was built at about the time of the First World War. In 1927 the Morrison Flockhart Foundry Corp. employed a work force of some 56 individuals. Shortly thereafter the foundry was taken over by Sacks-Barlow Foundries, Inc. and enlarged, and by 1931 there were 140 employees. This complex is presently being utilized by Grammar, Dempsey and Hudson, Inc., a steel concern.

- H.M. NELSON MACHINE AND IRON WORKS
On Thomas Street between Pacific and Dawson Streets.

This is one of the many small machine shops and/or foundries built in Newark during the early decades of the 20th century. Several of these, including the Nelson works, are still functioning today.

- HUNTINGTON MACHINE WORKS
On Halsey Street northeast of Raymond Boulevard.

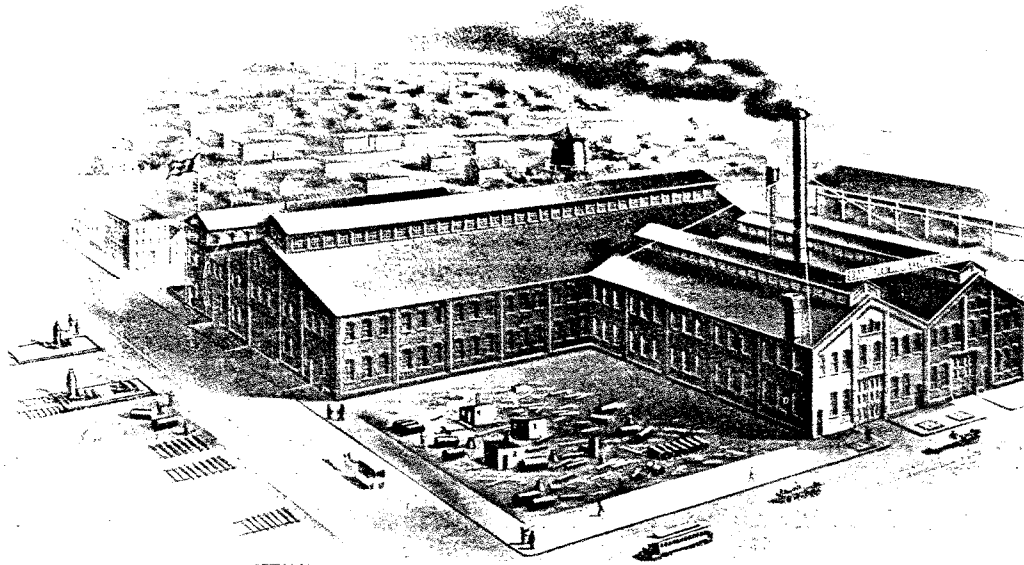
This large machine shop was established on Halsey Street adjacent to the Morris Canal (now Raymond Boulevard) in 1857 by Erastus W. Roff. Roff's primary product was a variety of wood-working machinery, with general machinery and steam engine manufacture providing supplemental support to the shop's operations. This site was later occupied by the Kresge Department Store, built in 1925-6.

- L. WRIGHT MACHINE WORKS
On Alling Street between Market Street and Edison Place.

This small machine shop was established near the Eagle Iron Foundry on Alling Street in 1853. In 1881 15 men were employed in the manufacture of general machinery and several types of engines, most notably yacht engines. This shop continued to operate at a similar level into the early part of the 20th century.

- SKINNER AND LEARY MACHINE WORKS
On Commercial Street (formerly Railroad Place).

This concern was founded in 1866 and in 1878 was known as Skinner, Leary and Lindsley. Shortly thereafter the name was shortened somewhat as Charles H. Skinner and John N. Leary gained full control of the firm. They employed 20 machinists in the production of several types of steam engines and general machinery. This small machine shop continued to operate into the 20th century.



LAMBERT HOISTING ENGINE CO
Meeker, 1906

The National Lock Washer Co.

Manufacturers of

Lock Washers, R. R. Car Curtains
and Fixtures

Spring Steels and Drop Forgings

Newark, New Jersey, U. S. A.

Newark Directory, 1926
p. 134

- ATLAS MANUFACTURING CO.
On corner of Cross and Spring Streets.

This concern was founded by S.R. Parkhurst in 1845, and in 1860 the Atlas Manufacturing Co. name was adopted. The company was involved in the production of machinery utilized in various branches of the textile industry. Atlas cotton and woolen mill machinery enjoyed an international market and the company's work force generally numbered approximately 35 individuals. This site is presently occupied by the Interstate Route 280 causeway on the west side of the Passaic River.

- LAMBERT HOISTING ENGINE CO.
On Broad Street between Poinier and Vanderpool Streets.

This large engine shop was at the far southwestern end of Broad Street at the turn of the present century. By 1906 the company employed 150 men in the manufacture of engines, engine derricks, and machinery. This fine industrial complex survives largely intact and was still in use until very recently.

- LYONS/MCCABE BOILER WORKS
On Commerce Street northwest of Market Street.

This concern was founded in 1847 by Lewis J. Lyon. By the 1880's Lyon had accepted Owen McCabe as his partner and their works employed about 50 men producing boilers for an international market. During the 20th century the McCabe family took over the company and the McCabe Boiler Works was active in Newark into the 1960's.

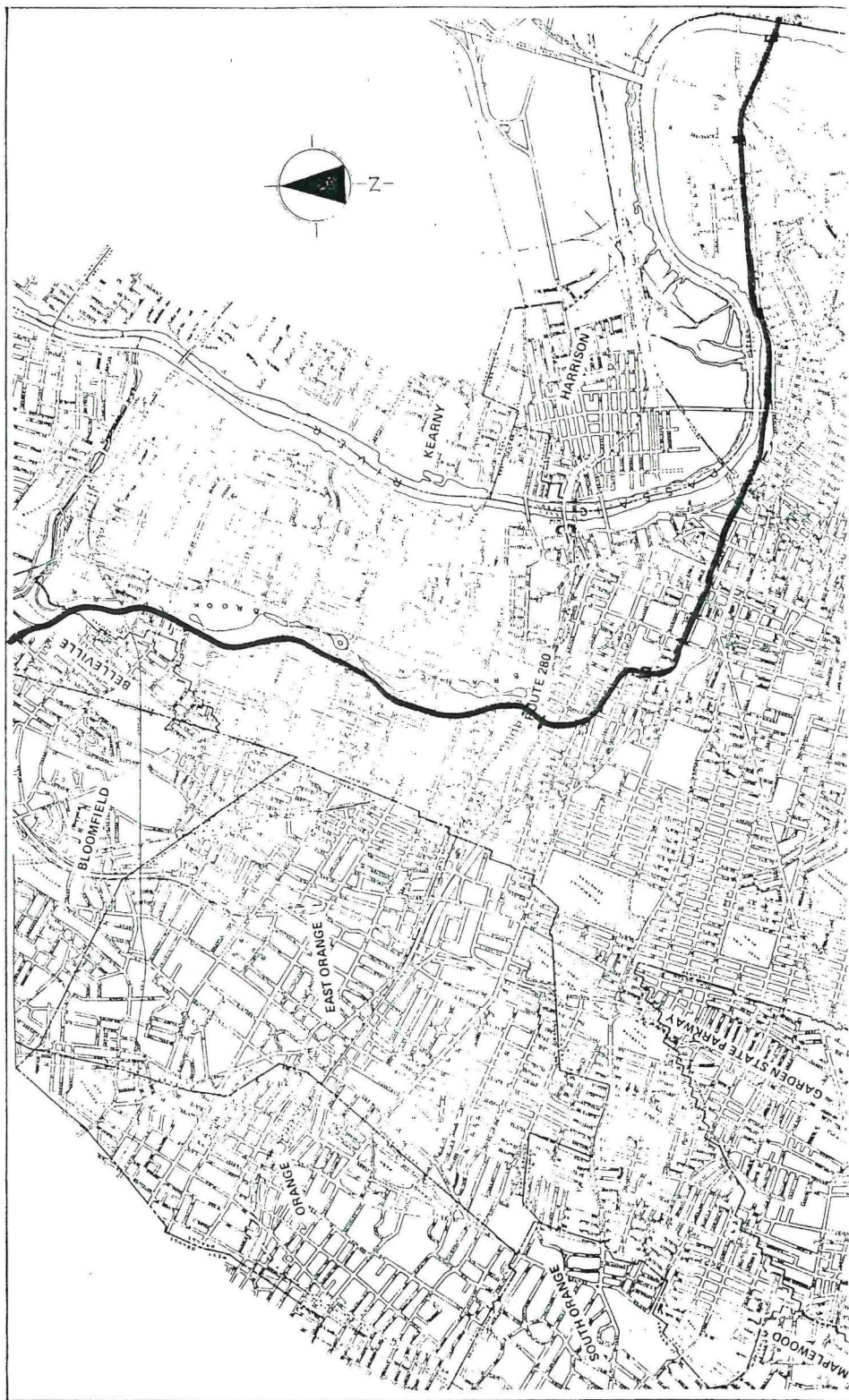
- NATIONAL LOCK WASHER CO.
On the block bounded by Herman, Pennington, Dawson, and Johnson Streets.

This company was founded in 1886 and experienced a notably rapid growth. In 1912 National was described as the largest maker of lock washers and nut locks in the entire world. The company maintained a branch office in Chicago and its products were marketed throughout the United States. The National Lock Washer Co. was still active during the 1960's and its Newark complex was only very recently demolished.

- POSITIVE LOCK WASHER CO.
On Avenue A between Miller and Vanderpool Streets.

This concern was incorporated in 1890 and was involved solely in the manufacture of lock washers for many years. Approximately 75 workers were employed by the company in 1912, and at that time positive lock washers enjoyed an international market. The company was still in business during the 1960's and portions of the Avenue A works remain standing today.

MORRIS CANAL ROUTE IN
NEWARK, NEW JERSEY



TRANSPORTATION

MORRIS CANAL

Newark, Essex County, New Jersey

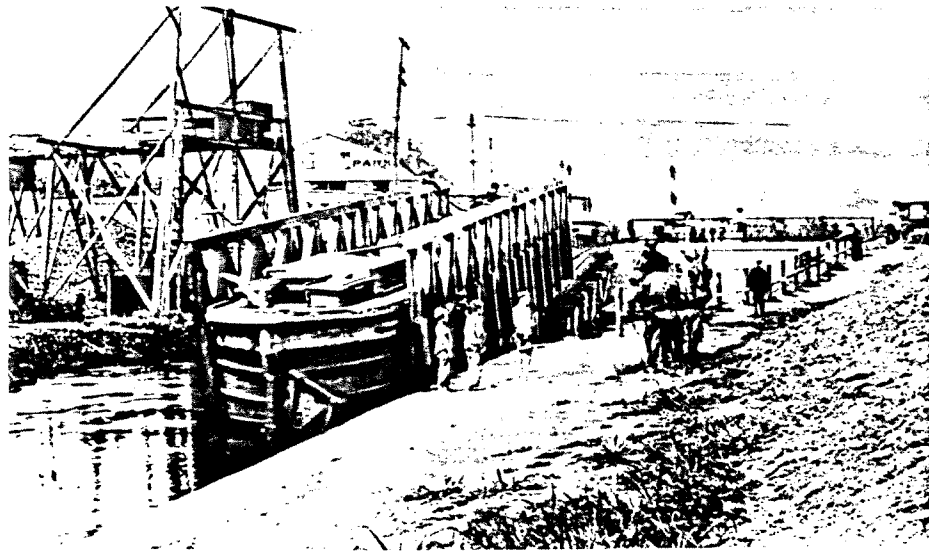
The Morris Canal was a pioneering effort in canal and transportation technology. Utilizing an ingenious system of conventional locks and inclined planes in which the canal boats were taken out of the water on cradles and raised or lowered to the other levels on rails, the Morris Canal opened the Pennsylvania anthracite region to New Jersey and the metropolitan market. Land adjacent to the canal derived substantial benefit as areas opened up to commercial and industrial markets. Many of Newark's earliest industries were along the canal. Examples include the T.P. Howell Leather Works, the New Jersey Zinc Company, and the John Banister Shoe Company, and the Newark Smelting Works.

Initially conceived by George P. McCulloch, a Morristown businessman, the New Jersey Legislature created a canal commission in 1822 to investigate the practicality of the canal and its most appropriate routes. Canal Engineer Ephraim Beach was the commission's consultant. The Morris Canal and Banking Company was incorporated in 1824 with private investors money. Work on the canal began in 1825. Late in 1831 the first trip from Phillipsburg to Newark was completed. In 1836 the extension to Jersey City was opened.

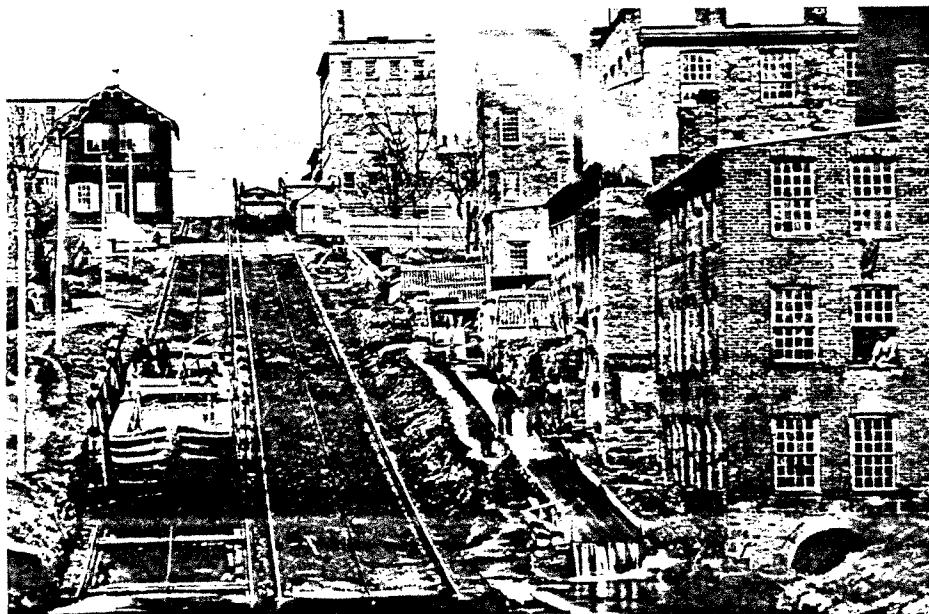
The earliest canal boats could hold no more than 10 tons, but work in the 1840-60's (improvements to the canal were always being made) enlarged the capacity 25 tons, then 44 tons, and, after 1866, 70 tons.

Despite early success, the Morris Canal was unable to compete with the freight railroads which developed rapidly following the Civil War. The major early railroads through Newark included the New Jersey Railroad Company (PRR), the Morris and Essex Railroad (DL&WRR) and the Central Railroad. By special agreement with the state, the Lehigh Valley Railroad leased the Morris Canal in 1871, primarily for the access to the valuable land along the route on which they would develop another railroad network. It was generally acknowledged that the canal had outlived its usefulness by the turn of the century. In 1905 and 1912 state commissions voted in favor of closing the canal, but nothing happened. Finally in 1922 the Morris Canal was abandoned. Newark, however, was interested in the canal bed as a convenient and inexpensive extended route of its already extensive mass transit system. Work began on the Newark Subway in 1929. (See Newark Subway)

In Newark, the canal began with Lock #20E, at the foot at present-day Raymond Boulevard. About 1,000 feet westward, near Blanchard Street, was Lock #19E. Then, beyond Market



MORRIS CANAL
Electric Plane (c. 1905)
over DL&WRR at Orange St.
Lee, James. The Morris
Canal, 1979, p 117



MORRIS CANAL
Inclined Plane at Plane
St (now University)
Photo from Lee, The
Morris Canal, 1979, p.118

and Canal Streets, the canal sent a branch or spur directly into the Passaic River, where Lock #18E gave boats access to the city's docks.

The main canal continued westward through Lock #17E, an 18-foot lift lock, and went underground, as the floor of Center Market, built in the space above the canal (1858), formed an 1100-foot tunnel from Mulberry Street to Broad. The canal then crossed Halsey, Washington, and Plane Streets to the foot of Plane #12E. At High Street, from the head of the plane, the canal coursed northwestward to Lock and Searing Streets, the location of Lock #16E. Then, heading north, the Canal skirted the west side of Branch Brook Park and paralleled the Second River, which it crossed by Aqueduct, to arrive at Lock #15E, near Howe Street, Bloomfield.

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RAILROADS

Initially, the railroads of northern New Jersey had a single major objective - to ship coal from the Pennsylvania anthracite region to the tidewater (preferably in Jersey City) and generally went through Newark. Although the Morris Canal shipped coal, it was interminably slow (across NJ in 5 days) and subject to closings in particularly harsh winters. Railroads were obviously a more effective method of transport and quickly began competing with the canal. By the third quarter of the 19th century most of the coal at the tidewater in Jersey City was delivered via the Central Railroad of NJ.

The numerous railroad lines in Newark are an indication of the intricacy and extent of industrial development in the City. The first Newark Railroad charter was issued to the New Jersey Railroad and Transport Company in 1832 and eventually evolved into the Central Railroad of New Jersey, a major freight carrier. By the 1880's the vital features of the railroad networks were well established in the city. At the turn of the 20th century five major freight and passenger railroads were doing business in Newark. The Pennsylvania, the Lehigh Valley, the New Jersey Central, the DL&W, the Erie Railroads and all their manufacturers branches and spurs provided important shipping links to virtually every part of the City.



Broad Street Station

CENTRAL RAILROAD OF
NEW JERSEY

Jackson Street Bridge



Newark City's mandated elevation of the lines in the heavily populated downtown, while making it safer for pedestrians and the street cars, actually discouraged the generation of new industry along the raised lines. Firms which had earlier chosen the railroad for convenience were subsequently at a disadvantage without a rail connection. Consequently, industrial growth in Newark moved along manufacturers branches spur line where loading access was far simpler. Of course much of the land in these regions was barren and prime for industry. The most popular areas were the "down neck" and a broad tract of land which stretched along Frelinghuysen to the Newark Bay. Many now defunct, the skeletal remains of these rail lines are just north of the Newark Airport and Port Newark. The scope of Newark's impact as a transshipment area is best conveyed by the large rail yards of the CRRNJ (Brill yards), the PRR (Waverly Yards) and the LVRR (Oak Island yards).

CRRNJ BROAD STREET STATION
834-836 Broad Street
Newark, Essex County, New Jersey

When the Central Railroad of New Jersey opened the Broad Street passenger station in 1869, it marked a major extension of the Central and for nearly a century, this station served as one of the three major passenger rail stations in downtown Newark. The present station was built in 1916 following a time of major improvements to the line, and is a fine example of Second Renaissance Revival architecture. The Broad Street facade is granite and brick and has three embellished round arch openings and rusticated deep joint corner quoins. The ground level has a metal and glass marquee. Two terra cotta medallions with the CRRNJ symbol also decorate the facade. The cornice sports a modern CRRNJ sign. In the rear, the concrete and steel train sheds are in ruins. Owned by the city since the Centrals closing in 1967, despite many proposals to renovate the building, it remains empty.

Central Railroad of New Jersey had its genesis in the Elizabethtown and Somerville Railroad. Chartered in 1836 and later reorganized in 1847, two years later the E&S line was renamed the CRRNJ. Initially using horse drawn cars, by the 1850's the company was able to transport goods from Phillipsburg on the Delaware to its terminus on the west side of the Newark Bay in Elizabeth. The Elizabeth terminal was a serious handicap to transport and by 1869 the CRRNJ had extended service into Jersey City and Newark. Both a passenger and freight (freight dominant) company, at the turn of the century the Central was the first of the major railroads to begin a track elevation program in Newark. The



"Aerial Reconnaissance
of Historic Structures
the Northeast Corridor"
Historic American
Engineering Record, 1977

View showing the CRRNJ
over the PRR at Penn
Station in Newark. (Dock
bridge is in background)

CRRNJ raised 3000 linear feet of track onto an earthen and stone bed and crossed over the many streets on skewed truss and girder bridges. The Jackson Street Bridge (1905), however, was an exception. It is an early example of reinforced concrete construction using Joseph Monier's principal of incorporating two-way bar reinforcing in the concrete arch. From Broad Street Station the Central goes eastward essentially parallel to Market Street and just beyond the Pulaski Skyway continues across the Passaic River into Jersey City or goes southward to Elizabeth. An important manufacturers branch of the CRRNJ served the New Jersey Zinc Company (along the Passaic at Lister Avenue). The Ferry Street station was demolished in the 1970's and the East Ferry Street station along St. Francis Street is a fire-gutted shell. The Central Railroad built a new vertical lift bridge across the Newark Bay in 1925. Replacing two narrower 1904 bascule bridges, this Waddell type vertical lift is actually four separate lifts - two over the north bound channel and two over the southbound channel. They are side-by-side trusses each with double tracks. There is an operator's house/power plant at the top of each span. The approach spans are girders on concrete piers.

