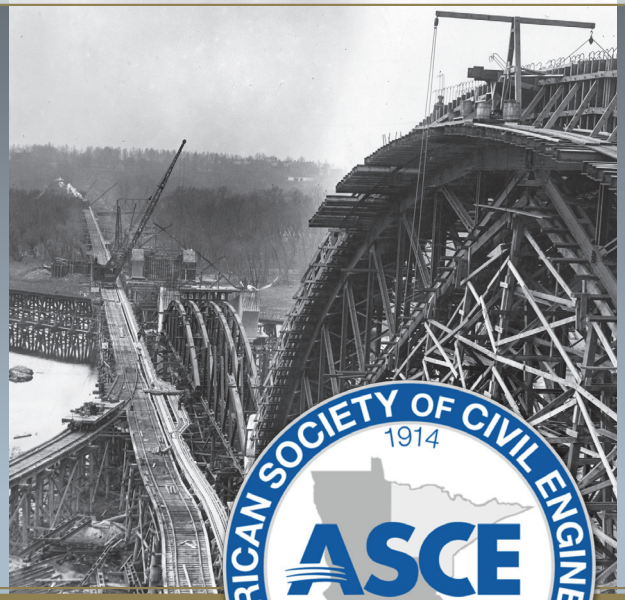
AMERICAN SOCIETY OF CIVIL ENGINEERS, MINNESOTA SECTION
PRESENTS

TWO CENTURIES

OF MINNESOTA CIVIL ENGINEERING MILESTONES

1819-2014



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This project has been financed in part with funds provided by the State of Minnesota from the Arts and Cultural Heritage Fund through the Minnesota Historical Society.

Keokuk Powerplant construction

MESSAGE FROM THE PRESIDENT

Steven A. Olson

All too often the days slip by and we don't take time to reflect on what we've accomplished as engineers. The History and Heritage Committee under the leadership of Melanie Fiegen has worked hard to produce this wonderful document. It summarizes the work civil engineers have accomplished in Minnesota over the past two centuries. From taming the Mississippi River with locks and dams, to mining tunnels and building airports, to building an extensive network of roads and bridges our fingerprints are everywhere. This document is an entertaining look over our shoulders as to how far our profession has matured as we've traveled down the trail of time. It chronicles activity from the construction of Fort Snelling in 1819 to projects and advocacy efforts underway today.

Since 1914 the American Society of Civil Engineers Minnesota Section has been a focal point for practicing civil engineers in Minnesota. Engineers have exchanged ideas at Section meetings and Technical Committee meetings for decades. These exchanges between engineers have benefited our profession and the larger community.

On behalf of the Board of Directors of the Minnesota Section and with substantial pride in our profession, I ask you to enjoy this timeline.

Sincerely,

Steven A. Olson

Steven A. Olson, PhD, PE
President, ASCE-MN

INTRODUCTION

The American Society of Civil Engineers (ASCE)-Northwest Section was founded in 1914. This year, as we celebrate our centennial, we received a grant to create a timeline to help salute our achievements and recognize our leaders.

Using the timeline, we created this brochure which lists milestones from the history of the ASCE-Northwest Section, now called the ASCE-Minnesota Section, as well as examples of the iconic work of civil engineers and information about Minnesota civil engineering leaders. It begins with some of the earliest development in the state, pre-dating statehood, and ends with educational work sponsored by ASCE-Minnesota Section extending into 2015.

The work of this active ASCE Section is documented in its records collection, held at the Department of Civil, Environmental and Geo- Engineering at the University of Minnesota. The following document includes examples of meetings, programs, and state and national conferences hosted by the Minnesota Section. The listing is by no means complete, but included to represent our work. For more information about programs and sponsorships throughout the century, see the ASCE-Minnesota Section Records.

Information in this document is from the geographic area of the ASCE-Minnesota Section. It thus does not include information from the Duluth Section (Koochiching, St. Louis, Lake, Cook, Itasca, Cass, Crow, Wing, Aitkin, Carlton and Pine Counties) unless a tie could be established to people or work from the Minnesota Section. It also has been edited significantly to fit the format of this brochure. Please visit our website for a more complete timeline and for our sources and references at www.ascemn.org.

This document celebrates the Minnesota Section. As we move into our second century, the Section mission, as stated on our website, illustrates our ongoing commitment to supporting civil engineering in Minnesota:

> "The American Society of Civil Engineers is a non-profit professional organization founded in 1852 with over 140,000 members worldwide. Locally, the Minnesota Section represents more than 1200 members that work in all levels of government, academia and the private sector to design, construct and maintain our State's infrastructure. One of our key responsibilities is to advocate for infrastructure stewardship to protect the public's health, safety, and improve our quality of life."

Congratulations to Minnesota's civil engineers, past and present, who have made these achievements possible.

Third Hennepin Avenue Bridge

1819 - 1859

Seth Eastman "Distant View of Fort Snelling,"

1819

FORT SNELLING

Members of the 5th Infantry Regiment, United States Army, under the command of Colonel Josiah Snelling build this military fort at the confluence of the Minnesota and Mississippi Rivers.

1851

UNIVERSITY OF MINNESOTA

The University of Minnesota, now home of the Department of Civil Engineering, is founded as a prep school; it is organized as a land grant university in 1869.

1852

THE AMERICAN SOCIETY OF CIVIL ENGINEERS IS FOUNDED

Twelve civil engineers gather at the Croton Aqueduct in New York State and agree to incorporate the American Society of Civil Engineers (ASCE).

First Bridge over the Mississippi River

1855

FIRST BRIDGE ACROSS THE MISSISSIPPI RIVER

The very first bridge to cross the main channel of the Mississippi River is constructed in 1854 and opens for wagon and pedestrian traffic in 1855. It spans the river at Hennepin Ave. in Minneapolis. This cable suspension span with its ornate wooden towers connects the future site of Minneapolis with Nicollet Island.

Fourth Bridge

Some 20 years later a new bridge is completed featuring rustic stone towers that give the structure a medieval castle look. In 1885 Minneapolis begins constructing a new bridge adjacent to the stone suspension bridge. Designed initially as a stone arch bridge, objections from the milling industry quickly force the city to modify its plans and instead erect a steel, two-span, ribbed arch bridge with only one pier in the middle of the river. Horace E. Horton of Rochester, Minnesota erects the steel superstructure of the new bridge that is completed about mid-1888. This new steel bridge serves for a century.

In September 1990 Minneapolis dedicates a fourth Hennepin Avenue bridge. The new bridge is a six-lane suspension bridge designed by Howard, Needles, Tammen and Bergendoff (HNTB) and built at a cost of $28 million. Its design reflects the heritage of the two previous suspension bridges at the location.

1858

MINNESOTA STATEHOOD

Minnesota becomes a state nine years after becoming a territory (1849).

1859

MINNESOTA STAGE COMPANY

Minnesota Stage Company completes a stage line from St. Cloud to Red River Valley near Breckenridge, MN.

Stone Arch Bridge

1860 - 1889

1862
MINNESOTA'S FIRST RAILROAD

On June 28, 1862 the William Crooks, pulling a few cars, leaves a crude depot at Phalen Creek in St. Paul bound for end-of-track, a spot along the Mississippi River about ten miles away from the Falls of St. Anthony. Thus begins the age of railways in Minnesota.

1866
UNITED STATES ARMY CORPS OF ENGINEERS, ST. PAUL OFFICE

The United States Army Corps of Engineers establishes a district office in St. Paul; the office is headed by Major Governor Kemble Warren, a West Point graduate and Civil War veteran.

1871
CIVIL ENGINEERING PROGRAM, UNIVERSITY OF MINNESOTA

In response to rapid growth and expansion of the United States, the University of Minnesota Board of Regents votes to form a Civil Engineering program at the University of Minnesota.

TCRT #1300 owned and operated by the Minnesota Streetcar Museum on the Como-Harriet Streetcar Line

1873
COMO PARK

In 1873 the St. Paul Park Board acquires 300 acres of land to begin developing Como Park. In 1915, the park superintendent works with Maximilian Toltz (TKDA) to design and construct the Como Park Conservatory, the park's defining landmark. Based on nineteenth-century English and European precedents, the conservatory is one of only a few historic park conservatories of its size that continues in use in the United States. One of America's great urban parks, Como Park is noted for its zoo, conservatory and several WPA-era structures.

1875
MINNEAPOLIS/ST. PAUL STREETCAR SYSTEM

From the late 1880s to the late 1950s, streetcars provide transportation for citizens of Minneapolis and St. Paul and suburban areas. Beginning with horse-drawn and steam-powered cars, electrically powered streetcars are introduced in 1889/1890, and major Minneapolis thoroughfares are electrified in 1915. In the 1950s the lines begin to be abandoned and by 1958, the conversion to buses is complete.

1882
FIRST HYDROELECTRIC POWER STATION

Minnesota Brush Electric Company builds the country's first hydroelectric power station on a sawmill platform at St. Anthony Falls.

1882
STONE ARCH BRIDGE

The Stone Arch Bridge, earliest National Civil Engineering Landmark in Minnesota, is built by James J. Hill as a railroad bridge spanning the Mississippi River below St. Anthony Falls; it serves as a railroad bridge until 1965. Engineer Charles C. Smith designs the bridge with twenty-three arches to accommodate a necessary curve to enter Minneapolis' grand new depot on Hennepin Avenue. It was built by contractor Edward Darragh in nineteen months for $690,000. It was designated a National Civil Engineering Landmark in 1974.

