



Fall 2008 Newsletter

History & Heritage Edition

A Celebration of the Section's 85th Anniversary

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President Matthew Marko at ASCE Syracuse Section's 7th Annual Golf Tournament.

With Labor Day behind us, school is back in session and the ASCE Syracuse Section is gearing up for another great year of events. Our summer kicked off with yet another very successful golf tournament, raising over \$6,000 for scholarships to civil engineering students in our Section. This fall the board of directors and committees will ensure these funds reach deserving students. However, we have much more planned for this very special year.

First, the Syracuse Section is celebrating its 85th Anniversary. Expect a special newsletter this year that highlights our Section's History and Heritage. In addition, we will be incorporating a history and heritage component into our dinner events to highlight the many accomplishments of Central New York civil engineers that came before us.

Second, the Section's leadership is embarking on a special scholarship campaign. This one-time effort is an attempt to break from our standard routine. The goal is to establish an endowment fund that will generate interest and substantially contribute to our annual scholarship donations. We will be looking to the corporate community and individual donors (members and non-members) to reach our goal of \$100,000 [5% interest from \$100,000 equals the amount in scholarships that we currently fund through our operating budget]. I am pleased to report that last year's governing board, under the strong guidance of President Tom Horth, invested the first \$15,000 towards our goal. This was possible through the growth of events such as this golf tournament, the CNY

Expo, good management, and fiscal conservatism. Please stay tuned for more information on this effort.

Lastly, as President I am focused on organizing and strengthening the Section's missions (Scholarship, Professional Education, Community Outreach, Government Relations, and History and Heritage) and committees that serve these missions. A part of this effort is doubling our attempts to clean up our membership database and ensure we are reaching all of our members with our posted mailings and ListServ.

We have an ambitious year planned, however, your Section's leadership is poised to deliver. With the help of our membership, all these goals are achievable.

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew Marko". The signature is fluid and cursive, with a large initial "M" and a long, sweeping underline.

Matthew Marko, P.E., M. ASCE
President
2008-09 ASCE Syracuse Section

As the 2008-2009 season opens, the Section will focus on celebrating its 85th Anniversary having been established in 1923. Following is the complete list of Section Presidents since 1923.

1923, Constitution approved by Board, April 16, 1923;

1924 Louis Mitchell	1948 Prof. Donald E. Stearns
1925 J. X. Cohen	1949 Emil Graf
1926-1927 Henry C. Allen	1950 Prof. Evan W. Vaughn
1928 Glen D. Holmes	1951-1952 Joseph Lamprecht
1929 Ernest F. Robinson	1953 James E. Blowers
1930 Clinton S. Herrick	1954 Clyde A. Coats
1931 Henry B. Brewster	1955 Prof. Robert B. B. Moorman
1932 Marshall B. Palmer	1956-1957 Conrad W. O'Connell
1933 Frank W. Stephens	1958 James E. Clyde
1934 Henry G. Throop	1959 Lewis A. Dickerson
1935 E.F. Berry	1960 Walter K Neubauer
1936 Nelson F. Pitts, Jr.	1961 Irving Grossman
1937 F. D. McKeon	1962 Prof. Louis J. Goodman
1938 Earl F. O'Brien	1963 William T. Thompson
1939 Henry G. Throop	1964 Paul M. Beall
1940 H. N. Cole	1965 John R. Verna
1941 W. F. Kavanaugh	1966 James L. Konski
1942 Arthur H. Emerson	1967 John R. Loveland
1943 Charles S. Keating	1968 Charles W. Wood
1944 John O. Eichler	1969 Frederick S. Keith
1945 Henry G. Throop	1970 William O. Thomas
1946 John A. Langan	1971 Gordon R. Hyatt
1947 NA (Richard G. Coulter, Secretary-Treasurer)	