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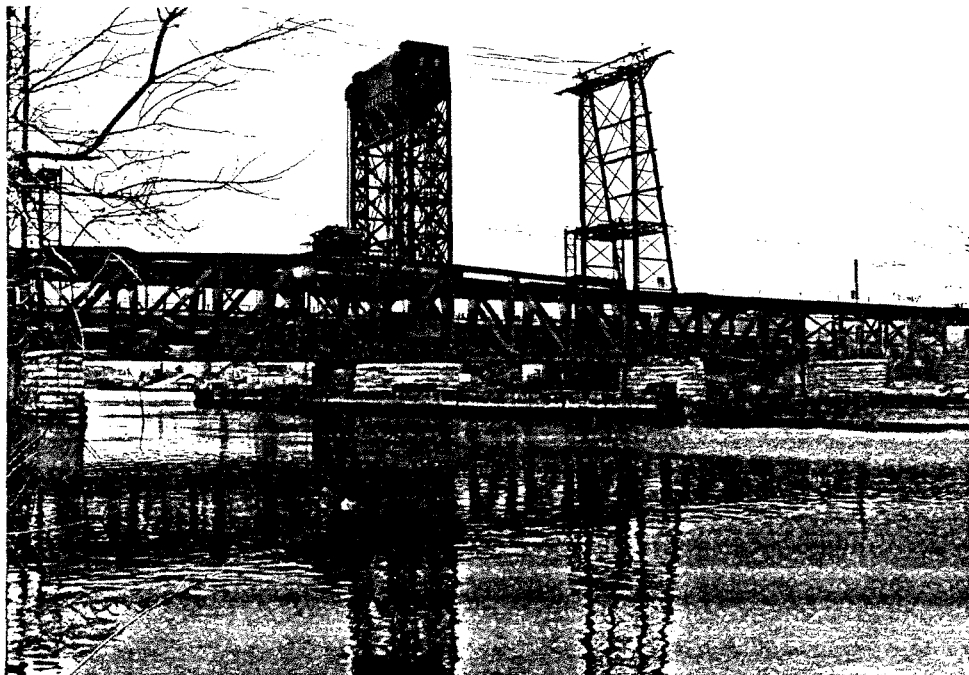
Cunningham, John. Newark. 1966, p. 227-8.

DELAWARE, LACKAWANNA & WESTERN RAIROAD NEWARK BROAD STREET
STATION
Broad Street & University Place
Newark, Essex County, New Jersey

The Newark-Broad St. Station and shelter are exceptionally fine examples of the architectural eclecticism popular during the early 20th century. This complex borrows heavily on Renaissance forms and ornamentation, (campanile, rusticated base, voussoirs, lintels, quoins, and pilasters,) but integrates them in a building type refined to functional needs of the railroads.



DL&WRR BROAD ST STATION



DL&WRR SWING BRIDGE
(I-280 Vertical Lift
in background)

The complex was designed in 1901-03 by Frank J. Nies and his staff at the Engineering and Architects Departments of the D L & W Railroad. Its construction coincided with the commencement of a grade separation project accomplished during the administration of President William Haynes Truesdale. Over the years, Broad St. station has been an important stop of long distance passenger trains destined for Scranton, Buffalo, and points west, as well as a heavily used stop for commuters to Newark. It has also housed division offices for freight and passenger services on the Morris and Essex Division.

The complex is situated on a confined site at the north edge of the Newark business district. It consists of a three-level, red brick station in Renaissance Revival style, with corner tower, elevated tracks aligned east to west with platforms and canopies on both sides, a two-level red brick shelter, similar to the station, and a pedestrian underpass connecting the two. The complex is being refurbished and large sections of the station are being partitioned off into smaller spaces for railroad offices and crew quarters.

The Broad Street Station in Newark, originally part of the Delaware-Lackawanna & Western Railroad (Morris & Essex Division) is presently part of the New Jersey Transit Corporation commuter rail network. The line was chartered on January 29, 1835 as the Morris and Essex Railroad with capital stock valued at \$300,000. The line was constructed from a grade-level location slightly east of the present Broad Street station (Newark) and grew rapidly through the then-rural areas to the west of the city. It reached Morristown in 1838, Rockaway and Dover in 1848, and Hackettstown in 1864. Until 1853, the Morris and Essex did not take passengers from Newark to Jersey City over their own rails. The passenger cars were drawn by teams down the middle of Broad Street, Newark to the tracks of the New Jersey Railroad (much later part of the PRR) for the trip to Jersey City. The Morris and Essex' operations thrived on the hauling of all types of freight and a great number of passengers from Morristown eastward, and later from Montclair and Bernardsville as well. In 1868 the management of the M&E was approached by President Samuel Sloan of the DL&W (at that time a coal hauling line in eastern Pennsylvania) with the proposal of shipping its goods to the New York marketplace via the M&E. The DL&W had been transshipping its coal to the Morris Canal at Washington, New Jersey, in order to reach the New York market. The M&E would be extended to Washington to meet the DL&W. In the end, the M&E would parallel much of the route of the canal. A lease signed on January 1, 1869 made the line part of the then-expanding DL&W.

Although known for its first-rate service, the increased shipment of the coal to tidewater, caused the M&E Division, with its many curves and rather steep grades, to be clogged frequently with loaded coal cars. A faster method of transporting this commodity was achieved with the construction of the Boonton Branch which ran east from Denville through Boonton, around Garrett's Mountain to Paterson, through Passaic and Lyndhurst to a connection with the M&E Division in the Hackensack meadows. This line was opened on September 12, 1870 and proved to be even more successful than the planners had hoped: it was a direct, shorter route with low grades for the shipment of coal. While the Boonton Branch handled all of the heavy freight trains, the M&E concentrated on passengers from the evergrowing suburbs.

When Samuel Sloan retired as President of the D L & W on March 2, 1899 William Haynes Truesdale succeeded him. Although Truesdale's primary concern was the efficient shipment of the coal that came from the DL&W-owned mines, he stated in his first Annual Report (1899) that, "The large and increasing suburban traffic of the company on its Morris and Essex Division will require heavy expenditures during the next few years in the way of track elevation, additional main tracks, stations, and facilities for the safe and efficient handling thereof... Economies can thus be effected which will aggregate almost enough to pay the interest on the cost of the work".

Chief Engineer George J. Ray and the Engineering and Architects Departments were entrusted with the multi-million dollar construction projects of the Truesdale Administration. In the planning and construction of the stations in particular, Mr. Truesdale did not want a repetitive scheme, but on in which each structure would be distinctive and blend with its surroundings. The Broad Street-Newark station was part of that overall scheme.

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PATERSON-NEWARK BRANCH
ERIE RR
Abandoned bascule

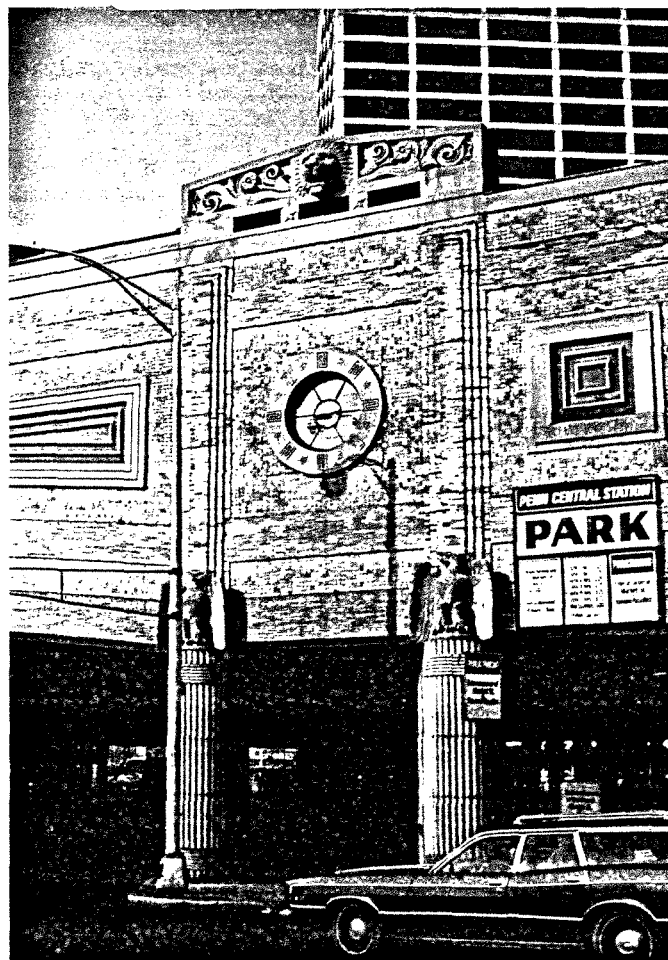
ERIE RAILROAD COMPANY

Over Passaic River at East Newark border and
near Belleville boundary
Newark, Essex County, New Jersey

Even before the Erie traversed Newark, it had a major impact on the city. When the Paterson & Hudson Railroad (later the Erie) began its regular steam locomotive service in 1835, waterborne traffic on the Passaic River was decimated. There are two Erie Railroad branches in Newark, both in the northern section. The Paterson-Newark branch entered the city from New York via the East Newark border on a bascule lift bridge. Once in Newark, the Paterson-Newark line turned north along the Passaic River and ran to Paterson. Much of the line has been removed but the double track single leaf bascule (ca. 1910) still survives, albeit in permanently opened phase. The other Erie branch, the New York & Greenwood Lake Railroad, crosses the Passaic River near Belleville, follows the Second River to Forest Hill, and splits to go north and south into the Essex County suburbs. There were only a few industrial plants in this primarily residential area. Two important facilities were the Heller Brothers and the Tiffany Company.



PENN STATION
Post card ca. 1955
Before construction of 2nd
story air-link thru arch
to hotel



PENN STATION
Locally carved stonework

PENN STATION (1932-1937)
Raymond Plaza
Newark, Essex County, New Jersey

Pennsylvania Station in Newark is a major intermodal transportation facility which was constructed on a new site as a replacement for the city's older, smaller station. Designed by the prominent architectural firm of McKim, Mead & White, the building was constructed between 1932 and 1937 as a post-classical building with strong Art Deco detailing. The entire station environment, including most of the buildings on the West, was built as part of a major urban redevelopment scheme. The building of Pennsylvania Station, the investment in new electrified trains and in the world's largest three-track railroad lift bridge, and the construction of McCarter Highway (Route 21) symbolized the public belief in big city railways terminals and post-depression high hopes for business recovery. It was also the realization of broad transportation planning.

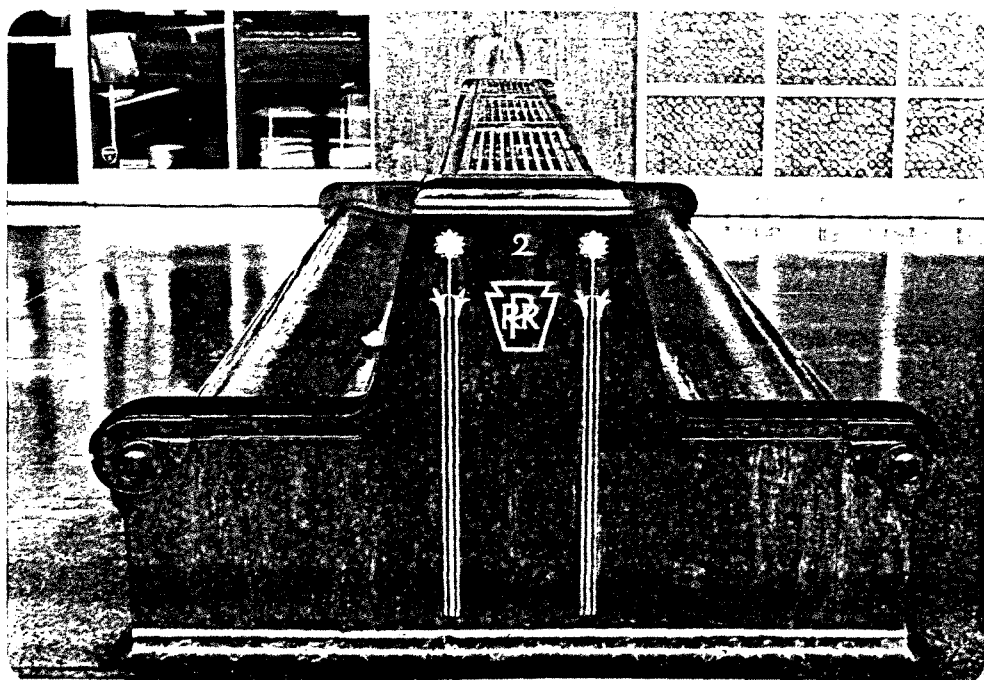
Composed of a two-story rectangular Waiting Room with concourses and an attached train shed, Pennsylvania Station was originally built at a cost of \$42,000,000. The station is near the major highways serving the greater Northern New Jersey area, but functions especially as an important multi-modal transit link between Newark and points north (New York) and south for commuters.

The building as originally constructed has a station house 302 feet long, 79 feet deep, whose main floor is at street level, and a train shed which passes over the eastern three-fourths of the station house and extends beyond it 300 feet north and 600 feet south. Penn Station was initially designed as a multi-modal building, with axes through the building transversely beneath the train shed forming the main Concourse on the south and the Rapid Transit Concourse (now called the North Concourse) on the north. Three longitudinal axes intersect the two transverse concourses; one within the main Waiting Room, and the other two being the West Corridor (originally called the North Corridor) and the East Corridor (originally called the South Corridor). Since the train shed is actually a series of bridges with tracks elevated above the station house, access to and from the various transportation modes is gained by stairways, ramps, escalators, and elevators. Additional elements on the Station's north and south sides as originally designed are the City Bus Terminal and the Taxi area.

Significant design features of the building are its Art Deco detailing found in numerous motifs throughout the interior and exterior of the building. The Station's overall



PENN STATION
Train concourse



PENN STATION
Benches in waiting room

style is Art Deco as well, a popular sub-set of Art Moderne (c. 1920-1940), and a style often associated with the public building of that period. The major concentrations of the detail work are on the exterior surrounds of the west entrances, the north, south, and west entrance interiors of the Waiting Room, the walkway surrounds flanking the west portals of Raymond Boulevard and Market Street under the train shed, and the running motifs throughout the buildings.

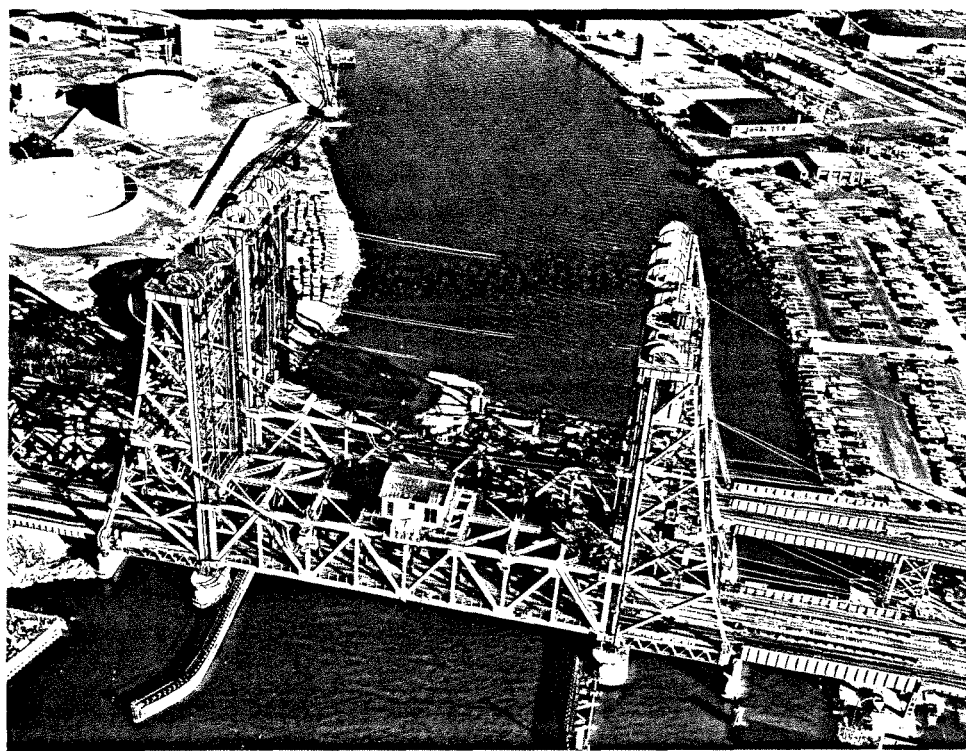
The unique intermodal transportation aspect of the Newark design is also important. Although there were many larger stations that linked two or three modes of public transportation, the Pennsylvania Station was alone in containing intercity and local subway, regional commuter railroad, rapid transit, and local bus facilities within the building complex as originally designed. Pennsylvania Station is designed with access to its transportation modes and free-flowing interior circulation in mind. The genesis of the design for the new Station was the 1929 agreement between the City of Newark and the Pennsylvania Railroad which called for the creation of a major intermodal transportation center on the site of what was then a relatively small railroad way station. Prior to the agreement with Newark, the PRR in 1928 had officially announced its intent to fully electrify the New York-Washington line. The nearby station which had been built in 1889 had become outmoded because of the growth of the city and the tremendous increase in commuter traffic with New York. The decision to elevate the tracks and to build the Station's train shed on a series of viaducts, the construction of the large vertical lift bridges, the planning and building of new highways to provide avenues of approach to the Station area, and the incorporation of the other access modes such as the City Subway and the Hudson & Manhattan Tube System all are elements which demonstrate the scope and sophistication of the City's public improvement program for the Station area.

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DOCK BRIDGE
Photo by Jack Boucher
for HAER, 1977

DOCK BRIDGE (1935)
Pennsylvania Railroad Lift Bridge over
Passaic River
Newark, Essex County & Harrison, Hudson County, NJ

Linked to Penn Station, Dock Bridge is the only vertical lift bridge on the Northeast Corridor railroad route, and is the newest of the movable bridges on the Corridor. The structure is unique because of the operation of six tracks on three bridges with two lift spans. The consulting engineering firm for the construction of this structure, Waddell & Hardesty, used the patent of Dr. Waddell in the design of the bridge. Dr. J.A.L. Waddell was one of the first to patent a simplified and improved design of vertical lift bridges in the United States.

Vertical lift bridges became widespread in the U.S. after 1900. The type is economical in construction and operation and has proven efficient in heavily trafficked areas because the span can be opened in less time than is required for a swing bridge. In addition, the span can be partially raised when height requirements are low. Heavy railroad traffic between New York City and Newark and the frequent openings necessary on the Passaic River make this structure critical to the operation of the Northeast Corridor railroad system.

The structure consists of two girder approach spans on the east; two through Warren truss vertical lift spans 230 feet long; and two girder approach spans on the west. The bridges are side by side and operate independently. Each span has the moving machinery located at the center of the span on the top chord of the trusses. The substructure is 24 feet above mean high water and the abutments and piers are concrete with stone facings.

Machinery and electrical systems which were specifically designed for this bridge have not been significantly altered since their installation. Earle Gear and Machine Company of Philadelphia was the contractor for the machinery and the electrification was done by Gibbs & Hill. The main drive motors are 260-horsepower DC series wound electric motors with electro-hydraulic trustor brakes. The motors are geared

through common spur reduction gears on shafts which transmit power to the cable drums. Cables run over the cable drums to the end of the span where they pass over an idler sheave to the bridge sheave. The bridges are raised and lowered by uphaul and downhaul cables. The counterweight cables are attached to the top chord of the trusses and run over sheaves. There is a 150 horsepower gasoline engine in the machinery house of each span. These engines serves as an emergency power source. There are compressors in the operator's house basement for bridge floor and rail locks. There are AC motor DC generator sets in the operator's house at the north shore. The bridge operator occupies the fifth floor of this house. The operator's level contains the signal interlock box, track model board, reversing drum controllers, and navigation light control. There is a cable tunnel below the river for cables carrying single-phase and 3-phase 4150-volt AC. The other floors contain railroad electrical equipment. The bridge is in generally good condition with some minor deterioration of some structural elements and need for repair in the mechanical and electrical equipment.

