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THIS ISSUE

This month, Coal Age reports on Sunrise Coal's Carlisle mine (www.sunrisecoal.com). This four-unit continuous miner mine relies on its strengths to be successful. On the cover, a continuous miner operator cuts coal. (Photo courtesy of Lee Buchsbaum, www.lmbphotography.com)

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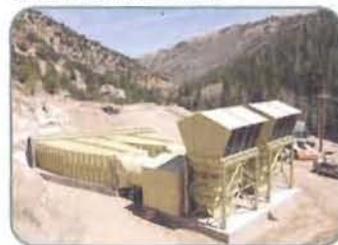
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THIS ISSUE

This month, Coal Age reports on developments with the lignite mines in North Dakota. On the cover, a dragline at Coteau Properties' Freedom mine moves overburden. (Photo courtesy of Lee Buchsbaum, www.lmbphotography.com)

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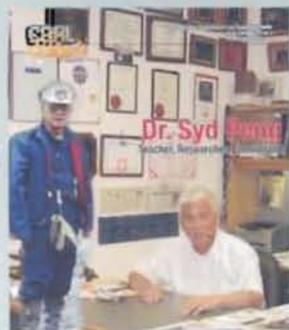
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Cover Photo
 Background: Syd Peng at his office desk.
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DECIPHERING MASS EXTINCTIONS

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Mass extinctions are a lot messier and more complicated than most people realize, but they are not necessarily random events. Scientists are uncovering some of the "rules" that mass extinctions follow and what these rules may say about the future of life on Earth.

Brian Fisher Johnson



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BREAKING THE ENERGY BARRIER

The Department of Defense is the world's single largest energy consumer. Because of its unique energy needs, the department is increasingly becoming a leader in energy research and development, and in implementing new energy technologies and using alternative fuels. Thus, the Department of Defense is poised to help solve the United States' energy woes and the world's energy challenges.

Michael E. Webber



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SURVIVING FIELD SCHOOL: Teaching Geology to Teachers Is Better Than Reality TV

Without firsthand experience of the process of scientific inquiry, many teachers — and thus their students — fail to appreciate the value of science. The University of Nebraska's three-week geology field course for future teachers seeks to remedy this problem by giving college students the chance to rediscover many of geology's fundamental principles.

Clay Farris Naff



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IN ARCTIC AIR:

Keeping Weather Balloons Aloft in Cold and Ice

Air pollution from some industrialized regions in the Northern Hemisphere may be affecting the Arctic. Weather balloons can help scientists figure out where the pollution goes, but first they have to design a balloon that can stand up to the Arctic's cold and ice.

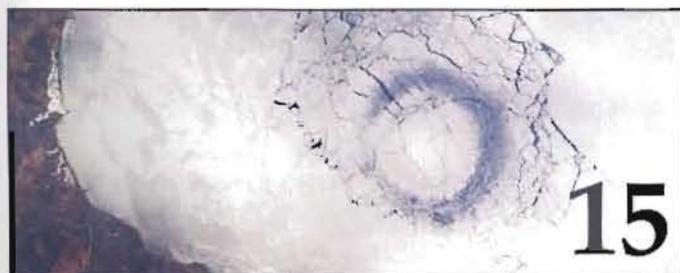
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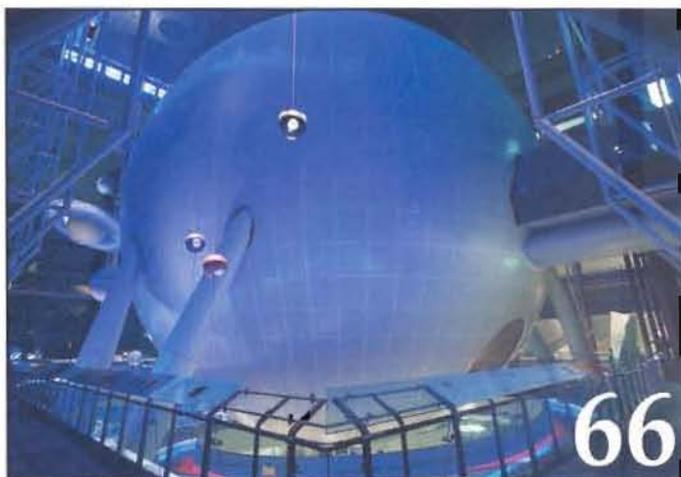
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Riverbed Remediation

24 Innovative dredging process saves millions in world's largest cleanup of riverbed PCBs at a Superfund site in Wisconsin.