1972 Joseph J. Schutz, Jr.	1991 William J. Friers
1973 John J. Keegan	1992 Michael Kozlowski
1974 Malden V. Frank	1993 Matthew Mitchell
1975 Fred H. Kulwahy	1994 Bradford L. Smith
1976 Ernest T. Mosley	1995 John S. Billo
1977 William R. Hall	1996 Geoffrey G. Miller
1978 Lawrence W. Wormold	1997 James H. Tyler
1979 Douglas R. Wickman	1998 James A. D'Aloisio
1980 William P. Tully	1999 Steven R. Skeelee
1981-1982 Gary D. Cannerelli	2000 Craig F. Butler
1983 Gary Dufel	2001 Mitchell E. Carmody
1984 Barton Colwell	2002 Charles F. Stanton
1985 James W. Gorzynski	2003 Matthew D. Millias
1986 Gary W. Fern	2004 Thomas F. Trytek
1987 Eugene DiBartolomeo	2005 Thomas J. Horth
1988 Karen C. Chou	2006-2007 Jeffrey A. Till
1989 James Stewart	2008 Thomas J. Horth
1990 Rhodes R. Copithorn	2009 Matthew J. Marko.

Members are encouraged to post anecdotes on deceased Presidents on listserv noting a significant achievement.

HYDRAULIC CEMENT

Intimately connected with the Erie Canal, is the discovery of water lime, or American Hydraulic Cement. The first works of masonry on the Erie Canal, were contracted to be done with common quicklime. Mr. Mason Harris and Mr. Livingston, of Sullivan, Madison County, entered into a contract to furnish a quantity of this lime for the construction of culverts, aqueducts, etc., on the middle section of the canal, between Rome and Salina. They burned a large kiln and commenced the delivery of it. The purchasers, upon trial, found that it would not slack; all were greatly surprised who heard the facts, and wondered at the singularity. The circumstance became common talk among all classes, in any way engaged in canal matters, and finally became known to the engineers, of whom Canvass White was one and Judge Wright another, who took an interest in the affair. The article was examined, and the ledge from whence it was taken. Dr. Barto, a scientific gentleman from Herkimer County, was called upon to make experiments, to prove what this new substance should be. He came on, took some rough stone, and in the trip hammer shop of John B. Yates, at Chittenango, burned a parcel, pulverized it in a mortar, and in Elisha Carey's barroom, (the present Polytechny) in the presence of Messrs. Wright, White, and several others, mixed it with sand, rolled a ball of it, and placed it in a bucket of water for the night. In the morning it had set and was solid enough to roll across the floor, and by Dr. Barto pronounced cement, not inferior to the Roman of Puteoli, or the Dutch Tarras of the Rhine. Mr. White had recently returned from England, where he had been to examine bridges, canals, aqueducts, culverts, etc., of that country, and the materials of which they were made.

At considerable expense, and by repeated experiments, he found this to be an excellent substitute for the Roman cement, and he sought for and obtained a patent right of the United States, for this discovery. Notwithstanding the patent, four hundred thousand bushels was made and used on the canal, which might subject the manufacturers to the payment of sixteen thousand dollars, if prosecuted. Mr. White devoted considerable time and money in making experiments, and introducing this cement, amidst the doubts and fears which essentially operated against the general use of it. It was at first used with great reluctance and caution; commissioners, builders, and particularly masons, were entirely opposed to its use. In 1819, abutments, culverts, aqueducts and locks, began to be constructed. At first the facework of the locks only was laid in Water-lime, and the arches of the aqueducts; the other work was laid in common lime. No provision had been

made by the Canal Commissioners, for the importation of cement; the expense was dreaded. They appeared to think that under the circumstances, common lime would answer for the work, although Tarras or Roman cement had been recommended by Judge Wright.