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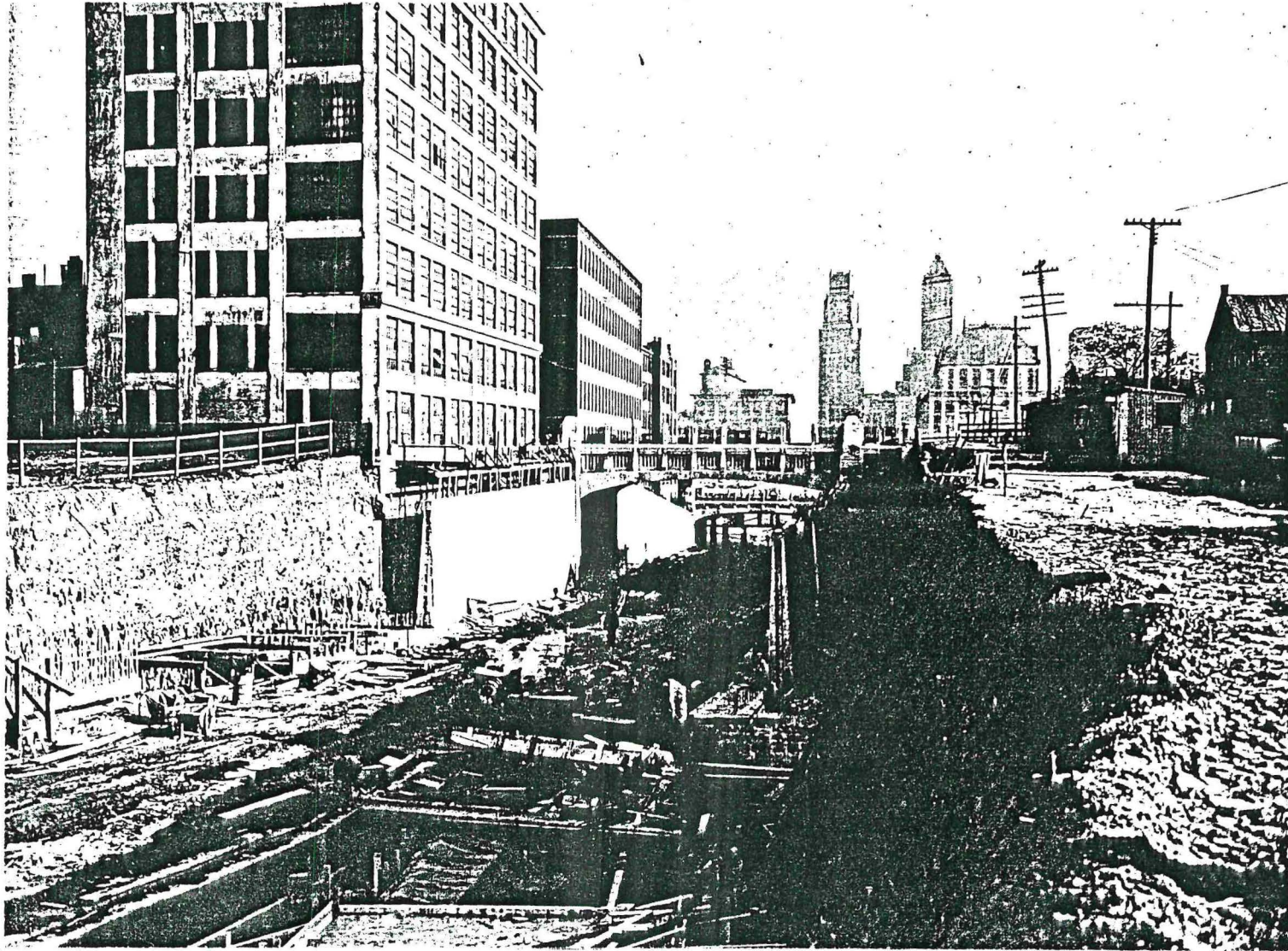
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PENNSYLVANIA RAILROAD ELEVATED TRACKS
Alongside of McCarter Highway and NJ Railroad Avenue
Newark, Essex County, New Jersey

The Pennsylvania Railroad began elevating its tracks in the city around 1901, just after Newark passed an ordinance that required the Central Railroad, the Delaware, Lackawanna & Western Railroad, and the Pennsylvania Railroad to eliminate all grade crossings. (The Lehigh Valley and the Erie Railroads were not affected). The result was a dramatic raised rock-faced railroad bed south from Penn Station along McCarter Highway and New Jersey Railroad Avenue and then along Frelinghuysen into Elizabeth (and points south). The elevated tracks made it safer for citizens but restricted further industrial development of the area along New Jersey Railroad Avenue

NEWARK CITY SUBWAY
Under construction in
the Morris Canal bed,
ca. 1929. Building to
the left is possibly



Banister Shoe
Newark Public Library
Collection

NEWARK CITY SUBWAY

Newark, Essex County, New Jersey

The Newark City Subway has been serving commuters, shoppers, students and other travelers since 1935. It stops at 11 stations on its 4.3 mile route, running to and from Newark Penn Station through the Central Business District, and along Branch Brook Park to the Newark/Belleville border. Construction of the "City Railway" began in 1929. Since work was begun during the depression, much of the work is reported to have been done by hand as a means of giving workers employment. The first section, from Penn Station to New Street, is a subway of 1½ miles. Built like a cut and cover project, the new roadway above the line is now known as Raymond Boulevard. The balance of the line, three additional miles, is built in the open cut of the former Morris canal bed. Here, all street crossing are above the railway on bridges, except for the Orange Street crossing which is at street level.

As originally conceived, the City Subway was to be a "collection", carrying commuters from the numerous lines that crossed the trolley line. The hope was that many vehicles would be kept off of downtown streets. At the same time, the trip would be greatly speeded on private right of way. The new location of the Hudson & Manhattan Railroad terminal in effect made the City Subway also a part of a direct commute into New York City. However, the line was not used by City Subway, No. 7 line cars.

Coming in from the outer end at Franklin Avenue, the No. 7 cars were joined at Bloomfield Avenue by the No. 29 cars that had come in on the long line from the Caldwells, Montclair, and Bloomfield, using the Avenue for this whole trip. The ramps and rails are still in place here. Further in, the line crosses the D. L. & W. and Orange Street. Here, at street level, the cars of the No. 21 line entered the subway. These cars came in from West Orange, through Orange, East Orange, and finally entered Newark in the Roseville area. This line was something like an inverted Y having two legs at the inner end. They split in Roseville near the Roseville Car House where City Subway equipment was stored. The one leg came down Orange Street, the other followed West Market Street, entering its own subway entrance which joined the main line a short way to the east of the main entrance. At the West Market Street entry tunnel the cars begin to make the long descent down to the Raymond Boulevard level. This descent is made along the line of the old Plane 12 East of the Morris Canal.

Public Service Coordinated Transport contracted with the city to power and operate the Newark Subway. New Jersey's major transit company, Public Service, also supplied and

maintained the rolling stock by reconditioning its older streetcars for the system.

There is an indication that pre-planning was done for the eventual operation of subway trains, rather than trolley cars. There was always that persistent rumor that the Subway would be built on to Paterson. In the end, the trolley empire collapsed and serious thought was given either to abandoning the franchise or paving the line for the use of buses.

After a number of years of uncertainty, the decision was made to retain the concept of the trolleys serving as a feeder line to the buses running out to the suburbs, in turn gathering their riders to be funneled into the heart of Newark and on to New York. The fleet of Presidential Conference Commission second-hand cars were purchased from Minneapolis and entered service in 1954. They continue to serve the City Subway and may soon be the last fleet of PCC cars operating anywhere on the North American continent.

With the decision to retain the Subway and purchase new cars, the faithful last vestiges of the once enormous fleet of Public Service cars disappeared. Several of the maintenance of way cars were kept, along with an old car so cut down for maintenance of way work that it presents one of the more unusual sights of trolley interest. The last of the 2600 and 2700's, the previous fleet of 3200's and the small group of rebuilt 8000's were unceremoniously tipped over in the Roseville Car yard and sawn into pieces, to be carried off to the Passaic Meadows.

NJ Transit, which became responsible for operating the Newark City Subway in 1980, began rebuilding the PCC cars as a part of the subway renovation. Now nearly completed, the renovation was designed to modernize the system while preserving its historic appeal. Especially noteworthy are the ceramic tile murals, created by Domenico Mortellito which depict life along the old Morris Canal and the building of the subway. They are found in the four underground stations from Penn Station to Warren Street.

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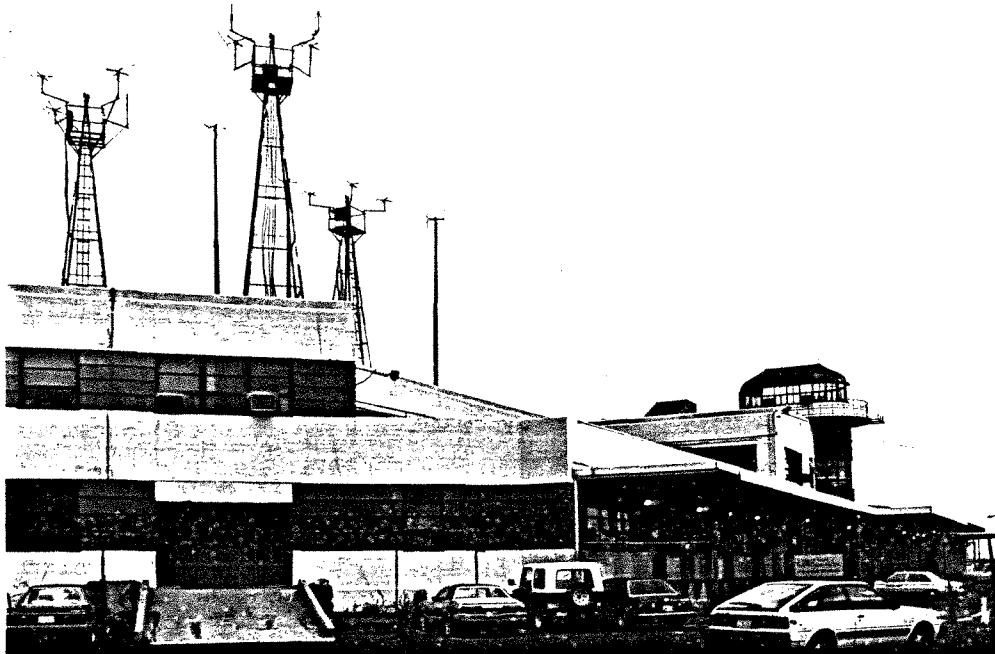
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NEWARK AIRPORT
Administration building

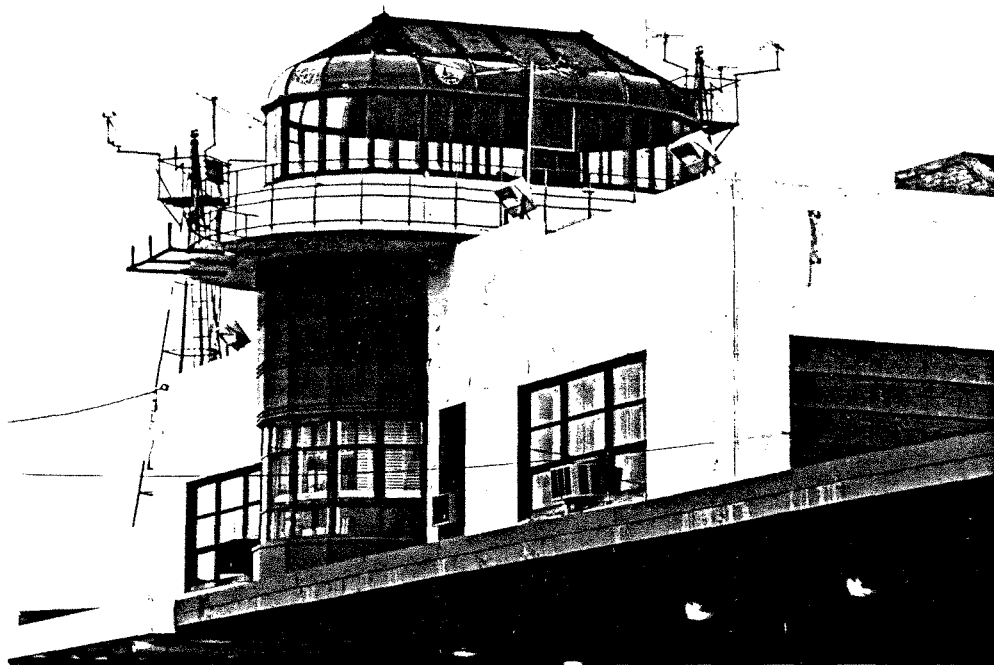


NEWARK METROPOLITAN AIRPORT (ca. 1930)
Routes 1&9
Newark, Essex County, New Jersey

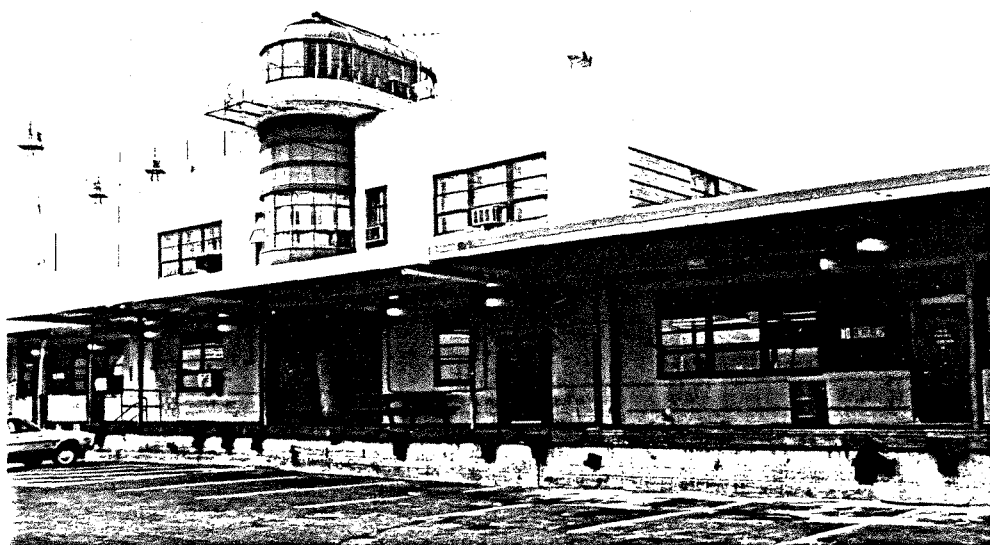
Newark Metropolitan Airport was one of the first great commercial airports in the United States. Development began in 1928 and during the early years of the airport's existence, one-third of the world's air traffic passed down its runways. Although the more recently developed Newark International Airport engulfs the earliest facility, the trio of Art Deco style structures which includes the Administration Building, Brewster Hangar, and the Medical Building survive as testament to the early days of the airport's development. Built prior to World War II, they possess national importance in their relation to the historical development of air transportation. There is also significance in the airport's military use during World War II, the development of major engineering and communication technology, and that WPA funds were used to construct the Administration Building. While not the first buildings constructed for the airport's use, the early group of structures, built during the 1930's, replaced the outmoded buildings which sprang up during the first years of the airport's rapid development. Newark Metropolitan Airport, was designated a National Historic Civil Engineering Landmark in 1978 by the American Society of Civil Engineers.

Lindbergh's dramatic solo flight across the Atlantic Ocean, in May, 1927 fastened public attention upon the practical future of aviation. On July 11, 1927, Mayor Thomas L. Raymond of Newark gave his support to the construction of a municipal airport and City Engineer James W. Costello prepared plans for a \$6,000,000 project. Several months later a special commission appointed by then U.S. Secretary of Commerce Herbert C. Hoover announced that the proposed site of Newark Airport, adjacent to Newark Bay and U.S. Route 1, provided an excellent location in the metropolitan area for a central air terminal. In February, 1928, construction of an aviation field on 420 acres of meadowland was begun.

When the city engineers began work, the site was covered with earth and ash fill. The task involved leveling the mounds, filling the depressions, placing two creeks underground, installing a drainage system, and constructing roads and bridges. Yet, in less than seven months, the first unit, which consisted of about one-half of the total acreage, was opened. In August, 1928, a small, four-passenger Ryan monoplane from Washington, D.C. made the first landing on a completed section of 1,600-foot-long runway, the first hard-surfaced strip of any commercial airport in the nation. In addition, there was a 120-foot-square hangar capable of holding twenty-five aircraft.



NEWARK AIRPORT
Control tower



In 1929, Newark was designated as the metropolitan airmail terminus. By 1930 Newark Metropolitan Airport was the busiest in the world. The Weather Bureau began operations at Newark during this year. They occupied the second floor of the temporary Administration Building along with the Airways Bureau of the Department of Commerce. The first airport post office was also housed there. By the autumn of 1930, Transcontinental and Western Airways (now TWA) inaugurated the first all-passenger service to the West Coast. Colonial Airways (American), National Air Transport (United), and Pitcairn Aviation (Eastern) soon joined them. The airlines proceeded to construct their own hangars. The year 1932 brought the opening of the first airport restaurant. In August 1934, overnight plane service from Newark to Los Angeles was begun.

During the 1930's, the New Jersey Military Air Unit, a division of the National Guard, maintained a squadron at Newark manned by 20 commissioned officers and 100 non-commissioned officers and men. In addition to military personnel, Newark Airport has been associated with many famous people including Wiley Post, Amelia Earhart, and Howard Hughes, who housed experimental planes in one of the hangars.

As new safety aids for flying were developed, Newark provided a testing ground. Night lighting, paved runways, air traffic control, radio transmittal from land to air, and instrument flying were all pioneered at Newark.

In late 1934, an engineer named Wall State received permission from the Army to build a permanent Administration Building. Work on the building was continued by the Federal Civil Works Administration with a total cost of \$700,000. May 15, 1935 was the opening day of the Art Deco structure and Amelia Earhart dedicated the building. In August, 1935 Arshile Gorky, an artist with the WPA Federal Art Project, began the monumental ten-panel, 1,530 square-foot mural entitled "Evolution of Forms Under Aerodynamic Limitations" in colors of red, yellow, blue, brown, black, white and grey - all symbolic of the colors seen on the air field. The abstract style of the paintings aroused a storm criticism, and during World War II when the Army Air Force took over the air-field and terminal, the murals were painted over and eight of the ten were eventually discarded. The two remaining panels were discovered in 1972 under fourteen layers of paint. In November, 1976 the paintings were removed and cleaned. Today they hang in the Newark Museum.

When Newark Metropolitan Airport opened, traffic was controlled by an official who stood near the runway and waved aircraft in and out with flags. The first control tower at the airport, a wooden structure built in 1929, contained a signal light. Night flying at the airport initially depended

upon a battery of floodlights mounted on a wooden platform and trained on the runway. Another early attempt was the installation of a line of lights down the center of the runway, flush with the cinder surface. White cobblestones, aligned along the edge of the black runway helped to define the outline of the landing strip. In 1932, wires which stretched at right angles to the runway emitted signals giving a pilot a click in his radio headset as he reached a certain point in his landing approach. The first air traffic control center was established on December 1, 1935 with centers at Newark, Chicago and Cleveland. It was run by a corporation formed by four airlines (AA, EA, TWA, and UA) until 1936 when the federal government took over the responsibility.

Construction on the Brewster Hangar began in 1937 and continued through 1938. Its design was promoted as the most advanced of the time. The hangar boasted oil heat which was another Newark Airport first. Mammoth 40-ton doors were operated electronically. A dozen DC3's could be stored inside any one of the Hangar's six bays.

Until 1939 Newark was the world's busiest airport, but in that year Mayor LaGuardia of New York City completed construction of an airport at North Beach. Because of ongoing disorganization in the management of Newark Airport, three major airlines immediately moved their operations to LaGuardia's North Beach airport and Newark airport was closed for reorganization.

In the spring of 1942 the War Department took Newark Metropolitan Airport over exclusively for military use. When World War II was over, the airport was returned to the City. While under military control, large new areas of reclaimed land were put to use to lengthen runways. A new drainage system was constructed and modern lighting was installed. New structures included a new control tower, a cargo building containing 40,000-square-feet of storage area, a double Butler hangar, and three supply houses.

In 1948 the Port Authority of New York and New Jersey, at the cities request, assumed administration of the Newark Airport and began their major expansion program which included major land acquisition and development, which continues to this day.

The Newark airport is situated on the Newark meadows, a large tract of marshland which lies thirteen feet above sea level. West and south of the airport stretch the meadows; to the north is U.S. Route 1, to the east are the tracks of the Central Railroad of New Jersey and the New Jersey Turnpike, a mile beyond which lies Newark Bay. The trio of pre-World War II buildings, which consists of the Administration Building, Brewster Hangar, and the Medical Building was built between

1934 and 1938. The buildings are nearly adjacent to one another, with the 1952 Terminal separating the Brewster Hangar from the Administration Building.

The airway station known as the Administration Building was completed in 1935. It is a long, relatively narrow structure of concrete construction faced with horizontal bands of poured concrete alternating with bands of windows articulated with brick inserts. The main entrance facade consists of a two-story three-bay central entrance block with two wings bent back from the air-field elevation as if in flight. The center portion of the entrance block projects out slightly from its end bays which are each detailed with a two-story vertical window opening with a recessed square panel above. The entrance doors are reached by ascending six steps which lead to a three-part recessed entrance ensemble - a center revolving door with double doors to either side. Above this entrance is a round clock flanked by stylized wings.

The air-field elevation was designed with a number of marquees which projected out from the building and under which airplanes were brought and loaded. The center-piece of this elevation is the air traffic control tower, designed as a semi-circular form which was repeated in the design of the entrance canopy and tiered entrance steps below.

When first built, the central 80-by-50 foot main concourse provided access to interior corridors on either end which led to three small waiting rooms. Passenger access doors led to the field from the concourse and from each of the six waiting rooms. The main or ground floor also contained loading rooms where mail was assembled and made ready for air transport. This section was divided into office and various mail destination stations. In addition, the main floor contained space for commercial airline ticket counters, the State Aviation Commission, the airport physician, and a newspaper man who wrote daily columns about events at the port.

The building was designed in the Art Deco style popular in the 1930's and incorporated large areas of glass and contained an interior of fanciful, yet restrained decoration which relied heavily on geometric motifs which were interspersed with references to the theme of flight. In the lobby, plaster wings decorated the capitals of columns which were square in section. The walls of the ground floor public areas were faced with highly polished marble. The stair rails were of aluminum. The theme of flight was repeated over the boarding area door with stylized aluminum birds which were applied to the decorative aluminum grillwork.

Today the interior of the structure has been partitioned by United States Postal Service for its airmail operation. The Art Deco lighting fixtures are gone, as are the grillwork and the aluminum seagulls. Although covered with sheetrock or paint, the marble wall-facing and the columns and capitals remain. The original ceilings and the terrazzo marble floors inlaid with aviation motifs also survive.