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24 Virtual design and construction began with the creators of process and chemical plants. Today, their goal is to integrate, manage and share facilities data with consummate ease.

Cover art by Guy Lawrence; photo right courtesy of Bentley Systems Inc.



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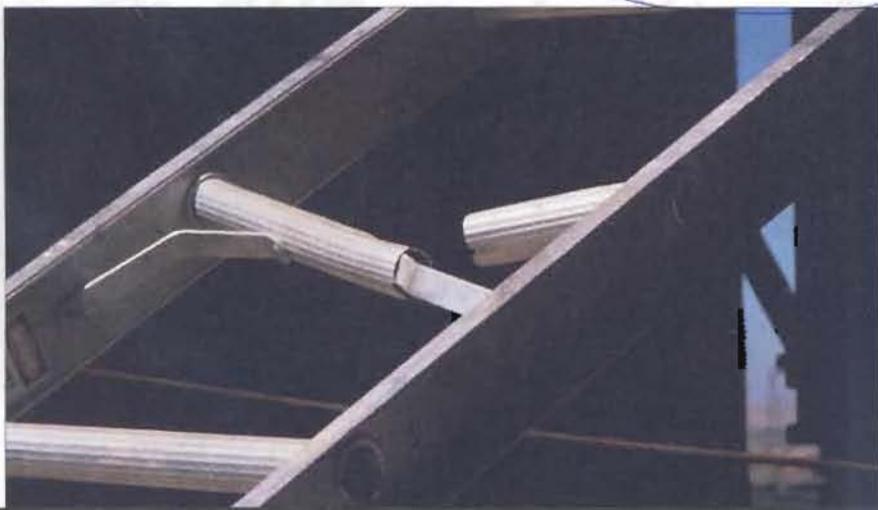
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COVER STORY
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► **Achieving Safety**

20 A proposal that workers carry personal safety records as part of their employment history touched some raw nerves. The idea's champion and an opponent dissect the issue.