All mason work on the canal, was laid in water-lime after 1819. The discovery was considered of immense importance to the State, and all agreed that Mr. White ought to be liberally rewarded for his persevering efforts in bringing it into general use. Water-lime was used everywhere in the face of the patentee. At length Mr. White, finding no other means of redress, resolved to test the validity of his right. He accordingly brought suit in the District Court of the United States against Timothy Brown, of Sullivan, for an infringement of his patent, and obtained a judgment for seventeen hundred dollars. Other contractors were equally liable; the article had been manufactured extensively in Madison, Onondaga and Cayuga Counties, and Mr. White held a claim against them, which could be legally enforced, to the amount of upwards of twenty thousand dollars. These contractors, with Mr. Brown at their head, petitioned the Legislature for relief. Whereupon a committee was appointed to investigate the matter and report. In 1825, a compromise was effected, by the State paying to Canvass White, the sum of ten thousand dollars, on condition of his assigning and assuring to the people of the State of New York, the full right forever, to manufacture and use this said cement, and of his discharging the said judgment and all claims against the petitioner, and all and every citizen of the State, for or on account of any infringement of the said patent right. By mutual agreement the whole matter was thus amicably arranged, and all persons were thereafter allowed to manufacture and use water-lime. The article was first burned for market in the Town of Sullivan, Madison County, one mile and a half west of Chittenango, in the fall and winter of 1818-19, on large log heaps. John B. Yates fitted up a mill for grinding it. Mr. White had the exclusive right of manufacturing and vending the article. The price ordinarily charged, was from three dollars fifty cents to five dollars per barrel of five bushels. The barrels were lined with oiled paper, and were made perfectly water tight.

It has ever been considered a truly fortunate circumstance, that so valuable an article for the permanent construction of locks, aqueducts, etc., for our canals, was found at the very time it could hardly be dispensed with.

The above was written by Joshua V. H. Clarke in *Reminiscences of Earlier and Later Times* in 1849.

GEORGE HUNTINGTON THOMSON, M. Am. Soc. C. E.*

DIED FEBRUARY 7TH, 1910.

George Huntington Thomson was born in Syracuse, N. Y., in 1847. He first engaged in engineering work in 1865 when he became Assistant Engineer on the Oswego and Syracuse Railroad (now part of the Delaware, Lackawanna and Western Railway), in which position he remained nearly two years. He then went to New Orleans, La., where he filled a position as Assistant Engineer on Government work for about two years, and later became Resident Engineer on the New Orleans, Mobile and Texas Railroad. He was with the latter company some four years, being located in Louisiana and Mississippi, and was finally promoted to a position in charge of yards, stations, and structures.

From the South he went to the New York Central and Hudson River Railroad, and was connected with that road for twenty-one years, first as Assistant Engineer on track work, then as Engineer of Bridges, and later as Consulting Bridge Engineer. After leaving the service of the New York Central as Bridge Engineer in 1893, Mr. Thomson engaged in a consulting and contracting engineering partnership in New York City, in which he continued until 1900. During this period he was at one time Chief Engineer of the Metropolitan Traction Company, which proposed the construction of an elevated railway line in New York City, a project which was ultimately abandoned. Among his clients as Consulting Bridge Engineer were the New York Central and Hudson River, the Central Vermont, the St. Lawrence and Adirondack, and the Mohawk and Malone Railroads, and at one time he was retained on the construction of the Williamsburg Suspension Bridge over the East River between New York City and Brooklyn.

In 1900 the engineering partnership was dissolved, after which, his health being broken, due largely to severe injuries received in a railroad accident, he did little active work for several years. In 1907 he entered the service of the New York State Engineering Department in a field position on the New Barge Canal. The active, outdoor work greatly improved his health, and gave him restored confidence and vigor. He received several promotions, being placed, after about two years' service, in charge of the execution of one of the contracts on the Oswego Canal, in the vicinity of his first engineering work. His early acquaintance with the locality, combined with his ability and experience, made him of great value to his employers in the settlement of water rights and similar problems involved in the construction of the

* Memoir prepared by A. W. Carpenter, M. Am. Soc. C. E.

new canal. It seems, indeed, a pity that this reawakened career of activity could not have been continued and crowned with still greater success. The all-wise Providence ruled otherwise, however. The injuries received in the railroad accident many years before (1892) were so serious that Mr. Thomson never fully recovered, and they finally caused his death, which occurred on February 7th, 1910, at his home in Syracuse, N. Y.

During the later years of his service with the New York Central and Hudson River Railroad, and in his following consulting practice, Mr. Thomson gained great prominence as a bridge engineer. He continued the advocacy of riveted truss construction, which had been especially developed on the New York Central Railroad, and on that road, in 1888, he introduced the ballasted trough floor, this being its first use on American railways. This floor was in the form of rectangular troughs, and Mr. Thomson used it very extensively in the design of bridges on the New York Central, the St. Lawrence and Adirondack, the Mohawk and Malone, the Central Vermont, and the Rutland Railroads. He also developed a type of truss, known by his name, of which a number were built on the New York Central and other railroads and are still in service. This truss consists of a double Warren system, with subdivided panels and all connections riveted. He designed plate girders of lengths that must have seemed bold for their time, there being one span of 115 ft. 6 in., built in 1890 and still in service, and many built in the early Nineties were more than 100 ft. long.

