



PBS-SEPM NEWSLETTER



November 2013

Points of Interest

- PBS-SEPM Luncheon Talk for November
- PBS-SEPM 2014 Calendar Pre-Order
- WTGS Luncheon Talk for December

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First Vice President's Column

As we head into the holiday season and our already busy calendars become even busier, it's a good time to stop and reflect for a moment. For many of us who are involved in the oil and gas industry, 2013 has been another banner year. It's truly exciting to see the rejuvenation of the Permian Basin.

I'm in an interesting age demographic, in between the much more experienced professionals who have 30 or more years of experience, and those folks who just started within the past five. When I first entered the industry and moved to Midland in 2000, things were very different. Oil prices were just starting to climb from depths of the late 90s, activity was still very low, and resource plays as we know them now were nonexistent. As a newly minted geologist just out of school, I remember feeling somewhat envious of my friends who were working what I thought at the time were exciting, high profile projects such as Deep-

water Gulf of Mexico, or overseas. Here I was, inexperienced (and admittedly very ignorant); working some old fields in an old basin that I thought was past its prime. What a difference a few years makes. The Permian Basin again is an exciting place to be; truly at the forefront of technology and science. Certainly, new completion technology and favorable oil prices have contributed to this, but at the end of the day it's still good science and intellectual curiosity that has made this revolution possible. Even with the tremendous growth of production, I still think were in the early days of really understanding why these plays really work, and there is much more potential to be realized.

One of the primary missions of the PBS-SEPM is to help promote geoscience, and sharing of the geoscience of Permian Basin. Through our luncheon meetings, field trips, core workshops, and other educational activities, we

hope to continue to provide this service to our members. That's why I decided to get involved as a board member. I would like to thank our members for their continued support, and encourage you to consider volunteering to serve on a committee, or even run for elected office on the board in the future.

Happy Holidays

John Leone

1st Vice President
PBS-SEPM 2013-2014
<http://www.pbs-sepm.org>

Mark Your Calendars!

NOVEMBER

- **12: WTGS Luncheon:** Ken Williams, (Halliburton); Source Rock Reservoirs (Midland Center; 11:30-1:00 PM)
- **14: WTGS Fall Social:**
- **19: PBS-SEPM Luncheon:** David Hume, (Canadian Discovery, LTD.); Structural Fabrics in Unconventional 'Mudrock' Reservoirs (Midland Center; 11:30-1:00 PM)

DECEMBER

- **10: WTGS Luncheon:** Norbert Dickman (Fasken Oil & Ranch) Permian Basin and Fasken (Petroleum Club of Midland 11:30-1:00 PM)

JANUARY

- **14: WTGS Luncheon:** Harry Rowe, BEG; Eagleford Chemostratigraphy (Midland Center; 11:30-1:00pm)
- **21: PBS-SEPM Luncheon:** Ned Frost, Ph.D., (BEG); New Carbonate Plays in the Mississippian Lime of the Bend Arch Area, Texas. (Midland Center; 11:30-1:00 PM)

PBS-SEPM Executive Board (2013-2014)

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Do you have an idea for an interesting luncheon talk? Have a core workshop you'd like to present? Have some suggestions on how PBS-SEPM can better serve the geologic community? Just click on the e-mail above & drop us a note, your PBS-SEPM Executive Board would love to hear from you!



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"Science is facts; just as houses are made of stone, so is science made of facts; but a pile of stones is not a house, and a collection of facts is not necessarily science."

*-Jules Henri Poincaré
(1854-1912)
French mathematician*

If you are interested in a sponsorship opportunity, please call Paula Mitchell-Sanchez for more details at (432) 683-1573.

PBS-SEPM Luncheon Talk

David Hume

"Structural Fabrics in Unconventional 'Mudrock' Reservoirs"

By *Graham Davies, **Meridee Fockler and **David Hume

Tuesday, November 19, 2013 - Midland Center, 11:30 a.m.

Abstract

The rapid expansion in exploration and development of fine-textured unconventional hydrocarbon reservoirs (siltstone, mudstone, shale: 'mudrock') has increased interest in the significance of several types of structural fabrics revealed by core examination. The two main fabrics described here are designated 'polished slip faces' (PSF), typically with slickensides and 'cleavage.' These fabrics are being linked to higher production intervals in several formations in western Canada and Montana. PSF and cleavage in variable frequency have been documented in Devonian, Mississippian, Triassic and Cretaceous rocks in the Western Canada Sedimentary Basin (WCSB), mainly in siliciclastic units, but also in limestones. Occurrence of PSF and cleavage in the WCSB appears to be most common within 100 kms of the Foothills Deformed Belt, and to increase in frequency toward that structural margin.

Analysis of these structural fabrics provides insights into the subsurface stress regime, orientation of stresses, temperature exposure, degree of organic maturation, relationship to overpressuring, generation of bitumen/pyrobitumen, horizontal and oblique shear displacement associated fluid types and mineralization, timing of formation, and other products and processes. Interest is driven by the possibility that these fabrics may play a role in decisions regarding orientation of horizontal drilling, and that they may influence orientation and behaviour of hydraulic fractures. This talk summarizes some of the current (but still evolving) observations and interpretations of PSF and cleavage fabrics.

