

### Museum Volunteers Log 7,900 Hours

Local gem and mineral clubmembers, working as volunteers in the Museum, have contributed almost 8,000 hours of service in the past 12 months. The earth science clubs include the Maricopa Lapidary Society, Arizona Prospectors Association, Inc., Arizona Leaverites Rock and Gem Society, Mineralogical Society of Arizona, and the Arizona Mineral and Mining Museum Foundation.

The Department and the Museum staff would like to thank these hard-working people for their time, energy, and ideas. Without the help of these dedicated volunteers the Museum would not be able to offer as many school tours, teach lapidary and silversmithing classes, have the variety of gifts items for sale, improve displays as often, or complete projects such as the recent construction off the Boras headframe and hoist house exhibit.

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*Address Correction Requested*

## Mineral Resource

### Copper Merger Mania

In an effort to cut costs and remain competitive in a changing market, that includes lowered copper prices and increased foreign production, the major Arizona copper companies have just emerged from a very turbulent period. Although it is possible that a few more surprises may occur in the Arizona copper industry, it appears that the major activity – the mergers, bidding, and counter-offers – are over and the dust is beginning to settle.

In November of this year Phelps Dodge acquired Cyprus Amax, making Phelps Dodge the second largest copper company in the world, trailing only Coldelco, the government-owned Chilean company. In so doing Phelps Dodge acquired producers Sierrita near Green Valley, an open-pit copper-molybdenum mine, Miami, an open-pit leach copper mine, smelter, and refinery and Bagdad, a copper-molybdenum mine.

Also in November Grupo Mexico, S.A. de C.V. purchased Asarco, making it the third largest copper producer in the world. The properties involved are Mission, a leach copper mine south of Tucson, Silver Bell, an open-pit copper mine north of Tucson, Santa Cruz, an experimental in-situ leach project Ray, an open-pit copper mine near Hayden, and the Hayden smelter.

The activities officially began in July of 1999 when Asarco and Cyprus announced a merger of equals' transaction. The company thus created would have been the largest copper company in the world. In August, Phelps Dodge initiated an unsolicited takeover attempt of both companies. They offered the companies a 30 percent premium over the companies' existing share prices.

Phelps Dodge soon increased their offer and the Antitrust Division of the Department of Justice issued clearance for the acquisition of Asarco and Cyprus with no divestitures required. Later in the same month, Grupo Mexico made an offer to acquire Asarco. In October Asarco's board of directors accepted Phelps Dodge's offer of \$28.21 per share and the merger was signed, contingent upon 80 percent of the shares being tendered by October 22 and approval by Phelps Dodge's shareholders.

ers. Grupo Mexico soon increased their offer for Asarco to \$29.50 per share. That offer was eventually accepted. When the companies merged all Asarco shares were acquired for \$29.75 cash for a total transaction value of \$2.25 billion. Asarco paid a \$30 million termination fee to Phelps Dodge.

Also in October, Phelps Dodge announced the completion of the exchange offer for Cyprus Amax Minerals. The total equity value was \$1.8 billion based on approximately 90.7 million Cyprus Amax shares outstanding. On December 2 Phelps Dodge acquired all remaining outstanding shares of Cyprus following a special meeting in Phoenix of Cyprus shareholders.

It is difficult to predict at this time, which properties will remain in production, be expanded, or be shut down. It is known, however, that at Morenci, North America's largest copper mine, Phelps Dodge plans to phase out the Morenci concentrator and go to 100 percent leach operations by 2001. No layoffs are planned; employment will be reduced through attrition.

BHP's copper properties, including San Manuel mine and smelter and Pinto Valley, remain closed and await a buyer.

### Copper Prices

**Copper prices, down to 61 cents/lb in May, have gradually moved up to the current price of 83 cents/lb.**

### Cambior Donates Mine files

Cambior USA Exploration donated 15 file boxes of data files, including drill data, mine maps and geological reports on Arizona properties from the exploration efforts of Cambior, Westmont, and Nicor. The contents are being cataloged and will be available for inspection in early 2000. Look for a listing of the files to appear on the Department's website.

