KANSAS GEOLOGICAL SOCIETY

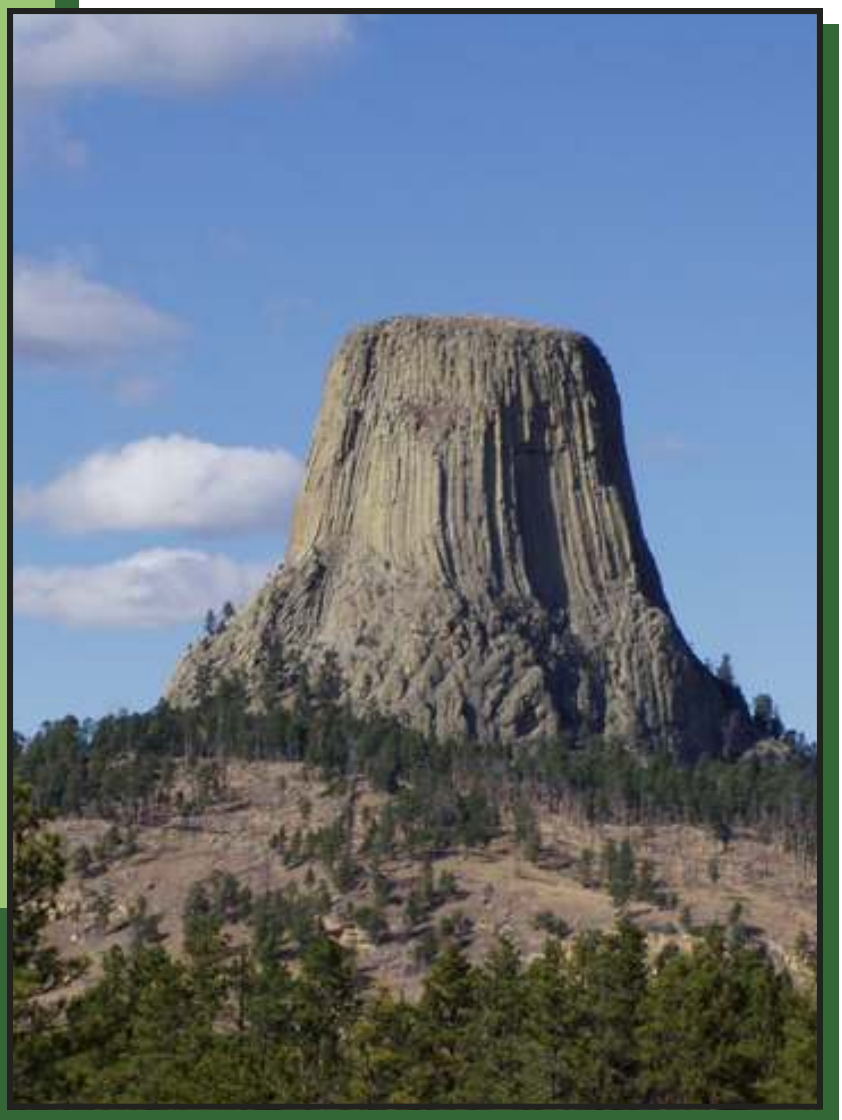
BULLETIN

Volume 85 Number 2

March—April 2010

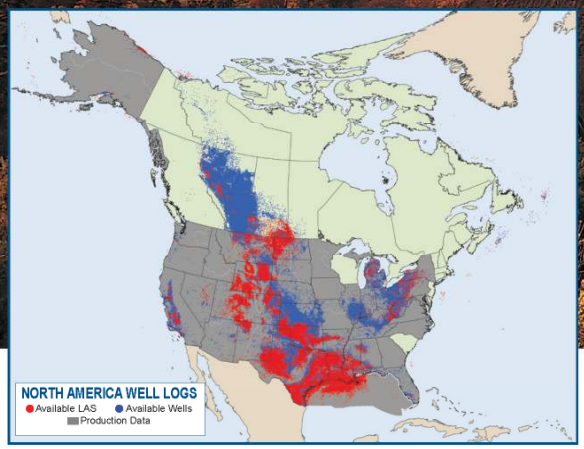
Established 1925

IN THIS ISSUE

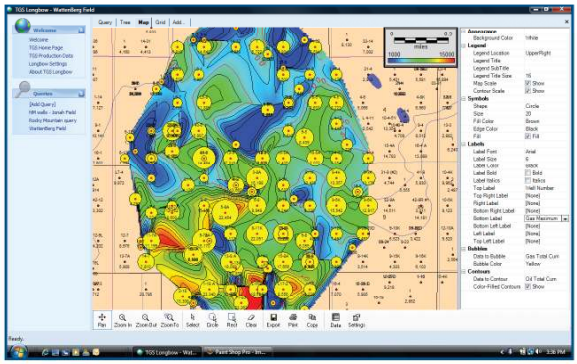


You Trust Our Well Logs.

Now Have the Same Confidence with Production Data.