*Graham Davies Geological Consultants (GDGC) Ltd.

**Canadian Discovery Ltd.

Biography



Dave Hume is a professional geologist with 30 years of experience. He received his Bachelor of Science in Geology from the University of Alberta in 1982. His expertise straddles sedimentology, sequence stratigraphy and geological modeling as it relates to the development of exploration and development prospects.

Prior to joining Rakhit Petroleum Consulting Ltd. (RPCL) — the predecessor to Canadian Discovery Ltd. (CDL)—in 1990, Dave was the senior geologist of an intermediate oil and gas production company in Calgary, where he gained direct experience in exploration and development geology and oil and gas operations. Dave later left RPCL to work as the senior stratigrapher with

Trident Exploration for a year, and subsequently rejoined CDL as Director of Consulting Services and Multi-Client Studies.

During his Tenure with RPCL/CDL Dave has authored or contributed to over 500 studies in North America, South America, the North Sea, Asia and the Middle East. He has presented numerous papers to the CSPG, The AAPG, RMAG and the Geological Society in London. His current focus is a study of the oil potential of the Second White Specks Zone in the Colorado Group of the Upper Cretaceous in Western Canada.

*"Science can only ascertain what is, but not what **should** be, and outside of its domain value judgments of all kinds remain necessary"*

Albert Einstein
(1879-1955)

U.S. Physicist,
born in Germany

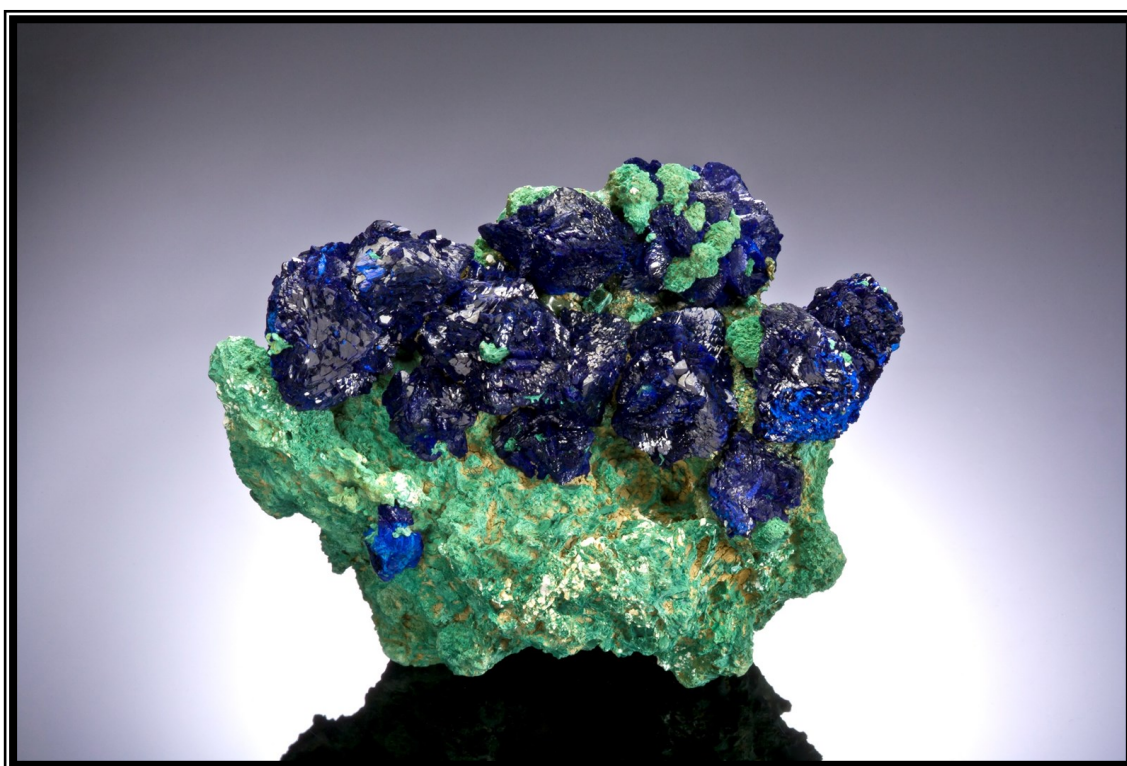
"Truth in science can be defined as the working hypothesis best suited to open the way to the next better one"

Konrad (Zacharias) Lorenz
(1903-1989)

Austrian Ethnologist
Nobel Prize for Medicine in 1973

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Pre-orders are \$10 each and we are offering a special volume discount of "buy 5 calendars, get 1 free"! Why wait? Keep one for yourself and give the others away as gifts to family, friends, valued customers, partners, and employees! This calendar is sure to be attractive hanging in your home, office or home office. Calendars will be available for pick up in October 2013. Price for each calendar increases to \$15 if not pre-ordered.