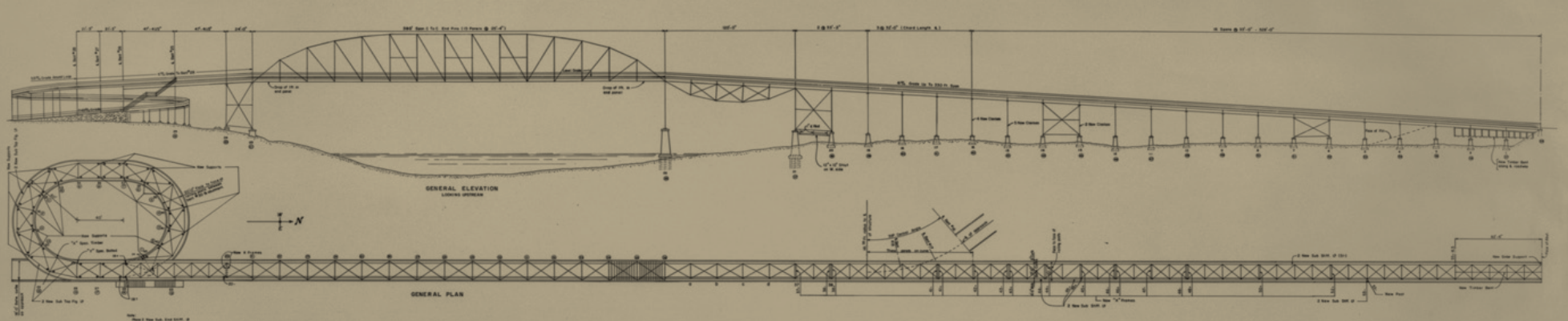
Seventh Street Improvement Arches

1883/1884
SEVENTH STREET IMPROVEMENT ARCHES

Designed by railroad engineer William A. Truesdell, the Arches are one of the only documented examples of helicoidal arch construction in the United States and the only known example in Minnesota. They are located in St. Paul and were designated as a National Civil Engineering Landmark in 1999.

1884
MINNESOTA IRON ORE MINING

The first shipment of iron ore from the Soudan Mine on the Vermilion Iron Range signals the beginning of the state's iron ore mining industry.



1890 - 1899

Hugh Lincoln Cooper Hydroelectric Plant

Duluth Superior Harbor

1891
HUGH LINCOLN COOPER

Minnesota-born Hugh Lincoln Cooper (1865-1937) becomes interested in hydroelectric power and learns about harnessing water to generate electricity. He eventually designs and builds plants in the United States including the Zumbro Power Plant (1917), Jamaica, West Indies, Brazil, the Horseshoe Rapids above Niagara Falls, Africa, Egypt (Aswan Dam), and the Soviet Union. His work is described as a model for transfer of industrial skills from technologically advanced countries to less advanced or third world nations.

1895
HASTINGS SPIRAL BRIDGE OPENS

To accommodate the grade change between the banks of the Mississippi River at Hastings, a bridge is designed with a spiral approach at the Hastings side of the river placing traffic into downtown.

1896
ST. PAUL BEGINS PAVING DOWNTOWN STREETS

In 1896, the City of St. Paul begins paving its downtown streets. In 1918, the city announces it has fifty-one miles of macadam roads, twenty-one miles of which have been resurfaced with asphalt. A 1900-era photograph in the Minnesota Historical Society shows the street department washing its asphalt streets.

1897
DULUTH-SUPERIOR HARBOR

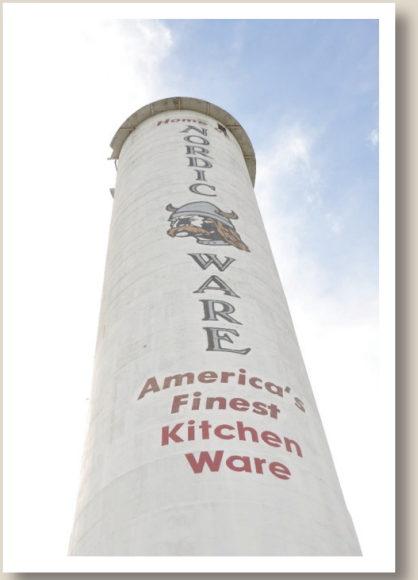
Work to improve the Duluth-Superior Harbor is authorized by the Rivers and Harbors Acts of 1896 and succeeding years. Between 1897 and 1902 the U. S. Army Corps of Engineers dredges twenty-two million cubic yards from the harbor, opening seventeen miles of channel and 360 acres of harbor basin.

1897
MOLIN CONCRETE

Molin Concrete is founded in 1897 on Minnehaha Avenue in St. Paul by John Gustav Molin. Its original product was precast sidewalk block, along with masonry work and masonry components. The company adds Flexicore hollow core plank in 1950 and later, other precast elements. Molin Concrete moved to Lino Lakes in 1970.

1899/1900
PEAVEY-HAGLIN EXPERIMENTAL CONCRETE GRAIN ELEVATOR

This elevator is the first cylindrical concrete grain elevator in the United States. It proves that the newly evolving engineering material of reinforced concrete can economically sustain the loading conditions created by fluctuating levels of granular materials. The elevator is designated as a National Civil Engineering Landmark in 1983 and bears an iconic advertisement for NordicWare.



Peavey-Haglin Experimental Concrete Grain Elevator

1900-1909

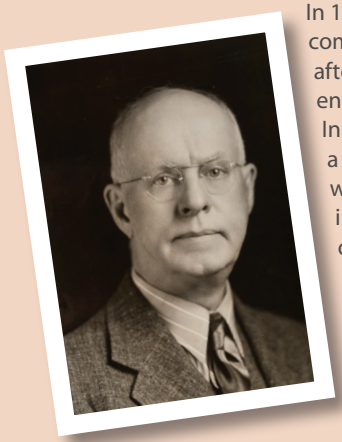
Duluth Aerial Ferry Bridge

1900
MINNESOTA POPULATION REACHES 1.75 MILLION.

1901
CLAUDE ALLEN PORTER (C.A.P.) TURNER

Claude Allen Porter (C.A.P.) Turner (1869-1955) founds his engineering and architectural firm in Minneapolis. Turner develops and receives many patents for innovations in concrete-steel bridge systems, steel reinforcing in concrete support, and his "mushroom" reinforced concrete flat slab system. He remains well known today for his contributions to the development and use of reinforced concrete.

1904
FREDERIC BASS AND THE TYPHOID OUTBREAK IN MINNEAPOLIS

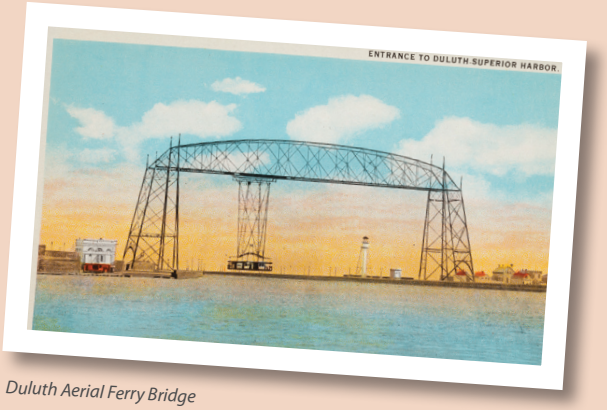


Frederick Bass

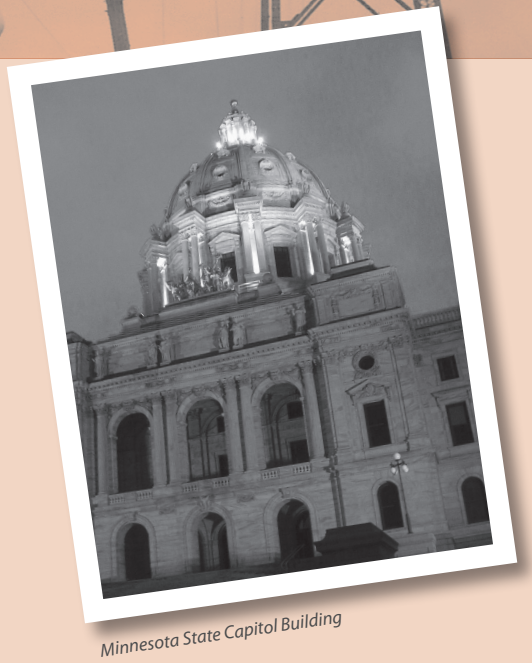
In 1901, Frederic H. Bass (1875-1953) comes to the University of Minnesota after his graduation with a BS in civil engineering from the Massachusetts Institute of Technology. He becomes a national authority on municipal water and sewer systems, beginning in 1904 when he identifies the cause of a typhoid outbreak in Minneapolis as raw sewage outlets on Nicollet Island contaminating water at the Hennepin Island intake. Backed by University President Northrup, he convinces the city to close the Hennepin Island intake until the problem can be solved. After a second typhoid outbreak in 1909-1910, he helps convince the city to build new waterworks and personally constructs the city's first hypochlorite plant at the waterworks to purify the water. With this, the typhoid outbreak ends. Bass consults on water systems and plants in Minnesota and throughout the country, helps lead installation of the MSP Sanitary system and, from 1906-1952, serves as consulting engineer to the Minnesota Dept. of Health. From 1919 until his retirement in 1943, he is head of the Civil Engineering Department at the U of MN. He serves as president of ASCE-NW in 1925-1926.

