



# CSPG RESERVOIR

VOL. 19, NO. 5

MAY 1992

## TECHNICAL PROGRAM

Wednesday, May 13

11:30 a.m. at the Westin Hotel, Calgary, Alberta

### WEST ANTARCTICA

Steve Garrett (Chevron Canada Resources)

Geological exploration in this last frontier faces a number of scientific and logistic challenges.

Scattered rock exposures which poke through the ice cap suggest that West Antarctica is a collage of crustal blocks. These moved independently during Pacific Subduction and Gondwana breakup. Extensive intervening sedimentary basins formed in a broad Mesozoic-Cenozoic transtensional setting. Radar shows dramatic subglacial escarpments which bound the elevated crustal blocks. Aeromagnetic surveys reveal the extent of a continuous 2000 km subduction complex, an isolated block of Precambrian basement, and intrusions related to rifting.

Environmental factors, and especially the remote nature of the area, make field work interesting. International collaborative projects are a good way to overcome some obstacles to research. Nevertheless,

there is no regional land seismic data of high quality, and commercial exploration is prohibited by international treaty.

*Cutoff for ticket sales is noon Monday, May 11 at the CSPG office or Thursday, May 7 through Ticket Sales Representatives.*

#### Steve Garrett

*Steve Garrett received a B.Sc. in Geology from the University of Bristol and an M.Sc. in Applied Geophysics from the University of Birmingham (United Kingdom). He joined the British Antarctic Survey in 1981, where he obtained a Ph.D. and published several papers on regional geophysics, structure and tectonics. He joined Chevron United Kingdom in 1987 as exploration geophysicist in the North Sea, and moved to Chevron Canada Resources in 1992.*

TECHNICAL PROGRAM continued.

Thursday, May 28

11:30 a.m. at the Westin Hotel, Calgary, Alberta

## THE SYSTEMS TRACTS OF THE ZAMBEZI DELTA, MOZAMBIQUE

Speaker: **D. Bradford Macurda, Jr.** (The Energists)

Co-authors: **V. Kolla** (Elf Aquitaine) **H. Roice Nelson, Jr.** (Landmark Graphics Corporation)

The Mozambique passive continental margin near the Zambezi Delta, located in the Indian Ocean Basin, is a stable platform as opposed to the unstable continental margins off the Mississippi, McKenzie and Niger deltas. It is geographically far from the stable margins which were the basis of the Haq et al. cycle-chart (1987). Thus, the Mozambique continental margin provides an independent test case for verifications of eustatic cycles and for the evaluation of allogenic (eustatic) vs. autogenic (subsidence and delta switching) effects on depositional systems and systems tracts.

The Mozambique shelf margin prograded 75 to over 100 km during the Neogene and Quaternary. The progradation mainly occurred during the relative lowstands of sea level. Relative highstand progradation played only a minor role in building out the Mozambique continental margin. The depocenters consisted mainly of prograding wedges at or below the shelf edge (offlap break) and continually switched in place during each relative lowstand, thus compensating for previous depositional topography.

There were several sediment pathways from the platform (shelf) through the slope to the base-of-slope which can be defined. Deep-water depocenters were often established opposite main shelf-edge prograding depocenters. Paleo-drainage on the platform of the region studied appears to have developed more relief during deposition of younger sequences. The Mozambique continental margin is a stable passive margin and provides an independent test case to document the importance of relative lowstands of sea level in building out the continental margin.

We believe that the controversy whether condensed sections (maximum flooding surfaces, downlap surfaces) or the unconformity surface (with regional onlaps of strata) is more important in packaging the sedimentary section is unnecessary and unproductive. In sequence stratigraphy, both surfaces are generally considered essential to properly package the sedimentary section and understand the depositional systems. However, depending upon the variety, quality and quantity of data available, one of the surfaces is used initially more than the other, although both have to be used ultimately. In our study, unconformity surfaces defined by regional onlaps of strata (reflections) are definitely essential to initially break the section into the sequences.

*Cutoff for ticket sales is noon Tuesday, May 26 at the CSPG office or Monday, May 25 through Ticket Sales Representatives.*

### **D. Bradford Macurda Jr.**

*Bradford Macurda Jr. graduated from the University of Wisconsin with his Ph.D. in 1963. He was then a Professor in the Department of Geology and Geophysics from 1963-1978. In 1978 he joined Exxon Production Research in Houston to work in research and exploration efforts in seismic stratigraphy. In 1981 he joined The Energists in Houston, of which he is now a principal and senior vice-president. His research interests include unravelling the mysteries of the stratigraphic record and integrating geological and geophysical concepts.*

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Two co-authors of the April 7 Technical Program were omitted in material submitted to the April Reservoir. The Reservoir would like to acknowledge **Siegfried Joiner** (Mobil Oil Canada) and **Donald Fyvie** (Mobil Oil Canada) as co-authors of *A Geological Model for the Reservoir Architecture at Pembina*.