Bulletin of the Mineralogical Society of Southern California

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The 802nd Meeting of The Mineralogical Society of Southern California

November 12th Meeting

"Using Space Technology to Understand Earthquakes"

by Dr. Andrea Donnellan

Friday, December 10 at 7:30 p.m.

Geology Department, E-Building, Room 220
Pasadena City College
1570 E. Colorado Blvd.
Pasadena

Inside this bulletin

December Topic:
Using Space Technology to Understand Earthquakes

On December 10th, Dr. Andrea Donnellan will show us how the understanding of earthquakes is vastly improved due to better computational methods and the use of space technology to measure surface deformation. Using Global Positioning System (GPS) and Interferometric Synthetic Aperture Radar (InSAR) technology, we are now able to observe the quiet earthquake processes, including strain accumulation and release associated with earthquake cycles. New observations show how earthquake fault systems interact, and simulations improve our understanding of fault systems. Dr. Donnellan has conducted field studies in the region of the Northridge earthquake, the Ventura basin, and on the San Andreas Fault. She will present striking images and astounding computer animations to reveal the power of space and computational technology as tools to monitor movements in the Earth's crust.

Dr. Donnellan has been a geophysicist at JPL since 1993 and was involved in establishing the Southern California Integrated GPS Network, used for earthquake hazard assessment. Her current area of focus is developing the Solid Earth Research Virtual Observatory (SERVO) and using computational technologies to study earthquake physics and fault systems. She is a 1991 Caltech graduate and is currently the Deputy Division Manager of the Earth and Space Science Division at JPL and a research professor at the USC. She has also carried out field work in Antarctica, on the Altiplano of Bolivia, in Mongolia, and on Veriegated Glacier in Alaska. In 1996, Dr. Donnellan received the Presidential Early Career Award for Scientists and Engineers, and in 2000, she received the Lew Allen Award for Excellence in Research -- the highest honors possible for the USA and JPL, respectively, in recognition of significant leadership and technological innovation performed during the early years of a researcher's professional career.

Open House Invitation for Mineralogical Society of Southern California at Jewel Tunnel Imports

Saturday, December 11, 2004 at 10 AM to 3 PM

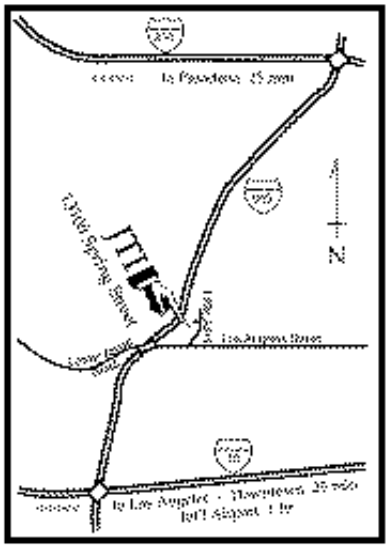
13100 Spring St., Baldwin Park, CA 91706, 626-814-2257

Check out our web site at jeweltunnel.com

Refreshments will be served.

Jewel Tunnel Imports is a leading wholesale distributor of minerals, crystals, fossils, tumbled stones and many different kinds of lapidary items like balls, eggs, jewelry, etc. made from different minerals. We have a warehouse in excess of 10,000 sq. feet full of mineral-related natural history items, perhaps the largest of its kind in the United States.

For the last several years at Christmas time, Jewel Tunnel Imports has had a limited number of open house parties for mineralogically and geologically oriented groups. These open houses, never more than three or four a year, offer a chance for groups to buy minerals and crystals at wholesale prices and to learn something about the wholesale gem and mineral business.



The owner of Jewel Tunnel (Rock Currier) is also interested in learning about new sources of mineral specimens and has been known to buy and trade such items. He personally collects rare mineral species and micromounts, and is always interested in trading for specimens not represented in his collection.

