

Summer Teacher Workshops

FREE workshops will be offered to teachers during June in the Museum. Stan Celestian, a professor at Glendale Community College, will be teaching Basic Mineral Identification and Basic Rock Identification during three half-day sessions. There will be lots of hands-on experience and individual attention, so teachers can become comfortable with the processes of identification. The dates are:

June 14 & 21 – 9 am-12 pm Basic Mineral Identification

June 28 – 9 am-12 pm Basic Rock Identification

For more information or to register, call the Museum at 602-255-3795 ext 10 or e-mail the curator at www.susancelestian@hotmail.com.

BOARD OF GOVERNORS

James Miller -
Chairman -
Sun Lakes

David C. Ridinger
Vice Chairman -
Member - Tucson

Leroy Kissinger
Secretary - Tucson

Eric Nordhausen
Member - Tucson

Samuel O. Aubrey
Member - Scottsdale

STAFF

W. "Doug" Sawyer -
Director

Ken A. Phillips - Chief
Engineer

Nyal J. Niemuth -
Mining Engineer

Diane Bain - Public In-
formation Officer

Ann Turney - Adminis-
trative Assistant

Tina Mendoza - Secre-
tary

Susan Celestian -Curator

Scott Poland -
Education Curator

Liz Anderson - Tour
Guide

Ann Baker - Tour Guide

Shirley Coté - Tour
Guide

Joanne Hesterman -
Tour Guide

Alice Rosenfeld - Tour
Guide



Arizona Department of Mines & Mineral Resources
1502 West Washington
Phoenix, Arizona 85007

Address Correction Requested

ARIZONA

No. 31 May, 2002

Mineral Resource

Crushed Stone OFR Released

The following article is excerpted from ADMMR's Open File Report, OFR02-18, 'The Crushed Stone Industry Grows Up, A History of Mineral Material Trespass on Public Lands in Central Arizona,' by W. Scott Donaldson, a Phoenix mining attorney. This excerpt is merely the introduction to a discussion of the details of specific cases involved in the fascinating and lengthy litigation battles between the BLM and the crushed stone producers in Maricopa County.

The Crushed Stone Industry Grows Up, A History of Mineral Trespass on Public Lands in Central Arizona, by W. Scott Donaldson

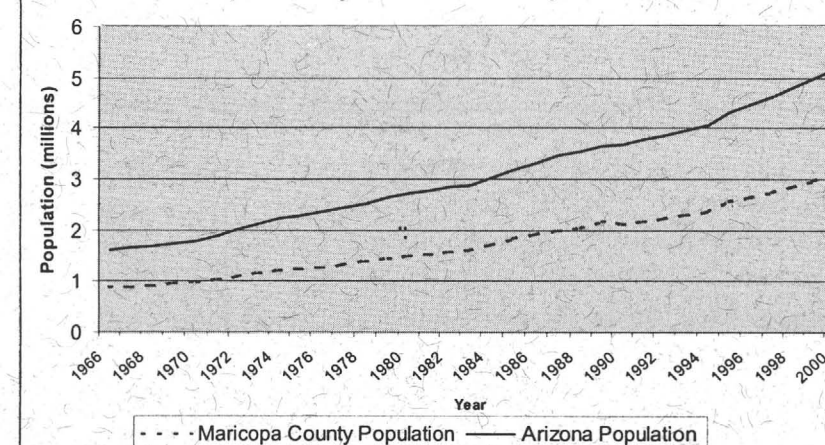
The State of Arizona experienced considerable population growth throughout the last three decades. Some of the state's mineral industries kept pace with the population growth and its accompanying residential and commercial construction. Crushed stone is one such mineral product.

