Field Trips

Fees for all Field Trips increase after the early registration deadline of March 1, 2006. All trips are limited with maximum attendance ranging from 18 to 42. Plan ahead to secure your reservation on one of these trips.

Climax Porphyry Molybdenum Deposit

Date: Friday, May 12, 2006
Leaders: **Ralph Stegen**
rstegen@phelpsdodge.com or +1.520.887.7262
Richard Smith
rps3@realwest.com
Reese Ganster
ganster@ix.netcom.com
Fees: By March 1, 2006.
$100 Member, $185 Nonmember, $50 Student

The Climax mine was for many years the world's single largest producer of molybdenum. Since 1918, ~470 million tons of ore were mined by underground and open pit methods, producing ~1.9 billion pounds of molybdenum. The Phelps Dodge 2004 Annual Report lists the reserves for Climax as 156 million tons grading 0.19% Mo that could be mined from an open pit. In addition, 87 million tons at an average grade of 0.25% Mo are classified as mineralized material that could be mined underground if market conditions warrant. The Climax orebody formed in several mineralized episodes associated with successive intrusions of high silica, granite porphyry. There are two separate ore shells, the Upper and Lower orebodies, and the erosional remnants of a third, the Ceresco deposit, that are centered on the apex of plug-shaped intrusions. The orebodies are stockworks containing complex networks of molybdenite-bearing veinlets. The tour will examine each of the ore shells and their associated intrusive rocks, using key core holes through the deposit. If weather and low snow accumulations allow, outcrops in the pit and caved area will be viewed; cross sections and surface or underground geological maps will be available. Recent reclamation of tailings and management of the water resources will also be reviewed. The field trip departs Keystone at 7 a.m. and returns in the late afternoon. A field trip guidebook and lunch will be provided. We will be at an elevation of 11,300 to 11,700 feet, so each participant will need to be dressed accordingly. Each participant must bring their own hard hats, safety glasses, and safety boots.

Climax Mine

Cripple Creek and Victor Gold Mining Company Tour

Date: May 13, 2006
Leader: **Dave Vardiman**
dvardiman@anglogoldashantiNA.com or +1.719.689.4019
Fees: By March 1, 2006.
$120 Member, $195 Nonmember, $60 Student

The Cripple Creek Mining District is the largest single gold producer in the state of Colorado, with an historic production of ~731 metric tonnes of gold (23.5 Moz), primarily from underground mining of high-grade veins from discovery in 1890 to 1961. The gold-telluride ore is hosted by a Tertiary alkaline volcanic complex, which intruded the southwestern flank of the Pikes Peak batholith. Today the Cripple Creek & Victor Gold Mining Company (CC&V) operates the Cresson mine as a joint venture between AngloGold (Colorado) Corporation (67%) and Golden Cycle Gold Corporation (33%). Production is now 20 million tons of ore (59 million total tons) per year at a grade of ~1 g/t, with shovel/loader/truck mining and valley-leach processing. In June 2004, this operation celebrated the pouring of its two millionth ounce of gold. The completion of a major district-wide exploration program from 1998 to 2004 identified an additional 4.2 Moz within this mature mining district, which justified a $195 million expansion from 230,000 oz gold per year to a budgeted rate of 330,000 oz in 2005. An estimated additional 3.5 Moz gold will be produced from 2005 through 2013. This tour will focus upon the detailed district geology of this gold-telluride deposit within the alkaline volcanic complex host, as well as the exploration methods used in the district. A tour of the operation and infrastructure will allow for detailed examination of rock exposures within the active mining areas. The field trip departs from Keystone early in the morning and returns that evening. A field trip guidebook and lunch will be provided.

Henderson Molybdenum Mine

Date: Saturday, May 13, 2006
Leaders: **Bob Golden**
rgolden@phelpsdodge.com or +1.303.569.3221 and
Jim Cappa
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Fees: By March 1, 2006.
$100 Member, $185 Nonmember, $50 Student

The Henderson porphyry molybdenum deposit is associated with a series of high-silica, alkali-rich highly differentiated rhyolite and granite porphyry intrusions. Multiple ore shells were produced by the sequential emplacement of separate intrusions. The Henderson mine, in production since 1976, is a panel caving operation that is currently planned to produce ~28,000 tons of ore per day in 2006. Since mining began, large portions of the deposit have been mined out, and most workings have been covered with shotcrete to support the ground. Due to the resulting limited extent of geologic exposures, the underground tour will emphasize the operational aspects and facilities of the mine. The deposit geology, geologic model, and current exploration programs will be reviewed in the office, and via core samples and hand samples. At least one development heading will be visited underground to view the geology of the deposit. The field trip departs from Keystone at 7 a.m. to arrive at the mine at 8 a.m., and returns in the late afternoon. A field trip guidebook and lunch at the mine will be provided.