Mr. Thomson was early in adopting steel as a substitute for iron in bridge construction; he examined very carefully into its manufacture, and prepared specifications for acid open-hearth steel for structural work, which were remarkable for their scope and thoroughness. They called for a grade of material which probably is not excelled by the best product of to-day. A prominent bridge engineer, who knew him and his work well, writes: "There were few bridges built in those times which had as good material in them as those which he put up."

The largest and most striking structures designed by Mr. Thomson or under his direction are the Park Avenue Viaduct and the Harlem River four-track draw-bridge of the New York Central and Hudson River Railroad in New York City. The former is a four-track elevated structure of plate girders with a ballasted trough floor, about 1½ miles long, and the latter is probably the heaviest and perhaps the most important draw-span in the world, being 398 ft. long, carrying four tracks on a solid trough floor (not ballasted), containing 2 200 tons of steel, and controlling the traffic of the railroad company into its New York terminal.

Mr. Thomson, as before suggested, was a strong advocate of riveted *versus* pin-connected trusses, and he may be said to have been a violent

opponent of the latter. He designed and built riveted lattice trusses up to 230 ft. span (single-track, Bridge No. 31, Central Vermont Railroad, Thomson-type trusses), advocated their construction to 250 ft. span, and is said to have designed a single-track riveted truss of 500 ft. span, which, however, was not built. Examples of his designs have been reproduced and commended in prominent textbooks on bridge design, and many were described and illustrated in the technical magazines of his time.

In his designing, Mr. Thomson gave a great deal of thought to the action of metal in bridge members under stress, "structural motion," as he called it, and he attempted to proportion bridge members with such action in view. He studied closely the action of bridges under live loads; he was not satisfied to follow the ordinary "strain sheet" practice, but sought to provide additional methods of gaining rigidity and permanence, accompanied with economy, in structures. Some of the important things he recognized in the early Nineties were the effect of time in loading members, and the unequal distortion of members of equal section but varying length.

In his "structural motion" theory, which was given considerable attention at one time, he recognized the distortion of members under stress as changing the conditions of static computations, and considered the effect of frequency of loading to be, even with moderate live loads, a leading factor, as well as the application of the maximum live load. Vibratory effects were also considered. This theory, which Mr. Thomson did not develop as clearly as might be desired, did not lead directly to any well-defined rules or specifications for designing of which there is any record, but it appears to have in it the elements of the present impact and secondary stress conceptions, which it probably assisted to develop. It shows, at least, Mr. Thomson's originality of thought, and his characteristic of searching deep below the surface.

Mr. Thomson was known and honored as a bridge engineer abroad as well as in his own country. His papers show that, in connection with the design and fabrication of the steel for the Forth Bridge, he was consulted by the late Sir Benjamin Baker, Hon. M. Am. Soc. C. E., with whom he contracted a warm friendship. In 1888 he visited England, and, at the request of Sir Benjamin Baker, read a paper before the British Association for the Advancement of Science, at Bath. This paper, entitled "Mechanical Pathology in its Relation to Bridge Design," attracted much attention, and was published in full, with illustrations, in *Engineering*, under the title "American Bridge Failures." It contains a great deal of valuable information in connection with the design of bridges, as derived from Mr. Thomson's long experience, and sets forth his principles of design. The latter are certainly in remarkably close agreement with the most approved practice of to-day, and show the advanced professional position of the man.

The engineering journals received many articles from Mr. Thomson's pen, and published many descriptions of his designs. Most of these are in the issues of the years 1888 to 1894, inclusive. His most recent contribution was a paper published in *Engineering News*, January 23d, 1908, entitled "Riveted Lattice for Railroad Bridges of Maximum Span: A Plea for a Return to Rational Design." He contributed freely to discussions of papers to this Society between 1887 and 1899, generally in connection with the design and construction of bridges.

