



**2012 – 2013**

*February's Joint MGS and  
MN Section of ASCE Meeting*

**Carving Crazy Horse: Art & Engineering of Blasting  
Massive Rock Monuments**

**Prof. Charles H. Dowding  
Northwestern University**

When completed the Crazy Horse Monument will be the largest carved rock monument in the world. Over 10,000,000 tons of rock have been removed to date, and all of the Presidents' heads at Mt Rushmore can fit inside of Crazy Horse's head. The project began in 1946 when Chief Henry Standing Bear engaged Korczak Ziolkowski to carve the 600 ft monument on Thunderhead Mountain in the Black Hills of South Dakota and continues today. This lecture will describe the process of creating the monument. Project management includes financing, scheduling, and public relations. Artistic considerations include replication of the prototype, sequencing of operations and final details. Blasting matters involve drilling, explosive loading, and initiation sequence. Rock mechanics aspects include special equipment, 3D modeling, reinforcement, final smoothing by heating, and monitoring vibration response. More information about the project can be found at [www.crazyhorse.org](http://www.crazyhorse.org).

**Date:** Thursday, February 21, 2013

**Location:** Continuing Education and Conference Center  
1890 Buford Avenue  
St. Paul Campus of the University of Minnesota  
(Pay parking is available in lots S104 and S108 or the Gortner Avenue Ramp. Typical evening rate is \$6.  
Detailed information is available at <http://www1.umn.edu/pts/park/visitorparking.html>.)

**Time: 6:00** Social Hour, Sponsored by Hayward Baker.

**7:00** Dinner – Buffet Style

**8:00** Presentation – Prof. Charles Dowding

(One professional development hour toward continuing education requirements for Professional Engineers is available).

**Cost:** \$30.00 members and non-members, and \$5.00 Full-time students, payable to MGS at the door.

**Reservations:** Requested by 12 Noon, Monday, February 18, 2013  
(STRICTLY ENFORCED)

Please register via the website at <http://www.mngeotechnicalsociety.com/eventsmpls.asp>

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