The exterior changes include the addition of a loading dock to the east of the main entrance doors on the facade. The semi-circular canopy and tiered entrance steps have been removed from the air-field elevation and a long, covered loading dock extends across this elevation. From this point trucks transport airmail to the new terminals which opened in 1973. The control tower retains its original appearance.

The Brewster Hangar, built in 1938, is of steel-frame construction with hollow tile walls faced on the exterior with stucco. Overall dimensions are 1,106-by-210-by-64 feet, with a cubic contents of 7,816,000 feet, and a total area of approximately 194,000 square feet. There are four three-story, 62-by-28 foot pylons on the field side which were designed for use as office space for the individual airlines. At the rear of the hangar, which happens to be the street facade, are three separate one-story shop sections, the center one housing a central heating plant. The hangar is divided into three entirely separate plane-storage areas by two sets of 12-inch-thick fire walls spaced five feet apart. The plane-storage areas have a width of 151 feet and total 1,039 feet in length. Overhead clearance within the hangar is 35 feet. The six hangar doors are electronically operated Morgan type overhead canopy Truscun doors which can be opened in 40 seconds. Today the hangar is in good condition and, although too small for most modern airplanes, remains in use as a service and storage area for various airlines.

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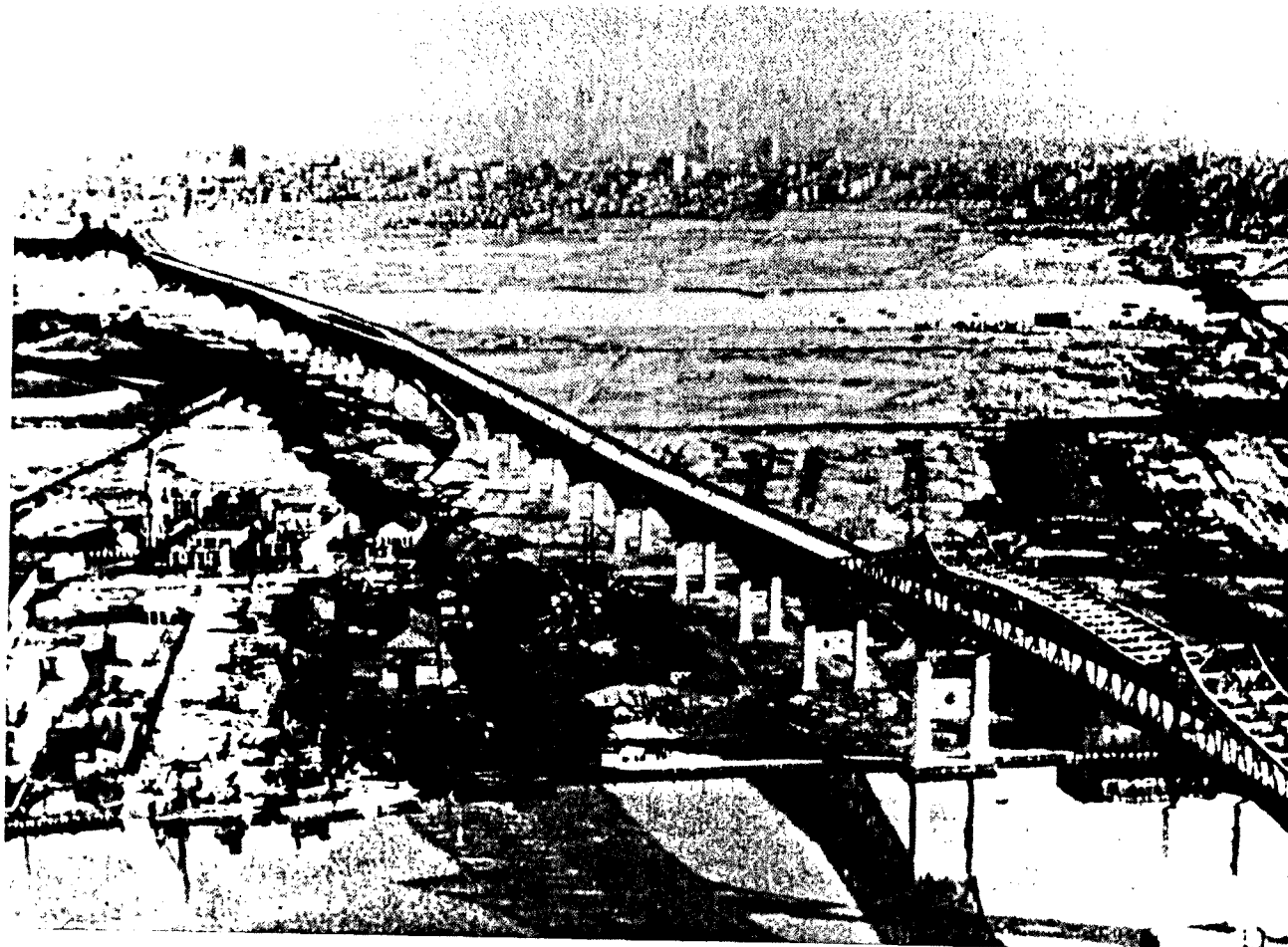
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PULASKI SKYWAY
An aerial view courtesy
New Jersey Department
of Transportation
ca. 1935

PULASKI SKYWAY (1930-32)

Route 1/9 over the Hackensack & Passaic Rivers
Newark, Essex County & Jersey City, Hudson County

Designed by New Jersey Department of Transportation engineer Sigvald Johanneson, the Pulaski Skyway, begun in 1930, is one of America's pioneer elevated expressways, and its two river spans are considered the first American cantilevered bridges to reveal the potential grace of this ordinarily awkward form (Carl W. Condit. American Building 1968, pages 220-221). Called the longest high-level viaduct in the world when completed in 1932, the Skyway, costing \$21 million, was also the most expensive highway facility at that time. The high costs were largely due to the twin cantilevered spans over the Hackensack & Passaic Rivers.

When the Holland Tunnel under the Hudson River opened in 1927 the volume of traffic in the area increased considerably. New Jersey officials recognized the difficulties this traffic would encounter in weaving along the existing roads through the cities of Newark and Jersey City and the delays travelers would suffer due to open drawbridges over the intervening rivers. Designed to by-pass the inner-city congestion, Pulaski Skyway was hailed as "the outstanding highway engineering achievement in history". (New York Times, 11/20/1932). Shortly following the opening of the bridge it was officially designated the Pulaski Skyway, in honor of General Casimir Pulaski, Polish hero of the American Revolution.

The Pulaski Skyway stretches for some three miles from Newark to Jersey City spanning the marshlands of the Hackensack Meadowlands and the Hackensack and Passaic Rivers. Most of the Skyway is carried on continuous steel deck trusses of short spans, but at the rivers these give way to cantilever trusses.

The viaduct was designed to merge the through-truss construction of the cantilever river spans into the deck truss construction of the flanking spans to add to the aesthetic features by sweeping lines giving a visual impression of massive and sturdy gracefulness. To have fixed spans over the navigable rivers instead of draw-bridges it was necessary to obtain an under-clearance of 135 feet; at other locations the viaduct has a height of 75 feet. The roadway approach grades, however, have been made so gradual that they do not exceed 3.5 percent at any point.

The Pulaski Skyway was contracted out to four nationally prominent 20th century bridge manufacturers: Taylor-Fichter, McClintic-Marshall, American Bridge, and Phoenix Bridge Company.

Phoenix Bridge Section. The Phoenix Bridge Company provided eight deck-truss spans west of the Hackensack River (maximum span length - 325; average span - 297 feet). The maximum height of the structure above the ground of this portion is 128 feet. In general, the design was of the two-truss type, but, because of a ramp, some spans utilized a three-truss and some a four-truss arrangement. General supervision of the field operations for Phoenix was the responsibility of: J.F. Kinter, superintendent of erection; R.S. Foulds, engineer of erection; W.C. Bearce, foreman, and Frank W. Peirce, engineer.

McClintic-Marshall Section. The McClintic-Marshall Corporation was contracted to complete the two through cantilever bridges over the Hackensack and Passaic Rivers and nine deck-truss spans connecting the cantilever Passaic River bridge on the west with the Phoenix Bridge Company section on the east. The length of the deck-truss section is about 2,500 feet with a tonnage of about 12,400. The longest span is 335 feet and the maximum height above the ground 120 feet. The two river crossings are identical bridges. Each required 8,650 tons of steel and have a 550 foot main span and 350 foot anchor spans. The width is 57 feet. Main-span clearance above mean high water level is 135 feet within the navigation channel lines. Construction was directed by G.O. Bullard, manager of erection with A.F. McLane as resident engineer.

Taylor-Fichter Section. Although the Taylor-Fichter Steel Construction Company erected two sections, one at the extreme eastern end of the viaduct and one at the western end, only the latter involved the typical deck-truss construction. The east section comprises 6,000 tons of steel, largely plate-girder spans of 50 to 60 feet in length, although there were also four trusses of 120 and 220 feet spans. Two of the longer ones were through spans over railroad tracks and the other two were deck trusses over heavy traffic streets; the latter trusses adjoin on the east the through truss span erected by the American Bridge Company. The section at the west end of this viaduct included eleven deck-truss spans, connecting at the east end with the Passaic River bridge. About 9,000 tons of steel were used. The work was handled by J. Lowenstein, president and chief engineer. H.O. Adelman was designing engineer; Samuel Kapelsohn, general manager; John Grandan, foreman; and A. Krohn resident engineer.

American Bridge Section. The American Bridge Company constructed the 252 foot skewed through span over the Pennsylvania and the Hudson and Manhattan Railroads in Jersey City and the next nineteen deck-truss spans to the Hackensack River. Erection was under the general charge of J.B. Gemberling, eastern division erecting manager; with Dan McQuanie as foreman; and D.F. Fine as resident engineer.

The Pulaski Skyway is built upon pairs of reinforced concrete shafts linked together with reinforced concrete and capped by steel which support arched spans of lattice steel. The arch spans carry the roadway between the towers and give the effect of lightness combined with strength. The average depth of all foundations of the Hackensack River sections is 95 feet, while the average for those on land is 110 feet. The foundations vary in area as well as in depth, as the largest is 30 feet by 87 feet; another 20 feet by 90 feet; while the rest are about 25 feet by 60 feet. Piers average 300 feet apart on land. Each pier rests on a pedestal twenty-one feet square.

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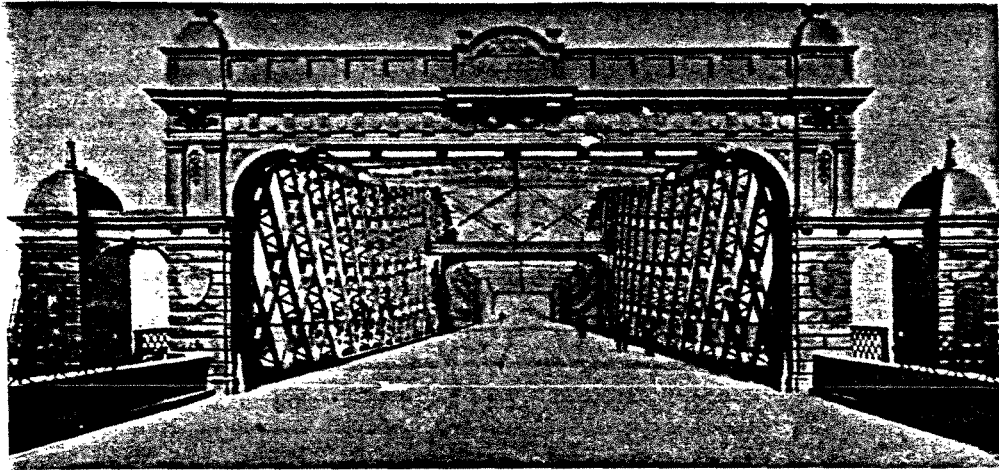
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JACKSON STREET BRIDGE
Elaborate concrete
portal was part of
original design.



JACKSON STREET BRIDGE
Harrison, Hudson County and
Newark, Essex County, New Jersey

The Jackson Street Bridge, which was constructed in 1897-1898, is an early steel span truss bridge that has a unique curved chord lattice truss (known also as curved chord quadruple intersection trusses). This unusual truss type is both a fixed span and swing span. The bridge was constructed by the Fagan Iron Works of Jersey City, New Jersey in 1897. Owned by Lawrence Fagan, the company was officially incorporated on June 4, 1891 and continued operation until 1929. Lawrence Fagan was born in Ireland on January 1, 1851. The following year the family left Ireland and relocated in Jersey City, New Jersey. After a public school education he began an apprenticeship in the blacksmith trade. Lawrence Fagan's name first appears in the Jersey City directory of 1874 where he is listed as a railingmaker residing at 92 Seventh Street, Hoboken.

The Jackson Street Bridge spans 710 feet over the Passaic River connecting the City of Newark in Essex County with Harrison in Hudson County. Erected by the Fagan Iron Works materials for the bridge were supplied by the Passaic Rolling Mill of Paterson, New Jersey. It was officially opened on April 11, 1898. This bridge was designed under the direction of the Essex and Hudson County Engineering Department. Chief Engineers James Owen (Essex County - 1896) and Thomas McBarn (Hudson County - 1896) supervised the project. The roadway width, curb to curb, is 39'-0", providing room for two substandard lanes of traffic in each direction. Outside the trusses are 6'-6" sidewalks on each side.

The superstructure consists of a 221' rim bearing swing span, a 170' fixed span on the north approach, and seven south approach spans with a total length of 319'. The swing span and fixed span are comprised of a stringer and floor beam roadway system supported by two curved trusses. A control house for the operation of the machinery is supported by four truss verticals at the center of the swing span. The substructure for the swing span and fixed span includes a north abutment with wingwalls, two quarter piers and a center pivot pier constructed of rubble masonry supported on timber piles.

The swing span was originally driven by a two pinion powered system. These pinions operated on a rack on top of the center pier and are connected by shafts and gear trains to the machinery located in the control house. The span was rotated by a vertical two cylinder 130 h.p. steam engine.

For emergency situations the span originally could be hand-operated through a capstan from the deck directly through a set of spur gears attached to the shaft of a main pinion (independent of the two main pinions used for normal operation). Parts of this emergency system have been removed. The span lock consists of a horizontal steel latch bar at the end of each span, which engages a steel receiving casting at the quarter pier. These end latches are driven by the same cross shaft and pull rods which operate the end wedges and serve to accurately align the span in its closed position.

Sometime after 1970 the wedge system was replaced with hydraulic jacks. Following the wedge replacement, the power source was converted from a coal-fired steam engine to a compressed air system powered by a gasoline engine and later changed to propane. A complete reconstruction of the mechanical system, including an electrical power source, mechanical drive and hydraulic jacks were installed.

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THE ELECTRICAL PRODUCTS INDUSTRY

by Ruth Trocolli

Newark saw a dramatic period of growth and development during the post-Civil War period and it was in this booming, innovative manufacturing center that the foundations of the modern electrical product industry were laid. The electrical properties of certain elements had been observed by scientists and inventors throughout history, but various individuals added to the body of electrical knowledge in an almost haphazard fashion. When the possibilities of using electricity for lighting and motive-power were recognized, serious effort was directed towards creating economical and desirable consumer products. According to the 1896 U.S. Census of Manufacturers, up to the year 1896, 3117 patents were issued by United States Patent Office for electrical generating devices.

Three men dominated the patent race in the electrical field in the United States, and were also involved in the building of the industry foundations in Newark. In the period from 1871-1895, Thomas A. Edison had 711 patents, Elihu Thomson was issued 394, and Edward Weston received 274. Weston and Edison started firms in Newark, and later Thomson's Thomson-Houston Company merged with Edison's firm. Weston's patents were eventually acquired by Westinghouse and Weston himself continued in a branch of electric meter manufacturing.

Companies interested in manufacturing nearly any type of electrical product had to pay patent-use fees to the holders of the rights. Firms that did not purchase these rights, were infringing on the patent, and consequently, often ended up in court. Through the use of patents, General Electric and Westinghouse controlled more than 90% of the electric lamp industry.

The electrical products firms in Newark gradually increased in number and product value. In 1880, only two firms were in the "electrical apparatus" field. By 1890, electrical products manufactured in Newark were worth over one million dollars. In 1900, there were 35 manufacturers in New Jersey producing \$7,380,000 worth of electrical products. Twelve of these companies were located in Newark. By 1904, three more companies opened in Newark and the total was 21 by 1909. The earliest companies were predominantly involved in the manufacturing of electrical lighting equipment, including "dynamamos", or electrical generators. As the industry matured and electrical applications broadened, products encompassed many other devices such as fans, meters, transformers,



WESTINGHOUSE



batteries, furnaces, appliances, and a wide variety of electrical motors and parts.

The history of the electrical product industry has been full of intrigue, animosity and sometimes cooperation between firms. Newark has been the home for three of the largest electrical product firms in the world. (Weston, home of meters and specialized measuring equipment; General Electric, making lamps; and Westinghouse, who mainly manufactured relays, instruments and meters.) The relations of these three are intertwined and they each owe some of their success to the innovations of the others.

WESTINGHOUSE ELECTRIC CO.
Orange Street and Lackawanna Plaza
Newark, Essex County

George Westinghouse was an industrial tycoon who began business in the railroad field. Electrical lighting was opening up in the 1880's, and he desired to enter what would soon be a very competitive business. He started out doing experiments in his Pittsburgh headquarters. It was Westinghouse who discovered the properties and usefulness of AC (alternating current) for transporting electricity over long distances. By developing a transformer to change AC to DC, current could be switched to a form suitable for home use. His system was a substantial advance, but contemporaries, especially Edison, maintained it was unsafe and harmful. Press coverage of the quarrel was very biased in favor of "The Wizard of Menlo Park", but eventually Westinghouse's system proved itself, and became the norm.

The bankrupt U.S. Electric Co., minus Edward Weston, was purchased by Westinghouse in 1891. Most of Weston's early patents for dynamos and lighting apparatus were held by USEL Co. Combined with the AC system, George Westinghouse, now had a sound platform with which to be a major force in the electrical products industry.

Westinghouse won the contract to supply electric lamps to the 1893's World Fair in Chicago, but still had to rely on some of Edison's innovations to complete the order. Edison sued for patent infringement, and won the case shortly before the contract had to be finished. Not about to give up, Westinghouse's research team managed to come up with a temporary measure that circumvented Edison's patent - thus allowing the contract to be fulfilled on time. The change amounted to using glass bottle-type stoppers as light-bulb bases, instead of the metal bases that were patented by Edison. They were not commercially profitable, but did solve the problem. Westinghouse became a hero of sorts, and was firmly established as an electrical products producer.

The Old USEL Co. plant on Plane Street had been used by Westinghouse until 1895, when he consolidated his manufacturing activities in Pittsburgh. The growth of the industry necessitated expansion, and a move back to Newark in 1900.

Meanwhile, Edison and Westinghouse agreed to license each others patents for mutual use. This step helped to insure that both company's manufactured compatible, safe and economical products.

The Plane Street building was expanded in 1904. The products manufactured included arc lamps, incandescent lamps, meters, transformers, switchboards, generators, motors and relays. A total of eight buildings were added, creating a huge manufacturing complex with 300,000 square feet. The interconnected buildings were four story long brick structures, with one end open, creating a courtyard. The facade of the buildings are all the same, making the exterior of the complex look like one structure. In 1954 the plant was renovated to streamline operations and increase efficiency. Before, partially completed products were moved about the factory randomly. The new system had the stations brought together as a unit, conserving time, steps, and manpower. The physical changes in the plant consisted of opening up larger areas to house units, and ramps were added to reduce use of stairs, - especially on the first floor where the buildings had different street levels.

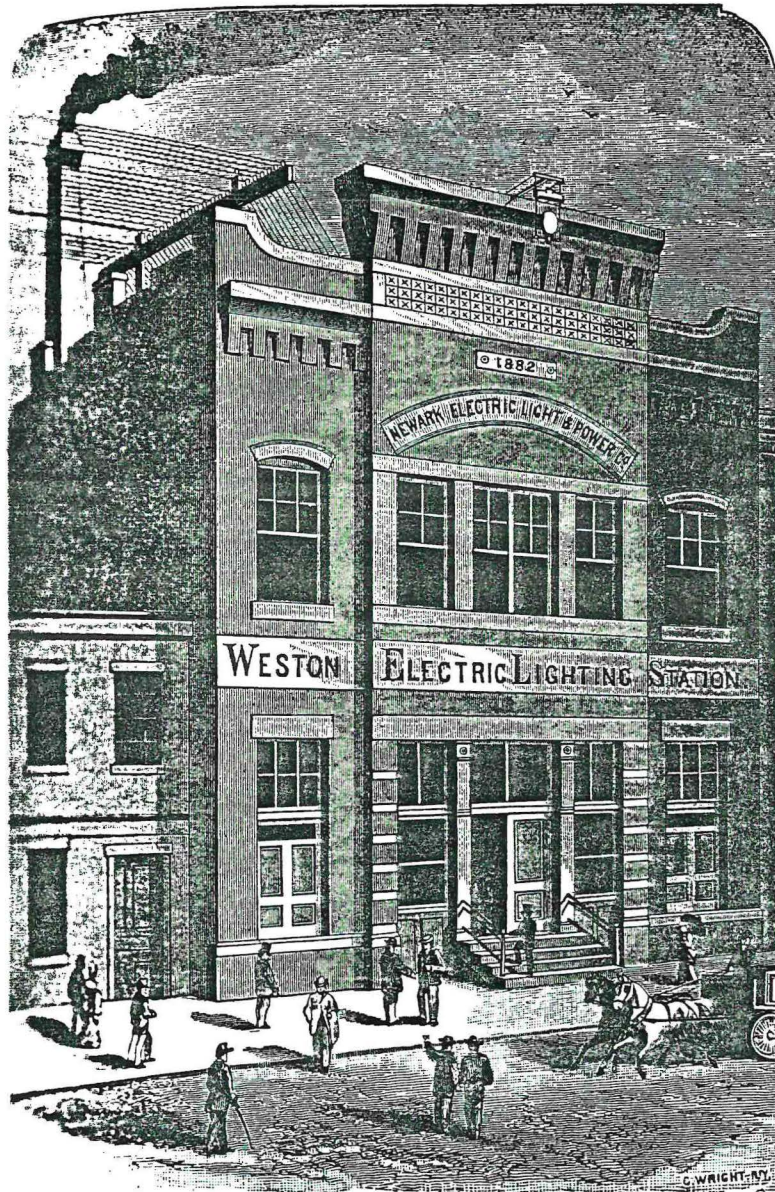
The renovations increased manufacturing capacity and over 1,300 people were employed in the 1950's - 60's. Nonetheless, the company gradually moved its production out of the area and the factory closed in the 1970's. It now houses the N.J. Transit Authority.