Mr. Thomson was a man having a brilliant intellect, of the analytical type. He had a pleasing personality, and was a captivating conversationalist. His honesty was unquestioned. Frank and outspoken in his opinions, likes, and dislikes, he may have antagonized some, but he made many warm friends, and they were of the kind that stood by him through fortune and adversity. His wife, six daughters, and a son, the latter a Junior of this Society, survive him.

Mr. Thomson was elected a Member of the American Society of Civil Engineers on February 2d, 1887. He was also a Member of the British Institution of Civil Engineers, to which he was elected on May 7th, 1889, being one of the earliest American engineers to be thus honored.

ASCE SYRACUSE SECTION
2008-2009 BOARD OF DIRECTORS AND OTHER CONTACTS

Past President - Tom Horth, P.E.

C&S Engineers, Inc.
499 Col. Eileen Collins Blvd.
Syracuse, NY 13212
Phone: (315) 455-2000
Fax: (315) 455-9667
Email: thorth@cscos.com

President - Matthew Marko, P.E.

CH2M HILL
290 Elwood Davis Road, Suite 290
Liverpool NY 13088
Cell: (315) 345-1440
e-fax: (267) 675-4571
Email: mmarko@ch2m.com

President-Elect - Aaron Falkenmeyer, P.E.

TDK Engineering Associates, P.C.
19 Genesee Street
Camillus, New York 13031
Phone: (315) 672-8726 x106
Fax (315) 672-8732
Email: afalkenmeyer@tdkengineering.com

Vice President – Matt Millias, P.E.

CDM
One General Motors Drive
Syracuse, New York 13206
Phone: (315) 434-3200
Fax: (315) 463-5100
Email: milliasmd@cdm.com

Secretary – Brad Kubiak, P.E.

O'Brien & Gere Engineers
5000 Brittonfield Parkway, PO Box 4873
Syracuse, NY 13221-4873
Phone: (315) 437-6100
Fax: (315) 463-7544
Email: kubiakba@obg.com

Treasurer - Dawn Penniman, P.E.

Arcadis
6723 Towpath Rd., P.O. Box 66
Syracuse, NY 13214
Phone: (315) 671-9229
Fax: (315) 446-8053
Email: dawn.penniman@arcadis-us.com

History & Heritage Chair - Jim Tyler, P.E.

Phone: (315) 468-3798
Email: jim.jhtyler@GMAIL.COM

Director: Zack Knight (1st term)

CH2M HILL
290 Elwood Davis Road, Suite 290
Liverpool NY 13088
Phone: (315) 451-7100
Cell: (410) 960-3135
fax: (315) 451-7270
Email: zknight@ch2m.com

Director: Steve McCray, P.E. (1st term)

Ryan Biggs Associates, P.C.
7 Fennell Street, Lower Level
Skaneateles, NY 13152
Phone: (315) 685-4732 extension 226
Fax: (315) 685-4753
Email: smccray@ryanbiggs.com

Director: Steven Zuk (1st term)

TDK Engineering Associates, P.C.
19 Genesee Street
Camillus, New York 13031
Phone: (315) 672-8726 x106
Fax (315) 672-8732
Email: szuk@tdkengineering.com

Newsletter Editor/Webmaster – Jeffrey Till, P.E.

Onondaga County Health Department
Division of Environmental Health
421 Montgomery Street
Syracuse, NY 13202
Phone: (315) 435-6600
Fax: (315) 435-6606
Email: JeffreyTill@ongov.net

Younger Member Chair – Christie Bryz-Gornia

Arcadis
6723 Towpath Rd., P.O. Box 66
Syracuse, NY 13214
Phone: (315) 671-9158
Fax: (315) 671-9158
Email: Christie.Bryz-Gornia@arcadis-us.com

***Region I/NYS Council Representative –
Brad Smith, P.E.***

Stearns & Wheler
1 Remington Park Dr.
Cazenovia, NY 13035
Phone: (315) 655-8161
Fax: (315) 655-4180
Email: BLSmith@StearnsWheler.com