Minutes of the November Meeting

The 801st meeting of the Mineralogical Society of Southern California was held on Friday, November 12th in the Geology department at Pasadena City College. Vice President James Kusely brought the meeting to order at 7:35pm.

Announcements were made regarding the January banquet as well as the current slate for next year's officers and directors. There was a motion to accept the slate of nominated officers and directors for 2005, it was seconded and passed unanimously. The 2005 officers will be as follows; President Bill Besse, Vice President James Kusely, Secretary Ilia Lyles and Treasurer Walter Margerum. The 2005-2006 directors are as follows: James Imai, Rock Currier, Dave Smith, Steve Knox, and Jo Anna Ritchey as Federation director.

The speaker for the evening was then introduced, Dr. Anthony Kampf. Dr. Kampf is the mineral curator of the Natural History Museum of Los Angeles and is responsible for the Hall of Gems and Minerals. The first part of the talk was a presentation that explored the gem mines of Brazil from past tours Dr. Kampf has led. There was a brief geologic background of the area and a little history lesson on Minas Gerais. Pictures were shown from the an assortment of mines visited along the tours down to Brazil including photos from the Capão imperial topaz mine, the largest imperial topaz mine in the world. After the presentation there was a brief intermission for the members to enjoy some cookies and refreshments. Following the intermission Dr. Kampf showed a 40 minute video from one of the tours he gave to Brazil from 1987. The video displayed excited mineral lovers bartering for new mineral and gem specimens as well as enjoying trips to various mines.

Congratulations to Ken Raabe for being this month's door prize winner! The meeting came to a close at 10:00pm.

Respectfully submitted by Ilia Lyles, Secretary

The Hindin Peridot

By Dr. Anthony Kampf

The Hindin Peridot

For millennia people have combed the earth in search of its elusive treasures; rarely have they succeeded. Yet even today, when it seems as though virtually every square inch of our globe has been explored, great gem discoveries remain to be made. The most remote and inhospitable regions hold the greatest promise, the greatest allure, and the greatest hardships.

Pakistan's North West Frontier Province, lying within the great Himalaya Mountain Range, is one of the most rugged and isolated regions of the world. A deposit of magnesite–a nondescript white mineral with some industrial uses–is found here at

Sapat in the upper Jalkot Valley, at an elevation of about 15,000 feet. The same incredible forces that built the Himalayas were responsible for pushing the magnesite source rock up from the depths of the earth's mantle.

A small band of Pakistanis had been eking out a modest existence from the deposit using very primitive methods. Then in the early 1990s, the miners began to find occasional glassy yellowish-green fragments. Their excitement grew as they contemplated the possibility that they had found emeralds, and they were encouraged by the reaction of the gem dealers in Peshawar (with its population of more than 500,000, the largest city in the region). Eventually some of the yellowish-green material made its way to the German gem center Idar-Oberstein where it was pronounced to be peridot.

Word spread quickly after that, both in the world gem market and in the outreaches of Pakistan. Thousands of local people descended on Sapat, each digging frantically to secure their personal dream of instant wealth. In a short time this wonderfully rich deposit has yielded some of the finest and largest peridot crystals ever found. But even though the deposit is only accessible for a few months each year, the flurry of mining is threatening to exhaust its reserves (some say that already there is little left). It would not be the first time that a gem locale of apparently vast richness disappeared virtually overnight.

Many of the more attractive crystals from Sapat have been offered for sale to mineral collectors, but the economics of the gem market dictate that crystals of top color and clarity be cut into gems. Fortuitously, the largest well-formed crystal from the deposit (which is also the largest found to date anywhere) was saved from the cutter. This extraordinary 6-inch-tall crystal, weighing 4795 carats and containing between 300 and 400 carats of fine gem material, was purchased for the Natural History Museum by Melvin S. Hindin.

