



October 2011

LOS ANGELES BASIN GEOLOGICAL SOCIETY MEETING ANNOUNCEMENT

October 27th (Thursday) Arthur R (Dick) Brown, RG, CEG,
Consultant Engineering Geologist, and **Stephen E. Jacobs, PG, CEG,**
Consultant Engineering Geologist, *will speak jointly:*

***"Geologic Overview of the Palos Verdes Peninsula, and
"The Pleistocene of Palos Verdes Peninsula, respectively.***

Abstract

GEOLOGIC OVERVIEW OF THE PALOS VERDES

PENINSULA - The Palos Verdes Peninsula (PVP) is underlain by Cretaceous Catalina Schist, exposed only near the crest of the Palos Verdes Hills and in George F Canyon. Many wells drilled on and near the peninsula have reached the Catalina Schist basement, which helped to determine the thickness of the overlying formations. Dibblee (1999) mapped a small area of early Miocene San Onofre Breccia at Bluff Cove on the W-NW end of the peninsula that is the only known exposure on the PVP. A profound unconformity lies between the Catalina Schist and the overlying middle to late Miocene age Monterey Formation which covers much of the surface of the PVP. The Monterey Formation was subdivided by Woodring et al. (1946) into three members: Malaga Mudstone; Valmonte Diatomite; and Altamira Shale. Point Fermin Sandstone, seen in a sea cliff at Point Fermin, is also a member, which cuts into the Altamira Shale Member, and contains clasts of Catalina Schist and the upper part of the Altamira Shale. The Altamira Shale was further subdivided by Conrad and Ehlig (1983) into three lithofacies: tuffaceous; cherty; and phosphatic (older to younger). These are exposed along Crenshaw Extension, as is the Valmonte Diatomite. Pleistocene deposits will be discussed by Steve Jacobs.

Geomorphology of PVP is dominated by about 13 Pleistocene terraces encircling much of the PVP, that were formed by fluctuating sea level superimposed on the tectonically rising land. Numerous canyons cut down from the crest of the PVP. A long, W-NW-trending valley lies near the crest of the PVP, which has been widened and developed commercially. It was named the Silver Spur Graben on Dibblee's 1999 geologic map. Another W-trending long valley lies above the Portuguese Bend landslide, and is labeled the Valley View Graben on Dibblee's map. More than 180 landslides occur on PVP as shown on the CGS map by Haydon (2006; 2007). The two largest are the Portuguese Bend ancient landslide complex and the South Shores landslide. Most impressive is the Point Fermin landslide that began moving in 1929. Six sea caves are located at sea level, two each at three projecting points: Sea caves were not shown on the published geologic maps, and not discussed in the geologic literature.

Geologic structures consist of major faults: Palos Verdes (PVF) and the Cabrillo faults; however, very little evidence of the PVF has been found in dozens of onshore

trenches, but offshore these faults are considered active, based on seismic profiles showing the faults cutting the sea floor. Very many minor faults, not shown on the two published maps, are seen along the sea cliff and in an old photo of Lomita Quarry. At the center of the PVP is the E-W dome-shaped Palos Verdes anticlinorium. Many relatively small folds lie on the flanks of the anticlinorium exposed in Monterey outcrops. Of special interest are very well exposed recumbent folds at Whites Point and in the sea cliff east of Point Vicente.

THE PLEISTOCENE OF PALOS VERDES PENINSULA

- The Palos Verdes Peninsula is one of the richest areas for Pleistocene fossil marine invertebrates in the world. Arnold's (1903) and Woodring's et al. (1946) publications have been the most important early works to understand the Pleistocene stratigraphy and paleontology of the Palos Verdes Peninsula. Pleistocene formations on the peninsula are the Lomita Marl, Timms Point Silt, San Pedro Sand, Palos Verdes Sand, and about 13 marine terraces. Arnold (1903) first reported on the Pleistocene of the Palos Verdes Peninsula and studied classic localities that included Deadman Island, Timms Point, and the San Pedro Bluff.

Woodring et al. (1946) studied among others Richard R. Ball/Butcher sand pit, N. Baseball Field site, 2nd and 8th Streets in San Pedro. Of all of the localities reported by Woodring et al. (1946), one remains on the north side of 2nd Street between Pacific Avenue and Mesa Street in San Pedro. Here, all four Pleistocene units, Lomita Marl, Timms Point Silt, San Pedro Sand and Palos Verdes Sand, are still visible. The Chandler Quarry on the north side of Palos Verdes Hills, accessible until recently, exposed about 24 m of San Pedro Sand overlain by about 9 m of Palos Verdes Sand and terrace cover.