GENERAL ELECTRIC CO.
Newark, Essex County, New Jersey

Thomas Edison was the founding father & "guiding light" of General Electric Corp. Edison first started working in Newark during 1871 for Western Union Telegraph. Given financial backing in 1878 he cracked the puzzle of incandescent lamps. At his Menlo Park lab, he succeeded in making a lamp with an affordable, durable filament. Edison created different companies to handle his variety of inventions-Edison Lamp Co., Edison Light Co. Edison Machine Co, Canadian Edison Mfg., and Edison United Mfg. In 1889 these interests were combined under an umbrella organization, The Edison General Electric Co. The financial backers of the company then arranged for the acquisition of the Thomson-Houston Co., and the ultimate creation of the General Electric Company. Edison lost control of the company at this point.

The GE Co. had the patent rights for all of the patents Thomson & Edison. Many of the smaller independent electrical lamp companies were frustrated at this development. They did not have the funds or expertise to field extensive product research and development organizations. With the precedents set by Edison, GE continued in the innovative manner, opening a research lab in 1900. The smaller companies decided to combine forces in order to compete with GE's and Westinghouse's research organizations. The National Electric Lamp Association was formed in 1896. To fund its activities the new organization sold stock. Ironically, the majority interest was purchased by GE, making NELA a member of the GE family, although it remained relatively independent.

From 1879 to 1886 Edison worked from his Menlo Park labs. The manufacturing center for Edisons United Mfg. products was moved from Harrison, New Jersey to Schenectady, N.Y. In the meantime some of Edisons former Menlo Park associates had started their own Companies in the area surrounding Newark. In 1902, GE bought out one of these interests, the Sprague electrical machinery plant. GE finally moved to Newark in 1911. The industrial complex covers a whole block at 17th Avenue and Boyd Streets. The building is of four story brick, fire proof construction, with a large courtyard in the center, where the power plant was located. Until recently the function of this complex was the manufacture of a wide range of lamps.



WESTON ELECTRIC
LIGHTING (NEWARK
LIGHT & POWER)

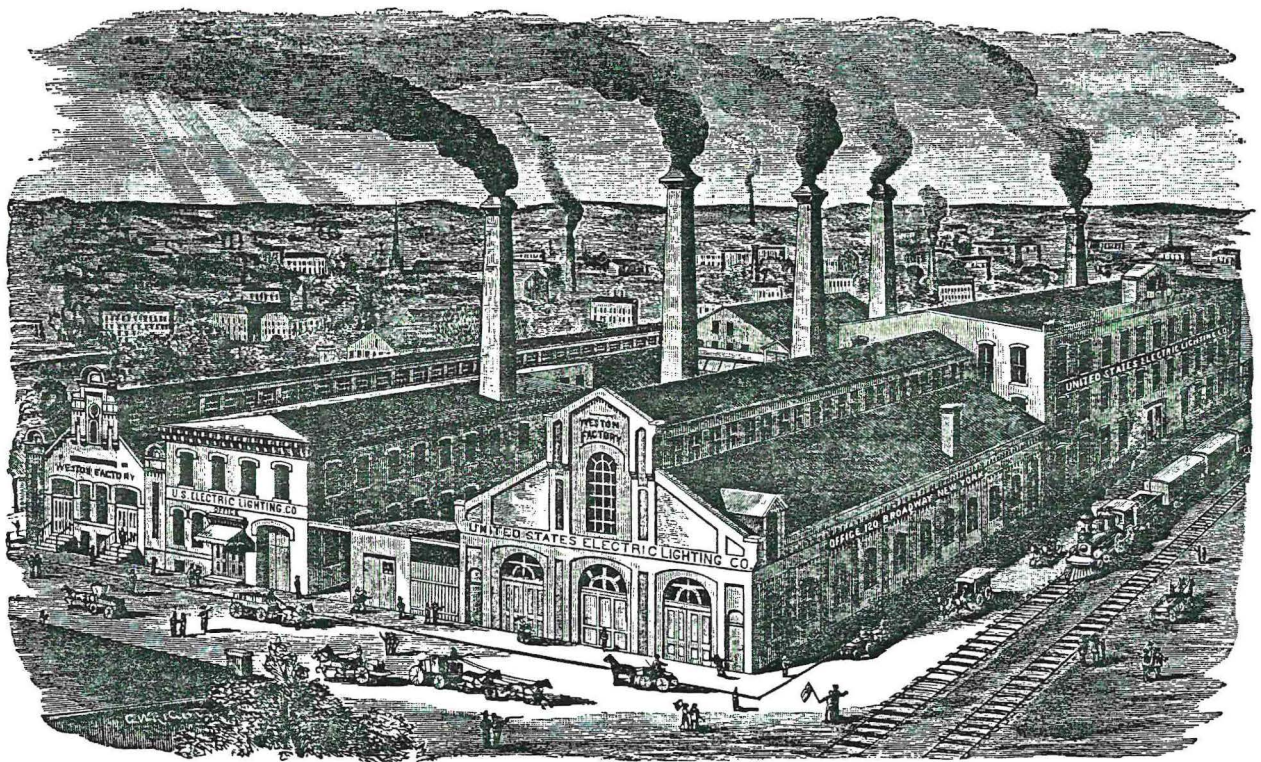
WESTON ELECTRICAL INSTRUMENT CORP.
Frelinghuysen Avenue at Haynes Avenue
Newark, Essex County, New Jersey

Edward Weston was a pioneer in the field of generating and selling electrical power, electric lighting, and electrical measurement devices. As an immigrant from England, he got his start in the field of electroplating. Turning to electricity in 1877, he opened the Weston Electric Dynamo Motor Co. at 286 Washington Street, in an abandoned synagogue. This was a pioneer electrical machinery plant of products destined for commercial use. The two story brick building also served as one of the first commercial generating stations in America when, in 1881, the city of Newark contracted with Weston to provide five arc lamps on poles, and the means to power them. They were installed at Military Park, for a cost not to exceed \$300.

Prior to the use of dynamos, electricity for arc lamps was supplied by batteries. Chemical reactions within the battery chamber gave off an electric current. Weston's perfection of the dynamo-generator, created a source of steady and reliable electric power. His system was successful enough that he was chosen to supply four strings of lights for the opening of the Brooklyn Bridge, solidly establishing his reputation. His next commercial first was to provide the Clark Thread Co. of Newark, with a dynamo. Clark was one of the first companies to employ an electric-power drive engine in it's manufacturing process.

Weston's commercial success was attributed to his constant experimentation and innovation. The factory at Washington Street was too small to include room for his laboratory, so an adjoining house was let to accommodate his needs. In 1879, a fire destroyed the lab. With increasing demand for dynamos, it was quickly decided to move the whole factory to larger facilities. Within one week the company moved lock, stock and barrel to a one block square complex, bounded by Lackawanna, Plane, High and Orange Streets (now Westinghouse). At this time the company's name was changed to the Weston Electric Lamp Co., reflecting Weston's increasing interest in the arc and incandescent lamp field.

In 1883, Weston company was taken over by a group of investors who wished to enter the highly lucrative lamp (lighting) business. The group, called The United States Electric Co., needed a power-generating source. Because of patent limitations, and lack of talented engineers, they were unable to develop their own system. They settled on gaining controlling interest in the Weston firm, although they left Weston in charge of the factory's operation. The USEL Co.



The Weston Factory at Plane and Orange Streets, Newark.

WESTON FACTORY
Later Westinghouse
property
Illustration from
Woodbury, A Measure
for Greatness, 1949

moved into the new Plane Street factory, and the Weston name was dropped from the title.

Weston had branched out into the power and light industry in 1882. The Weston Electric Lighting Station was opened at 31-33 Mechanic Street. It was the first generating station for the Newark Electric Light & Power Co., supplying current for domestic use in Newark. The two - story building was specially designed and reinforced to support the massive weight of the many dynamos it housed.

By 1886 Weston turned his thoughts to other aspects of electrical power. He had been frustrated by the lack of means of obtaining accurate measurements of electrical currents. No meter at the time gave both sensitive and consistent readings, so he resigned from USEL Co., and set out to device his own system. He had to invent the metallic compounds necessary for the meter components, before he was able to succeed in creating an versatile and competent measuring device. He chartered the Weston Electrical Instrument Co., in 1888, and set up shop in his lab in his home on High Street, Newark, to produce the Weston voltmeter and ammeter.

There was a huge need for his meters in the ever-growing world of electricity. A new factory was built in 1890-1891 to accommodate the expanding business. By 1901, 184 employees reported to 116 William Street. Again, larger quarters were needed. Late in 1901, the firm moved into a large complex at Frelinghuysen & Haynes Avenues. 325 people were employed there in 1906, and six years later there were 453 employees. The company continued to grow, increasing the types of instruments manufactured, as the technological revolution continued to demand even more precise and specialized instruments than ever.

Edward Weston had kept sole control of the company until 1924, when it was finally incorporated. The premises at Waverly Park were used until recently. Operations are now in Bloomfield.

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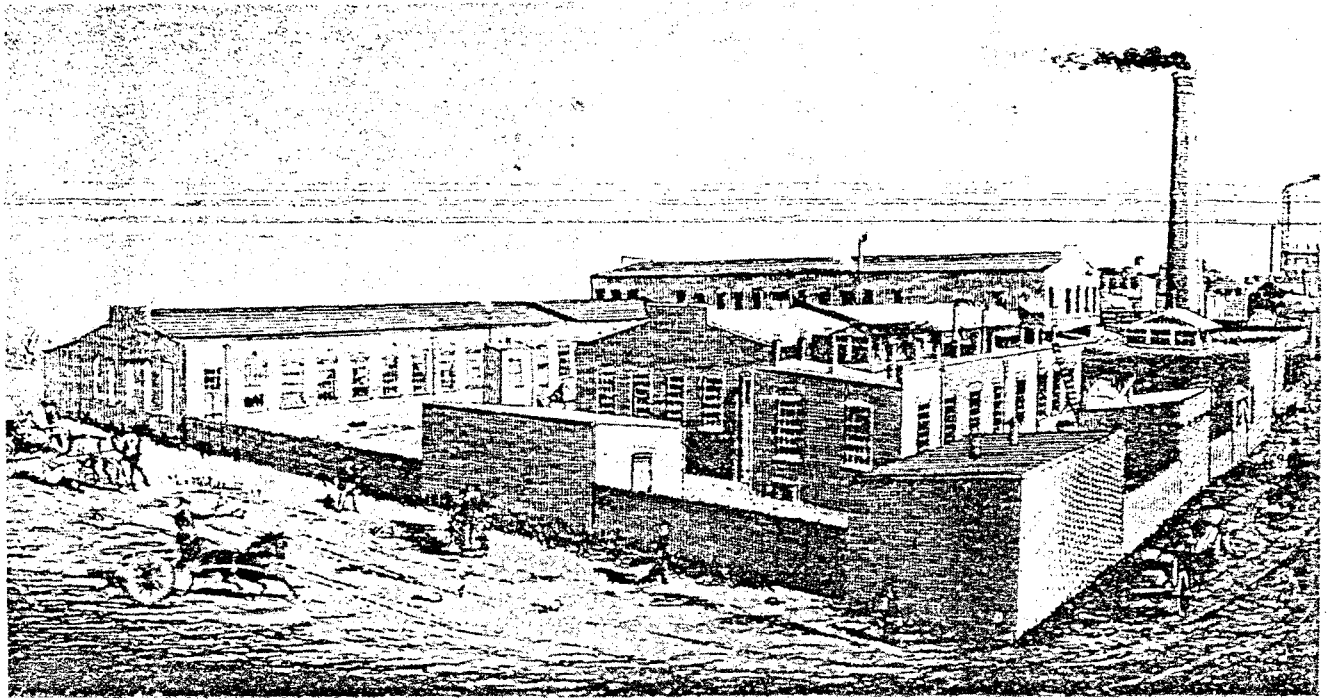
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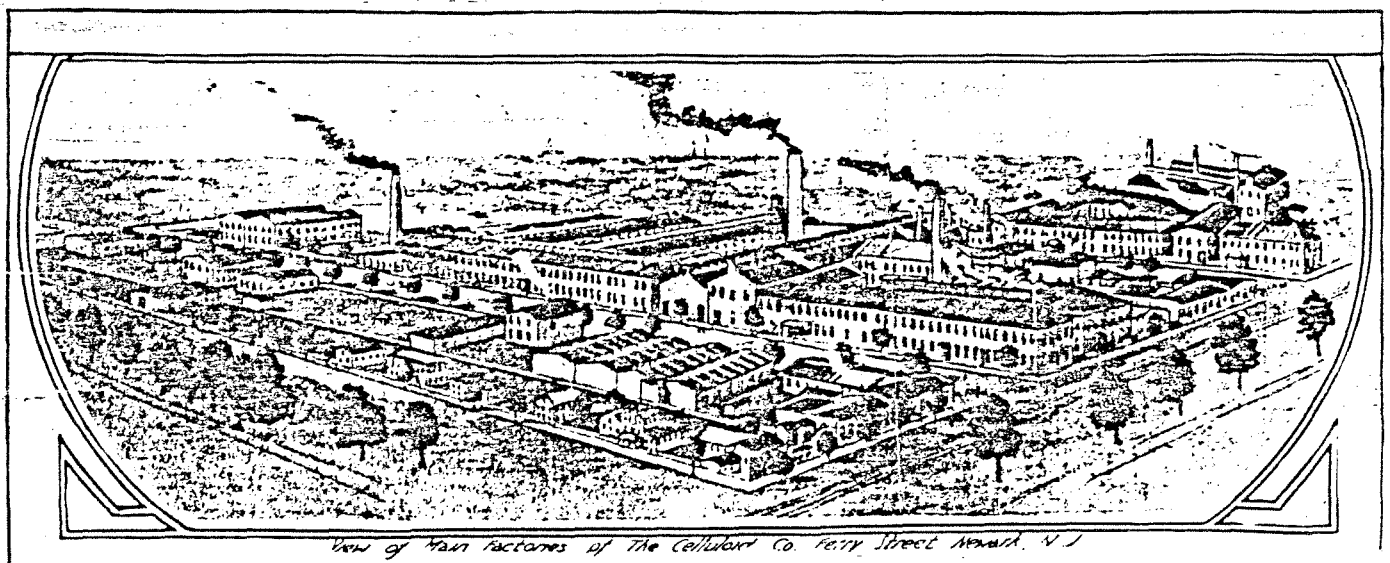
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HYATT'S EARLY PLANT
ca. 1870



THE CELLULOID COMPANY
Newark Sunday News
August 30, 1903

THE CELLULOID COMPANY

295 Ferry Street, between Niagara and Magazine Streets
Newark, Essex County, New Jersey

The Celluloid Company (1873-1930's) in Newark was one of the first successful plastics industries in the United States. The company's founder, John Wesley Hyatt, is credited with being the discoverer of the first successful synthetic plastic - Celluloid. Basically a chemical combination of cellulose nitrates (nitric acid and a cellulose, usually cotton) and champhor, its creation was the direct result of a \$10,000 reward offered by a New York firm for a synthetic billiard ball. Hyatt collected the prize making an excellent, if unstable, billiard ball in 1869. Early in 1870 he formed the Albany Dental Plate Company and manufactured the foundations for dental plates. Expanding to making knife handles, collar stays, piano keys, and various novelties in 1872 Hyatt changed the firm's name to the Celluloid Manufacturing Company. Encouraged by the demand of the metropolitan New York area for celluloid Hyatt moved his headquarters to Newark in 1873. Hyatt and an aide named Charles Burroughs patented an injection molding machine in 1878 and used it to produce harness buckles, buttons, combs, and shaving brush handles. In 1890 the company merged under the title The Celluloid Company and by 1903 was a multi-million dollar business. Celluloid products were exceptionally popular until World War I, but afterwards sales waned as Bakelite (phenol-formaldehyde), introduced in 1907, and rumors about the flammability of celluloid began to cut into the market. Even so, the manufacture of celluloid was phenomenal - from its small operation in the 1870's to one which in the 1920's produced more than 1,000 useful items and employed hundreds. The Celluloid Company also supplied raw celluloid to numerous independent factories.

In the process the celluloid ingredients were mixed into a pliable form, worked in hot rolls, pressed into blocks, and made into sheets or extruded through nozzles for tubes, rods, or strips. The product was soft and pliable until it hardened, but was often reformed by immersion in hot water. The use of celluloid was virtually limitless - ornaments, jewelry, hairpins, brushes, combs, guitar picks, pipe stems, eyeglass frames, tooth brushes, collar stays, and shoe horns (and sometimes bizarre - replacement parts for the human body, especially noses and ears).

Contrary to company claims and the Newark Sunday News' August 30, 1903 report that "under no circumstance will it explode", celluloid was combustible. Stories of collar stays scorching fashionable necks and hairpins setting heads aflame



THE CELLULOID COMPANY



were legend. The original billiard ball, needless to say, ruined many a pool table.

Even so, The Celluloid Company, with the help of cellulose acetate plastics developed in 1927 in collaboration with Celanese researchers, survived until the second World War. The Celanese Corporation assumed full control of the Celluloid Company in 1941 and maintained the Ferry Street facility until the 1960's. The major tenant's today are the Courtaulds Compound, Inc. and Polymer Extruded Products.

The company had several locations throughout Newark, but the largest was the Ferry Street Plant. The main factory of the Celluloid Company along Ferry Street encompassed over 3 full blocks, between Niagara and Magazine. Two earlier streets, Westcott and Ashbridge, were actually blocked up and incorporated into the facility. Much of the original Celluloid Company plant survives, if only in truncated form. All buildings are masonry (mostly brick) and date from 1890-1925. Along the perimeter of a central block of larger 2 story brick factory buildings are lines of small one story brick structures. Those fronting Ferry Street have heavy fire proof shutters in their segmental arched openings. The one story brick structures (ca. 1920) on Darcy have tile roofs and brick curtain walls approximately every 15 feet. These perimeter buildings are small and defined a myriad of finish processes within - pressing, extruding, and storage. Their smallness can also be explained as a method of containment in case of fire.

The central block contains larger ca. 1900 brick buildings in which the major manufacture occurred. In these 2 story gable roofed structures raw materials were stored and celluloid was produced, rolled, pressed, and hardened. In the rear of the central block are several later 1920's three and four story masonry buildings (probably reinforced concrete). Across Ferry Street at Fillimore are a two story company office, a fire house (Engine Company #8), an electrical generating plant, and a 500,000 gallon capacity reservoir. It is possible the fire station and the generating plant were managed by The Celluloid Company.

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The Celluloid Company

M. C. LEFFERTS, President.
J. A. BARTOW, Vice-President.

F. R. LEFFERTS, Treasurer.
J. R. HALSEY, Secretary.

SOLE MANUFACTURERS OF

"Celluloid"

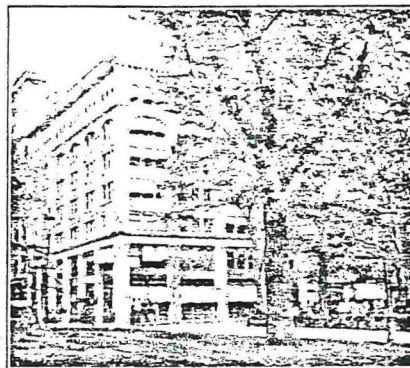
(TRADE MARK)

IN SHEETS, RODS, TUBES, ETC.
. ALSO .

Brushes, Combs, Mirrors and Toilet Articles, Novelties and Fancy
Goods, Waterproof Collars and Cuffs, Both Interlined and
Solid, Etc., and of "Texoderm," the Best
Substitute for Leather

SOLE PROPRIETORS OF THE FOLLOWING
REGISTERED TRADE MARKS:

"CELLULOID," "ZYLONITE," "LITHOID," "SOLID FIBRE,"
"TEXODERM," ETC.



BUILDING OCCUPIED AS OFFICES AND WAREHOUSE AT 30-36 WASHINGTON PLACE
AND 81-84 WASHINGTON SQUARE, NEW YORK.

