American Society of Civil Engineers

# Columbia Section

**Since October 10, 1950**

## Newsletter

October, 2004

Our web site: http://sections.asce.org/columbia/index.html



**Columbia Section November 3, 2004 Meeting**

**Date:** Wednesday, November 3, 2004 at 11:30 am – 1:00 PM

**Place:** Shilo Inn, George Washington Way, Richland

**Meal:** Buffet (Chef's choice) $10 per person.
Please pay cash or check to treasurer at the meeting.

**Topic:** **Hanford Reach National Monument Heritage and Visitor Center**

**Speakers:** **Ron Hicks**, Project Manager, Riverside Consulting

The interpretive center will be located at Columbia Point South. The proposed $32 million center's footprint includes an 80,000-square-foot campus with a great hall, interactive galleries, office space, classrooms, gift shop, cafe and a 220-seat auditorium.

Lunch will start at 11:30, and the presentations will start at Noon.

RSVP to: Aaron Meilleur, aaron.meilleur@hdrinc.com or (509) 783-8931
bv Nov 1, 2004.

## President's Message

Dear Members:

Thank you to all who attended September's monthly luncheon presentation from Pumptech's Ed Smith. I know that everyone found the developing Magna-Drive technology fascinating and applicable in many areas.

The section's past-president, Ben Volk, and I recently attended the Pacific Northwest Council of ASCE to participate in issues of current governance, national initiatives, and the changing structure of ASCE throughout the west with the most recent ballot measures. Our section's efforts over the last year were presented and discussed before the council. I was pleasantly reminded how many activities and groups our local section positively touches throughout a given year. It's a credit to our local active members and our profession. Keep up the great work.

This month we have a very interesting presentation for the Hanford Reach National Monument Heritage and Visitor Center being constructed on Columbia Point South. The presentation will update everyone on the progress of the project and explain the obstacles and controversies surrounding development in the Columbia Point Area. I encourage all to attend.

Sincerely,

Aaron

**ASCE Annual Conference October 20-23, 2004**

ASCE 2004 Civil Engineering Conference and Exposition will be held October 20 – 23 in Baltimore Convention Center, Baltimore. For details, please visit:
http://www.asce.org/conferences/annual04/

## Pumptech's Magna Drive Presentation, Shilo Inn, September 22, 2004

Reported by: Aaron Meilleur

Ed Smith presented on the Magna-Drive technology for adjustable speed drives on pumps and blowers. He described the technology of using an extremely strong magnet, Neodinium, and the flux created by moving copper, to create a slip coupling for engaging a motor and load. By allowing the magnets to move closer to the spinning copper plates, the amount of slip reduces and increases the speed of the pump or blower used in the application. Magna-Drives compete directly with Variable Frequency Drives (VFDs) in the industry. The Magna-Drive is the mechanical equivalent to the VFD. Efficiencies are better with the VFD until around 90-95% optimum speed, but Magna-Drive believes that it gains in life cycle cost when maintenance is evaluated. The cost-effectiveness for the Magna-Drive becomes competitive in applications of 75 Hp and greater for horizontal applications and 100 Hp and greater for vertical applications.

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## History of Period of the Pendulum

$$p = 2\pi\sqrt{L/g}$$

This formula allows the period of a pendulum to be calculated.

- p is the period of the pendulum
- L is the length of the pendulum
- g is the acceleration of gravity on the Earth's surface
- $\pi$ has the value 3.14159...

The motion of the pendulum was studied and documented by Ibn Yunus al-Masri during the 10th century. It was re-descovered by **Galileo** during the 17th century. The story goes that one day while attending Sunday mass in Pisa Cathedral, he dozed off and noticed the chandelier above him swinging to and fro. By using his pulse as a clock he noticed that the period of the swing was independent of how far it swung. Only the length of the pendulum made any difference to the time required for a swing.

This eventually led to the invention of the pendulum clock, the most accurate time piece yet invented. Accurate clocks lead to Europeans being able to navigate accurately around the world.

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## Civil Engineers vs. Computers

*"Civil engineers have turned to the computer for increased speed, accuracy and productivity. However, do engineers run the risk of compromising the sefety and welfare of the public? Many have predicted that the engineering failures of the future will be attributed to the use or misuse of computers. Is it becoming easy to take on design work outside of engineer's area of experise simply because a software package is available? How can civil engineers guarantee the accuracy of the computer program and that the engineer is qualified to use it properly?"*

Exerpt from *Sons of Martha*, p557, published by ASCE.

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