States with Production Data



Longbow: Production Cumulatives

For our production database, we applied the same dedication to data quality, coverage completeness and ongoing updates that helped grow our well log collection into the industry's largest and most trusted. Working with users across disciplines, we designed our collection, delivery mechanics and the LONGBOW query and export tool to create an alternative that provides continuity and increased capabilities: all at an extremely competitive price.

For more information, contact your TGS account representative, or call toll free 1 (888) LOG-LINE.

TGS

Geophysical Products | Geological Products | Imaging Services

www.tgsnopec.com

NORWAY +47 66 76 99 00 | USA +1 713 860 2100 | UK +44 (0) 1234 272122 | AUSTRALIA +61 8 9480 0000

Table of Contents

Features:

Departments & Columns:

ON THE COVER:

A very nice shot of Devil's Tower in Wyoming submitted by Sal Mazzullo

Devils Tower rises 1267 feet above the Belle Fourche River. Once hidden, erosion has revealed Devils Tower. Also known as Bears Lodge, it is a sacred site for many American Indians. President Theodore Roosevelt proclaimed Devils Tower the first national monument in 1906.

CALL FOR PAPERS

The Kansas Geological Society Bulletin, which is published bimonthly both in hard-copy and electronic format, seeks short papers dealing with any aspect of Kansas geology, including petroleum geology, studies of producing oil or gas fields, and outcrop or conceptual studies. Maximum printed length of papers is 5 pages as they appear in the Bulletin, including text, references, figures and/or tables, and figure/table captions. Inquiries regarding manuscripts should be sent to Technical Editor Dr. Sal Mazzullo at salvatore.mazzullo@wichita.edu, whose mailing address is Department of Geology, Wichita State University, Wichita, Kansas 67260. Specific guidelines for manuscript submission appear in each issue of the Bulletin, which can also be accessed on-line at the Kansas Geological Society web site at http://www.kgslibrary.com

SOCIETY Technical Meetings

Spring 2010

Feb. 2—Dr. Tony Walton's KU Petroleum Class

Feb. 16—Rick Fritz—AAPG— "Great American Carbonate Bank"

Feb. 23—Dr. Gene Rankey—"Morphodynamics and Depositional Heterogeneity of Bahamian Holocene Ooid Shoals"

Mar. 2—Larry Richardson— "Herd Viola Pool" (Abstract page 16)

Mar. 16—David Rensink—President-Elect AAPG - "Crude Oil and Natural Gas – Where do we get it, how do we use it, and what can we say about the future? (Abstract page 8)

Mar. 23—Will Gilliland— "Development of Kansas, the Land and the State"

Mar. 30—Drs. Susan W. and James Aber— "Legacy of Mining: Aerial Photography in Southeastern Kansas and Northeastern Oklahoma" (Abstract page 8)

Apr. 6—Dr. James Puckette, Oklahoma State

Apr. 20 - Jean Lemmon, Tulsa— "TBA"

Apr. 27—Dr. Robert Goldstein— "What's New In Carbonate Diagenesis: What We Thought We Knew and Where We're Going" (Abstract page 10)

May 4—John Mitchell, - "Horizontal Drilling of Deep Granite Wash Reservoirs in the Anadarko Basin of Oklahoma and Texas" (Abstract page 10)

May 11—Shane Matson— "Exploitation of the Mississippi Chat Using Horizontal Well Bores in Osage County, OK"

May 18—Larry Richardson's WSU Class

Location for Technical Meetings

*All KGS technical presentations are held at 12:30 p.m. at the **Wichita Bar Association**, located at **225 N. Market**, ground floor conference room, unless otherwise noted.*

Note: For those geologists who need 30 points to renew their licenses, there will be a sign-in sheet at each presentation and also a certificate of attendance.

KANSAS GEOLOGICAL SOCIETY

BOARD OF DIRECTORS

PRESIDENT
Rick Saenger

PRESIDENT-ELECT
Doug V. Davis

SECRETARY
Marjorie Noel

TREASURER
David Clothier

DIRECTORS
Lynn Watney
Robert O'Dell
Ken Dean

ADVISORS
Jon Callen
Ernie Morrison

COMMITTEE CHAIRMEN

Advertising	Kent Scribner
Advisory	Jon Callen
	Ernie Morrison
Annual Banquet	Doug Davis
Budget Committee	Dave Clothier
Bulletin	Sal Mazzullo
Continuing Education	Robert Cowdery
Distinguished Awards	Lynn Watney
Directory	Larry Richardson
Environmental	Kent Matson
Field Trip	Larry Skelton
Fishing Tournament	Randy Teter
Future Plans	Tim Pierce
	Paul Gunzelman
Golf	David Barker
Historian	Larry Skelton
Investment	David Clothier
Library	Roger Martin
	Ted Jochems
Membership	Larry Friend
Nomenclature	John H. Morrison, III
Picnic	Marjorie Crane-Noel
Public Relations	Robert Cowdery
Shooting Tournament	Larry Richardson
Technical Program	Robert Cowdery
Ticket Sales	Bill Shepherd