Crushed stone is the product resulting from the artificial crushing of rocks, boulders, or large cobblestones, substantially all faces of which have resulted from the crushing operation. The term is applied to irregular fragments of rock crushed or ground to smaller sizes after quarrying. Crushed stone is a natural decorating medium, well suited for use in an arid environment. Large amounts of crushed stone are used as landscaping material in residential, commercial and public projects. Many colors and size gradations are used in diverse landscapes. It is commonplace in Arizona to see red, gold, and other colored crushed landscaping stone around homes, business and roads. Crushed stone is also widely used in the construction indus-

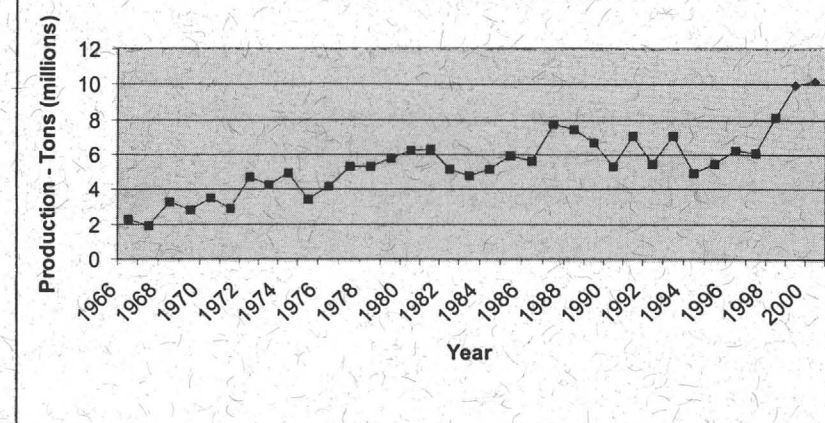
try. Uses include concrete/asphalt aggregate, sub grade materials for road construction, and riprap for erosion control along drainages.

Maricopa County and the Phoenix metropolitan area encompass some of the most dramatic growth of population in the nation. The arid climate and nearby sources of mineral material make them an attractive market area for the crushed stone industry. Mineral deposits suitable for the production of crushed stone are often found on state or federal lands because the State of Arizona and the United States of America own a majority of the land in the area.

Maricopa County and Arizona Population Growth



Arizona Crushed Stone Production



Arizona Department of Mines & Mineral Resources, 1502 W. Washington, Phoenix, AZ 85007
602-255-3791, toll-free in Arizona 1-800-446-4259, www.admmr.state.az.us

A large portion of the public lands in Maricopa County is held by the United States through the Department of the Interior, Bureau of Land Management (BLM).

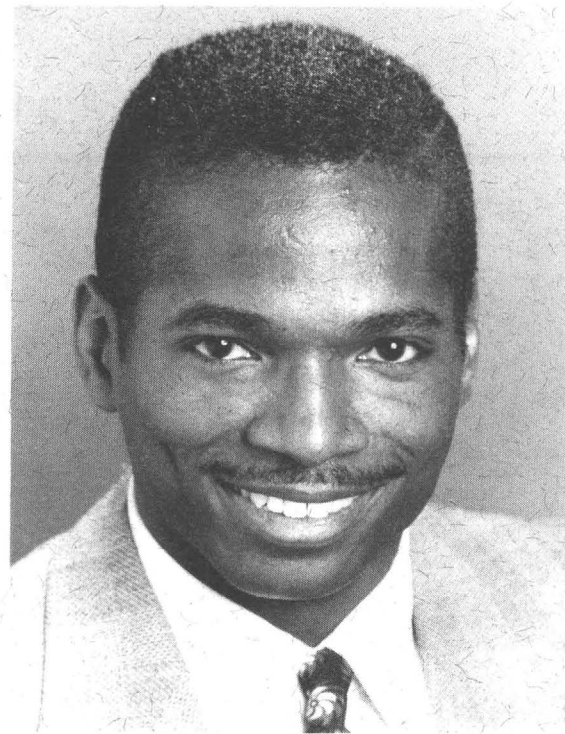
BLM generally considers crushed stone sources a saleable mineral, which must be purchased from BLM. Some producers focusing on the Phoenix metropolitan area have searched for ways to avoid purchasing these minerals, thus avoiding payments to the BLM. One of the more common ways is to claim that the mineral material is "locatable" instead of saleable. A locatable mineral can be removed from mining claims without payment to the United States. Successfully claiming a crushed stone source as locatable instead of saleable has been attractive to private industry.

BLM's position that crushed stone is saleable and, in many cases, the industry's position that it is locatable, were the source of considerable conflict through the 1980s and 1990s.