MAIL ADDRESS

36 Washington Place

Factories, Newark, N. J.

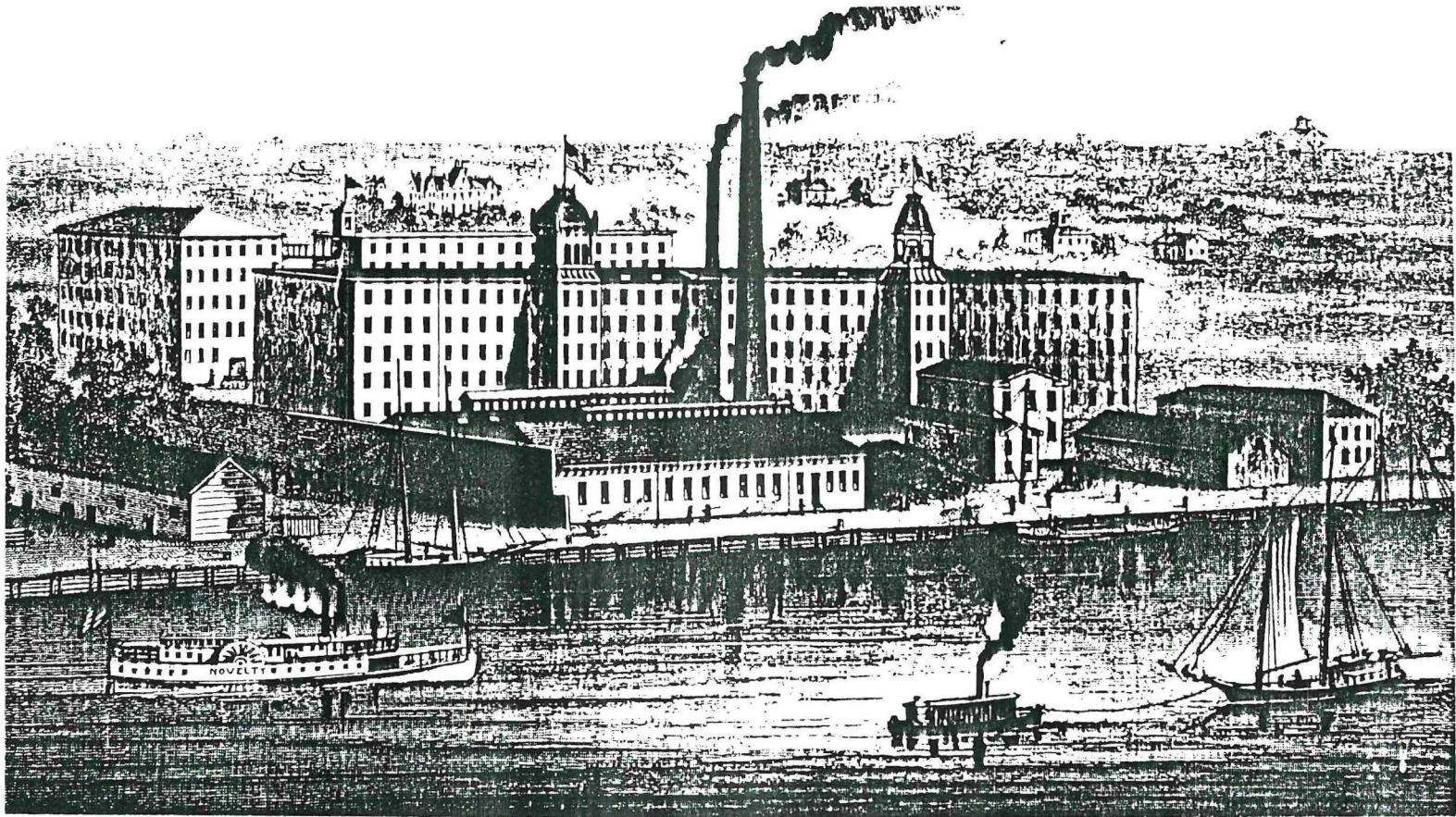
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CLARK THREAD COMPANY, Lossing,
Benson J., American Centenary
1876, opp. 294 Courtesy of the
Smithsonian Institution

CLARK THREAD COMPANY

Newark and East Newark, along Passaic River north of Clay Street Bridge.

Essex and Hudson Counties, New Jersey

From the 1870's through the first half of the 20th century, Clark Thread Company and its descendent firms led the nation in the manufacture of cotton thread. Founded in 1864 by George A. Clark, the company rose to its position of dominance within a decade, thanks largely to the phenomenal success of "O.N.T." thread, which Clark developed especially for the sewing machine, and became a nationally recognized domestic sewing thread. Late in the 1890's, the Clark Thread Company merged with the Scottish firm of Clark & Company and with the rival American firm of J. & P. Coats, thereby creating almost a worldwide monopoly in the sewing thread industry. In the United States, however, the Coats and the Clark companies maintained separate corporate identities for many years while sometimes also sharing executive talent.

George Aitken Clark was born August 9, 1823, in Paisley, Scotland, the son of John Clark, a leading Scottish thread manufacturer. By the time of George's birth, the Clark family had earned an International reputation for its fine cotton sewing thread. In 1840 Clark's father sent him to Canada to work for the firm of Kerr & Company in Hamilton, Ontario, but within 4 years, he returned to Paisley and became a shawl manufacturer. In 1851 George Clark left this business and formed a partnership with Robert Kerr, his brother-in-law, to manufacture cotton thread. Soon, however, this company was merged into the family firm of Clark & Company.

In 1856 George came to the United States as agent for the Clark's Paisley factory. He settled in New York and proceeded to take orders for thread. Within 4 years, however, because of the high tariff duty on imported thread and their desire to exploit the new market opened up by the rapid spread of the sewing machine, George and his younger brother William established a thread factory in Newark, New Jersey. Known originally as the Passaic Thread Company, the firm changed its name in 1866 to the Clark Thread Company. About this same time, George developed a new type of thread specifically suited for sewing machines. His product, says textile scholar James R. Young, was "a 6-cord thread made of three strands of 2-cord thread twisted tightly together in a cable construction." (Young, p. 258). Widely touted as "Our New Thread," or "O.N.T.," this product was eventually recognized nationwide.



CLARK THREAD COMPANY from
McCarter Highway



By the time of George Clark's death in 1873, the Clark Thread Company employed over 1,000 workers in its mills and was the Nation's largest manufacturer of cotton sewing thread. After William Clark succeeded his brother, the firm continued to expand, and by the time of his retirement in 1897, it had almost doubled in size.

In the years that followed, the Clark Thread Company continued to prosper. The development of the mercerization process between 1910 and 1920 made it possible to use cotton thread on all fabrics. Later as synthetic fabrics were developed, the company became one of the first thread manufacturers to produce synthetic threads. By the 1930's the company began to shift its base of operations from Newark to the southern states because of cheaper labor and operating costs--a move which was virtually complete by 1947. In 1954 the Clark Thread Company and the J. & P. Coats Company merged to create a new firm, Coats & Clark Incorporated.

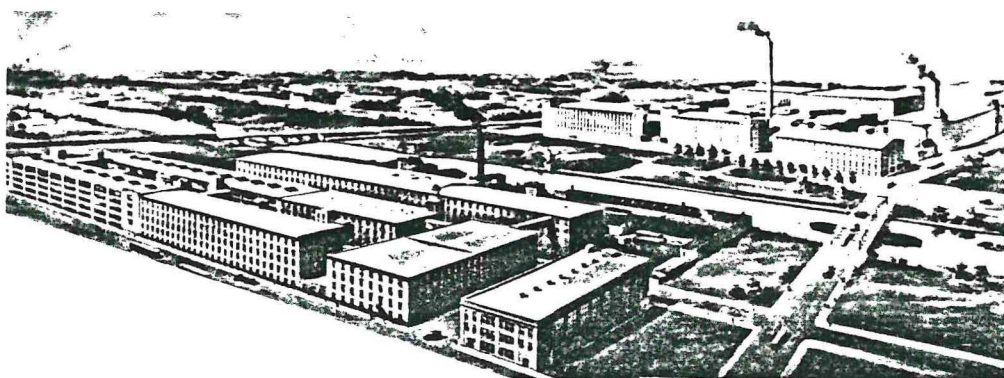
When George and William Clark launched their American thread manufacturing operation in the 1860's, they erected their factory on the west bank of the Passaic River in Newark. Remnants of this facility survive. In the early 1870's, when the Clark Thread Company was on the verge of becoming the world's largest maker of cotton sewing thread, George and William expanded their facilities across the Passaic to East Newark. In all, there are more than 40 structures on approximately 16 acres of land which in East Newark covers a city block bounded by Passaic Avenue, the Erie Railroad, Grant Avenue, and Central Avenue and in Newark the northern half of the industrial complex between McCarter Highway, Clay Street, the Erie Railroad and the Passaic River.

The Clark Company sold its East Newark complex in 1935, but the exteriors of most of the chief buildings, as well as the interiors of some, are little changed. All the structures in East Newark are of red brick and are compatible in style. The larger manufacturing buildings display open attics and wood truss systems with cast-iron support columns, and all structures of three or more stories have modern elevators. Most windows are rectangular and set in segmentally arched openings with radiating brick voussoirs and stone sills. A few windows in almost every building have been bricked or otherwise filled.

One of the oldest structures is a rectangular-shaped, four-story, gable-roofed, mill erected in 1875. It fronts onto Passaic Avenue, is 6 bays wide and 18 bays long, measures about 75 by 400 feet, and has 20-over-20 wood sash windows.



CLARK THREAD COMPANY
from Passaic Street



Folsom, Municipalities of Essex
County, 1925, p. 267

Also fronting onto Passaic are two mill buildings that were erected in 1881. Although one is nearly double in size, each structure rises five stores to a low-pitched gable roof and displays nine-over-nine sashes. Situated between these two edifices are a pair of small, one-story, hip-roofed gated houses from which a low, green-painted, cast-iron fence extends north and south along the sidewalk.

Fronting onto Central Avenue are a pair of 1883 mills that stand six stories high and feature low-pitched hip roofs. One has 20-over-20 sashes and the other 9-over-9 sashes. Each edifice measures approximately 125 by 200 feet. Attached to the west end of are two smaller, two-story structures, that served originally as either a residence and carriage house for the complex manager or as a company office facility. A high cast-iron fence separates the small yards of the two structures from the street.

Along the east side of the complex, two mill buildings front eastward onto Grant Avenue. Built in 1889 they rise five and six stories and feature low-pitched gable roofs and 12-over-12 sashes. They also exhibit one of the most complete rows of mill towers in the complex.

Completing the perimeter of the facility along the north side is a series of four, abutting, one-story, gable-roofed support structures, each of which measures about 37 by 82 feet. These, were completed in 1881. Most of their window openings are closed with concrete blocks. Facing east on Grant Avenue, is a three-story structure erected in 1922 for administrative use. It displays eight-over-eight tripartite and double windows and has stone initials "O.N.T." inlaid in brick near the cornice line of the Grant Avenue Facade. Two large, red brick smokestacks remain in the Clark complex. The oldest is rectangular and probably was erected about the same time as the mills, 1883. The other stack is round and rises about 300 feet near the center of the complex. Near the top it bears the formerly white-painted initials "O.N.T." fashioned from cast-iron.

On the Newark side of the river are six major Clark Thread buildings. The four-story brick mill with segmental arch windows, corbelled roof cornice, and an outstanding tower and belvedere is possibly one of the original 1860's structures. Attached to this building are four large post-1880's four-story brick buildings which wrap around the contour of the block. The brick-faced three-story reinforced concrete recreation facility, ca. 1910, is at McCarter Highway and Clark.

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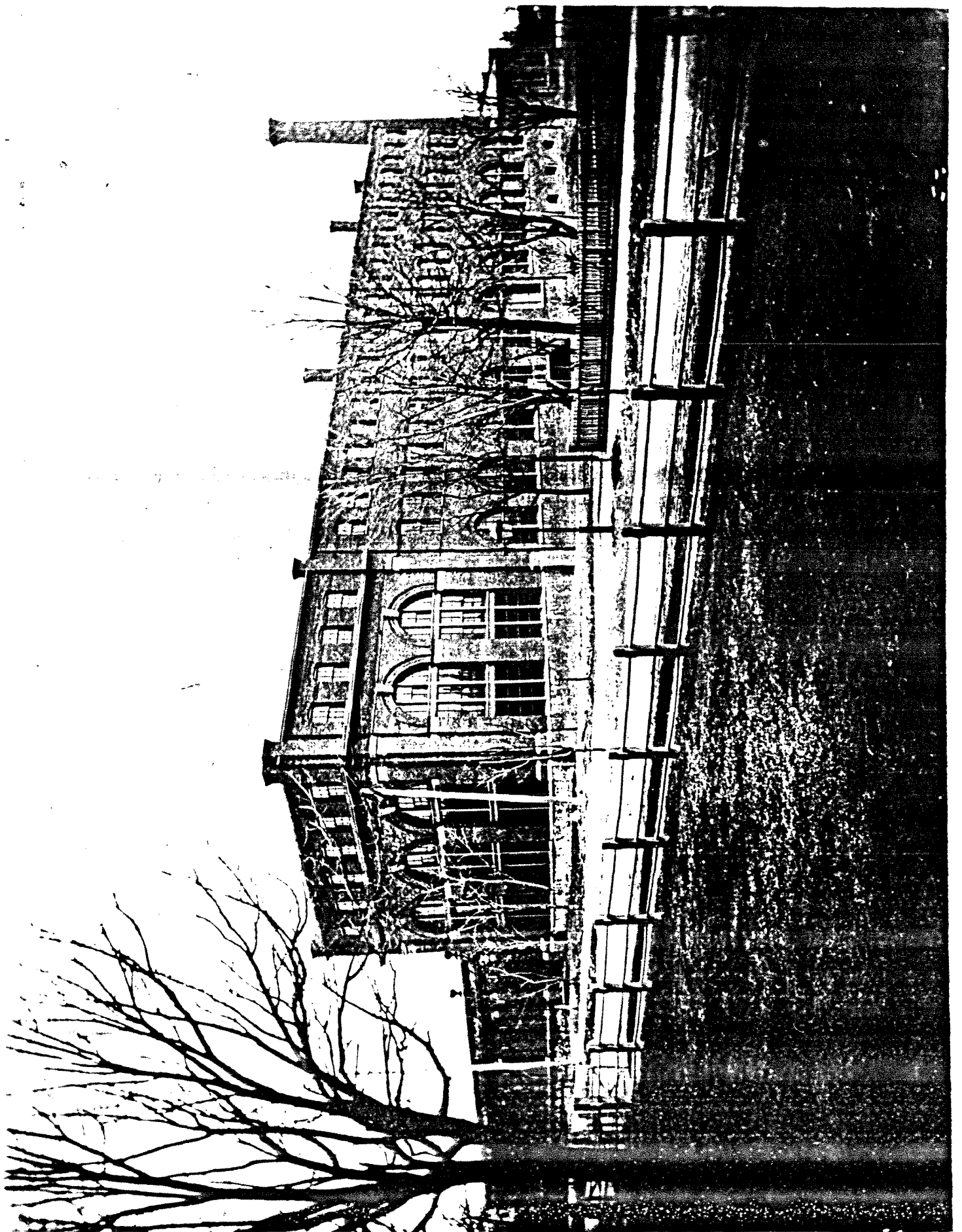
Ford, William F., The Industrial Interests of Newark, N.J., Containing An Historical Sketch of the City.

Henderson, T. F., "George Aitken Clark," Dictionary of National Biography, 1887), 421.

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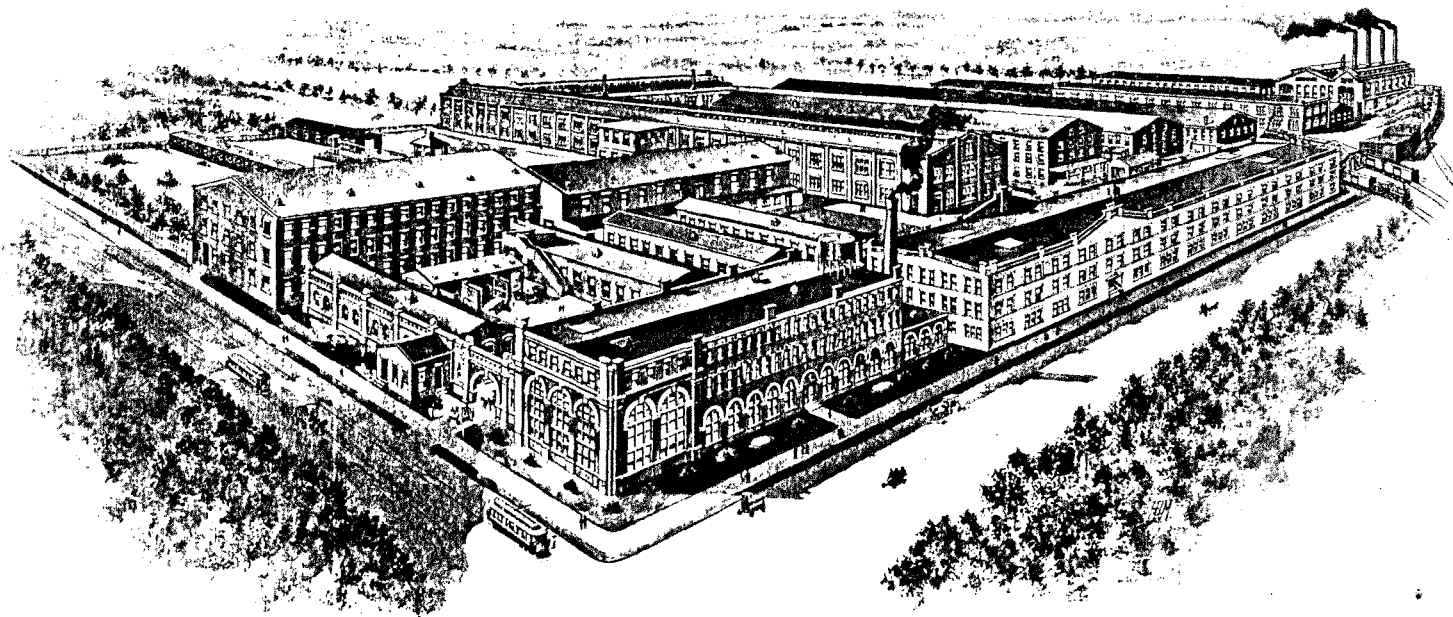
EDISON NATIONAL HISTORIC SITE (1887) AND STORAGE
BATTERY COMPANY (1910)
Main Street and Lakeside Avenue
West Orange, Essex County, New Jersey

Thomas Alva Edison built this industrial research laboratory in 1887 as a facility for the "rapid and cheap development of invention" and worked here until his death in 1931. Albeit overshadowed by his earlier period at Menlo Park (where he invented the phonograph, the first practical incandescent lamp and its accompanying electrical distribution system), the West Orange labs and its 60 skilled scientists and technicians nonetheless developed numerous significant products and techniques including the first successful motion picture camera and commercial films, improved phonographs with their cylinder and disc records, milling machinery, better processes for Portland cement, and the long-life alkaline storage battery.

Edison, clearly an inventive mind who, with intense application, patient empirical work, inspired guesses, and the finest scientists and technicians was granted more than half of his record number 1093 patents while at West Orange. Although less educated than many of his some 60 employees, Edison was the guiding force behind all projects at the labs, walking through daily to monitor progress and provide inspiration and a constant flow of ideas. When Edison died operation ceased. The West Orange facility was a prototype of the modern industrial research laboratory and Edison's genius and creativity is recalled by the buildings, machinery, equipment, and materials in this National Park Service museum. Most of the structures are still standing which Edison erected in 1887 to prove his conviction that industrial research should be carried on by an organized group working together in a laboratory properly equipped for the speedy, systematic solution to problems. Some contain exhibits like his original tinfoil photograph of 1877, his 1889 "Strip Kinetography" and other motion picture apparatus, and early electric light and power equipment. His Library/Exhibition Hall remains much as it looked during Edison's lifetime.

Located on Main Street, between Alden Street and Lakeside Avenue there are five laboratory buildings which were placed under the supervision of the National Park Service in 1956 and a privately owned storage battery building. The major portion of the laboratory complex, constructed in 1887, consisted of six buildings with brick walls and wood frame roof and floor construction. These buildings made a yard, or quadrangle, enclosed by a high picket fence, with a guard at the gate. The Main Laboratory about 250 feet long and three stories high, contained Edison's combination office and library, the machine shops

WEST ORANGE LABORATORY
1887-1909
Courtesy Edison National
Historic Site



Edison Laboratory and Phonograph Works, Orange, N. J.

WEST ORANGE LABORATORY
(EDISON NATIONAL HISTORIC
SITE)

Meeker, 1906

and stockrooms, a music room, a photography shop, a drafting room, and offices for the managerial staff.

On the first floor of the Main Laboratory are preserved the inventor's library and office, his general stock room and a complete machine shop with its own lathes, drill presses, and milling machines used for precision work.

The third floor served many varying functions. The Music Room above the library and office was used by Edison for listening to new phonograph recordings, sometimes in the company of artists, friends, and associates. His earliest work on motion pictures was also on this floor. At the rear, the large room was divided into smaller rooms wherein many experiments were conducted on, among other things, motion picture and the early long-playing cylinder records of 1895-97.