Realizing that the crystal told only part of the story, Mr. Hindin acquired a matching faceted gem for the museum's collection. The cut stone, which weighs 231 carats, is itself among the biggest and best in the world. It shares a place of honor beside the crystal, which has been dubbed "The Hindin Peridot," on display in the Gallery of Gem Crystals at the rear of the museum's Hall of Gems and Minerals.

Mineral Notes from Italy: The Servette Mine Area and a Strahlers' Display

By Janet Gordon

As part of our field trip in the western Italian Alps described in the November bulletin we also visited the Servette mine area in the valley of Saint-Marcel. Our wanderings were mostly within *"Il Parco Minerario di Chuc e Servette,"* an area set

aside to preserve the mining history of the area. A very nice booklet for visitors explains the geologic and historical features of the park. It is in Italian, naturally, but the maps and pictures tell much of the story. The mine has been worked for copper for centuries, and it was first written up in 1786 by Nicolis De Robilant, who attributed much of the early workings to Roman or even pre-Roman times. However, the mine was mostly exploited during the 18th century and again from 1854 to 1950.

A number of structures from different mining periods survive within the park area. One of the most interesting is the old foundry furnace of Treves. This chimney-like structure was filled with alternating layers of copper-iron-sulfide ore and charcoal and then ignited. The products were gas, iron-rich silicate slags and copper. The copper and most of the slag flowed out of a hole at the bottom of the chimney. Studies of the numerous slag heaps strewn around the park (Mambretti and others, 2004) reveal that some of them date back to about the 9th century A.D.. Early mining activity had an adverse effect on the forest which was originally mostly red fir trees. Slopes were denuded and soil washed away, creating conditions that favored reforestation by larch trees.

We spent a short time looking through the slag heaps, and it was obvious that the smelting process left a fair amount of copper behind because of the bright blue-green and green patches in the otherwise dark and somewhat glassy-appearing slag. The dark portion of the slag contains fayalite, wustite, spinel, and glass rich in calcium, potassium, and sodium, all manufactured in the smelting processes. Some relict chalcopyrite and pyrite also remains in the dark matrix. The turquoise- and green-colored patches include malachite, crysocolla, and copper sulfates produced by a combination of smelting and weathering.

The main Servette mining camp area consists of a number of stone buildings and retaining walls scenically perched on a steep mountainside. We used the various stone blocks in the walls as props in our discussion of the geology of the area. The Servette deposit most likely originated as a "black smoker" sulfide deposit on the sea floor. The original sea floor basalts and ultramafic rocks are now thoroughly metamorphosed into garnet-talc schist, actinolite schist, glaucophanite, and eclogite. The garnet-talc schist was abundant in the area and very attractive when freshly broken. Euhedral red-brown garnets commonly more than a centimeter in diameter were liberally distributed in the whitish talc, with or without disseminated sulfide minerals. Some of the actinolite schist was reminiscent of the material found at Wrightwood, California, would also be worth collecting.

As we walked down the valley we passed through the abandoned mining village of Chue, which served another copper mine high on the opposite valley wall, and then we arrived at the amazing Acqua Verde. This is a small stream that descends from Servette in which all of the rocks are coated in a startling blue-green gel, thereby producing a rather unreal appearance. This location has been described by a number of writers beginning in the late 18th century. The deposit results from the mixing of two streams. One descends from one of the Servette mine galleries and is saturated in copper. Slightly above Acqua Verde, this is joined by another stream

from the Chue village. The blue-green gel, which is an amorphous copper hydroxide, most likely precipitates during a change of pH as the streams mix. The gel is soft and can be easily scraped off the rocks or loose blebs can be picked up in the stream bed.

Acqua Verde, St. Marcel, Aosta Valley, Italy.
Janet Gordon photo.

