
THE 738th MEETING
of
THE MINERALOGICAL SOCIETY
OF SOUTHERN CALIFORNIA

7:00 p.m., Friday, July 9, 1999
Geology Building E Lecture Hall
Pasadena City College
Pasadena, California

From 7:00 to 7:30 p.m.
Welcome By Members to Guests, Informal Discussions
and Display of Specimens From Individual Collections

General Meeting – 7:30 p.m.

Featuring a Talk by Paul Thaler
of the University of California at Los Angeles

on

"California Island Mammoths"

JULY PROGRAM

Presented by Paul Thaler

Diminutive proboscidea (pygmy mammoths and elephants) on islands were not an uncommon occurrence around the globe in the Late Pleistocene. Such animals inhabited several Mediterranean islands, Wrangel Island off of Siberia, and the Northern Channel Islands of Southern California -- obviously due to independent island events. Proboscidean remains on the Channel Islands of California include those of the ancestral *Mammuthus columbi*, from the mainland (e.g., Rancho La Brea), and the derived diminutive form, *M. exilis*, a California-island endemic.

Island mammoth remains were, at the turn of the century (and beyond), considered evidence for the existence of a land bridge between the Channel Islands and the mainland. Seismic reflection profiles from the Santa Barbara Channel have since indicated that no such land connection existed in the Pleistocene, thereby suggesting that the animals swam the channel. The impetus probably involved fire - or drought-induced food stress on the mainland, with prevailing island-to-mainland winds bringing the smell of vegetation to starving mammoths with an acute sense of smell and an affinity for water.

Only since the 1970s have paleobiological aspects of California island mammoths, *M. exilis*, been explored

in detail. While apparently exhibiting some degree of homoplasy with other diminutive proboscidea elsewhere around the world, *M. exilis* is deserving of individual scrutiny. For example, from recent work comparing femora from mainland and island mammoths of California, I have determined that *M. exilis* appears not to have exhibited a reduction in femoral torsion, relative to *M. columbi*, as has been reported in the literature for analogues from the Mediterranean. This feature may have been a locomotor adaptation, of a particular Mediterranean population, to restrictive island topography and, thus, the availability of food. *Mammuthus exilis* evidently derived an independent solution to the challenges of island life. This may be only one of potentially numerous features distinguishing *M. exilis* from extinct diminutive proboscidea around the globe.

PRESIDENT'S COLUMN

by Bob Housley

We are making good progress. Our move to meeting on the 2nd Friday of the month at PCC seems to be working out well, and preparations for resuming our own show in November seem to be on schedule. However, we really desperately need a regular publicity person. Our July program should appeal to a wide cross section of people. We really ought to have announcements in all the local papers. If any of you can possibly take on this job please let me know!

We also badly need a membership person. I was at the CFMS show in Turlock on Friday the 18th and almost everybody there was older than me, which is a sorry commentary. We badly need to attract and keep younger members. We have good ideas about contacting geology departments at local colleges and universities, and science teachers at high schools. We just need someone with time to follow through on some of them. We also need to work harder to keep current members. If they do not notice the reminders on and in the Bulletin they just wonder why they quit getting Bulletins, but by then no longer know who to contact. Someone should follow up with a card or a call since most did not really intend to drop out.

The Peterson Mountain trip this year yielded some really spectacular material, the best ever! Everyone who was not at the June meeting missed seeing some beautiful amethyst and scepters. It was also pleasing to see such an enthusiastic group of young potential members there.

During the past month or so Bill Rader and I have been continuing our long running pursuit of new localities in the Santa Monica Mountains. Two things are worth reporting. We have found datolite for the first time in that range. The initial discovery is weathered material and we do not know yet whether we will get into fresh crystals by digging, but I will let readers of this column know. The site is an old cut on a little used road.

The other new locality is a construction site along Kanan Road. They have unearthed quite a lot of nice ferrierite and clinoptilolite micromount material as well as quartz and calcite in larger sizes. This is very near the quarry where Mike Kokinos and Bill Wise got the zeolite material many years ago that they studied for their American Mineralogist article. I have permission from one of the owners to collect here so anyone interested in this site should contact me. Work is going rapidly so it will not be there too long.

Talking about these sites reminds me of another thing I want to make sure everyone else knows about. That is topographic maps on CD-ROM disc. I have been using one by an outfit called TOPO! that covers most of the local area. It contains all the same data that is on the whole set of USGS topographic maps of the region, in an easy to access form. Whenever I plan to collect in an area I just print out the appropriate topographic maps at whatever scale I would like. When I have collecting site information either from references, from remembered landmarks, or from my own GPS readings I can add them to the map database and print out

maps with the localities shown. Conversely if I can find a mine or other interesting spot on a map I can easily find its GPS coordinates. Technology is really making life easier for the field collector.