The early 1980s saw an increase in the number of crushed stone producers and efforts by some of those producers to assert the locatable nature of their sources. During that time, BLM proved unready to directly challenge those producers and attempted to negotiate settlements or simply allowed production to continue. Some of the cases rested in limbo for years. However, both private industry and BLM gained experience and sophistication until the producers accepted the saleable material classification, either voluntarily or involuntarily, or operations were halted through litigation.

The sequence of cases is representative of Maricopa County's recent economic and social history. The number of crushed stone producers blossomed in the 1980s, and most operated against the law, according to BLM. Although the industry's production has continued to grow alongside our growing population, the producers were either out of business or quietly purchasing their mineral material by the early 1990s.

The crushed stone producers who continue in business today are those who cooperated with BLM and chose not to litigate with the federal government.



Samuel Aubrey Named to Board

In April, Governor Hull appointed Samuel Aubrey to a 5-year term on ADMMR's Board of Directors.

Aubrey is President of The Aubrey Group, a public affairs and government relations firm specializing in the areas of natural resources, environment and energy, transportation and technology, and telecom. Aubrey previously held the positions of Vice President of Government Affairs for the Arizona Rock Products Association and Government Affairs Specialist for Southwest Gas Corporation. He served as the key representative on legislative and local government issues respectively.

Aubrey continues his community and civic involvement throughout the metropolitan area. He previously served as Human Services Commissioner for the City of Scottsdale, board member of the Tempe Chamber of Commerce, the Centers for Habilitation, Communities in Schools, and the Tempe Arts Center.

"I am delighted to be on the board at ADMMR," Aubrey says, "and look forward to working with all those who use the services of this much-needed organization."

Museum News

Wish List

The Museum's wish list is long, but Susan Celestian will begin to highlight specific needs each quarter. The hope is that donations will be made to enable the Museum to enrich the exhibits and programs. Remember, all donations are tax deductible.

First, it has been her long-time desire to create a micromount display to highlight the beauty of the micro-mineral world and to allow visitors to look through a microscope. In 1997, the Arizona Mineral and Mining Museum Foundation donated a microscope, video camera and monitor for the viewing of those tiny crystals. But we lack the housing and electronics to effectively mount the display. **HELP – IS THERE A MACHINIST/MODEL BUILDER OUT THERE?**

Arizona type minerals would be a great theme for a micromount exhibit. The Museum has a few of the "Minerals First Discovered in Arizona," but needs quite a few to fill out the collection. **HELP – ARE THERE ANY SPARE MICROMOUNT MINERALS OUT THERE?** Using the list in Table 1.2 in *Minerals of Arizona* as a reference, we need all except the following: ajoite, bayleyite, chalcoalumite, cowlesite, creaseyite, cryptomelane, gilarite, hemihedrite, kinkite, maricopaite, murdochite, papagoite, ransomite and spangolite.

HELP – WE NEED A NICE CABINET SPECIMEN OF SICILIAN SULFUR.

Wow! 11,836!!

On Friday, March 8, 2002 we celebrated 11,836 hours of volunteer time donated to the Museum and Information Center during 2001. One hundred and twenty individuals, plus students from Chandler-Gilbert, Glendale and Mesa Community Colleges, have generously given their precious time to help make possible the educational and informational services the Department provides to schools and the general public. Of special note - some volunteers have exceeded 5000 cumulative hours: Dane Brown (5009), Charles Connell (5261), Karl Baker (5271) and Shirley Cote (6519); and Doug Duffy topped 10,000 hours! We are **VERY** grateful for the dedication, hard work, attention to detail and wonderful ideas that our volunteers so generously share with us. **THEY ARE GEMS!**

Sadly, we all feel a great loss with the death of three

of our volunteers – Dane Brown, Jean Newman and Verlon Osterhout. Dane prepared the boxes, labels and paper inserts for the Teacher Kits; and handled the buying of books for the gift shop. He spent many hours detailing and organizing the book information so that his successor would find it an easy transition. Jean spent every Thursday helping in the gift shop – stocking shelves; boxing, labeling and pricing minerals; making earrings and bracelets, greeting visitors. Verlon accompanied her husband, Russell, when he demonstrated faceting in the Museum. She proudly wore many of his beautifully cut colored stones and visited with Museum guests.

