BOB WEIMER TRAIL

~ Dedicated October 1, 2011 ~

The Bob Weimer Mines Geology Trail Honoring more than 54 years of contributions from Professor Emeritus Robert J. Weimer to the Department of Geology and Geological Engineering and the greater Colorado School of Mines community. Through his academic and career accomplishments, Dr. Weimer has been influential to thousands of Mines students and geoscience professionals with his expertise and personal commitments to all with whom he worked. Among his many professional honors, Dr. Weimer was elected as a member of the National Academy of Engineering in 1992 and awarded an honorary doctorate of Engineering from Colorado School of Mines in 2008.
The National Park Service designated several fossil areas in the Golden-Morrison area as National Natural Landmark sites. Stop # 2 on the Bob Weimer Trail was included in the designated areas. A new plaque was installed in late 2011 to commemorate the designation. A new Trail Guide to the Geology Trail was published in 2011 by the Geology Museum. Authors of the guide are Bob Weimer, Steve Sonnenberg, and Linda Martin. The guide is available at the Geology Museum.
Congratulations to Bob Weimer for having the trail named in his honor. This is a rare and special honor given to a Mines faculty member.

Colorado School of Mines (Mines) has a wealth of geology on campus that has been used for teaching and research purposes for years. Bob Weimer, CSM Professor Emeritus, designed a walking trail through the campus outcrops in 2004. New signs were erected along the trail this year to make the trail more self-guiding. The trail emphasizes the history of CSM and Golden and the story of the Front Range uplift. “I’ve taught all over the world, but I’ve never seen this much geology on a campus,” says Bob Weimer (Keller, 2005). The walking trail visits outcrops of the Pierre, Fox Hills, Laramie and Arapahoe formations. Most of these units have a near vertical tilt due to the uplift of the Front Range (64 to 55 Ma). “The Golden-Green Mountain area may be regarded as the typelocality for the record of events that built the Rocky Mountains, referred to as the Laramide Orogeny, a name derived from the Laramie Formation,” says Weimer (Keller, 2005).

The Geology Trail is now well marked and trail brochures are provided from the Geology Museum (13th and Maple). The tour can be self-guided but guided tours by Bob Weimer and others are done throughout the year. The trail requires periodic maintenance, and the AAPG student chapter at Mines pitches in twice a year for the maintenance.

The Mines Geology Museum is the location of the first stop. The Geology Museum started as a “mineral cabinet” put together by Arthur Lakes, Geology Professor, in 1874. The museum now has around 50,000 minerals, fossils, and artifacts with the best ones being on display. Before starting the trail, be sure to watch the 10-minute video on the geology of the Front Range. The video was created by Paul Weimer, CU Professor and Bob’s son, and some of his students. The Weimers have brought together a tremendous public outreach project that is viewed by many K-12 students and museum visitors throughout the year. At the first stop, an overview of the trail is presented on new geology trail signs (Figs. 1, 2). Interestingly, Mines and Golden are located right along the Golden and Basin Margin faults. Fortunately, these systems are no longer active! Also at stop one, the history of Mines campus is given. Many buildings on campus are named after either early geology professors (Arthur Lakes, Lakes Library; E.L. Berthoud, Berthoud Hall) or prominent geology graduates (Ben Parker, Parker Student Center; John Lockridge, Lockridge Arena-Recreational Center; Russel Volk, Volk Gymnasium; George Brown, Brown Building.

Stop 2 is a prominent sandstone ridge (near vertical) in the Laramie Formation with dinosaur tracks, burrows and leaf and wood imprints (Fig. 3). The tracks are approximately 68 Ma. Small fragments of palm fronds and minor faults are also present. The underlying clay layer was mined out which results in spectacular exposures. Stop 3 illustrates mined fire clay (used for making bricks) and environments of deposition in the Laramie Formation. Sandstones present are interpreted to have deposited in crevasse-splay deposits that built out into lakes or bays. Clays and Peat were deposited in back-levee swamps. Log and leaf imprints can also be observed.

Stop 4 illustrates the Clay Pits fault which places lower Laramie sandstone on Pierre Shale. The prominent sandstone ridge is cut oï¬€ by the fault. The fault is interpreted to be a syndepositional fault.
Stop 5 is an overview of Clear Creek Valley and the Rock Garden. Rock samples are present which represent the geology north of Golden (Fountain, Lyons, Lykins, Morrison, Dakota, Benton, Niobrara, Pierre, Laramie, Arapahoe, Denver, Table Mountain lava flows). Also at the Garden are samples of famous Colorado Rocks (e.g., Green River Oil Shale, Yule Marble).
At Stop 6, the marine shoreline Fox Hills Sandstone (69 Ma) is exposed with the Pierre Shale. Both the Fox Hills and Pierre were deposited in a shallow marine seaway.

Stop 7 illustrates another exposure of the Laramie Formation (68 Ma) and emphasizes the clay pit fault, fire clay mining, and alsoreclamation. Stop 7a illustrates a coal mining disaster that occurred in 1889 when the White Ash mine flooded and ten miners perished.
Stop 8 illustrates the unconformable contact between claystones of the Laramie Formation and the conglomerates of the Arapahoe Formation. The Arapahoe is a source of well water for some Denver residents.

In February 2005, Mines Geology Trail became an Earthcache site. Earthcache is an adventure game using GPS devices (www.earthcache.org). The task of the earthcache exercise ("to claim the cache") is to name the State Rock and its neighbor to the west and e-mail in the results!
The Mines Geology Trail trip is free and open to all the public. I encourage you to visit the trail and also thank Bob Weimer for creating a spectacular history/geology lesson in Golden's backyard