It is the far-sightedness and generosity of companies like Cambior that allows the Department to house the most comprehensive collection of Arizona mine data in the world.



Arizona Mineral Production - 1998 <sup>1</sup>		
Short tons unless otherwise noted		
Commodity	Quantity	Value
Copper	1,322,000	\$2,120,000,000
Gemstones	NA	2,780,000
Gold (troy oz)	67,500	20,000,000
Sand and gravel		
Construction	51,700,000	229,000,000
Industrial	371,000	3,940,000
Silver (troy oz)	5,950,000	30,300,000
Stone, crushed	8,160,000	43,300,000
Other <sup>2</sup>	NA	374,000,000
Coal (tons) <sup>3</sup>	11,315,000	272,000,000
TOTAL		\$3,095,320,000
1 USGS preliminary figures		
2 Includes cement, lime, gypsum, molybdenum, perlite, salt, dimension stone, zeolites, and Iron oxides		

More Mergers

Pioneer International Limited announced in late November that it had agreed to the terms of a takeover offer from Hanson PLC. Pioneer has been aggressively expanding in Arizona this year, acquiring Phoenix Redi-mix, Yavapai Materials and Wickenburg Concrete. The combined companies will become the world's leading supplier of aggregates and the world's second largest supplier of ready mix concrete.

Museum Remodeling Progress

The Department's mezzanine carpeting and wiring is at last completed. The carpeting has been a major hurdle in completing the upstairs display area. The next major step - designing and implementing the displays, can now begin. When visiting the Museum, take a look upstairs. It is easier to picture the final product without all the exposed plywood.



Do you need this information in an alternative format? Please call the Department at 255-3795.

Carlota Permitted

The Carlota Copper project is finally and fully permitted. The project received a favorable ruling on litigation contesting the Forest Service's record of decision in August of this year and the plaintiffs had 60 days to file an appeal. The allotted time has expired without an appeal, so Carlota, after 6 years of struggle, is now permitted.

Carlota Copper Company acquired the Carlota project in August of 1991 and applied for permits in February of 1992. Since that time various environmental groups have tried to obstruct the mine even though the local community has favored the project and the company has met all conditions for permitting.

The mine, about 6 miles west of Miami, will mine copper from three open pits, Carlota, Eder North and Eder South. Copper will be extracted from the ore using heap leach technology, and will be processed through an SX-EW plant. The operation will have an estimated 90 percent recovery of copper, mainly from chrysocolla. It is expected to have a 20-year life and employ 300 people, with a \$125,000,000 annual contribution to Arizona's economy.

Bronze Donated to Museum

George-Ann Tognoni, world-renown sculptor, has donated one of her bronzes to the Museum. The 4-foot long bronze *Silver Queen Supply Train* was presented to the Museum in September in memory of her husband, the late Hale C. Tognoni, a well-known Arizona mining engineer and lawyer.

Other works of George-Ann can be seen around the valley, including the familiar *Yearlings*, a threesome of frolicking, life-sized colts, on permanent display at the entrance to the Scottsdale Mall at Brown and Main Street in Scottsdale.

*Silver Queen Supply Train* is a depiction of three pack burros and a pack horse carrying mining equipment being led by a man on a horse. George-Ann took inspiration from a black-and-white photograph of equipment being hauled to the Silver Queen mine in Nevada by the then 16-year-old Hale Tognoni. The Silverton area mine belonged to Hale's family. George-Ann has given the photograph to the Museum so it can be displayed with the bronze.

"Hale loved the Mineral Museum and appreciated all of the assistance given him by the Department over the years," George-Ann said on presenting the gift.

The bronze can be viewed at its temporary location near the center of the Museum on the ground floor until a permanent display stand is constructed upstairs. George-Ann's trademark, graceful depiction of horses and burros and man's relationship to them, is evident in this classic work. When viewing the sculpture, notice the detail of the mining equipment the burros are carrying and the fluid line of the horses. Or simply enjoy the work, as do the thousands of school children who visit the Museum. The most frequently heard remark when the children first catch sight of the sculpture: "Cool!"

