

# NORTHERN CALIFORNIA GEOLOGICAL SOCIETY



## NCGS DINNER MEETING

### *“Mesozoic Transpression, Transtension, Subduction, and Metallogenesis in Northern and Central California”*

Wednesday May 27, 2009

Speaker: Dr. W. Gary Ernst, Stanford University

6:00 pm at Orinda Masonic Center (**please note earlier starting time**)

Reservations required by May 21, 2009

We are sorry but we will not be able to accommodate “walk-ins”

For this special event, the NCGS is planning a **Back Forty Texas BBQ dinner consisting of Pork Ribs and BBQ Chicken, Tossed Green Salad, BBQ Beans, and Fresh Corn Cobettes.** For vegetarians a deluxe veggie burger will replace the BBQ meal. Dessert includes assorted cookies and brownies. Wine (90+ pts.) will be served.

**Abstract:** This presentation will describe Middle Paleozoic to Middle Jurassic mafic-ultramafic (seafloor) accreted terranes in the Klamath Mountains and the Sierra Foothills, and associated fine-grained terrigenous strata derived from accreted continental-margin belts. Oceanic terranes sutured the continental margin reflect 230 m.y. of margin-parallel slip involving strike-slip oblique tension and compression. Quartzofeldspathic sediments and high grade metamorphics are rare. Magmas liberated few volatiles, hence coeval hydrothermal ore deposits and granites are also rare. In contrast, nearly head-on Cretaceous subduction of the Farallon Plate generated the massive Klamath-Sierra Nevada volcanic-plutonic arc, driven by dewatering of eastward descending oceanic crust. Immature Great Valley forearc sediments and Franciscan trench deposits eroded from the arc record 70 m.y. of rapid crustal growth. Gold-bearing solutions rising from subduction-driven magma genesis zones, cooling plutons, and heated wall rocks were mobilized during arc growth. Gold-bearing quartz veins precipitated where hydrous CO<sub>2</sub>-bearing fluids encountered major geochemical discontinuities in the wall rocks. Intense redistribution of oceanic and continental allochthons occurred during the Middle Paleozoic-Middle Jurassic suturing events, but involved little net continental growth or metallogenesis. In contrast, voluminous continental crust and ore genesis accompanied the Cretaceous head-on subduction of oceanic lithosphere.

**Biography:** W. Gary Ernst received his B. A. in Geology from Carleton College (1953), M. S. in Geology from the University of Minnesota (1955), and Ph. D. in Geochemistry from The Johns Hopkins University (1959). After fellowships at the Geophysical Laboratory, he joined the UCLA faculty in 1960. Ernst was Geology chair (1970-74), Earth and Space Sciences chair (1978-82), and director of the UCLA Institute of Geophysics & Planetary Physics (1987-89). He was Dean of the Stanford University School of Earth Sciences from 1989 to 1994 and named the Ben Page Professor in 1999. Ernst went emeritus in 2004. He is a member of the National Academy of Sciences, American Academy of Arts & Sciences, and American Philosophical Society. Ernst served as president of the Mineralogical Society of America (1980-81) and the Geological Society of America (1985-86). He received the MSA Award (1969), the Geological Society of Japan Medal (1998), the Penrose Medal of the GSA (2004), the Roebling Medal of the MSA (2006), and the Legendary Geoscientist Award of the American Geological Institute (2008). He is author of seven books and research memoirs, editor or co-editor of 19 others, and author or co-author of over 270 scientific papers. His interests include physical chemistry of rocks and minerals; Phanerozoic interactions of lithospheric plates and orogenic belts, in central Asia, the Circum-Pacific and the western Alps; early Precambrian petrotectonic evolution; high- and ultrahigh-pressure subduction-zone metamorphism and tectonics; geobotany, remote sensing; and geology and human health.

\*\*\*\*\* Dinner Logistics \*\*\*\*\*

**Meeting Agenda:** Social Hour: 6:00 pm Dinner: 7:00 pm Presentation: 8:00

**Time:** May 27, 2009, at 6:00 pm, Orinda Masonic Center 9 Altarinda Road, Orinda, CA.

**Cost: \$20/person**

\*\*\*\*\*REGISTRATION FORM (Dr. W. Gary Ernst Dinner)\*\*\*\*\*

Name: \_\_\_\_\_ E-mail: \_\_\_\_\_

Phone (day): \_\_\_\_\_ Phone (cell) \_\_\_\_\_ Phone (evening): \_\_\_\_\_

Dinner: Regular: \_\_\_\_\_ Vegetarian: \_\_\_\_\_ (Please check one) Check Amount: \_\_\_\_\_

Please mail a check made out to NCGS to: **Tridib Guha, 5016 Gloucester Lane, Martinez, CA 94553**

Questions: e-mail: [tridibguha@sbcglobal.net](mailto:tridibguha@sbcglobal.net) Phone: (925) 370-0685 (evening) (925) 363-1999 (day)