MYSTERIES OF THE CHANNEL ISLANDS

by

John Schwarze

As stated elsewhere in this bulletin, this month's speaker is talking about the "pygmy" mammoths of the Channel Islands. As you will hear, their presence on the islands is mysterious as is the presence of many of the islands' other flora and fauna. However, the very existence and location of the islands themselves have been the subject of much debate and discussion over the years. It has only been recently that some of that uncertainty has been swept aside.

If you look at a map of the islands in relation to the rest of the state of California, the first thing you notice is that the islands can be viewed as two groupings: the northern Channel islands consisting of Anacapa, Santa Cruz, Santa Rosa, and San Miguel; and the southern islands consisting of Santa Barbara, Catalina, San Clemente, and San Nicolas. A third group, Los Coronados, is geologically part of the southern group but is usually not considered a Channel Island because it is politically part of Mexico.

Early on it was recognized that most of the world's islands clearly formed as part of a volcanic process (Hawaii, Iceland, Tahiti). Others consist of a coral reef that formed around a volcano and was able to maintain its position as the volcano subsided into the sea (Guam, Midway). Finally, the remainder were clearly a fragment separated from the adjacent mainland, probably by the rise in sea level that accompanied the end the last ice age or are ephemeral sand islands created by strong currents (Canada's islands, North Carolina's barrier islands). California's Channel islands clearly didn't fit these categories. They aren't volcanic, don't have coral reefs, are separated from the mainland by wide, deep channels, and aren't made of sand. In fact, they mostly consist of a mixture of granitic basement, and inter-layers of metamorphic, volcanic and sedimentary rock that was referred to as the Franciscan Melange, rock formations that were dated as late Jurassic (166 million years before present) and were mostly found in Northern California! What was going on?

Well, based on the fact that the northern islands line up with and appear to be extensions of the Santa Monica Mountains; all the islands were assumed to be drowned mountain tops of the Transverse Ranges, those odd mountains that run east and west rather than north and south like most respectable ranges. Since there was no other logical explanation, the southern islands were assumed to be the same, with the wide deep channels explained away as proof of the incredible power of the San Andreas Fault, et al.

They weren't entirely wrong, nor entirely right. We now know that as a result of plate tectonics vast sections of the earth, in fact all of the continents, have traveled the face of the planet at least once, maybe more. The Channel Islands, instead of being parts of the mainland that broke off and were stranded at sea are instead parts of some other mainland that haven't quite caught up with the rest of California. If things were proceeding as they did in the past, our descendants' descendants could one day see the northern islands crash up against the Santa Barbara and Ventura coasts and reunite with their brethren. However, that probably won't happen and the position of the southern islands give us a possible clue why. Remember that they don't line up with the northern islands as

extensions of the Transverse Ranges, they line up in a random north south direction. The speculation is that their position indicates that the San Andreas Fault, which once may have been the representation of the major zone of subduction of the continent, no longer serves that role. If it truly now is a strike/slip lateral fault, the islands won't crash into the continent but instead will simply slowly and majestically float north along with the rest of the State located on the west side of the fault.

I hope this short collection of thoughts helps all of you enjoy the presentation on pygmy mammoths. As I stated, they are a separate mystery of their own. Oh by the way, extra credit for those of you that can name the only other mountain range in the continental United States that runs east and west instead of north and south.

Exhibit Case Repair Day a Great Success

Despite the tardiness of the towing company in delivering the MSSC trailer to Rock Currier's house, the great exhibit case & liner repair day was a big success. The members who participated enjoyed a day of teamwork, accomplishment, a fine potluck lunch and a beautiful day in a yard full of fruit trees. Those who stayed to the end of the day were also treated to a peek into the collection of long-time MSSC member and well known mineral dealer, Rock Currier.

Many thanks to Rock Currier for allowing us to use his yard and his house for the day, to Jim Schlegel for arranging for the trailer to be delivered and picked up and for coordinating the day's events, and to all who participated: Bill & Elizabeth Moller who made the drive from Santa Barbara to help for the day, to Hans & Hedy Kotowski, Bob Housley, Dave Smith, Michael Schlegel, Ron Pellar, Ed Smith and his son, Jacob, Ed Imlay, Gene Reynolds, Warren Haby and Bill Besse. The cases have been repaired, new liners and risers have been made, the trailer cleaned out and is now well organized and ready for our November Show.

