LOWER TERTIARY SEQUENCES OF MT. DIABLO AND THE SOUTHERN SACRAMENTO BASIN – FROM BASIN FLOOR TO SHELF

Throughout late Mesozoic and early Tertiary times an active subduction zone existed along the western margin of the North American plate. A shelved forearc basin was situated between the subduction zone and the Sierra Nevada volcanic arc at the site of the present day Sacramento Valley. The lower Tertiary succession in the subsurface of the Sacramento basin is composed of cyclic succession of bathyal shales and sandstones and shallow marine sandstones. The succession attains a maximum thickness of about 2440 meters (8,000 feet) in the depocentral graben in the southwestern part of the basin. The present study subdivides the Eocene succession into at least five unconformably bounded depositional sequences. These include the Meganos and Markley submarine canyons filled with bathyal shales; the thick succession of submarine fan deposits that make up the Markley Sandstone; and fluvial/estuarine sandstones and neritic shales that comprise the Hamilton/Capay and Domengine/ Nortonville sequences. These sequences can be correlated with equivalent units that outcrop along the flanks of the Mount Diablo uplift. The presentation will study the depositional setting of these sequences and discuss the role of tectonism and eustasy in determining their timing and location.

BIOGRAPHY

Ray Sullivan is Professor Emeritus in Geology at San Francisco State University. He earned his BSc (hons) at Sheffield University in 1957, and PhD in 1960 at the University of Glasgow. His first position was with Shell Oil of Canada. He joined the faculty of SFSU in 1962 and taught for 40 years in the department until his retirement in 2002. During his time at the University, he played a major role in formation of the department, and the development of the undergraduate and graduate Geology degree programs. He served as department chair and Associate Dean of Science and is a Fellow of the California Academy of Sciences. His publications include his research on the Lower Carboniferous of South Wales (his doctorate thesis), Green River Shales of the Green River Basin, the Eocene rocks of the Sacramento Basin and the Mt Diablo area. He has also published several papers on environment geology and earthquake awareness. He has led numerous field trips in the Bay area including Black Diamond, Concord Weapon Station and Keller Canyon landfill, and downtown San Francisco walks focusing on the events of the 1906 earthquake. He has also coauthored 16 science school text books.