Field Trips (continued)

Lisbon Valley

Lisbon Valley Sediment-Hosted Copper Deposits and Paradox Basin Fluids

Date: May 17-18, 2006
Leader: **Jon Thorson**
jonthorson@rmi.net or +1.303.805.2502
Fees: By March 1, 2006.
$395 Member, $545 Nonmember, $245 Student

The Lisbon Valley copper deposits formed by two episodes of basin dewatering. This two-day trip will first review the regional stratigraphy of the northeastern Paradox Basin, where an early basinal fluid caused reducing pyritic alteration of the Permian through Lower Cretaceous section, and a later fluid formed the copper mineralization. The participants will overnight on May 17 in Moab, UT, followed by a visit to Constellation Copper Corp.'s Lisbon Valley mine and SX-EW copper facility. A short but demanding hike is included. Participants must provide their own hard hats, safety glasses, and appropriate boots for the mine visit. Participants will travel from Keystone on the evening of May 16 to Grand Junction by van or, if they choose, by personal car. The van will return to Keystone on May 18 with a stop in Grand Junction for those participants leaving vehicles there. Fees include a field trip guidebook, accommodation, and some meals.

Grand Junction

Terroir of Colorado's Western Slope Vineyards

Date: May 17-18, 2006
Leader: **Larry Meinert**
lmeinert@smith.edu or +1.413.585.2657
Fees: By March 1, 2006.
$395 Member, $545 Nonmember, $245 Student

This trip will cover the terroir - geology, soils, climate, and other natural factors – that affects the quality of Colorado's western slope vineyards and the wines produced. There will be a few key geology overview stops on the first day through the Rocky Mountains en route to the wine country on the western slope near Grand Junction. The physical factors of the Colorado western slope that allow great grapes to be grown will be explored and compared to the rest of the world. Two vineyards will be visited for tasting and discussion of terroir, followed by a banquet dinner with further discussions and a lecture by Meinert on terroir of some of the other wine regions of the world. The group will spend the night in Grand Junction. On May 18 other wineries will be visited for tasting, with lunch at a winery. We will return to Keystone (and Denver) in the late afternoon.

Bingham Canyon

Bingham Canyon – Carlin Trend: Giant Ore Deposits

Date: May 17-21, 2006
Leader: **Chuck Thorman**
cthorman@comcast.net or +1.303.988.2236
Fees: By March 1, 2006.
$545 Member, $695 Nonmember, $350 Student

This field trip will begin in Salt Lake City on the afternoon of May 17 with a presentation by mine trip leaders on the geology of the region and the various mine stops. The Bingham open-pit mine (2.5 miles wide and >1/2 mile deep) will be visited on May 18. This is a world-class porphyry Cu mine (40.1 billion lb), with by-product Au (37.1 Moz), Ag (378.5 Moz), Pb (4.6 Mlb), Zn (1.9 Mlb), MoS2, (2.8 Blb), etc. The deposit formed in the late Eocene, at the same time as the majority of the Carlin-type gold deposits in northern Nevada. The Carlin Trend reached 50 Moz production in 2002, and total production from the region will probably exceed 100 Moz. Major deposits to visit on May 19 and 20 include the world-class Gold Quarry and Post-Betze deposits as well as a few satellite deposits. The Pipeline and Cortez Hills deposits, expected to produce more than 10 Moz, will also be visited. The return to Salt Lake City on May 21 will include examination of the stratigraphy and structure in several ranges along the way, arriving late in the afternoon. It is the responsibility of each participant to reach Salt Lake City and meet at the Salt Lake City airport before noon on May 17. Flight departures on May 21 should not be scheduled earlier than 7 p.m. Field trip guidebooks, all lunches, and one dinner are included in the registration fee. Participants will be responsible for payment of their lodging, coordinated by Thorman.