1905
MINNESOTA STATE CAPITOL

Minnesota's third, and current, state capitol building opens. It is designed by Minnesota architect Cass Gilbert, who later designs and builds the Woolworth Building in New York City (the tallest building in the world when completed) and the United States Supreme Court Building among many others. Built at a cost of $4.5 million, the classically-styled state capitol building has the second-largest self-supported marble dome in the world.



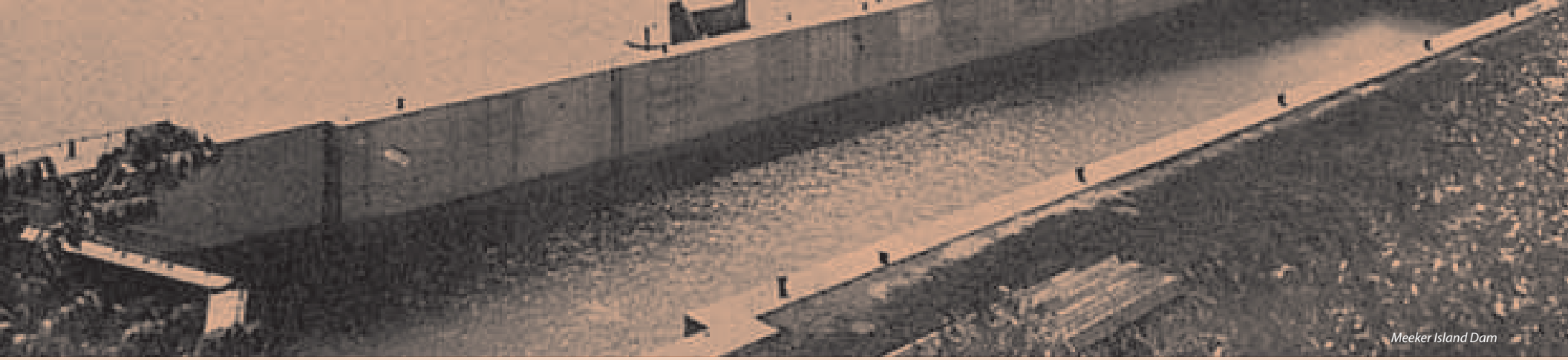
Duluth Aerial Ferry Bridge



Minnesota State Capitol Building

1905
DULUTH AERIAL FERRY BRIDGE

In 1905 the Duluth Ship Canal is bridged. Minneapolis engineer Claude Allen Porter (C.A.P.) Turner designs an aerial ferry bridge similar to the only other one of its kind in the world at Rouen, France. Turner designs a vertical steel structure on each side with a connecting truss across the top. A carriage or basket, suspended from rails attached to the underside of the truss, carries passengers, teams and freight back and forth across the canal. Capacity is 125,000 pounds—equivalent to a fully loaded double truck street car, two loaded wagons and 350 passengers. The carriage is operated by a battery-powered motor; if the power fails, a hand winch propels the carriage across. A crossing takes little more than a minute.



Meeker Island Dam

1906
STOCKWOOD FILL
Between 1906 and 1909 the Northern Pacific Railway attempts to construct a 7.3 mile long earthen embankment designed to level out a steep eastbound grade from the Red River valley to the glacial uplands in Clay County, Minnesota. Because of underlying soil and geological conditions, the railroad faces extreme problems with rapid settlement of the fill being used to construct the embankment. Despite three years of work and huge cost overruns, the soil problems that cause the track settlement are never fully resolved.

1907
STATEWIDE TAX LEVY
In 1907, the Minnesota legislature levies a tax for support of highway construction.

1907
LOCK AND DAM NO. 2
Also known as the Meeker Island Dam, Lock and Dam No. 2 is completed in 1907. It is demolished five years later when the United States Congress decides to make Lock and Dam No. 1, just downstream, a high dam capable of generating hydroelectric power. Partially removed, its remains continue to pose a navigational hazard to traffic on the Mississippi River in the vicinity of Marshall Avenue in St. Paul. In 2003 the ruins are listed in the National Register of Historic Places.

1907
STUMP LAKE DAM
The Stump Lake Dam is located about five miles east of Bemidji. Built between 1907 and 1909 by the Warfield Electric Company, it is the largest of the Mississippi River headwater reservoir dams and the only one to generate electricity. In 1944 the Ottertail Power Company purchases the dam from the Interstate Power Company. As a result, this dam is frequently called the Ottertail Power Dam.

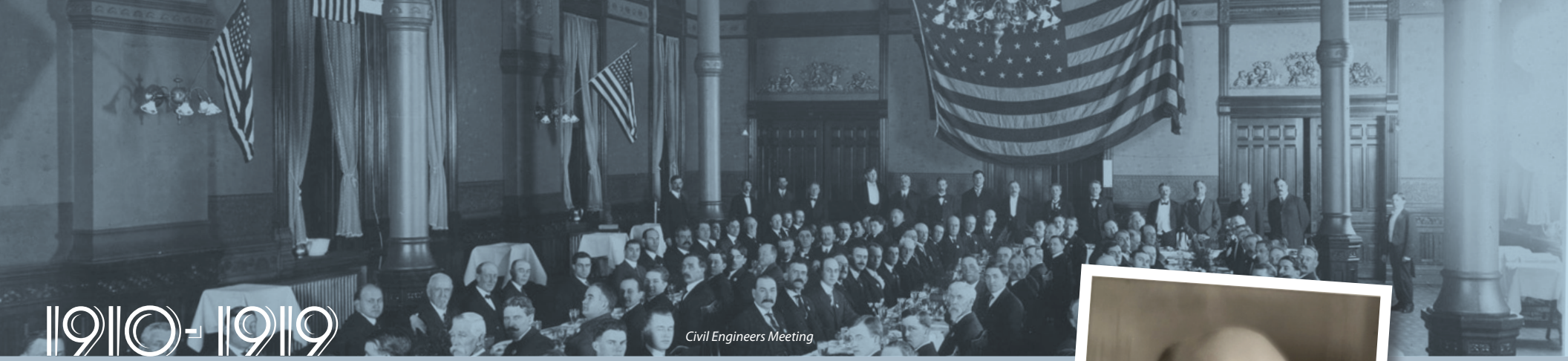
1908
ALVIN S. CUTLER
In 1908, civil engineer and railway engineering specialist Alvin S. Cutler (1879 -) joins the University of Minnesota civil engineering faculty. He serves as professor of railway engineering and as professor of civil engineering, including Head of the Civil Engineering Department from 1943-1945, before retiring in 1947. He is president of the ASCE-Northwest Section in 1926-1927.

1908
HENNEPIN ISLAND HYDROELECTRIC PLANT
The Hennepin Island Hydroelectric Plant (also known as the St. Anthony Hydro Plant) sits on the site of early sawmills on the west bank of Hennepin Island near the Pillsbury A Mill at St. Anthony Falls. The current structure is constructed in 1908. The plant is listed in the National Register of Historic Places in 1971.

1909
MINNESOTA STATE FAIRGROUND GRANDSTAND
The original wooden grandstand at the Minnesota State Fair is built in 1885. It is razed after the 1908 fair and the current grandstand, constructed of bricks, is built in 1909. Larger bleachers are added in the 1930s and it is renovated in 2002.

1909
PENNSYLVANIA THROUGH TRUSS BRIDGE
Construction of the Third Street Bridge in Cannon Falls begins in 1909 and is completed in 1910. The bridge is a steel Pennsylvania through truss designed by Louis P. Wolff of St. Paul and erected by Alexander Y. Bayne and Company of Minneapolis.

Minnesota State Fairground Grandstand



1910-1919

Civil Engineers Meeting

1910

MINNESOTA POPULATION EXCEEDS 2 MILLION

71% are foreign born or children of immigrants.

1910

MAXIMILIAN TOLTZ

Maximilian Toltz (1857-1932) founds Toltz Engineering. Toltz formerly is chief engineer for the Great Northern Railway. Wesley F. King (1879-1959), a civil and structural engineer, joins him a year later and, in 1913, the company does the engineering work on the Cathedral of St. Paul. Architect Beaver Day (1884-1931) joins the firm in 1919 and it becomes Toltz, King & Day. The firm, which later becomes TKDA, works on many landmark projects including the Robert Street Bridge, the St. Paul Union Depot, the Hamm Building, and Como Conservatory.

St. Paul Union Depot

1911

WALTER H. WHEELER

Walter H. Wheeler (1883-1974) founds his architectural and engineering firm in Minneapolis. His more than 1,200 projects include the design for the Mendota Bridge spanning the Minnesota River between Fort Snelling and Mendota, the longest multiple arch, reinforced concrete bridge in the world. Wheeler is the inventor of the Wheeler Shear head for flat slab construction, known as the "Smooth Ceilings" system. He serves as ASCE president-Northwest Section in 1933.