After a long day in the field, we made one more stop before calling it quits. The Museo Archeological Regionale in Aosta was staying open late especially for us. A special temporary mineral display put together by local field collectors awaited. This beautifully presented display filled five large rooms with minerals that were grouped according to location. Breathtaking scenes of the Alps adorned the walls, as did views of strahlers (alpine crystal prospectors) roped into crystal pockets on the most precipitous of cliffs. But the minerals on display were even more eye-catching. The most abundant mineral was quartz displayed in large and varied clusters. Interspersed with the quartz were fine museum-sized specimens of green vesuvianite, pink fluorite, gemmy actinolite, gold, titanite, stilbite, adularia, hessonite, realgar, aragonite, argentite, and violane (a purple variety of diopside).

Each specimen included a label with the name of the field collector. The names Roberto Ferronato and Franco Lucianaz were on so many specimens that I entered them in "Google" after returning home. This led to the site www.kristalle.ch with the

link "Kristalle und mineralin im Aostatal" which included images of some of the specimens on display. If you are not acquainted with the fine specimens from this region, you will enjoy exploring these images.

References

Mambretti, A., Casartelli, P., Rottoli, M., Frizzo, P., Tumiati, S., and Martin, S., 2004, The ancient mine of Servette (St.-Marcel, Aosta Valley, Western Italian Alps): A low shaft furnace slag mineralogical, metallurgical and anthracological study [abstract]: 32nd IGC Florence Abstracts, p. 369.

Martin, S., Godard, G., and G. Rebay, 2004, The subducted Tethys in the Aosta Valley (Italian Western Alps): 32nd International Geological Congress, published by APAT (Italian Agency for the Environmental Protection and Technical Services), Rome, 48 p.

Minutes of the October Board Meeting

The October 2004 board meeting of the Mineralogical Society of Southern California was held on Sunday, October 31st at the home of Rock Currier. President Jo Anna Ritchey brought the meeting to order at 1:11pm. In attendance were the following members: Bill Besse, Jo Anna Ritchey, Justin Butt, Jim Imai, Walter Margerum, Ilia Lyles, Charlie Freed, Janet Gordon, James Kusely, Rock Currier and Ken Raabe.

First on the agenda was a show report from show chair Justin Butt. The show turned out very well even with the recent change of venue. Justin mentioned that some of the expenses that were incurred this year would not be an issue next year, such as the expenses for making the commercials and the trailer maintenance. There were also suggestions by Justin to have a separate advertising chair for next year as well as making adjustments to next years advertisements. Many of the members commented that they would like to have a map on the back of the fliers that were distributed so that visitors could better find the location. Signs to find the exact entrance of the Long Beach Convention Center were also proposed. To reduce costs for next year many of the color advertisements in the magazines will be converted to black and white.

Additional suggestions for the show included not allowing video cameras into the hall for security purposes and that there should be expanded concessions for everyone's convenience. Ken Raabe volunteered to help with next years display cases for the show by contacting individuals and to help continue the tradition of great show displays.

Treasurer Walter Margerum then gave the treasurer's report. Walter suggested a change in the way some of the assets are currently invested. Walter also proposed

purchasing a digital projector for the society to use for speakers and events. There was a motion to set aside $1500.00 for a new digital projector, it was seconded and passed unanimously.

A motion was put forth, seconded and passed unanimously to make Ron Thacker a life member.

The issue of the now unused display cases was last on the list of discussions for the meeting. Many of the members firmly believed that the excess display cases that were previously removed from the trailer should be removed from Rock Currier's establishment as soon as possible. After much dialogue, the decision was made to make a motion to sell the cases for $100.00, it was seconded and passed unanimously.
The meeting came to a close at 3:06pm.

Respectfully submitted by Ilia Lyles, Secretary

Dues are Due!

from Walt Margerum

In case you don't think you are getting older it's dues time again. Last month I mailed forms and envelopes to all present members whose dues are due for 2005. If you did not get one, or got more than one I apologize. My excuse is my printer is getting old, and ate envelopes. So, if you were left out please contact me, and if you got more than one request feel free to send back both. With checks!