Carolyn Seitz

THANK YOU CASEY & JANE JONES

On Sunday, June 6, 1999, Casey & Jane Jones held an open house for the MSSC at their shop, Geoprime, in Monrovia. Not only did we enjoy great company and refreshments, but we had the opportunity to see a private thumbnail collection on consignment in their shop, to pour through flats of Chalcocite specimens from the now closed Flambeau Mine in Ladysmith, Wisconsin, and the Barite and Calcite specimens from the Meikle Mine in Nevada for which they have received some recognition. The Chalcocite specimens and their collecting activities at the Flambeau were recently the cover story in the Mineralogical Record. We were treated to a slide show of their collecting activities at the Flambeau when Casey wasn't busy using a camera and the computer to photograph our members' specimens. There were also some very nice Stibnites, some with Barite, from the Murray Mine in Nevada available for purchase in addition to many other fine minerals from around the world.

Casey & Jane are also well known for providing mineral samples and sets for educational purposes and they made a substantial donation of materials to support the June MSSC meeting at which Janet Gordon from PCC was planning to do a lecture aimed primarily at kids, young & old, on the Mohs hardness scale. We left Geoprime at the end of the day with enough sample materials to make sure everyone who would be attending the June MSSC meeting would have much of what it takes to make their own hardness test kit.

It was a fun day and well attended. Some who were there also won door prizes: Jim Schlegel – Stibnite with Barite from the Murray Mine; Michael Schlegel – Barite from the Meikle Mine; Gene Reynolds – Barite from the Meikle Mine; Elizabeth Carroll – Barite from the Meikle Mine.

Special thanks to Bill Besse for making the effort to set up the day – for persuading Casey to photograph selected pieces from the collections of our members to that these photos could be included on the MSSC website (mineralsocal.org), for providing refreshments, for arriving early to help set things up, and for adding to the lively discussions of the day.

Those in attendance included current and former members and perhaps some soon-to-be members as well: Jim & Michael Schlegel, Bill & Elizabeth Moller, Bill Besse, Rock Currier, John & Blair Schwarze, Elizabeth Carroll, Gene Reynolds, Frank Wright, George Rossman, Dan McHugh, Bob Schneider, Pauline Blair, Shawn Greenwood, Bob & Sugar White, Ron Thacker, Peter Carroll, Nel Graham, Arline Nakanishi, Mike Mizutani and Carolyn Seitz.

Friedrich Mohs -- More Than 10 Hardness Minerals

"I didn't get to say all of the interesting things I learned about Mohs at the MSSC meeting, and I thought members might like to know more." Janet Gordon

Friedrich Mohs was born on 29 January 1773 in Gernrode in the district Anhalt-Bernburg of the Harz Mountains (Germany). Although he began his university studies in mathematics and physics, in 1798 he matriculated at the famous mining academy in Freiberg (Saxony), where he studied mineralogy under Abraham Gottlob Werner.

Werner was a celebrated professor of mineralogy and mining who was famous throughout all Europe. Students flocked to the doors of the Freiberg Institute, and Mohs was one of several of his students who made serious contributions to mineralogy. Werner is best known for his neptunist theory for the evolution of the Earth in which he envisioned the different rock formations precipitating out of a primordial ocean. However, his lasting contribution to science was to bring order and scientific observation to mineralogy and to share this with his students, such as Mohs.

In 1801, Mohs began his career as a mining inspector in the well-known lead mines of Neudorf (Harz). This area was known for its fantastic galena crystals, and it is tempting to speculate that they fueled his interest in minerals.

In 1802 he was commissioned by the Viennese banker, von der Null, to prepare a systematic description of his important mineral collection; this was published in 1804. In 1811 Mohs was appointed as curator of the mineralogy collection at the newly established Johanneum (a university) in Graz, Austria, and in 1812 Mohs became professor of mineralogy there. In the same year, his hardness scale made its first official appearance in a book about his new classification system for minerals.

However, many mineralogy textbooks quote 1820 as the year that the hardness scale was first published. The reason for this is probably that 1820 is the year in which a second book was published in an English translation. This latter book, "Die Charaktere der Klassen, Ordnungen, Geschlechter, und Arten der naturhistorischen Mineral-Systeme" (The Characters of the Classes, Orders, Genera, and Species, or the Characteristics of the Natural-History System of Mineralogy, Edinburgh 1820), prominently featured the hardness scale.