2008 ASCE EVENTS CALENDAR:

August 2008	
8/29 - 9/1	NYS FAIR BOOTH IN 4H YOUTH BUILDING - VOLUNTEERS NEEDED!! ~ FREE PARKING AND FAIR ADMISSION ~ CONTACT STEVE MCCRAY (SMCCRAY@RYANBIGGS.COM OR 315.685.4732 X226) FOR DETAILS
SEPTEMBER 2008	
9/10/08	ASCE BOARD MEETING - 5:30PM, ALL MEMBERS WELCOME TO ATTEND CH2M HILL, 290 ELWOOD DAVIS ROAD, SUITE 290
9/17/08 5:30 PM	SITE VISIT - WESTCOTT RESERVOIR REHABILITATION PROJECT 1.0 PDH
9/19-9/21	REGION 1/ NYS COUNCIL FALL MEETING NIAGARA FALLS, NY
OCTOBER 2008	
10/11	AAH-FINAL EVENT OF THE YEAR Contact Steve Zuk (SZUK@TDKENGINEERING.COM) for details
10/29	DINNER MEETING TOPIC: GEOSYNTHETICS IN WASTE MANAGEMENT 1.0 PDH PENDING SPEAKER: NORTH AMERICAN GEOSYNTHETIC SOCIETY LOCATION: TBA
NOVEMBER 2008	
TBD	State Public Affairs Grant (SPAG) Applications Due for FY 2009
11/7	JOINT MEETING WITH CLARKSON University/ SUNY Canton Dinner Meeting, Presentation with PDH, followed by Clarkson Hockey Game 1.0 PDH PENDING
11/10	CNY Expo 2008 HOLIDAY INN, LIVERPOOL 7.0 PDH'S AVAILABLE VOLUNTEERS/MODERATORS NEEDED!!!

11/15	Build'em & Bust'em Scholastic Competition Museum of Science & Technology (MOST), Syracuse Volunteers and Judges Needed Contact Tom Horth (thorth@cscos.com) for details.
11/30	<i>Renew your ASCE membership by this date to be entered into a Gift Certificate Drawing</i>
DECEMBER 2008	
12/10	ASCE BOARD MEETING - 5:30PM, ALL MEMBERS WELCOME TO ATTEND EMPIRE BREWING COMPANY, ARMORY SQUARE, 120 WALTON STREET, SYRACUSE
TBD	DINNER MEETING TOPIC: THE BRIDGES OF SYRACUSE SPEAKER: ONONDAGA HISTORICAL ASSOCIATION LOCATION: TBA
TBD	DINNER MEETING TOPIC: TBA PENDING SPEAKER: TBA LOCATION: TBA 1.0 PDH

2009 ASCE EVENTS CALENDAR:

JANUARY 2009	
1/16	YOUNG MEMBER'S HAPPY HOUR (TENTATIVE) LOCATION TBA
1/27	JOINT MEETING WITH SU STUDENT CHAPTER
FEBRUARY 2009	
TBD	NATIONAL ENGINEER'S WEEK
2/16	ASCE Family Night with the Syracuse Crunch: Group outing-all friends and family welcome!

MARCH 2009

TBD	DINNER MEETING JOINT MEETING WITH SUNY IT STUDENT CLUB	1.0 PDH AVAILABLE
3/29	THE GREATER SYRACUSE SCHOLASTIC SCIENCE FAIR SOLVAY HIGH SCHOOL	
TBD	Region 1/NYS Council Spring Meeting - Location TBD	

APRIL 2009

TBD	YOUNG MEMBER'S HAPPY HOUR (TENTATIVE) LOCATION TBA	
TBD	DINNER MEETING	1.0 PDH PENDING

MAY 2009

TBD	JOINT MEETING WITH ITHACA SECTION	
TBD	ANNUAL MEETING / FINAL BOARD MEETING - OPEN TO ALL	

JUNE 2009

6/26	ASCE GOLF TOURNAMENT SUNSET RIDGE, MARCELLUS	
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JULY 2009	
TBD	ASCE NIGHT AT THE SYRACUSE CHIEFS
TBD	YOUNG MEMBERS EVENT - 'SUNSET SAFARI' AT THE ZOO HTTP://WWW.ROSAMONDGIFFORDZOO.ORG/EVENTS_SUNSET_SAFARI.ASP)