The four one-story buildings contained specialized laboratories and shops--Physics and Electrical Laboratory; Chemical Laboratory; Chemical Storage and Pattern Shop; and Metallurgical Laboratory. Presently, these buildings are being utilized for the storage of museum pieces, for display, and as office space.

Other buildings, some of which still survive, were added after 1887. Two concrete vaults, above ground, were built by Edison after the 1914 fire. The main archives building and museum storage vault were erected in 1940 after Edison's death in 1931, as was the 1956 full-size replica of his original tar-papered "Black Maria", the first motion picture studio (1893).

Electric Storage Battery Company

Believing electric cars were in the future, Edison spent time developing an improved battery at the turn of the century. Lead-acid batteries were heavy, self-destructive, and difficult to recharge. It took Edison nearly a decade to produce a workable nickel - iron alkaline battery. While electric cars never became especially popular (and alkaline batteries were not powerful enough to start gasoline engines), Edison's alkaline storage battery became standards in mining, railroad, marine and military usage.

The circa 1910 Electric Storage Battery Company property is a complex of large reinforced concrete industrial structures that Thomas Edison built to manufacture alkaline batteries. There are five separate reinforced concrete buildings in the complex totalling over 400,000 square feet of space. Privately owned by Industrial Properties, the property now houses more than twenty separate businesses and manufactures.

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Cunningham, John. Made in New Jersey. 1954, pp 139-42, 170, 203, 220-228.

ELIZABETH-PORT AUTHORITY MARINE TERMINAL (1962).
Newark-Elizabeth border, east of the NJ Turnpike
Elizabeth, Union County, New Jersey

Recognized as the busiest container port in the United States and the metropolitan areas major container terminal, Port Elizabeth was dedicated in 1962 and has grown to more than 20 massive mobile gantry cranes, nearly 17,000 feet of berthing space, and over 1,000 acres of land on which the containers are temporarily stored. Port Elizabeth is owned by the Port Authority of New York and New Jersey and is leased to Sea-Land, Maher, and Atlantic Container, among others. Container transport has revolutionized the shipping industry and Port Elizabeth dramatically illustrates why the more conventional break-bulk method has rapidly declined.

Port Elizabeth is located just south of Port Newark (technically it includes everything south of the midline of the Elizabeth Channel). This is the New York region's chief container terminal, and leads the nation in tonnage handled. Its builder, the Port Authority, intended it to do just that. Anthony Tozzoli and John Wilson's "Planning and construction of the Elizabeth, N.J., Port Authority Marine Terminal" in Civil Engineering, January, 1969, gives the views of the PA (at the time) on proper design of what has become the dominant form of port facility, the container port. The conversion of marshland to modern Port Elizabeth was also the theme of an article by John Cunningham, N.J.'s historian, in the Newark Sunday News, 5 Apr. 1959, p. 31.

The PA purchased four hundred acres of land in 1955 for the terminal and in 1958 began dredging a channel 9000' long and 600-800' wide over what had been a meandering creek, and began also to fill in the surrounding marshland. This part of the project was complete in 1959.

The terminal was dedicated in 1962 with the arrival of the first container ship, at which time it had four berths and 2500' of bulkhead along the south side of Elizabeth Channel. The wharves at PORT ELIZABETH are of the quay type (not the pier type), and the methods of their construction are given in Tozzoli and Wilson. The occupant of this first stage was Sea-Land Service, Inc., a pioneer in container shipping. Sea-Land installed four dockside mobile cranes for loading containers in 1965-1967, and occupied a sixth berth (the first constructed in the second phase of the terminal's development) in 1965. Sixteen new cargo distribution buildings were part of the second phase of the terminal's development; four were completed 1964, four more in 1965, and the rest were completed in stages over the next four years. Five new berths, completed in 1967, were also included in the second phase.

The PA authorized the third phase of Port Elizabeth's development, including five additional berths, in 1965. These were completed in 1968. Also, the Army Corps of Engineers accepted responsibility for the Elizabeth Channel that year.

An 87 acre container terminal for Maher Terminals, with 1600 ft. of berthing space on Newark Bay, two container cranes, and a receiving and delivery building were to be completed 1972. However the project was expanded during 1972-1974 to include 2400' of berthing space, 3 cranes, and 153 acres.

In 1973 a new 232-acre terminal was opened for Sea-Land, to complement its original 132-acre terminal. The new facility had 4519 ft. of berthing space, with 40 ft. depth, plus 6 container cranes. As of 1973, then, Port Elizabeth had 19 cranes and 18 berths. By 1979 the terminal occupied 1165 acres of land, had 16,934 ft. of berthing space, and 18 container cranes, and handled two-thirds of the containers passing through the Port of N.Y.

References:

Tozzoli, Anthony and John Wilson. "Planning and Construction of the Elizabeth, NJ Port Authority Marine Terminal," Civil Engineering vol. 39, January, 1969, p. 34-39.

Newark Sunday News. April 5, 1969.

Port Authority Annual Reports. 1959, 1962, 1965, 1967, 1968, 1971, 1972, 1973.

PORT NEWARK

Corbin Street, south of Port Street
Newark, Essex County, New Jersey

This 800-acre facility was built around a 600 ft. wide channel cut into the bed of "Peddie Ditch" in the marshland between Newark Bay and the City of Newark. With later additions, it now includes everything north of the midline of Elizabeth Channel. Everything south of that midline is part of Port Elizabeth.

Port Newark was started by the City of Newark and opened in 1915. The U.S. Army took it over during WW I and constructed a supply base. This project included doubling the length of the "ship canal", laying 15 miles of track, and building several warehouses. The City of Newark bought the Army Supply Base in 1936 and leased it to the private operator Newark Tidewater Terminal. It was reoccupied by the U.S. Government in WW II.

The Port Authority assumed operation of Port Newark in 1947-48 (at same time as NEWARK AIRPORT), obtained the release of Army facilities for commercial use and began a long-range redevelopment program. In 1948, immediately needed track improvements were made and two new cargo buildings were started. They were completed in 1950. By 1954 the southeast portion of the quay was opened as the Waterman Terminal. It was transferred to Alcoa Steamship Co. in 1957 when a four berth terminal was opened along the south quay of the channel. Also in the same year, the Pan Atlantic Steam Ship Co. began a pioneer container service between Port Newark and other U.S. ports such as New Orleans and Houston.

The Port Authority next tackled the redevelopment of the 1917 Army base that still occupied the north bulkhead of the channel (and 137 acres). The first section was completed in 1958, the second 3-berth terminal was in operation in 1960. The Elizabeth Channel was added 1958-1959.

Another 3 berths were completed on the south side of the original channel in 1961. Six more cargo distribution buildings were also completed. Four more cargo distribution buildings were completed in 1962.

In 1963 the Port Authority purchased the former Naval Reserve Industrial Shipyard, a 179 acre property on the north side of the Newark Channel fronting on Newark Bay containing five buildings, to be added to Port Newark. A banana facility and another huge cargo distribution building were completed, and the last of the Army Base buildings from WW I

was torn down to make way for more cargo distribution buildings. Two of these were completed in 1964, and two more in 1965, along with a public cold-storage warehouse.

In 1964 a railroad transfer bridge was completed at the northeast corner of the Elizabeth Channel so that all railroads would have equal access to Ports Newark and Elizabeth. It was apparently removed about 5 years later, when the north side of the channel was developed.

An administration building was completed in 1967 to house the operations, police, and administrative staff of both Port Elizabeth and Port Newark. Six new berths, on the north side of the Elizabeth Channel, were completed 1968-69. A new 10-acre rail classification yard for the terminal was built 1968-1971 west of Corbin Street and south of the Newark Channel.

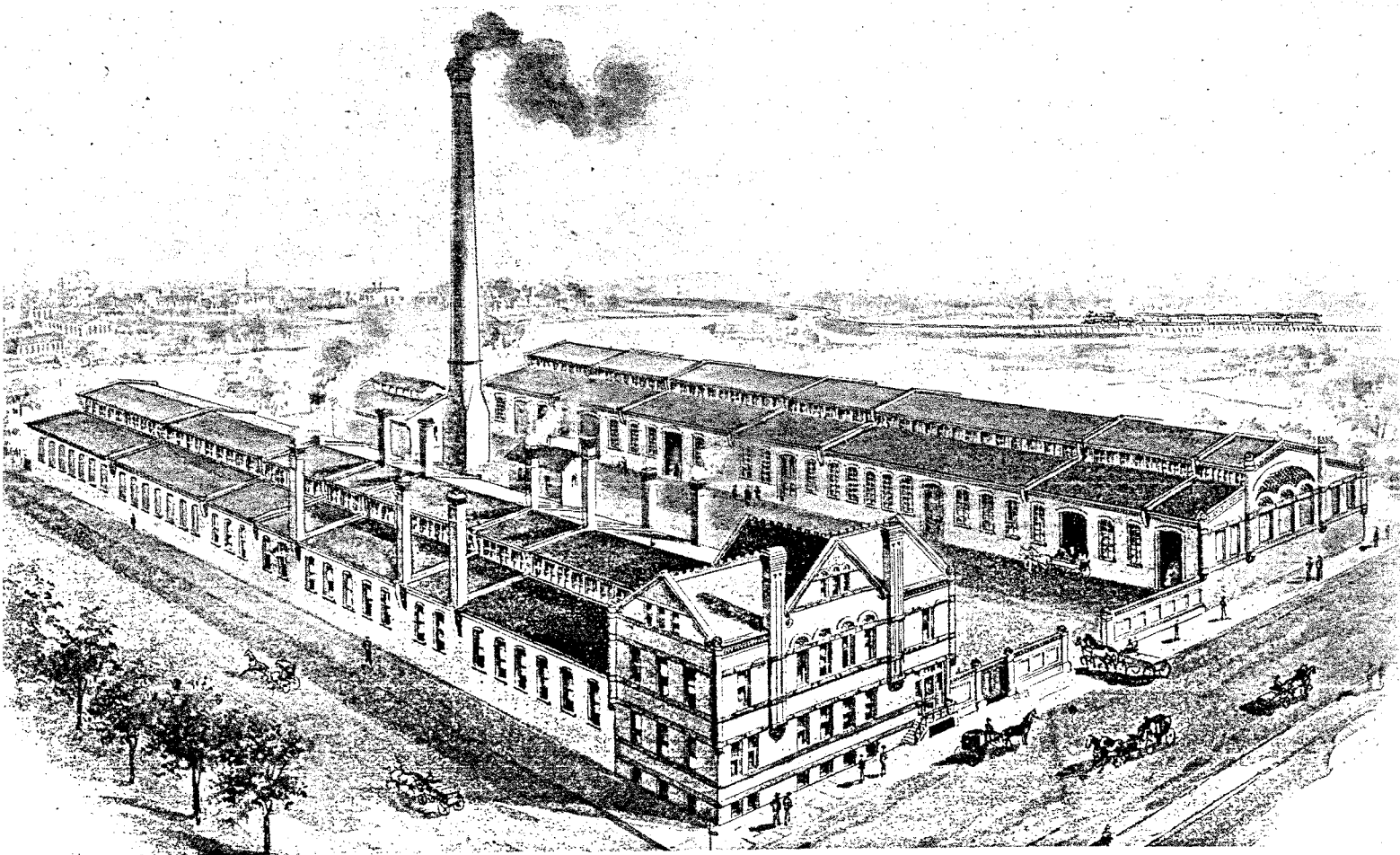
The last berthing space along the Port Newark side of the Elizabeth Channel was developed 1969-1971 as a combination container and conventional break-bulk cargo terminal with 3,822 ft. of berthing space, two container cranes, a large transit shed, and other facilities. Reconstruction of the Navy property began 1971; its berths were rebuilt and added to for a total of 3,000 ft. of berthing space. This was completed in 1976.

References:

Cunningham, John. Newark. 1966, p. 246-8.

Port Authority Annual Reports 1954, 1957, 1958, 1961, 1962, 1964, 1965, 1967, 1970, 1971, & 1973.

Flagg, Tom. New York Bound: Chronicle of Transportation in the New York Region. Not yet published.



JAENECKE PRINTING
INK COMPANY
Meeker, 1906, p. 140



JAENECKE PRINTING INK COMPANY (1892)
 Avenue B, C, Wright, & Miller
 Newark, Essex Co., New Jersey

The JAENECKE family firm was founded in Hanover, Germany in 1843 and introduced their printing inks to the United States around 1870. In 1892 the company erected a large factory in Newark for the manufacture of printing and lithographic inks, dry colors, and varnishes. In 1894 Jaenecke's Newark factory employed 65 skilled workers and produced over one million pounds of black and colored printing ink. The company was advertized as a recognized authority on printing, having sales agents in every principal city in the United States.

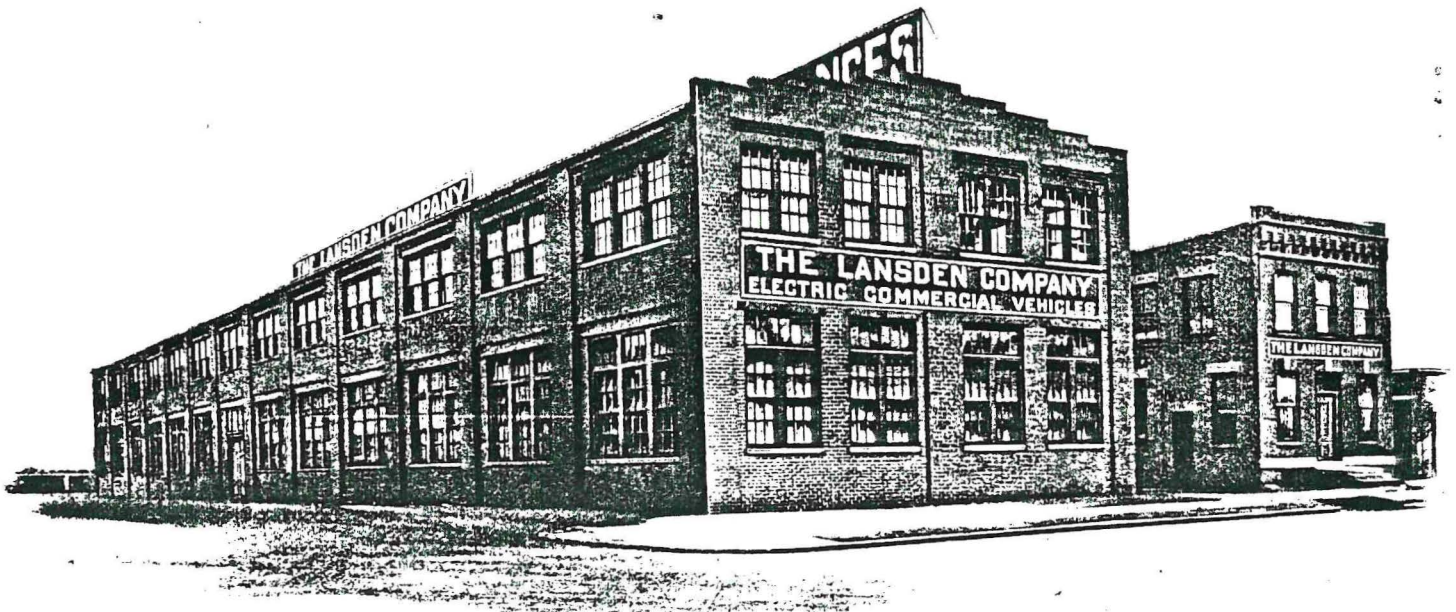
The yard and works encompassed the entire block (700 x 200 feet) with two large buildings separated by a spacious open courtyard. Most of the interior court has been filled, but the perimeter buildings survive. The Wright Avenue structure is a gable roofed one story brick building with a raised monitor roof. The small window openings have segmental arches. The adjoining main office, at the corner of Wright and Avenue B, was originally a 2½ story gable roofed Richardsonian Romanesque style building with fine detailing. Much of the office detailing has been stripped and the roof flattened. The Miller Avenue building is a gable roofed one story brick structure with a raised monitor roof. The openings are small segmental arched windows with an occasional carriage door. The front is piece facing Avenue B features Romanesque arches, brownstone trim and rounded corners.

References:

Newark: Handsomely Illustrated. 1894, p. 100

Meeker, Ellis R. New Jersey: A Historical, Commercial and Industrial Review. 1906, p. 140.

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LANSDEN ELECTRIC COMMERCIAL
Newark, City of Industry
 1912, p. 140

**KULLMAN
 DINING CAR CO**
 INCORPORATED
 390 Trelaghayson Ave
 Newark, N.J.

**BUILDERS
 of
 BETTER TYPE
 DINING CARS**

**Exterior and Interior
 Views of the Kullman Super Diner**

later KULLMAN DINING CAR CO
Newark Directory, 1930,
 p. 129

LANSDEN ELECTRIC COMMERCIAL VEHICLE COMPANY
 (Kullman Dining Car Company)
 390 Frelinghuysen Avenue
 Newark, Essex County, New Jersey

The Lansden Company was incorporated in 1904 by Thomas Edison while the storage battery was still in its development stage. Although short-lived, the Lansden Electric Vehicle was a pioneer effort in the early search for an efficient automobile. The first electric wagons built were equipped with Edison type H and E batteries. About 200 were completed in the first year, but production was limited to the number of batteries supplied. During the first eight years the company, at Edison's insistence, twice suspended manufacture pending battery improvements. The introduction of the type A battery was a more economical, efficient and satisfactory source of power for commercial vehicles. With the end of 1911 Lansden Company had approximately 1,750 trucks and wagons in service. At the beginning of 1912, the company increased capital and broadened the field of service in the newly constructed factory of Frelinghuysen. The Adams Express Company purchased at least 150 Lansden trucks and wagons, many placed in service in Newark. Other prominent companies which used Lansden trucks and wagons included R.H. Macy and Company; Gimbel Brothers; and Abraham and Straus of New York; the Hamburg-American Line; Bellevue Hospital; Wells Fargo and Company Express; the New York Public Library; Thomas Edison Industries; Metropolitan Opera Company; and the Otis Elevator Company.

The Lansden Company built light delivery wagons (750 and 1,000 pound capacity) and wagons and trucks with 1 tons, 2 tons, 3½ tons, and 5 tons capacities. Lansden was also held in high esteem for its ambulances and buses. By 1930 the factory was the Kullman Dining Car Company, a manufacturer of metal roadside dining facilities. Kullman was one of the major diner company's in New Jersey.

The Lansden/Kullman assembly plant, built in 1912, is a two story brick structure with a stepped gable and four bay front. The side has 13 bays of three sets of windows divided by brick piers. Apparently around 1930, all the brick piers were converted into chimney stacks along the north facade. The interior is open span with concrete steel beams and intermediate steel supports. In the rear of this building is a derelict dining car. Not one of Kullman's best examples, it has square windows, a rounded wooden roof, and a chrome body.

References:

Newark: The City of Industry. 1912, p. 140-1.

Newark Directory. 1930, p. 129.

Cunningham, John. Made in New Jersey. 1954, p. 170.

NEWARK AQUEDUCT HIGH SERVICE RESERVOIR
 South Orange Avenue, 7th & 9th Streets, and 14th Avenue
 Newark, Essex County, New Jersey

The Newark Aqueduct Company was created in 1800 to provide water to Newark families. By the mid-19th century, however, with the population over 50,000, residential and industrial waste threatened the spring-fed water supply. In 1860 the city bought the Aqueduct Company and established the Newark Aqueduct Board. The High Service Reservoir, often called the South Orange Reservoir, was built in the early 1870's. It was an important source of water for the city, but was befouled in its earliest years by the Passaic. At Belleville (Newark's northern border), river water was pumped into the reservoir and then into city homes and industries. Official reports in 1872 and 1873 spoke of reservoir water as "highly offensive to both smell and taste" with a shocking degree of contamination. Newark blamed sewerage dumped by the towns to the north for their filthy water, but Newark's own sewerage dumped into the Passaic was a major pollutant since the tide swept their sewerage upstream and into the intake at Belleville. In 1880 the East Jersey Water Company (a subsidiary of the Lehigh Valley Railroad Company) proposed to build three large reservoirs and transmit water into Newark from the head-waters of the Pequannock River in Morris County, 25 miles away. The first Pequannock water flowed into the city in 1892 considerably improving the water supply and reducing typhoid deaths by 70%.

Although the Pequannock Watershed reservoirs are larger, the Newark High Service Reservoir was the oldest and is the only surviving reservoir in the city proper. It is a 9 million gallon capacity reservoir surrounded by an iron fence. The bottom is concrete and the embanked walls are brownstone. There are two structures -- an 1871 two story brick aqueduct facility with a low hip roof and a stone foundation, and a one story artesian well building with Mansard roof.

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Newark Sunday News. July 18, 1965 and December 31, 1967.

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NEWARK BAY PUMPING STATION
(Newark Wastewater Treatment Facility)
Wilson Avenue, East of NJ Turnpike
Newark, Essex County, New Jersey

Settlement and industrial development in the lower Passaic Valley in the 19th Century had progressed beyond the ability of local officials to manage the waste products generated. Partially in reaction to the putrid and unsafe condition of the Passaic River, the State Sewerage Commission was established in 1896, developing a plan for dispersing sewerage of the lower valley by a trunk sewer and discharge into the Newark Bay. The Passaic Valley District Sewerage and Drainage Commission, an adjunct to the state, was created in 1902 to relieve the streams and rivers of the Passaic Valley from raw sewerage.