In the classification scheme developed in this book, Mohs endeavored to arrange a system of mineral species which was harmonious with that for plants and animals. However, it has since been set aside for classifications based on the chemical compositions of minerals which were developed later. Nevertheless, Dana in the second edition of his System of Mineralogy had the following kind words for the system of Mohs: "The striking beauties of the system will forcibly impress the minds of those who may give it the attention it merits."

In 1817, Werner died and the next year Mohs was called to Freiberg to succeed his old teacher as professor of mineralogy. Although other distinguished thinkers were making significant contributions to crystallography at the time, Mohs was regarded as the one with the greatest mathematical insight. He established the six crystal systems mathematically, and in 1822 and 1824 Mohs published his two-volume "Grund-Riss der Mineralogie". Four of the crystal systems (isometric, tetragonal, orthorhombic, and hexagonal) were the same as those proposed in 1816-1817 by Christian Samuel Weiss, who had approached the problem in much the same manner. Mohs, however, did not refer to Weiss's prior publication, and Weiss publicly accused him of plagiarism. Mohs defended himself in a letter to the Edinburgh Philosophical Journal (Vol. 8, 1823, pp. 275-290). Mohs had surpassed Weiss in his analysis, because in the "Grund-Riss" he mentioned two new systems (monoclinic and triclinic). These two new systems were verified by Naumann in 1824 and fully developed by Mohs in 1832. Mohs' textbook was very successful, and copies of it still reside in many library collections.

In 1826 Mohs accepted a position in Vienna, Austria, first to reorganize the imperial mineral collection, and later to serve as professor of mineralogy at the university. In 1835 he resigned to become "Bergrath", imperial counselor of the exchequer in charge of mining and monetary affairs. He died on 29 September 1839 in Agordo in the province of Belluno (northern Italy, not Tirol as is stated in most sources) while on a journey to inspect the volcanic areas of southern Italy. His interest in volcanoes suggests that Mohs continued to look forward in his view of science, because it was the recognition of volcanism which helped put a final end to the neptunist theories of Werner.

Information for this note on Friedrich Mohs was compiled from information shared by other mineralogists, especially Dr. Ernst A.J. Burke, Vrije Universiteit Amsterdam, from "Popular Guide to Minerals" by L. P. Gratacap (1912), and from "Dictionary of Scientific Biography", Vol. IX (Macrobius to Naumann), published in 1974 by Charles Scribner's Sons (New York) for The Societies.

Study Mineralogy at Night at PCC

This fall Geology 6 -- Physical Mineralogy and Crystallography will be taught by Dr. Janet Gordon on Tuesday and Thursday nights from 6:00 to 10:00 p.m. The course begins August

17 and ends December 14. Hobbyists who are interested in learning more about minerals are encouraged to enroll on a credit/no credit basis. The geology department's well-endowed

mineral museum is the class room, and students will have access to crystal drawing and other computer programs, petrographic and binocular microscopes, and X-ray diffraction

equipment. Enrollment cost for most students is only \$59.00!!! Questions about the class should be directed to Janet Gordon at 626-585-7026, jggordon@paccd.cc.ca.us, or check out the link from the MSSC's web page. General PCC information is available at <http://www.paccd.cc.ca.us> or 626-585-7123.

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CALENDAR

July 9: MSSC monthly meeting, 7:30 p.m., Geology Building, Pasadena City College.

July 10-11: Culver City Rock & Mineral Club Show at Veterans Memorial Auditorium, Culver Blvd. & Overland Ave., 10 - 6 p.m. Saturday, 10 - 5 p.m. Sunday, info: Bradford Smith (310) 472-6490 or Brad@bigdiff.com.

July 11: MSSC Board of Directors' meeting, 2 p.m. at Bill Besse's home.
PLEASE NOTE: ALL members are invited.

August 14: MSSC Annual Picnic.

September 10: MSSC monthly meeting, 7:30 p.m., Geology Building, Pasadena City College.

NOTES FROM THE EDITOR'S DESK

Have you signed up for the Show Committee yet?
If you don't think there is work to be done,
just **ASK JIM SCHLEGEL !!!**

And, **BE ADVISED**: On Saturday evening, November 20th, the Show Committee is hosting an event in honor of our dealers and other dignitaries. **ONLY** the honorees and **ACTIVE, CONTRIBUTING MEMBERS** of the MSSC SHOW COMMITTEE will be invited. Lest there be complaints later heard, consider yourself notified: paying annual dues while Jim and a handful of others do the work does not merit an invitation to this event, **NO EXCEPTIONS !!** How embarrassing not to be there.

Ed.