1911

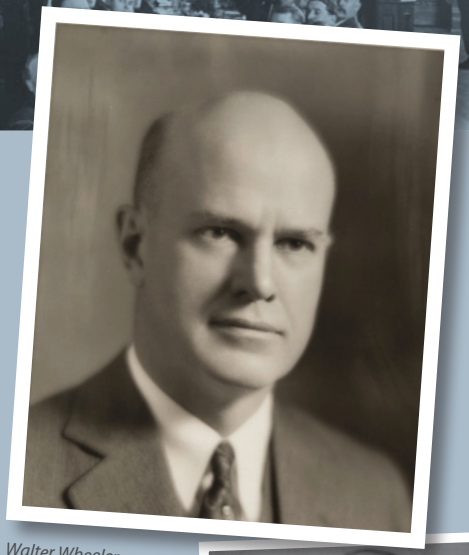
KNUTSON CONSTRUCTION

Thor Knutson founds Knutson Construction as a way to pay off his father's farm debt in Norway. Early major projects include the Wold-Chamberlain Field renovations and, in 1920, the cattle barns at the Minnesota State Fair (still standing today). From 1961 to 1975, the company has exclusive rights to a 16-block section of Minneapolis near Washington and Hennepin Avenues. Projects built during this Gateway Revitalization era include the Northwestern National Life Insurance building, Minneapolis Public Library, Federal Reserve Bank Building, the old Sheraton-Ritz Hotel, IBM buildings and the Northern States Power Company building, among others.

1911

NORTHERN STATES POWER RIVERSIDE STATION

Built in 1911, the original coal-powered station is the first in the Northern States Power system. Although construction crews use primitive tools and horse-drawn equipment to build the plant, Unit 1 is up and running within eighteen weeks after construction begins. A second unit comes on line a few weeks later.



Walter Wheeler

Thor Knutson

1912

GULL LAKE DAM

This dam is located on the Gull River and is built with land and flowage rights provided by John S. Pillsbury of the St. Anthony Falls Water Power Company. It is designed by Col. Francis R. Shunk and George Freeman.

Panama Canal

1913

FREDERICK WILLIAM CAPPELEN

Frederick W. Cappelen (1857-1921) becomes the City Engineer for the City of Minneapolis, a post he holds until his death in 1921. A Norwegian immigrant, he studies in Norway, Sweden, and Germany, obtaining a civil engineering degree and graduating with the highest honors ever recorded for a foreign student in the German program. He immigrates to the United States in 1880 and works for the Northern Pacific Railway until he becomes Bridge Engineer for the City of Minneapolis. He holds the City Engineer position twice, the second time from 1913-1921. In this capacity he designs many of the early 20th century monumental bridges and public works structures in that city including the Prospect Park Water Tower, the Kenwood Park Water Tower, and the Franklin Avenue Bridge He passes away during construction of the bridge he designed that spans the Mississippi River at Franklin Ave. and it is named in his honor.

1913

PROSPECT PARK WATER TOWER

Located on the highest point in the City of Minneapolis, the Prospect Park Water Tower is designed by Frederick William Cappelen, Norwegian-born architect/civil engineer and Minneapolis City Engineer. Its nickname, "Witch's Hat," comes from its pointed top. It is built also to serve as a bandstand, but the difficulties of musicians climbing to the top of the tower with their instruments result in only one concert being performed in it.

1913

MINNEAPOLIS STREET PAVING

The Minneapolis City Council announces that one million square yards of creosoted wood block street paving materials is being installed in the city. The city later removes the wood block paving materials and paves the streets with asphalt.

Franklin Avenue Bridge

1914

WORLD WAR I BEGINS IN EUROPE

1914

ASCE-MINNESOTA SECTION

The ASCE-Minnesota Section (originally called Northwestern Association, then the Northwest Section), is founded; F.W. Cappelen is elected President and R. D. Thomas Secretary. James J. Hill, President of the Great Northern Railway, becomes a "fellow" member.

1914

SHIELY COMPANY

The Shiely Company is founded by J. L. Shiely, Sr. It opens the City of St. Paul's first ready mix concrete plant.

1914

ZIEGLER INC.

Ziegler, Inc. is founded by William H. Ziegler. He works out a "trade-in" allowance for horses and mules that are exchanged for his motorized tractors and becomes successful by serving as an equipment company that also provides prompt service and reliable parts availability.

1914

PANAMA CANAL OPENS

The Panama Canal is the largest civil engineering project in the world at the time.

Civil Engineers Meeting

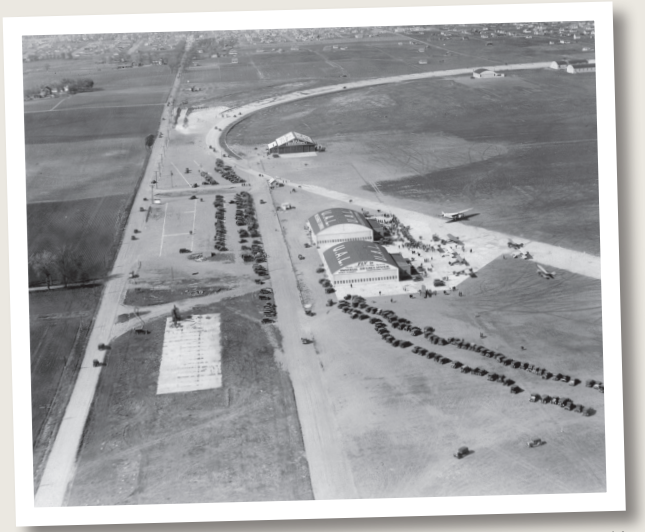
Mendota Bridge

1920 - 1929

1920

CHARLES LUCIEN PILLSBURY

Charles L. Pillsbury (1872-1959), a businessman and consulting and valuation engineer in Minneapolis and St. Paul, begins the first of two terms as president of ASCE-NW. For a number of years, along with several other business interests, Pillsbury owns and runs the Charles L. Pillsbury Company, a nationally known engineering consulting firm.



Wold-Chamberlain Field

1920

WOLD-CHAMBERLAIN FIELD

The forerunner of the MSP International Airport opens on the site of a former racetrack. In 1923 the airfield is dedicated, named for two Minnesota WWI aviators, Ernest Wold and Cyrus Chamberlain, killed in action during World War I.

1920

ORA MINER LELAND

Ora Miner Leland

In 1920, Ora Miner Leland (1876-1962) joins the University of Minnesota as dean of the faculties of engineering, architecture, and chemistry. When the Institute of Technology is formed in 1935, he is made Dean of Administration. He becomes Dean of the College of Architecture and Engineering Emeritus in 1944, a position he holds for the rest of his life. Prior to coming to the University, Leland is associated with the Attorney General in the Spanish-American War, and from 1900-1903, he is an aide with the Coast Geodetic Survey on the Behring seacoast and in Puerto Rico. From 1904-1911, he is surveyor. He serves in France during World War I, seeing combat duty with the 303rd Regiment of Engineers. In 1924, in honor of his work on the Alaska-Canada border commission, a mountain on the border is named in his honor (Mount Leland). In 1949 two small islands in Glacier Bay, Alaska, are named for him as well. He serves as the president of the ASCE-NW in 1935-1936.

1924

MENDOTA BRIDGE

The bridge that connects Ft. Snelling and Mendota is constructed according to plans developed by Walter H. Wheeler, consulting engineer for Hennepin County, and C.A.P. Turner Company Associates. In 1992-1994 it is rebuilt from the arches up with a new wider deck.

1928

HIGHLAND PARK WATER TOWER

The Highland Park Water Tower is completed in 1928. It is designed by St. Paul city architect Clarence "Cap" Wigington, Minnesota's first African-American architect. The Highland Park Water Tower sits on the second highest point in St. Paul. It is constructed of brick and cut stone and holds a 200,000 gallon steel tank. An observation deck is opened to the public on special occasions.

1929/1931

RALPH BUDD

Ralph Budd (1879-1962) of St. Paul is a Director of ASCE District 7. He serves as president of a number of railroads, beginning at age forty with the Great Northern Railway. He is known nationally and internationally as the builder and rehabilitator of railroads.

1929

SORLIE MEMORIAL BRIDGE

Spanning the Red River of the North, this Highway 2 steel beam and truss bridge connects East Grand Forks, Minnesota with Grand Forks, North Dakota. Built in 1929, it has survived several major Red River floods with water that reaches and submerges its deck.

1929

FOSHAY TOWER

At 447 feet the Foshay Tower is the tallest building in Minnesota until completion of the IDS Center in 1973. The Foshay Tower is designed by Leon Eugene Arnal, chief designer for architects Magney and Tusler. In 1992 Setter Leach and Lindstrom Architects oversee a renovation. In 2007-2008 the building is converted into a luxury hotel by ESG Architects.

Sewage interceptor tunnel

1930 - 1939

Lorenz G. Straub

1930
LORENZ G. STRAUB

In 1930, Lorenz G. Straub (1901-1963), after working with the U.S. Army Corps of Engineers in Kansas City for a year, joins the engineering faculty at the University of Minnesota. He serves as Assistant Dean of the Institute of Technology, Director of the St. Anthony Falls Hydraulic Laboratory (SAFL), and as Head of the Civil Engineering Department from 1945 until his death in 1963. Straub is known throughout the world as an expert on dams and waterways. He becomes involved with the SAFL in 1935 when he sees the potential for a hydraulic laboratory at that location and he oversees its construction on land donated by Northern States Power Company with funds from the University of Minnesota and the Works Progress Administration (WPA). It becomes known as the clinic for "sick rivers". He serves as president of ASCE-NW from 1937-1938.

1931
STILLWATER LIFT BRIDGE

The Stillwater Lift Bridge is completed in 1931 after two years of construction. It is designed by Ash, Howard, Needles and Tammen.

1931
TWIN CITIES SKYWAY SYSTEM

The first skyway is built in St. Paul in 1931.

1934
NATIONAL GAS PIPELINE

A nationwide natural gas pipeline reaches Minnesota in 1934.