Cover illustration by Theodore Keller; photo right courtesy of CPWR



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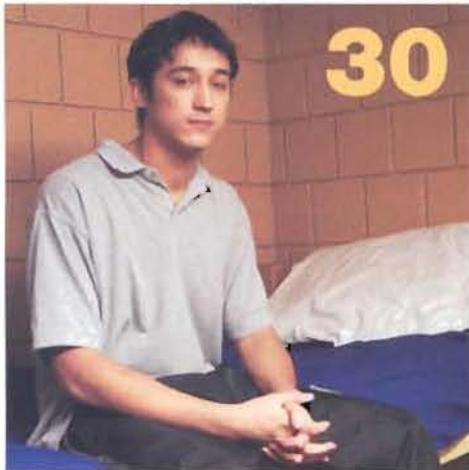
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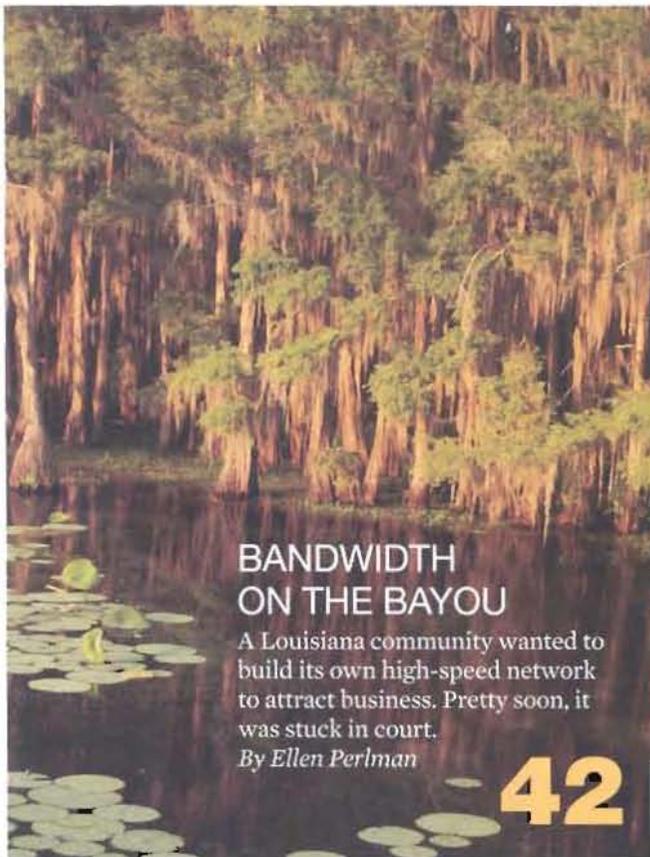
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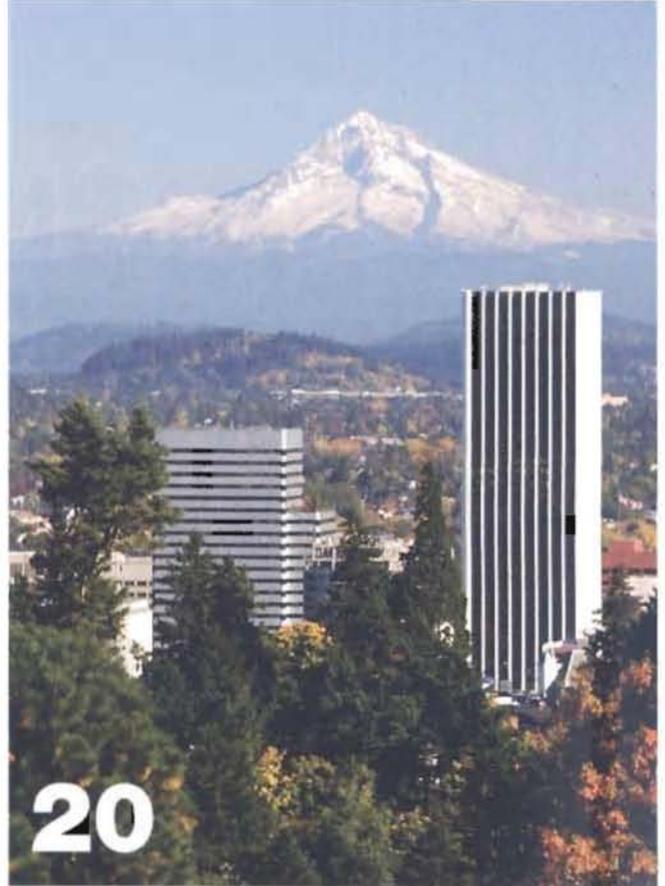
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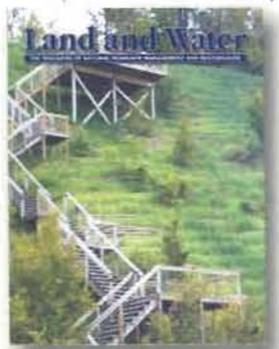
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COVER STORY



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Barrick Gold faced several location and environmental challenges when building a domed structure for its crushed ore stockpile at the Zaldivar copper mine in Chile. But good cooperation between the company and its vendors resulted in a structure that satisfied all environmental and safety concerns. Photo courtesy of Geometrica, designed by Nate Hurianek, ME's Production Designer.

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Wildfires and Invasive Plants in American Deserts

Guest Editors: Linda Coates-Markle, Society for Range Management Liaison, Bureau of Land Management, WO-220 Division of Rangeland Resources, 10030 W 27th Ave, Wheat Ridge, CO 80215-6601, USA; and Sherman Swanson, University of Nevada State Extension Rangeland Management Specialist and Rangeland and Riparian Scientist, Dept of Natural Resources and Environmental Science, 1000 Valley Rd, Reno, NV 89512, USA

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SOIL SCIENCE

An Interdisciplinary Approach to Soils Research

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