Rich in Tradition
Joseph A. Smak
AREMA President 2013-2014
Senior Director Track Maintenance & Compliance
Amtrak

International Crosstie and Fastening System Symposium
University of Illinois Urban Champaign
June 4, 2014
Thanks

- University of Illinois Urbana Champaign - RailTEC
- Chris Barkan
- Riley Edwards
- Conrad Ruppert
- And the rest of the UIUC staff
Rich in Tradition

- Memorial Stadium
- Dedicated on October 18, 1924
- 77th Club
- Harold “Red” Grange, “The Galloping Ghost”
- Charter Member of College and Professional Football Hall of Fame
Big 10 Conference

- Began discussion in 1895
- 1896, Purdue University, University of Chicago, University of Illinois, University of Michigan, University of Minnesota, Northwestern University and University of Wisconsin
- Indiana University, State University of Iowa in 1899
- The Ohio State University in 1912
Big 10 Conference

- University of Chicago withdraws, Michigan State College in 1949
- 1990, Pennsylvania State University
- 2011, University of Nebraska
- 2014, University of Maryland and Rutgers University become members
1867: The year the UIUC began
Chartered as the Illinois Industrial University opened for business in 1868
Renamed University of Illinois in 1885
One of the original 37 public land-grant institutions
Rich in Tradition - University of Illinois

- For over a century, UIUC has Railroad Engineering program
- 1910-1930’s, Professor Arthur Talbot
  - “Talbot Papers”
- 1947-1977, Professor William Hay
  - “Railroad Engineering”
Rich in Tradition - AREMA

- American Railway Engineering and Maintenance-of-Way Association, 1997
  - Roadmasters and Maintenance-of-Way Association, 1883
  - Communication and Signal Division of AAR, 1885
- American Railway Bridge and Building Association, 1891
- American Railway Engineering Association, 1898
AREMA Update: 2013 - Another Successful Year!

- Successful Annual Conference & Exposition
- Educational Opportunities
  - Seminars
  - Web-based Educational Programs
- Best-selling Publications
- Financially sound
- Professional Staff
- Membership over 6,500 - highest ever!
Largest and most comprehensive North American railway industry event, including full AREMA Technical Conference

Over 8,300 registrants!

AREMA Fully Supportive

Planning already begun for 2015 and beyond
This year...

AREMA will be back at the Chicago Hilton with the
AREMA 2014 Annual Conference & Exposition
AREMA Initiatives

- Web Briefings
- Web Courses
- Seminars - Bridge Inspection and many others
- More International Involvement
- Actively involved in High Speed Rail issues
- Technical Committee dedicated to Positive Train Control
- Electronic Delivery of Manual orders
**Student Activity**

- Number of AREMA Student Chapters more than tripled in 2013
- Seventeen ACTIVE Chapters going into 2014!

| Brigham Young University                  | Oregon State University                  |
| University of Tennessee-Knoxville         | Michigan Tech University                  |
| University of Nevada, Las Vegas           | University of Kentucky                   |
| University of South Carolina              | Virginia Tech                             |
| North Carolina State University           | University of Manitoba                   |
| University of British Columbia            | University of Alberta                     |
| University of Wisconsin-Madison           | University of Toledo                      |
| Pennsylvania State University             |                                           |
| Rose-Hulman Institute of Technology       |                                           |
| University of Illinois at Urbana-Champaign|                                           |
Student Support

- AREMA Foundation
- Support close to 200 student members
- 37 Scholarships, total of $63,500 in 2014
- Donations accepted at www.aremafoundation.org
Future - 2014 and Beyond

- AREMA is stronger than ever
  - Vital to Industry
  - YOUR professional Association

- NEED YOUR SUPPORT
  - Membership
  - Committee participation
Rich in Tradition - RTA

- Railway Tie Association, 1919
- National Association of Railroad Tie Producers
- Railway Tie Association, 1932
Railway Tie Association

- Research and Development
- Industry Statistics
- Specifications
- Operations
- Government Affairs
- Annual Technical Conference
- Education
- Publications
Urban Legend?
History of Crossties

- Legend of “standard gage”
- George Stephenson, Liverpool and Manchester Railway
- Robert Stevens, Camden and Amboy Railroad
- Stone blocks
History of Crossties

- Wood stringers between stone blocks
- Hand-hewn wood ties
- Tie hackers, cross saw and broadaxe
- 1940’s, steam power and gasoline engines
History of Crossties

- Mid 1800’s preservative treatment
- 1938 - bichloride of mercury, Northern Central RR in Maryland
- 1848 - Lowell, MA, bichloride of mercury and chloride of zinc
- 1855 - chloride of zinc, Union RR of Cambridge
- 1868 - creosote, Chicago, Burlington and Quincy
History of Crossties

- Various species of wood - softwood, hardwood, exotics
- Various methods of pressure treatment
- Various preservatives (Copper naphthanate, borate, etc.)
History of Crossties

- 1880’s - first concrete tie use, Europe
- 1896 - concrete crosstie, Reading Company
- Various concrete tie designs
- Various concrete mix designs and admixtures
- Various pre-stress reinforcements
- Various fastening systems
History of Crossties

- Steel ties
- Composite ties
- Plastic ties
- Fiberglass ties
BECOME RICH IN TRADITION!