1934/1938
METROPOLITAN WASTEWATER TREATMENT PLANT

The first sewage treatment plant in a major city along the Mississippi River, the MSP Sanitary District Metropolitan Wastewater Treatment Plant, opens in St. Paul in 1938. Constructed as Minnesota's largest Public Works Administration project, it has fifty-two miles of sewers to carry storm and sanitary sewage to the plant.

1937
MILES S. KERSTEN

In 1937, Miles Kersten (1913-2005) joins the faculty at the U of MN. Prior to this, Kersten works at the US Geological Survey and the MN Dept. of Highways. Kersten studies soil mechanics, highway engineering related to soils and pavement design, foundations in permafrost and leads a delegation to Russia. He serves as president of ASCE-NW in 1952-1953.

1937
UPPER MINNEAPOLIS HARBOR DEVELOPMENT PROJECT

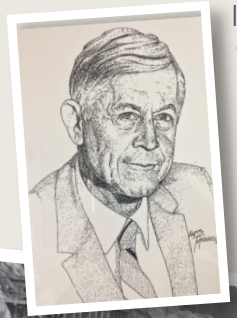
This project, which begins in 1937, is designed to extend navigation above St. Anthony Falls in Minneapolis. It is delayed during World War II. Construction resumes in 1948 with the building of the Upper (1963) and the Lower Lock and Dam (1956) along with dredging a channel 9' deep and 150' wide. Its completion in 1963 makes navigation possible around St. Anthony Falls.

1938
GREAT RIVER ROAD

In 1938 planning begins for development of the Great River Road, designed to follow the Mississippi River from its source at Lake Itasca to its mouth near New Orleans.

1938
ST. ANTHONY FALLS LABORATORY

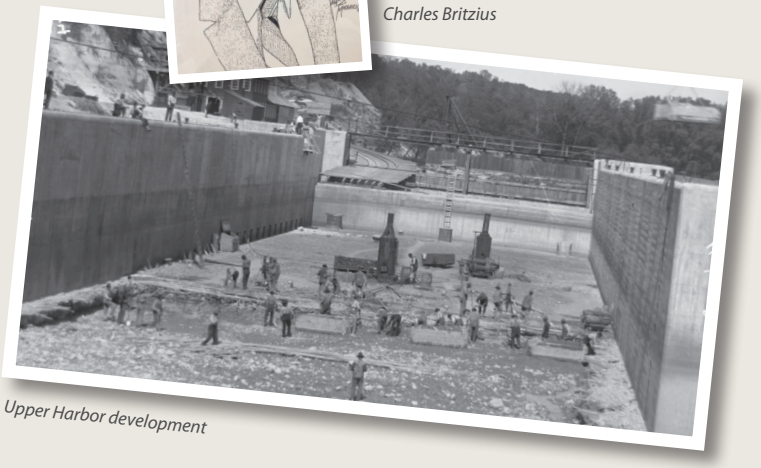
Located on Hennepin Island in the Mississippi River, the St. Anthony Falls Laboratory (SAFL) is constructed between 1936 and 1938 under the direction of Lorenz J. Straub using funds from the Works Progress Administration and U of MN. The SAFL is the only fluid-mechanics laboratory in the world that uses a natural waterfall as its prime water source.



1938
CHARLES W. BRITZIUS

Charles W. Britzius (1911-2004) founds Twin City Testing specializing in concrete and structural steel testing. He serves as president of ASCE-NW in 1950.

Charles Britzius



Upper Harbor development

Lake Itasca

1940 - 1949

1940

ARMISTICE DAY BLIZZARD AND HARRY L. WILSON

In 1940, Harry L. Wilson is an engineer in the Physical Plant Department at the U of MN. On November 11, when the Armistice Day Blizzard hits, he deals with the collapse of the roof and wall of the heating plant on the St. Paul campus as a result of the snowfall. In later years, he also deals with floods on campus and with a snowslide off the Williams Arena roof just before a basketball tournament. Before joining the U, he oversees design and construction of many buildings in Minneapolis and, while at the U, he designs and oversees construction of Delta Field and directs the remodeling of Williams Arena into the nation's largest basketball and skating arena in the country. Wilson serves as president of ASCE-NW in 1947-1948.

1941

LAKE ITASCA

Civilian Conservation Corps (CCC) enrollees haul in 40,000 cubic yards of fill to create one of Minnesota's iconic structures, a 44-foot dam topped with stepping stones across the headwaters of the Mississippi River. As with many CCC structures, it is designed by a team of architects, engineers, and landscape architects.

1941

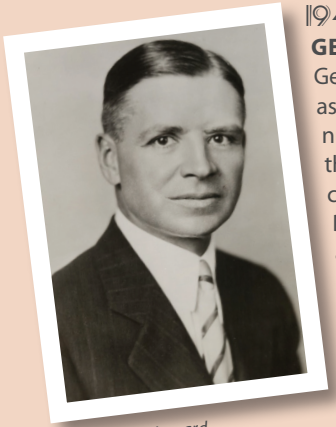
THE UNITED STATES ENTERS WORLD WAR II

Following the bombing of Pearl Harbor, Hawaii, on December 7, 1941, the United States enters World War II. Many ASCE-Northwest Section members serve in various capacities throughout the world during the war. The war ends in 1945.

1941/42

WILLIAM N. CAREY

William N. Carey (1887-1980) of St. Paul is a Director of District 7. During his years in MN, Carey is superintendent of construction for Toltz, King & Day and, during the Great Depression, is state engineer for the Public Works Administration where he supervises government design and construction of the sewage treatment plant for the Minneapolis-St. Paul Sanitary District. In 1942, he becomes chief engineer for the Federal Works Agency and serves in that capacity during WW II. In 1945, Colonel Carey is named secretary of the National ASCE.



George M. Shepard

1942

GEORGE M. SHEPARD

George M. Shepard (1888-1974) serves as president of ASCE-NW. He holds a number of engineering positions over the years, including several decades as chief engineer with the City of St. Paul Dept. of Public Works. He graduates as a civil engineer from the U of MN in 1909 and receives its Outstanding Achievement Award in 1950. Shepard Road, located along the banks of the Mississippi River in St. Paul, is named for him.

1945

HIBBERT M. HILL

Hibbert M. Hill (1900-1983) is awarded the Legion of Merit for his U.S. Army engineering work developing temporary harbors for D-Day invasion supply ships in World War II. Before and after the war, he is a civil engineer with Northern State Power Company and a recognized expert on the construction and operation of dams, locks, and power plants. He also consults internationally and, after he retires, becomes a member of the advisory committee on reactor safety for the Atomic Energy Commission and one of the three founders of the Gray Freshwater Biological Institute at Lake Minnetonka. Hill serves as president of ASCE-NW in 1934.

1949

ARCHIE NEWTON CARTER

Archie Newton Carter (1910-1994), during his service as general chair of the ASCE Annual Meeting, invites President Harry S. Truman to speak at the meeting; this is one of the few times a U.S. President addresses an ASCE meeting. He serves as ASCE- NW president 1968-69, and as a District 7 Director from 1974-1976. From 1985-1994, he is Editor of the ASCE's Journal of Professional Issues in Engineering Education and Practice and he is remembered in the 1990s through the Archie Carter Publishing Award, American Society of Civil Engineers.

Hibbert Hill (with University President James L. Morrill), 1956

U.S. Highway System

1950 - 1959

1950

J. ROBERT CALTON

J. Robert Calton (1909-1983), life member of ASCE, joins the St. Paul District Office of the U.S. Army Corps of Engineers; he becomes Chief of Planning in charge of studies that lead to Congressional authorization and construction of twenty-eight major flood control and navigation projects at a cost of $35 million. He receives the Meritorious Civilian Service Award from the Office, Chief of Engineers, for his help with 1969 flooding and is named St. Paul District Civil Servant of the Year in 1972. In 1960 he serves as ASCE-Northwest Section president.

1951

ATOMIC ATTACK SHELTER

ASCE-Northwest Section receives a pamphlet from the Federal Civil Defense Administration on "Shelter from Atomic Attack in Existing Buildings".