Outside Exhibits Update

After much determination and perseverance, the Museum is on it's way to installing the Caterpillar 797 Mining Truck Tire and P&H Model 2800 Shovel Dipper. The base for the tire is being finished and the logistics for the pick and set are being finalized. The tire is 12 feet 3 inches in diameter and 50 inches wide. The tire weighs approximately 10,000 pounds and is pressurized with approximately 100 pounds of air when in service.

The P & H 2800 shovel dipper bucket has been scheduled for prepping and painting at the end of May and details for its delivery are getting worked out. The bucket is from the Ray Mine Shovel #13. It was retired in the 1980s. It is approximately 13 feet wide, 14 feet long and 12 feet high, weighs approximately 100,000 pounds, and holds approximately 27 cubic yards of material.

Don't forget to watch to the north side of our building be transformed into a scenic canvas of a mine vignette. A 30'x30' mural of a Komatsu 930E will be appearing in a few weeks.

As these new projects and exhibits are being developed, the Museum is in need of additional help. **WE NEED HELP** in two more areas:

1. A researcher to assess and catalogue a recently acquired collection of US/AZ information properties files for the accession into the Information Center.
2. A data base management and administrative specialist-to help implement and work with the development and fundraising efforts for the Museum and it's grassroots campaign.

Both positions are PT and flexible. We can work with your schedule. If you have any interest or you would like more information on either of these two volunteer positions, please call Scott Poland, Education Curator at 602-255-3791 x18.



Do you need this information in an alternative format? Please call the Department at 602-255-3795.

A Record Donation

Walter Heinrichs Jr. of Tucson has donated the largest collection of mineral resource information ever received by the Department. Heinrichs is the retired owner/ manager of Heinrichs GEOEXploration, a world-renown firm that has specialized in exploration for water, energy, and minerals for over 40 years. Much of the donated collection consists of geophysical reports and maps on Arizona mining properties. The value of this remarkable collection to the citizens of Arizona is inestimable.

A preliminary, generalized description of the materials donated includes: 18 filing cabinets of reports, 28 storage boxes of reports, over 100 'bankers' boxes of reports, maps from hundreds of projects, geophysical equipment including, Geometrix induced polarization and resistivity receivers, magnetometers, mercury sniffer, and differential scintillometer.

The size and scope of the donation has overwhelmed the Department's small staff and the donation will not be accessible until it is cataloged. The Department seeks qualified volunteers to assist in cataloging this important donation. The ideal volunteer will have a desire to serve the public and some geological, mineral-industry, or engineering expertise or interest. We prefer workers who are willing to work between four to sixteen hours per week for at least a few weeks. If you are interested in cataloging the

Heinrichs donation, please contact Ken Phillips, ADMMR Chief Engineer, at 602-255-3795, ext. 13.

The Department relies on donations of this type to maintain and increase the value and usefulness of its archives. We note with sadness the passing of Walter's brother Grover Heinrichs in March, that serves to underscore the need to preserve the life-efforts of our Arizona geologists and mining engineers. Grover donated his file collection to the Department in November, 1994. (See OFR95-13 - *Listing of the Grover Heinrichs File Collection*)

Arizona Foundation for Resource Education

In November of 2001 the Arizona Foundation for Resource Education was spun off from the Arizona Mining Association (AMA). The Foundation is a non-profit, collaborative network on Arizona's natural resource businesses and industries. Its purpose is to promote understanding about natural resources and related industries by providing Arizona's K-12 teachers real-world, hands-on educational programs and professional development opportunities.

The Foundation functions had existed for many years as a branch of the AMA, focused on teacher education on mining-related subjects, but in the future the Foundation will be able to provide teachers with instruction and workshops on a variety of natural resource topics. "We literally would like to take teachers physically as well as intellectually to places they have never been before—to a mine, power plant, or large agricultural operation for example," says Larry McBiles, Executive Director. "We want teachers to see the many 'connections' among natural resources and natural resource industries."

The non-profit organization will provide scientifically accurate and balanced classroom resource materials as well as workshops.