A regional approach to the problem, however, met considerable opposition. Consequently, construction did not begin until 1912 on the Newark Bay pumping station, concrete settling tanks and the head house, long after enabling legislation was worked out in the New Jersey Legislature in 1907. The trunk sewer which linked the several municipalities along the Passaic River cooperating in the regional venture was laid to the pumping station where the effluent was screened, then channeled into the settling tanks. From there, the primary treated sewerage plunged into the 260 foot Newark shaft on its way to the outfall pressure tunnel in Newark Bay.

The Passaic Valley Sewerage Commissioners' Report of 1908 details design, intent, specifications, and section drawings of the sewer line from Paterson to the Newark Bay. The drawings provide land descriptions, fill elevations, architectural details, and machinery plans and sections. Many early 20th Century views of the river and various enterprises are included among detailed photos of cribbing, removal, tunneling, and general construction pictures.

Not until the spring of 1924 was the 323 mile Passaic Valley sewer completed and put into operation. It runs from Paterson to Robbin's Reef, New York Bay. Basically the Passaic Valley Sewerage Works was designed to intercept the sewage from the local sewage outlets in each of twenty-one municipalities and discharge the sewage at the Pumping Station near Newark Bay.

The structure over the Newark Shaft is called the Head House. Its architectural design is borrowed from the popular Georgian revival style, modified to fit the proportions and materials of industrial buildings. A heavy molded concrete modillion eave floats over elaborate, graceful molded dentils

and concrete moldings banding all four sides of the small, sturdy brick building. Proportionate in its equal fenestration just below the eave, the blank space of the walls, and belt courses at the bottom third of the building give it a graceful air. There is a functional wrought iron railing around the top. The valve housing, next to the pumping station, serves as a lift or scaffold when repairs or cleaning must take place.

The pumping station also shows use of the Georgian style and makes more palatable the indelicate function of the treatment facilities. Its facade was substantially altered in the 1950's when the settling tanks were deepened and improved. This alteration involved the replacement of the original arched windows with rectangular windows. The roof line was left intact.

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Passaic Valley Sewerage Commissioners Report of 1924-1974.

Meeker, Ellis R. New Jersey: A Historical, Commercial and Industrial Review, 1906.

Ligget, Barbara. Phase I Archeological Survey Proposed Passaic Valley Sewerage Commissioners Newark Sewage Treatment Plant Sludge Storage Facility.

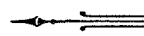
Folsom, Joseph. The Municipalities of Essex County. 1925, p. 466.

A. WALLACE BROWN.

ESTABLISHED 1850.

GILBERT C. BROWN.

GEORGE BROWN & CO.,

— NEWARK, N. J.  —

❖ GRANITE . . MONUMENTS, ❖

TOMBS, VAULTS, ENCLOSURES, etc.,

OFFICE AND SHOW ROOMS:

Belleville Avenue, opposite Mount Pleasant Cemetery Entrance.

Steam Polishing Works, Wharf 264 to 270 Passaic Street (foot of Clark).

Artistic Designs Furnished on Application.

NEWARK STEAM STONE DRESSING WORKS
George Brown & Company
267-269 Passaic Street
Newark, Essex County, New Jersey

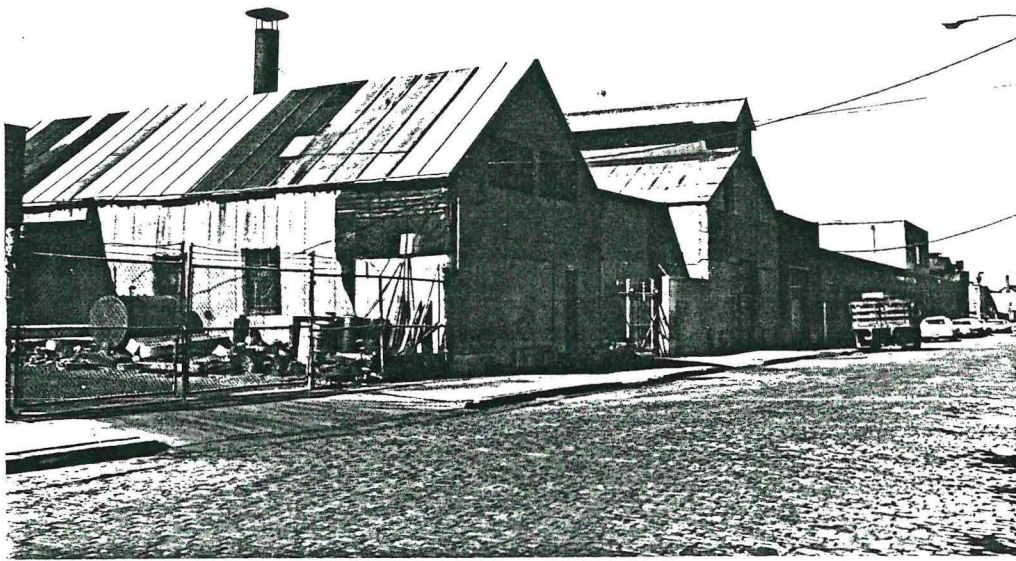
Producing fine quality stonework and carvings for some of Newark's finest masonry buildings from 1850 until the 1960's George Brown and Company had a major impact on the city's architecture. The William Clark Mansion, architect George B. Post's Presidential Building (demolished), Penn Station, the Russian Pavilion of the 1939 New York World's Fair, and architect William Halsey Wood's Peddie Memorial Baptist Church (suspected) were all constructed by George Brown & Company. Besides erecting buildings the company, employing about 50 in the 1880's, also designed and executed monuments in some of the finest Newark cemeteries, including the prestigious Mt. Pleasant Cemetery (i.e. F.T. Fellinghuysen, T.B. Peddie and William Clark's tombstones).

The covered yards were between Passaic Street and the Passaic River and traversed by two traveling steam cranes carrying a 15 ton capacity. Machinery included gang and rip saws, planing machines, rubbing beds, and turning lathes. The rough quarried stone was brought in by barge and discharged by a large steam crane. Today, in place of the yards is a modern industrial plant and the only extant George Brown Co. building is the three story hand stone carving structure and the small attached masonry stable complete with carved horse head.

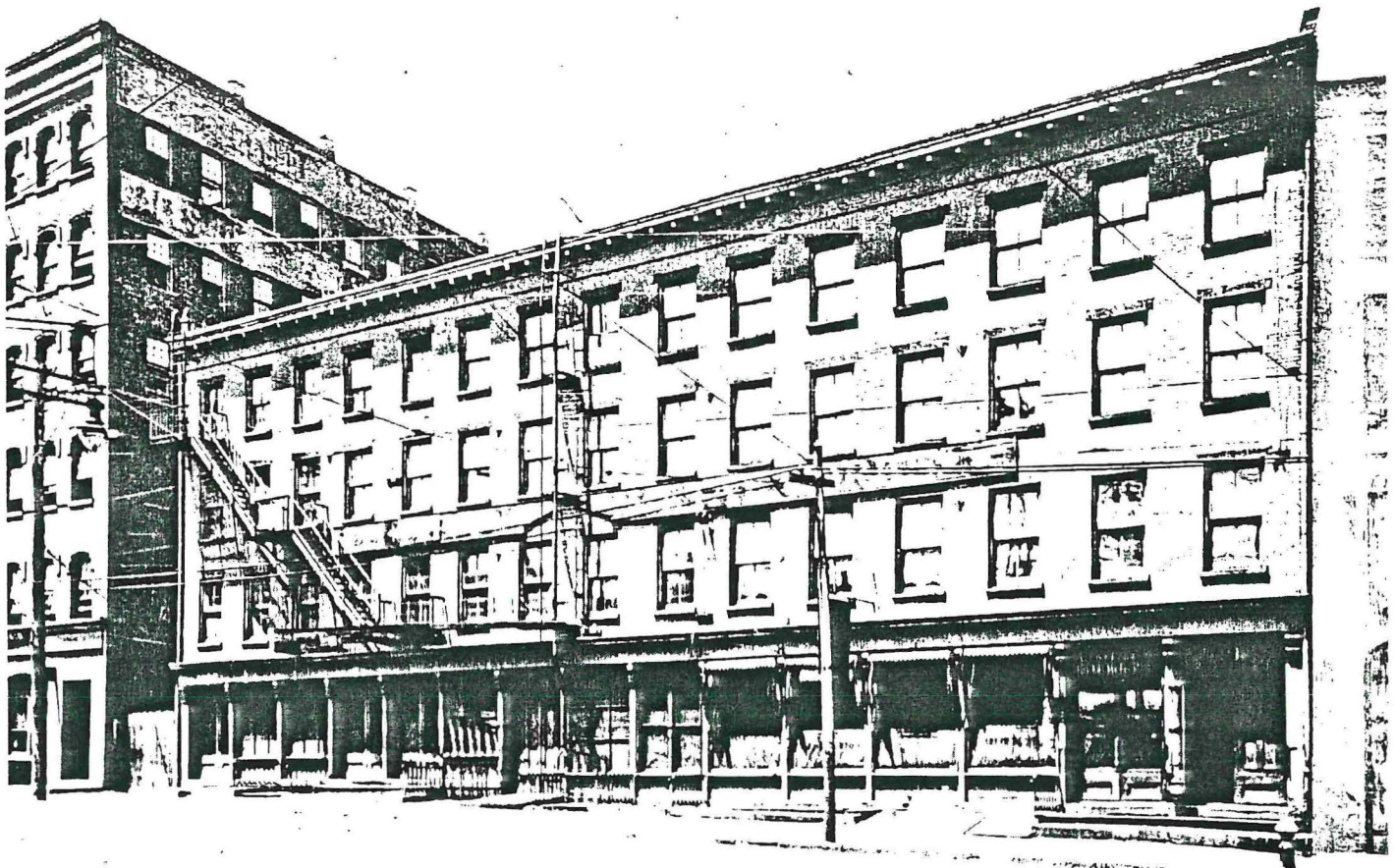
References:

Newark NJ Illustrated. 1983, p. 201

Commerce, Manufactures and Resources of The City of Newark. 1881, p. 28-9.



RONSON METALS CORP



Originally
THE ART METAL WORKS
at Mulberry Street
Newark, City of Industry
1912 n 117

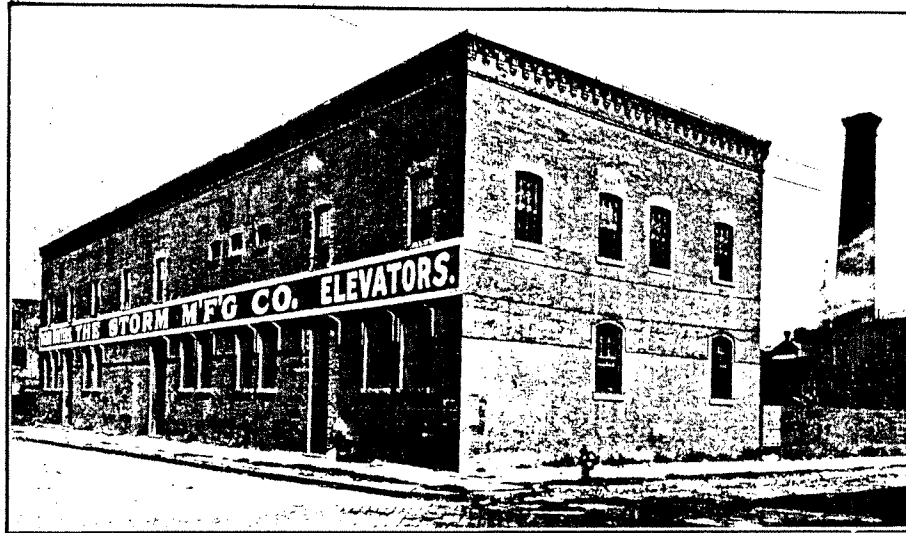
RONSON METALS CORPORATION
51-79 Manufacturers Place
Newark, Essex County, New Jersey

The Ronson pocket lighter is a familiar American product. The company, known initially as the Art Metal Works, was begun in 1896 by a metallurgical engineer named Louis V. Aronson and has since manufactured millions of cigarette lighters. Ironically, in 1900 Aronson was awarded a prize of 50,000 francs offered by the Belgian government for a non-poisonous wooden safety match. A few years later the resourceful Aronson developed a popular "ma-ma" voice for dolls. With the rapid upsurge in cigarette popularity during World War I Aronson patented a safe automatic cigarette lighter. This pocket lighter became immediately popular and Aronson's company improved the product over the years. In 1928 Ronson's popular lighter and slogan "Press, it's lit; release it's out" was introduced to a national market. Producing inexpensive dependable pocket lighters and related items for over fifty years, the company, now Ronson Metals Corporation, thrives in Newark in a mostly modern facility.

The main building is a large two story modern concrete structure with small square portals. Across the street is a gable roofed building, possibly a 1920's foundry, covered in corrugated metal and with a full monitor roof. Attached is a string of 1930's-40's one story masonry buildings.

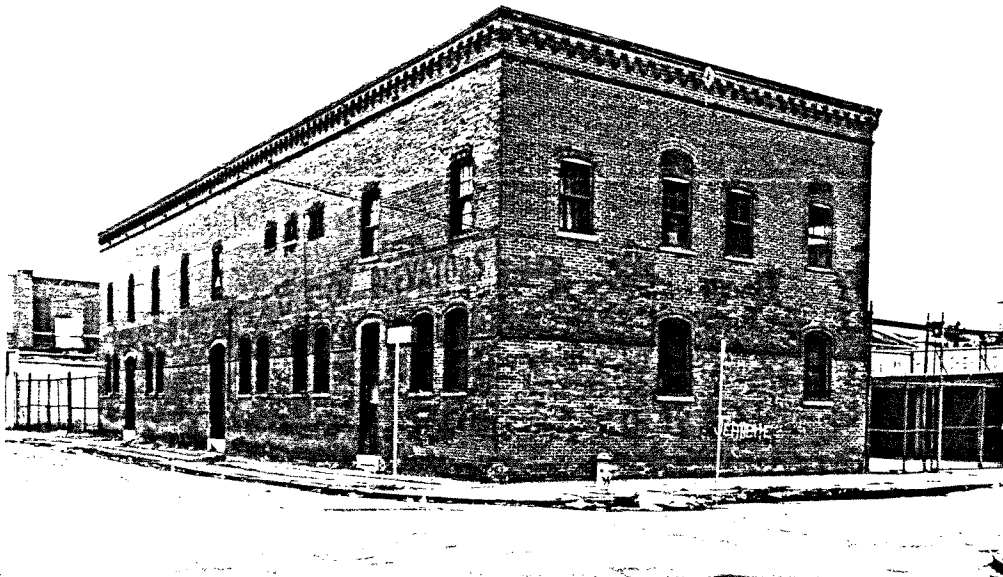
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Newark : The City of Industry. 1912, p. 117.



STORM MANUFACTURING CO., VESEY STREET.

STORM ELEVATOR MF'G CO
Newark, City of Industry
 1912, p. 131



STORM MANUFACTURING COMPANY
50 Vesey Street
Newark, Essex County, New Jersey

This company manufactured and installed dumb waiters and hand elevators in the early 20th century. Established in Poughkeepsie, New York in 1890 by G.W. Storm, his associate D. Minor Lake developed the business in Newark around 1900. Owing to rapid industrial and commercial development in the area increased demand for the product necessitated a move from the corner of Alling and Market to larger quarters in 1907. This building at 50 Vesey Street looks much as it did originally. It is a two story brick structure with a flat roof and corbelled brick cornice. The fenestration is small wood sash windows with drip mold segmental arches. The Vesey street facade has 3 doors and 10 windows interconnected by a continuous belt course. The old painted sign-"DUMB WAITERS THE STORM M'F'G CO. ELEVATORS" is still faintly visible.

References:

Newark: The City of Industry. 1912, p. 131.

WORTHINGTON PUMP COUNTY
401 Worthington Avenue
Harrison, Hudson County

Henry Rossiter Worthington (1817-1880) was one of the first people to realize the importance of a machine that would pump water without the intervention of a crankshaft or rotary motion. In 1857 Worthington introduced the duplex direct-acting pump. This became for many years the standard type of pumping engine, as the Corliss engine became the standard mill engine. These pumps came into widespread use particularly for waterworks and oil pipelines, and they maintained their supremacy well into the 1940's.

Worthington, who founded the company that bears his name in 1845, was also responsible for a number of pump-related improvements like the dash relief valve, the rotary pump valve, the cross connector for compound pumps, and the duplex piston water meter. After Worthington's death in 1880, his successors continued to improve the company product, and by 1900 his firm was predominant in its field, building not only waterworks pumps but most of the pumps for the U.S. Navy. The company also began to diversify and was responsible for such innovations as the feather valve air compressor and feedwater heating units for locomotives.

By 1940 the company was making not only a wide variety of pumping equipment but air and gas compressors; steam, diesel, and gas engines; steam turbines; steam condensing equipment; steam-jet ejectors; refrigeration and ice plant equipment; rock drilling equipment; pneumatic construction tools; disc, piston and turbine type liquid meters; V-belt drives; and air conditioning equipment. Worthington maintained its dominance in pumps as well, producing a wide variety for military as well as civilian purposes. During World War I, the firm supplied all the pumping equipment for all the Nation's 231 new destroyers, and then again in World War II and the Korean and Vietnam conflicts, Worthington performed additional yeoman service in this area.

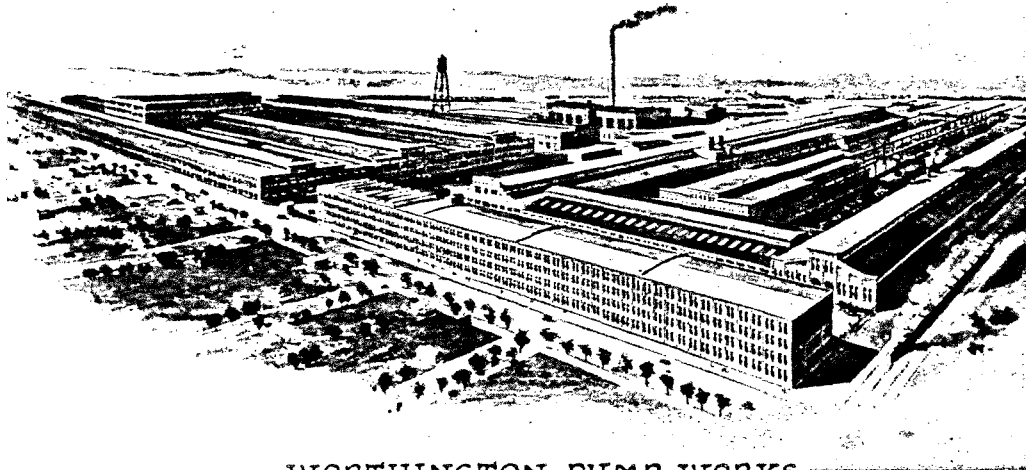
In 1952 the company was reorganized as the Worthington Corporation, and 15 years later it merged with Studebaker to form the Stuedbaker-Worthington Corporation, a conglomerate which produces a wide variety of machinery and machine-related products, as well as pumps.

Shortly after Henry R. Worthington and William H. Baker concluded their partnership agreement in 1845, they opened the first Worthington pump factory in a small wooden building opposite the old Navy Yard in Brooklyn. Within a few years Worthington moved the firm to Van Brunt and Rapelyea Streets in Brooklyn. The company remained in this location for the next half century, enlarging its facilities on several occasions. By 1892, Worthington found itself faced with a shortage of available land in New York making the Brooklyn plant outmoded by the turn of the century. Accordingly the company purchased 60 acres of land in Harrison, New Jersey and by 1904 the initial phase of the Harrison project had been completed, the firm transferring all its operations from its Brooklyn and Elizabeth plants.

Since their construction in 1903-4 the three major edifices, constructed of red brick and situated in an industrial area on the east side of Harrison, New Jersey, have been utilized in the production of a wide variety of Worthington pumps. The oldest known extant Worthington manufacturing structures, they are in relatively good condition and represent the contributions of Henry R. Worthington and his company to the Nation's technological and industrial development.

Building Number One, functioning as the company's main machine shop since its completion in 1903, is a northward-facing brick industrial structure at the corner of Harrison and Worthington. Measuring about 135 x 1000 feet, it has a 2½ story center section with monitor roof flanked by 2-story wings. Pilasters, corbelling, denticulation, parapeted roof, corner quoins, and large round window arches embellish the main north facade.

Building Number Two was erected around World War I. This southward-facing brick structure measures about 135 x 575 feet and has a 2½ story center section with monitor flanked by two-story wings. It is connected to the First and Third buildings. Roof corbelling and parapets and large multi-paned steel sash windows highlight this structure which originally functioned as an additional machine shop and erecting shop.



WORTHINGTON PUMP WORKS

Building Number Three (1904) is a southward-facing brick edifice, whose dimensions are 135 by 700 feet, and consists of 2½ story monitor roofed center section flanked by two-story wings. With its pilastered walls and ornate corbelling along the roofline, it exhibits far more exterior ornamentation than Building Number 2. On its east side, Building Number 3 exhibits two two-story projecting towers and two one-story, shed-roofed wings, all of which appear to be original. Windows are generally of the sash variety and are set in rectangular surrounds. Since 1904 the structure has served as an erecting shop, and over the years a wide variety of Worthington pumps have been assembled and tested here.

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