1952

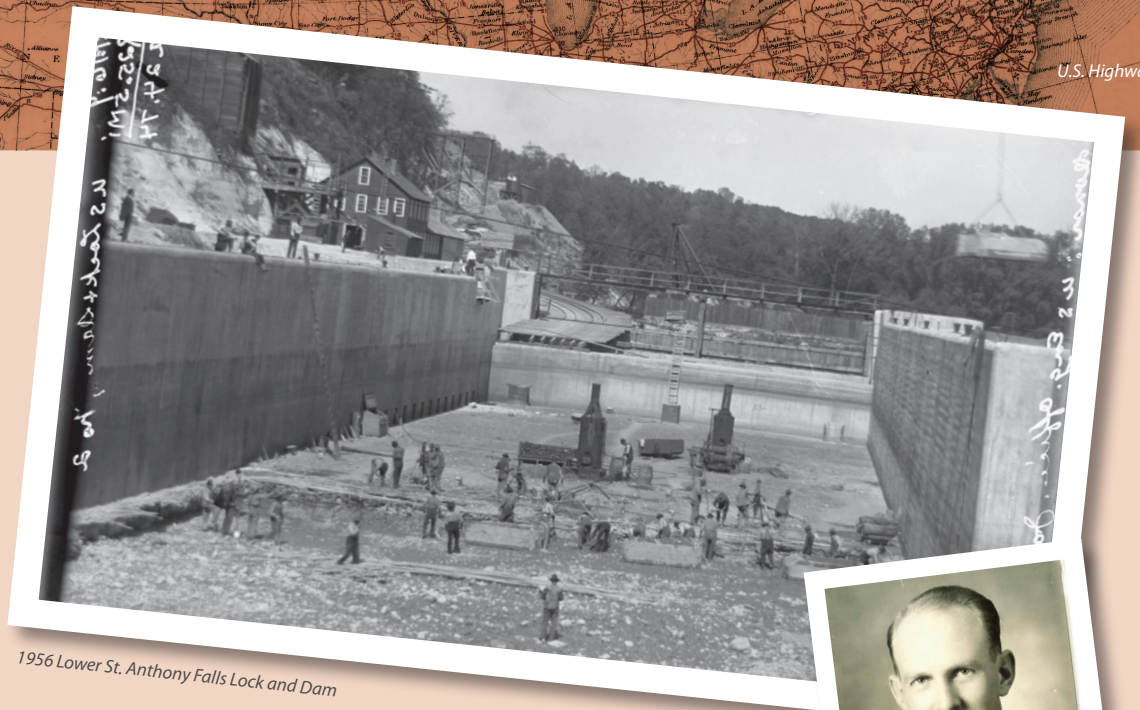
BLACK DOG POWER PLANT

The Black Dog Power Plant is built near Burnsville.

1955

JOHN E. "JACK" MEYER

John E. "Jack" Meyer (1923-2013), World War II veteran and 1947 graduate of the School of Civil Engineering at the University of Minnesota, founds his civil engineering firm; it later comes Meyer Borgman Johnson and specializes in structural engineering and works on many Twin Cities projects including Orchestra Hall, Landmark Center, Fort Snelling, and many projects at the University of Minnesota. He serves as ASCE-Northwest Section president from 1958-1959.



1956 Lower St. Anthony Falls Lock and Dam

1956

LOWER ST. ANTHONY FALLS LOCK AND DAM

This gravity-type, hydroelectric dam, is built as part of the Upper Minneapolis Harbor Development Project. It has a concrete spillway with four tainter gates.

1956

INTERSTATE AND DEFENSE HIGHWAY SYSTEM

U.S. Congress authorizes the Interstate Highway System. The first section in Minnesota is a five-mile stretch near Owatonna.

1957

DISTRICT 7 COUNCIL MEETING

The ASCE- Northwest Section, hosts the District 7 Council meeting in Grand Rapids, MN; the boundary limits for District 7 are confirmed at the meeting.

Jesse Fant

1957

JESSE FANT

Jesse Fant (1917-1982) begins his groundbreaking surveying training courses and develops a major program in education of land surveying at the University of Minnesota. As he says, he teaches survey, geodesy, and photogrammetry courses to "prepare surveyors for the twenty-first century." He serves as ASCE-Northwest Section president in 1956.

Upper St. Anthony Lock and Dam

1960 - 1969

1960

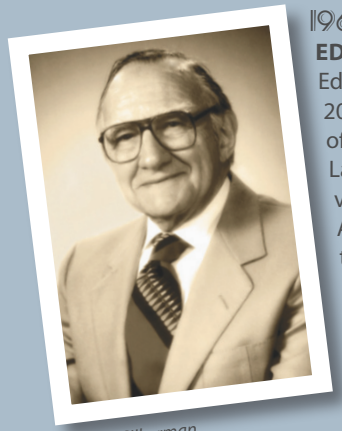
DISTRICT 7 COUNCIL MEETING

The ASCE-Northwest Section, hosts the District 7 Council meeting at the Curtis Hotel in Minneapolis; during the meeting the Council passes a resolution encouraging ASCE to study and present a policy statement regarding use of consultants vs. employment of engineers at public agencies.

1961

BLATNIK BRIDGE

After three years of construction the Blatnik Bridge connecting Duluth, Minnesota and Superior, Wisconsin opens to traffic. This 7,980 feet long span with a roadbed 120 feet above the waters of St. Louis Bay is designed by Howard, Needles, Tammen and Bergendoff of Minneapolis. The project costs $21 million.



Edward Silberman

1963

EDWARD SILBERMAN

Edward Silberman (1914-2011) becomes Director of the St. Anthony Falls Laboratory. A World War II veteran who serves in the U.S. Army Corps of Engineers and the author of more than fifty publications, he serves as ASCE-NW president in 1962.

1963

UPPER ST. ANTHONY FALLS LOCK AND DAM

The U.S. Army Corps of Engineers builds this horseshoe-shaped hydroelectric dam as part of the Upper Minneapolis Harbor Development Project.

Blatnik Bridge

Upper St. Anthony Lock and Dam

1965

NORTHWESTERN NATIONAL LIFE BUILDING

Designed by Minoru Yamasaki and opened in 1965, it uses modified Gothic design and incorporates plazas and water features. It now is known as the ING Reliastar Building.

1969

LYLE PERRY PEDERSON

Lyle Perry Pederson (1929-1984), a 1952 CE graduate of the U of MN, establishes the Minnesota Geotechnical Society. He serves as ASCE-MN president in 1983.

Prairie Island Nuclear Power Plant

1970 - 1979

1971
MONTICELLO NUCLEAR POWER PLANT
The Monticello Nuclear Power Plant, a boiling water nuclear reactor, begins operations.

1972
CLIFFORD W. HAMBLIN
Clifford W. Hamblin (1909-1984), General Manager of the St. Paul Water Utility, life member ASCE, is recognized as "Engineer of the Year" by the Minnesota Federal of Engineers' Societies; he is a camp engineer in the Civilian Conservation Corps for three years during the 1930s and, during the 1960s and 1970s is active in the American Water Works Association (AWWA) in support of clean water.

1973
IDS CENTER
The 57-story IDS Center, designed by Philip Johnson and John Burgee in association with local architect, Ed Baker, is built. It is the tallest building in Minnesota.

1973
FEDERAL RESERVE BANK
The first new headquarters building in the Federal Reserve Board System since the 1920s is erected in downtown Minneapolis. Designed by Gunner Birkerts, it is built like a suspension bridge supported by catenary cables and is used until design problems result in the Federal Reserve putting up a new building in 1997. As the remodeled Marquette Plaza, in 2011 it is the first downtown building to earn LEED Platinum certification.

1974
PRAIRIE ISLAND NUCLEAR POWER PLANT
The Prairie Island Nuclear Power Plant is built. It has capacity to provide electrical power to one million homes, but, as with the Monticello plant, periodically faces questions about disposition of its spent nuclear fuel.

1975
GEORGE SCHROEPFER IS NAMED ASCE-MN'S FIRST HONORARY MEMBER
Schroepfer (1906-1984), graduates from the U of MN as a civil engineer in 1928. From 1945 to 1972 he is Professor of Sanitary Engineering at the U of MN. He eventually becomes Chief Engineer with the MSP Sanitary District where he is responsible for designing much of the original interceptor system and Metropolitan Wastewater Treatment Plant. He is elected to the National Academy of Engineering and honorary member of the Water Pollution Control Federation. He is nationally known for research and writing on water quality and serves as president of the ASCE-NW in 1941.

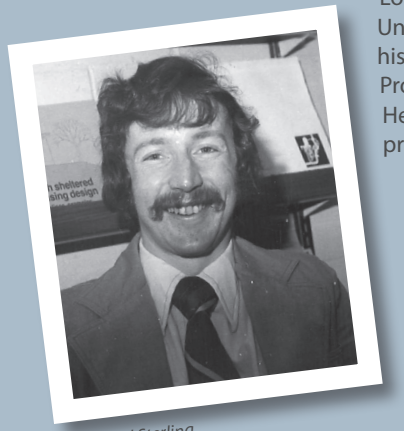
George Schroepfer

1976
JOHN BUDD
John Budd, the former President of the Great Northern Railway and the first chairman and chief executive officer of the Burlington Northern Railway, is given honorary membership in the Minnesota Section of the ASCE.

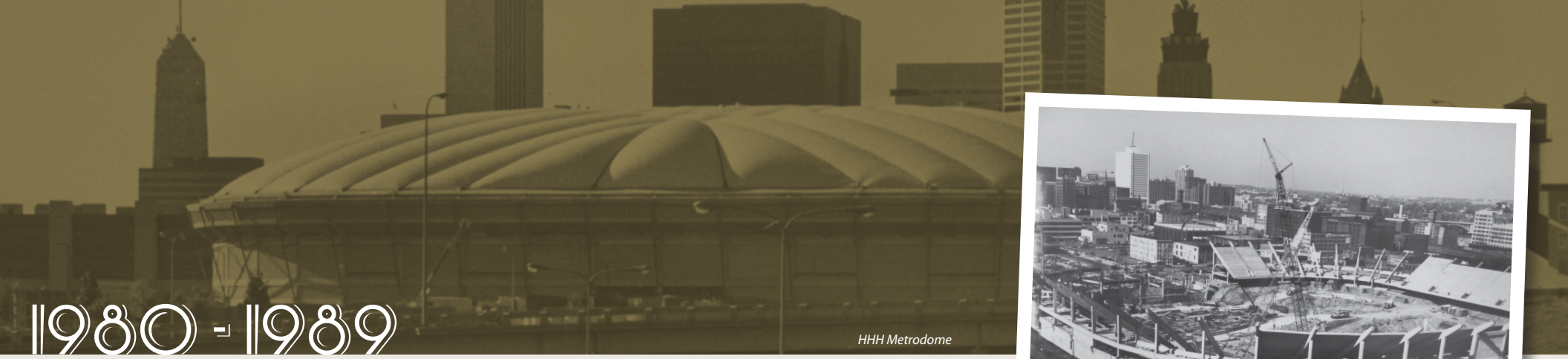
1976/1977
DEPUTY ADMINISTRATOR (ENGINEERING)
The Minnesota chapter of the ASCE lobbies for creation of the post of Deputy Administrator (Engineering) of the Environmental Protection Agency (EPA) with the requirement the office be filled by a registered professional engineer.