The Foundation seeks additional partners who would like to provide a vehicle for Arizona natural resource industries to educate the state's youth.

For more information on this important foundation call 602-266-4416 or visit www.azresourceed.org.



Changes Made in Land Department's Mineral Material Sales Procedures

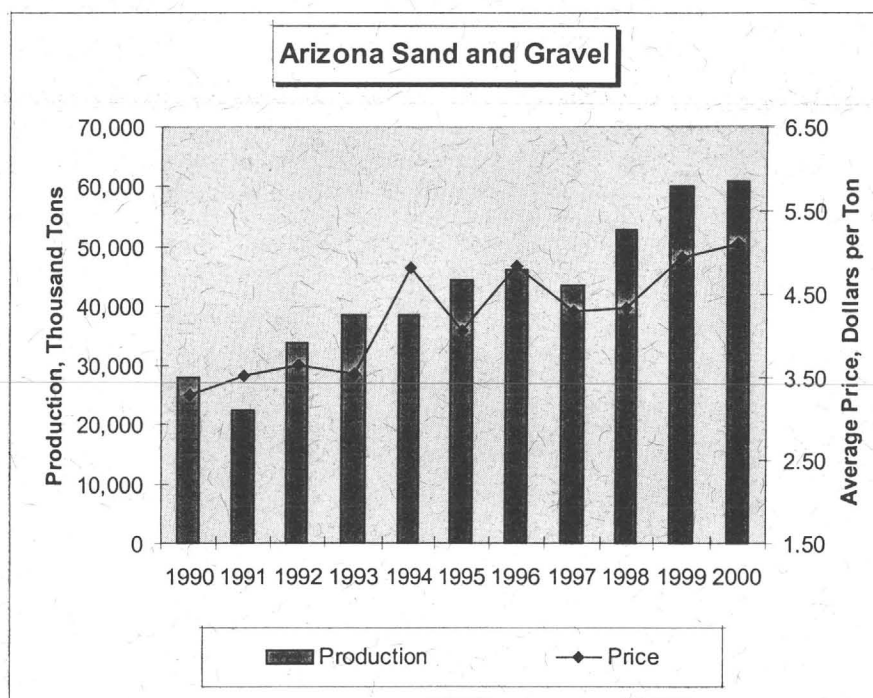
Changes in the Arizona Revised Statutes § 37-205 now provides for the reimbursement of some expenses incurred by a non-successful bidder who originally applied for the material sale and who incurred certain expenses in that application process. The text reads, "If the successful bidder at the auction is not the applicant, the successful bidder shall reimburse the applicant for fees and costs paid pursuant to this section in amounts and on terms as the commissioner or the commissioner's designee directs in the auction notice. After reviewing the reimbursement amounts, the commissioner shall remit them to the applicant."

Some examples of costs for which reimbursements may be made are: cultural resource investigations, legal land surveys, environmental assessments and economic consulting, engineering, planning, legal or geological studies.

Additionally reimbursement may be given by the Land Department if an auction does not occur as a result of a mistake or circumstances caused by the department, including issues arising out of concerns over title, misidentification of the parcel and factors affecting the commissioner's view of the timeliness or desirability of disposing of the parcel.

New Dimension Stone Company

Silver Arrow Stone Company is a new dimension stone company located in Fredonia. The principals, Roger Smith, President and Larry Casebolt, Vice President were formerly with Arizona uranium mining operations for Energy Fuels (International Uranium Corporation [IUC].) Their stone yard and plant are located at former IUC site in Fredonia. Silver Arrow is quarrying building stone from sedimentary rock deposits at various locations on the Arizona Strip.



Interest in Industrial Mineral Development Continues

Possible development ideas for industrial minerals in Arizona have been discussed by the Department with many who historically specialized in the metals industry. The current depression in metal prices has driven many to consider industrial mineral deposit exploration. This graph above, showing one segment of the industrial minerals industry, sand and gravel, demonstrates the appropriateness of this interest, as does the graph on the front page showing crushed stone production. In the last decade per capita sand and gravel consumption has intensified, increasing from 8 to 12 tons per year. One factor in that per capita increase is the intense rural and urban road and freeway development.