The Richard R. Ball/Butcher sand pit, and the exposure on the north side of 2nd Street, San Pedro are the most important remaining Pleistocene outcrops on the Palos Verdes Peninsula. Closure of these sites would mark the end of an era in studying the Pleistocene of southern California, and the richest Pleistocene fossil collections in the world will be restricted to universities, museums, and private ownership.

Speaker's Biography

Dick Brown is a long-time member of LABGS, serving as vice president / program manager. He is a past president of the South Coast Geological Society and editor, or co-editor, of three of their guidebooks. Dick organized the field trip, edited the guidebook, and led the 2004 LABGS field trip to Palos Verdes. The guidebook is entitled, "*Palos Verdes Peninsula: Fabulous Geology in a Beautiful Setting.*" Dick is the chief editor, with co-editors, Roy Shlemon and John Cooper, of the 2007 PS-SEPM volume on the Palos Verdes Hills.

Dick has been a geological consultant in private practice in southern California for 36 years. He received a B.S. in Geology at the University of Oklahoma (1958) and an M.A. in Geology at the University of California, Riverside (1968). During his career he has worked in many parts of California and several other states. His international experience includes 3½ years in Greece investigating and mapping landslides at the Kastraki Reservoir in western Greece and in Athens as Geotechnical Manager of the feasibility study for the Athens Metro Project (which is now a reality). Dick worked in the Philippines for a year and a half as Quality Assurance Supervisor for a site investigation and safety analysis for a proposed nuclear power plant at Baatan, Philippines. Upon returning to the USA, he worked for several local consulting firms in Orange and LA Counties before starting his consulting practice in 1979. His consulting involved the evaluation of geological and drainage problems of hillside properties, and the investigation of limestone and sand and gravel resources.

Steve Jacobs received a B.S. degree in geology at U.C.L.A in 1971, an M.S. degree in geology specializing in paleontology at the University of Nebraska-Lincoln in 1973, and another M.S. degree in geology specializing in engineering geology at California State University-Los Angeles in 1982. Mr. Jacobs has practiced engineering geology since 1979. He has worked on a variety of projects throughout California, Nevada and Arizona involving geologic and geotechnical investigations for residential and commercial developments and litigation studies, fault investigations, seismic hazards and groundwater studies, and geologic home inspections for feasibility of purchase. Most recently Mr. Jacobs has performed geologic mapping in the San Vicente Water Pipeline and Mission Trails Pipeline Tunnels for San Diego County Water Authority from July 2007 to December 2009 and of shoring walls for the new Downtown San Diego Library from September 2010 to March 2011.

Steve published several articles and abstracts on paleontology, landslides, geologic structures, and Pleistocene deposits, and prepared several geology field trip guidebooks. Most recent research includes two or three articles on the Pleistocene Paleontology and Stratigraphy of the Palos Verdes Peninsula in southern California. He is a member of the Geological Society of America, Association of Engineering Geologists, San Diego Association of Geologists, and South Coast Geological Society.

Come and enjoy – Learn about the geology of the Palos Verdes Peninsula

Meeting Time, Place, Cost and Reservations

Time:

Thursday, Oct 27th, 2011

Typical Meeting Agenda

Lunch Served: 11:30 AM to 12:00PM

Announcements: 11:45 AM to 12:00 PM

Guest Speaker: 12:00 PM to 12:30PM

Questions/Close: 12:30 PM to 12:45 PM

Place:

The Grand at Willow Street Conference Center located at 4101 East Willow Street, Long Beach, CA. (562-426-0555). Take Lakewood Boulevard south from the San Diego Freeway (405), turn west onto Willow Street and turn right onto Grand Avenue at the sign for the Center. Park free in the garage structure.

Cost:

Lunch and Speaker:

\$20.00 with reservations

\$25.00 without reservations

Student:

FREE (Lunch and Speaker)

Meeting Reservations:

Make your reservations using our web site at www.labgs.org, or by calling Tawnya Hildabrand at (714) 454-7149, or emailing TawnyaHildabrand@gmail.com; *Reservations made prior to Tuesday before the meeting is appreciated, but reservations up to the morning of the meeting will be honored.* As always walk-ons are welcome.

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