1977
ASCE-MN AND MNDOT COOPERATION
The ASCE-MN, asks the MnDOT to maintain the requirement that registered professional engineers be employed in positions requiring "engineering judgment." The MnDOT asks ASCE-MN, Transportation Group to provide input in development of a statewide transportation plan; the ASCE Board with the Transportation Group agrees to provide information of a "technical (civil engineering) or professional nature."

1977
UNDERGROUND SPACE CENTER
In 1977, Raymond Sterling founds the Underground Space Center at the University of Minnesota. Sterling's area of specialization is underground space use and development including underground construction, rock mechanics, and energy use. Sterling directs the Center until it is closed in 1995 due to budget cuts. He moves to Louisiana Technical University to continue his work, retiring as Professor Emeritus. He serves as ASCE-MN president in 1991.



Raymond Sterling



1980 - 1989

HHH Metrodome

1980

CIVIL AND MINERAL ENGINEERING PROGRAM, U OF MN

ASCE-MN reviews the Civil and Mineral Engineering Program at the U of MN and makes recommendations for improvement including adding courses in which theory can be applied to real design problems by, among other things, requiring more hands-on reports and making computer interactive graphics facilities available for students; for faculty, recommendations include raising faculty salaries and adding new faculty positions, and, overall, establishing a "close relationship between the department and the profession for studying improvements."

1980/81

STATE ENERGY POLICY

Members of the ASCE-Minnesota Section, Energy Committee are asked to participate in formation of an energy policy for the state of Minnesota.

1982

WASTE ENGINEERING CONFERENCE

The ASCE-MN working with Minnesota Pollution Control Agency, the Metropolitan Waste Control Commission, U of MN Institute of Technology, and the Central States Water Pollution Control Federation, sponsors the 28th Annual Wastes Engineering Conference at the Earle Brown Continuing Education Center in St. Paul.

1982

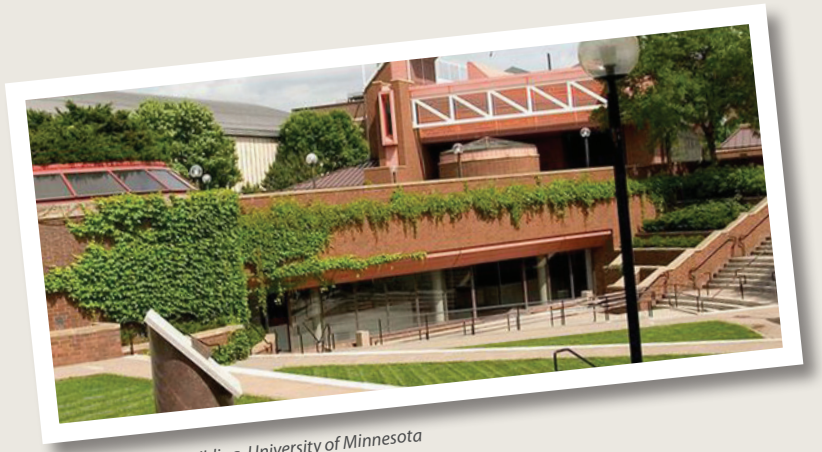
HHH METRODOME

The Hubert H. Humphrey Metrodome is built. Designed by Skidmore, Owings and Merrill, when it opens in April, with its roof of Teflon-coated fiberglass, it becomes the largest air-supported structure in the state and second major air-supported structure in the country. It seats over 64,000 people and is home to the Minnesota Twins and the Minnesota Vikings from 1982 until a new ball park is built for the Twins and construction of a new football stadium for the Vikings begins. The Metrodome is deflated in January 2014 in preparation for its demolition in the first months of 2014 to make way for the new Vikings stadium on the site.

1983

WIND ENERGY

Studies show Minnesota has good wind energy potential, especially in the southwestern part of the state.



Civil Engineering Building, University of Minnesota

Metrodome construction

1983

CIVIL ENGINEERING BUILDING, UNIVERSITY OF MINNESOTA CAMPUS

The new Civil and Mineral Engineering Building on the University of Minnesota campus opens; 95% of its space is underground to save energy and alleviate land constraints on the densely packed campus. The Minnesota Legislature designates it an earth-sheltered, energy-independent demonstration project. The year it opens it receives the prestigious Outstanding Civil Engineering Achievement from the ASCE.

1984

LOCK AND DAM SYSTEM REHABILITATION PROJECT

The U.S. Army Corps of Engineers St. Paul District Office receives a Seven Wonders of Engineering Award for its Lock and Dam System Rehabilitation Project.

1989

WEAVER BOTTOMS ENVIRONMENTAL REHABILITATION PROJECT

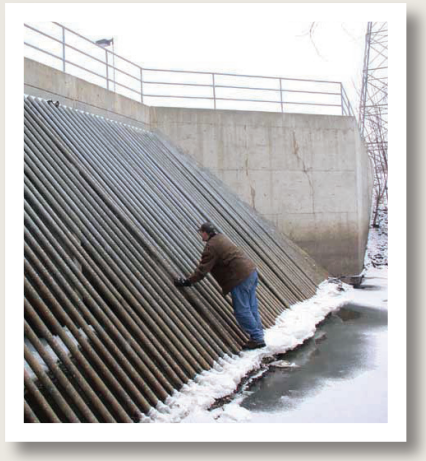
The U.S. Army Corps of Engineers St. Paul District Office receives a Chief of Engineers Award of Excellence for its Weaver Bottoms Environmental Rehabilitation Project.

1990 - 1999

Mall of America

1990
JACK BRAUN
Jack Braun and his wife, Priscilla, establish the J.S. Braun/Braun Intertec Professorship of Science and Technology at the U of MN to bring a professor of geotechnical, construction materials, pavement and environmental engineering and testing, and hydrogeology, chemistry, and industrial hygiene technologies to the U of MN. Braun is a graduate of CE at the U of MN. He serves as president of ASCE-MN in 1971.

1992
MALL OF AMERICA
The country's largest shopping mall, the Mall of America, opens in Bloomington, Minnesota. It is designed by the Ghermezian brothers and is the largest retail and entertainment mall in the country. The mall is built on the site of Metropolitan Stadium, the former home of the Minnesota Twins baseball team and the Minnesota Vikings football team.



Bassett Creek

1992
BASSETT CREEK WATER MANAGEMENT PROJECT
The U.S. Army Corps of Engineers St. Paul District Office receives a Seven Wonders of Engineering Award for its Bassett Creek Water Management Project (received jointly with Barr Engineering Company).

1992
CAPELLA TOWER
The Capella Tower, designed by Pei Cobb Freed and Partners (James Ingo Freed) with CBM Engineers, Inc. as structural engineers, opens in downtown Minneapolis. Built by Ryan Companies, it challenges the IDS Tower as the tallest building in Minneapolis. In 2011 it was awarded a LEED Gold Certification by the U. S. Green Building Council.

1994
BUFFALO RIDGE WIND FARM
The 25-megawatt Buffalo Ridge wind farm opens in southwestern Minnesota. It is built in stages, begun by Kenetech Corporation with the final stage developed by PPM Energy and Excel Energy, and provides enough energy to power 100,000 homes.

1995
LAURA M. AMUNDSON
Laura M. Amundson becomes the first woman to serve as ASCE-Minnesota Section president. She graduates from the University of Minnesota with a degree in Civil Engineering in 1979 and currently serves as vice president at Parsons Brinckerhoff.

1996
CATHERINE E. WOLFGRAM FRENCH
Catherine E. W. French, Distinguished Professor in the Dept. of Civil, Environmental, and Geo-Engineering at the U of MN, joins the faculty in 1984. She serves as ASCE-MN president in 1996.

Capella Tower

Laura Amundson

2000 - 2009

I-35 W Bridge construction

Target Field construction

2000
MINNESOTA POPULATION REACHES 4.9 MILLION

2000
COMPUTER AND INFORMATION TECHNOLOGY

Computers and information technology emerge as a major impact on civil engineering and the work of civil engineers. The impact is recognized in increased ability to explore many options and to more rapidly develop better and stronger designs. Through writing, research, and application of the technology, ASCE members, including the MN Section, contribute to an understanding of the importance of this work.

2003/2005
THOMAS J. EGGUM

Thomas J. Eggum is a Director of District 8. Eggum is a senior consultant with TDKA and a former Director of Public Works and City Engineer for the City of St. Paul. He regularly speaks on the importance of investing in maintenance and replacement of public infrastructure. He serves as president of ASCE-MN in 1987.

Light Rail Transit

2004
LIGHT RAIL TRANSIT (LRT)

On June 26, after three-and-one-half years of construction and a cost of $715 million, Minnesota's first Light Rail Transit (LRT) line opens. The Blue Line, also called Hiawatha Line, connects downtown Minneapolis with the MSP Airport and the Mall of America. It is followed in 2009 with the opening of the Northstar Line. Built at a cost of $300 million, this 40-mile commuter line connects the community of Big Lake with downtown Minneapolis. Both lines terminate at Target Field Station.