Each calendar purchase supports the ongoing educational programs of the PBS-SEPM, a non-profit organization. Proceeds go into the general fund to be used for luncheon speakers, continuing education, conventions and much more.

Fill out the form below to pre-order your PBS-SEPM Calendars today! Pre-order through November 1st.

Pre-Order Your PBS-SEPM Calendar:

Member/Non-Member Price: \$10.00 plus \$3.00 shipping and handling per calendar

Special volume discount: "Buy 5, get 1 free" [6 calendars for \$50.00 plus \$4 shipping and handling per bundle of 6]

Calendars will be ready by October 2013

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Ned Frost, Ph.D.

***“New Carbonate Plays in the Mississippian
Lime of the Bend Arch Area, Texas”***

Bureau of Economic Geology, Jackson School of Geosciences, The University of Texas at Austin

Tuesday, January 21, 2014 - Midland Center, 11:30 a.m.

Abstract

A new drilling campaign is currently underway to assess the potential of the “Mississippian Lime” (Chapel Formation) of the Bend Arch area of Texas. Traditionally Waulsortian mounds were targeted in this area; whereas, new drilling targets porous and often silica-rich, outer-ramp and inter-mound strata for oil production. Based on six continuous cores and well logs from Shackelford, Stevens, Young, and Throckmorton Counties this study aims to (1) delineate the facies patterns and stratigraphic architecture of the Miss Lime, and (2) characterize the origin and distribution of chert.

Within the Mississippian section two distinct stratigraphic units are recognized, referred to herein informally as the M1 and M2 sequences. The M1 sequence, traditionally referred to as the Chapel Formation unconformably overlies the Ellenberger Formation, the upper portion of which is often limestone within the study area. The M1 sequence begins with a succession of argillaceous crinoidal floatstones and lime mudstones which grade upward into a progradational package of crinoid and bryozoan rich rudstones and grainstones. Waulsortian Mounds are common within the M1 sequence and are best developed in mid- to outer-ramp settings. The M1 sequence tapers basinward and transitions from grain-dominated to increasingly mud-dominated fabrics from updip to downdip. The M2 sequence begins with a landward-tapering package of skeletal-peloidal grainstones and packstones, and spiculitic lime mudstones. The M2 lime unit also transitions from grain-dominated fabrics updip to mud-dominated fabrics downdip. The M2 limestones grade upward into the Barnett Shale. The best reservoir potential exists where porous skeletal-peloidal grainstones and packstones are juxtaposed directly adjacent to the Barnett Shale.

Chert is interpreted to have formed early in the Miss Lime, and is strongly correlated with the presence of sponge spicules and inversely correlated with early-cementation trends. As such, there is a spatial control on chert, which is best developed in mud-dominated, spicule-rich, strata of the middle-to outer-ramp. Chert is absent in the Waulsortian mounds, and rare in grain-dominated crinoidal facies. Chert distribution is also temporally restricted, and is best developed bracketing the M1-M2 boundary. The stratal architecture and silica distribution described here strongly resemble the Lake Valley Formation in Sacramento Mountains of New Mexico. Whereas, the similarities between the Chapel system and Mississippian “chats” of Oklahoma are less compelling and caution is needed when comparing these two systems.

Biography

Ned Frost is a carbonate sedimentologist and stratigrapher for State of Texas Advanced Resource Recovery (STARR) group at the Bureau of Economic Geology in Austin Texas. Ned received geology degrees from the University of Colorado (B.S., 1998) and The University of Texas at Austin (Ph.D., 2007).



Prior to joining the BEG in 2011, Ned worked for ConocoPhillips in their Subsurface Technology group. Ned’s research interests are broadly focused on the interaction of structural deformation, carbonate depositional processes, and diagenesis. Ned has worked on a broad array of subsurface and outcrop projects including: the Devonian of the Canning Basin, the Mississippian of the Fort Worth Basin and Sacramento Mountains, the Carboniferous of the Precaspian Basin (Kashagan) and the North Slope (Lisburne), multiple projects in the Permian Basin and Guadalupe Mountains, as well as the Cretaceous of South Texas.

PBS-SEPM 2014 Calendar



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***"Innocence about
Science is the worst
crime today"***

Sir Charles Percy Snow
(1905-1980)
English novelist

***"The strongest
arguments prove
nothing so long as
the conclusions are
not verified by expe-
rience. Experi-
mental science is the
queen of sciences
and the goal of all
speculation"***

Roger Bacon
(1214?-1294)
English Scientist,

PBS-SEPM is the Permian Basin Section of SEPM—the Society for Sedimentary Geology. However, you do not need to be a SEPM member or a geologist to join PBS-SEPM.

Our non-profit society relies upon the efforts of dedicated volunteers to serve the geological community—primarily through educational events. These events include monthly luncheon talks, core workshops, annual field trips, and special geological publications. Additionally, we are involved on the college campuses—reaching out to future earth scientists through scholarships, discounted memberships, and offering full-time geology students the ability to participate in professional-grade field trips at little to no cost.

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***"In questions of science, the authority of a thousand is
not worth the humble reasoning of a single individual."***

- Galileo Galilei