2006
DENNIS R. MARTENSON SERVES AS NATIONAL PRESIDENT OF ASCE

Martenson receives a BSCE from the U of MN in 1967 and a MS in 1968. In 2014, he is a senior water and wastewater engineer with TKDA. He serves as ASCE-MN president in 1976 and as a Director of District 8 in 1986/88.

2007
I-35 MISSISSIPPI RIVER BRIDGE COLLAPSE

The I-35W Mississippi River Bridge across the Mississippi River in Minneapolis collapses on August 1 during rush hour. A design flaw in the bridge's gusset plates is later identified as the cause of the collapse which kills 13 and injures 145 people. The replacement bridge is designed and built in eleven months.

2007
TARGET FIELD

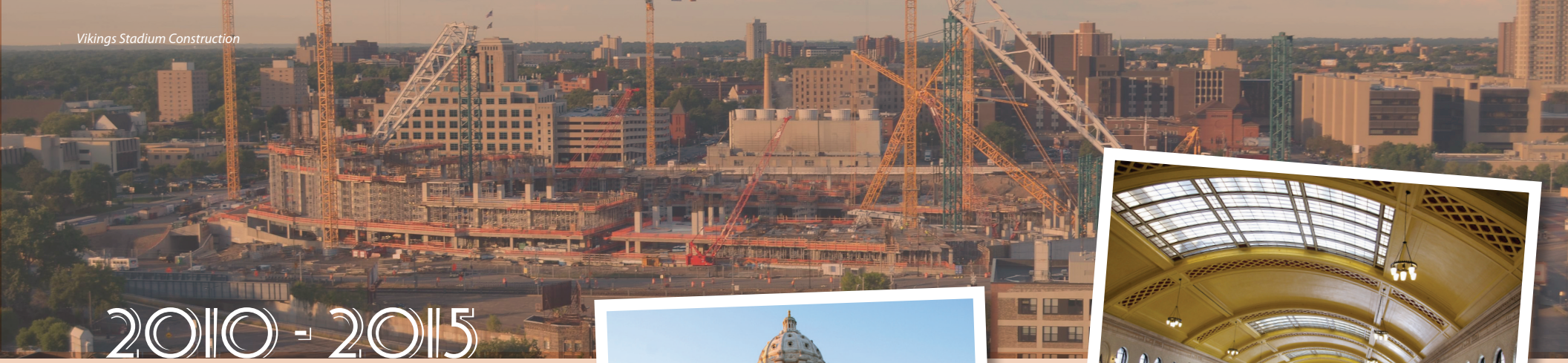
Ground is broken for a new baseball stadium for the Minnesota Twins. Called Target Field, it is designed by HOK Sports of Kansas City and Hammel, Green and Abrahamson of Minneapolis. When it opens in 2010, it is awarded a LEED Silver Certification, the highest LEED certification of any ballpark in the country, by the U.S. Green Building Council.

2008/2009
GRAND FORKS, ND/EAST GRAND FORKS, MN FLOOD DAMAGE REDUCTION PROJECT

The U.S. Army Corps of Engineers St. Paul District Office receives a Chief of Engineers Award of Excellence and a Seven Wonders of Engineering Award for its Grand Forks, ND/East Grand Forks, MN Flood Damage Reduction project.

2009
MN2050

Fifteen professional and industrial groups including the ASCE-MN establish MN2050; its purpose is to support broad awareness of the "vast infrastructure network that supports the health, safety, and economic well-being of every Minnesotan." Minnesota 2050 focuses both on building new infrastructure and maintaining existing infrastructure and does this with a three-part plan: document the problem, craft a message, and educate the public. MN2050 and Minnesota public television station team up to present three programs on the future of MN infrastructure: *State of Repair – Roads and Bridges*, *State of Repair – Airports, Ports and Rail*, and *State of Repair – Our Water Infrastructure*.



Vikings Stadium Construction

2010 - 2015

2010/2012
ERIKS V. LUDINS

Eriks V. Ludins of St. Paul is a Director of Region 3. He is assistant transportation engineer with the St. Paul Public Works Department. He serves as president of ASCE-MN in 1999. In 2013 he receives the Charles W. Britzius Distinguished Engineer Award from the Minnesota Federation of Engineering, Science and Technology Societies.

2012
STEM (SCIENCE, TECHNOLOGY, ENGINEERING, MATHEMATICS)

The national ASCE Board of Directors adopts Policy Statement 377 supporting STEM (Science, Technology, Engineering, Mathematics) educational programs at the K-12 level. This educational program/curriculum initiative is supported by the Minnesota Department of Education and is adopted in many Minnesota schools. Through MN2050, ASCE-MN helps promote the policy and program.

2012
NEW SUSTAINABLE CONCRETE MIX DESIGN

American Engineering Testing and Cemstone Products develop a durable mix design that uses recycled materials. Due to its low heat of hydration, it is used in major bridge placements in MN. They win the Charles Pankow Award for Innovation from National ASCE.

2012
MINNESOTA VIKINGS STADIUM

HKS, Inc. is chosen as the lead architect on the new $975 million stadium for the Minnesota Vikings. In 2013 EVS of Eden Prairie receives one of the largest subcontracts to assist with civil engineering on the project. The stadium will be built on the site of the former HHH Metrodome, with M.A. Mortenson Company as construction manager.

I-35 W Bridge uses new sustainable concrete mix (top left), model of Vikings Stadium (bottom left)

State Capitol Building

2013
MINNESOTA STATE CAPITOL RESTORATION

The State of Minnesota begins a three-year, $272 million restoration of the Cass Gilbert-designed State Capitol building. Primary restoration issues include updating the mechanical, electrical and plumbing systems, and protecting and maintaining the stone exterior for stability and safety purposes. The work is done by Minneapolis-based HGA, an integrated architecture, engineering and planning firm, working with Schooley Caldwell Associates of Ohio.

Union Depot

2014
CENTRAL CORRIDOR LIGHT RAIL TRANSIT (LRT)

Central Corridor Line, runs down the center of University Avenue from Target Field Station in downtown Minneapolis to the Union Depot in downtown St. Paul. Built for $975 M it is part of the Metro Transit system, an integrated system of buses, light rail, and commuter trains which serves Minneapolis and St. Paul and the surrounding suburban areas.

2014
RAILROAD PASSENGER SERVICE

The Amtrak "Empire Builder" arrives at the newly-renovated Union Depot in St. Paul, signaling the return of passenger rail service .

2014/2015
MN2050 DOCUMENTARIES

ASCE-MN, working with Twin Cities Public Television (tpt) produces two infrastructure documentaries funded by donations and State Public Affairs Grants (SPAG) from ASCE; they help distribute the MN2050 message: "Lack of timely attention to reasonable public infrastructure investment hinders economic development, safety, and quality of life in Minnesota." The videos focus on Aviation, Freight & Passenger Rail, Roads & Bridges and Ports & Waterways.

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PHOTO CREDITS:

Minnesota Historical Society

Tim Davis

Metropolitan Council Environmental Services

AMERICAN SOCIETY OF CIVIL ENGINEERS
1914
ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS
100 YEARS
2014
MINNESOTA

FOR A MORE COMPLETE TIMELINE ALONG WITH ADDITIONAL SOURCES AND REFERENCES
PLEASE VISIT WWW.ASCEMN.ORG/CENTENNIAL

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Second page: ribbon, Historic American Engineering Records (HAER)

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1860-1889: ribbon, MnHS; column 1, Minnesota Streetcar Museum; column 3, ASCE-MN

1890-1899: ribbon, MnHS; column 1; Courtesy Flickr/Michael Allen; column 2, University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections; column 3, Don Demers

1900-1909: ribbon, archives of the St. Louis County Historical Society; column 1, MnHS; column 2, MnHS; column 3, Courtesy Wikimedia/History127

1900-1909 facing page: ribbon, MnHS; column 3, MnHS

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1910-1919 facing page: ribbon, Marine, Thos. (Thomas): Durova at en.wikipedia via Wikimedia Commons; column 2, Mulad, Wikimedia Commons; column 3, MnHS

1920-1929: ribbon, MnHS; column 1, MnHS; column 2, U of MN

1930-1939: ribbon, MCES; column 1, MnHS or U of MN; column 3 top, Element St. Paul; bottom, MnHS

1940-1949: ribbon, MnHS; column 2, MnHS; column 3, U of MN

1950-1959: ribbon, MnHS; column 2-3, MnHS; column 3, U of MN

1960-1969: ribbon, MnHS; column 1, U of MN; column 2, courtesy Flikr/chefranden; column 3, MnHS

1970-1970: ribbon, MnHS; column 2, MnHS; column 3, U of MN

1980-1989: ribbon, MnHS; column 2, U of MN; column 3, Metro Sports Facilities Comm.

1990-1999: ribbon, Mall of America; column 1, urban explorer; column 3 top, Pei Cobb Freed & Partners; bottom, LinkedIn

2000-2009: ribbon, Fiegen; column 1, Tim Davis; column 3, Tim Davis

2010-2015 facing page: ribbon, website; column 1 top Minnesota Department of Transportation, bottom M.A. Mortenson website; column 2, Tim Davis; column 3, Tim Davis

Last page: left and center, MCES; right, U of MN