A.A.P.G. DELEGATES

Ernie Morrison	Robert Cowdery	Doug Davis
2010	2010	2011

BULLETIN STAFF

EDITOR
Sal Mazzullo
salvatore.mazzullo@wichita.edu (316) 978-7211

ADVERTISING
Kent Scribner
Stelbar Oil Corp. (316) 264-8378

PROFILES/MEMORIALS
Robert D. Cowdery
Consultant (316) 267-9030

EXPLORATION HIGHLIGHTS
John H. Morrison, III
Independent O&G (316) 263-8281

STATE SURVEY
Rex Buchanan
KS Geological Survey (785) 864-3965

SOCIETY NEWS
KGS Library (316) 265-8676

EDITOR EMERITUS
Wes Hansen (316) 863-7313

K.G.S. LIBRARY

PHONE 316-265-8676 FAX 316-265-1013
email: frontdesk@kgslibrary.com or
Web: www.kgslibrary.com

LIBRARY MANAGER
Rebecca Radford 265-8676
manager@kgslibrary.com

The KGS *Bulletin* is published bi-monthly by the Kansas Geological Society, with offices at 212 North Market, Wichita, Kansas 67202 The purpose of the *Bulletin* is to keep members informed of the activities of the Society and to encourage the exchange and dissemination of technical information related to the Geological profession. Subscription to the *Bulletin* is by membership in the Kansas Geological Society. Limited permission is hereby given by the KGS to photocopy any material appearing in the *KGS BULLETIN* for the non-commercial purpose of scientific or educational advancement. The KGS, a scientific society, neither adopts nor supports positions of advocacy, we provide this and other forums for the presentation of diverse opinions and positions. Opinions presented in these publications do not reflect official positions of the Society.

CAN YOU NAME THE CRITTER?

Sponsored by Trilobite Testing, Inc.

Is your paleo up to date?

If you know the name of the trilobite, submit your guess via e-mail to manager@kgslibrary.com

Remember that Trilobite Testing is sponsoring your efforts, so be sure to thank Paul Simpson the next time you see him.

Congratulations to Randy Lilak
For correctly guessing the Nov—Dec. trilobite

Okay—Randy guessed 2 in a row.
Now someone else has to guess this one!

***Bulletin* committee members and PhD's in Paleontology are prohibited from entering.**

President's Letter

As I left for work earlier this week, the temperature was 18 degrees and there was snow on the ground, black ice on some of the roads, Washington D.C. buried under a couple of feet of snow, and more on the way. Now there is a foot of snow in Dallas and it is snowing in the Florida Panhandle. If it wasn't for man-made Global Warming, we would really be in the deep freeze!

As I look at the very bimodal age distribution of our membership, I wondered what the society and Library memberships will look like in 5 and 10 years. How many of us will be actively exploring in Kansas at the end of those two timeframes? How many library members might we have? An all member survey has been done well over ten years ago, so it should be beneficial to gather data to help us plan for the future. I will speak more to this survey in the next Bulletin.

History has not always been my favorite subject, as Geology and Geophysics have trumped that study, but as I have seen more history throughout my life, I have learned to appreciate it more. One of my favorite Technical Talks of last year was by Dr. Norman Hyne, from the University of Tulsa, who titled his lecture "The Glen Pool Oil Field and the Start of the Oklahoma Oil Boom". Wichita has a colorful oil history and many companies have been started and grown here, but Tulsa has been the home of most major oil companies and the epitome of what I would call "Oil Opulence" of the era. Since his talk, I have furthered my investigation into the subject. I recently purchased an easily read book, (since it's just picture and captions - something that I can understand), "Images of America: Tulsa: Oil Capital of the World", which has many of the pictures shown by Dr. Hyne. The era of which Dr. Hyne spoke was certainly Tulsa's Golden Age, and the beginning of a rich and interesting history of oilfield lore.

I was fortunate enough to be invited to a Christmas function at the Mid Continent Tower in Tulsa. This is a beautiful Tudor Gothic building that was built in 1918 by Joshua Cosden as the headquarters for Cosden Oil & Gas Company. It was, at that time, the tallest building in Tulsa. In 1984, twenty more floors were added above the original structure using a cantilever design that blended in with the original building. The large lobby of the building is marble with bronze accents and exhibits four large western paintings. At the end of a large hallway coming off the lobby is a finely detailed bronze sculpture of two roughnecks handling pipe tongs on a piece of drill stem held by slips in the rotary table. A stained glass panorama of the Tulsa skyline is also part of the lobby.

I think that it would be a fun and interesting field trip for members and spouses (or not) to have a weekend in Tulsa exploring some of the historical and cultural sites of the area. The Gilcrease Museum is a world class museum that displays a large collection of art by Moran, Remington, Russell, Schreyvogel, and others. I would propose an overnight stay at the Mayo Hotel, built in 1925, which has been recently restored and hosted many notable patrons. If you would like to provide feedback, please contact me at rsaenger@hs-geo.com.

Respectfully submitted,
Rick Saenger

Abstracts for upcoming technical meeting speakers

Dr. Gene Rankey
Morphodynamics and Depositional Heterogeneity of Bahamian Holocene Ooid Shoals

Oolitic strata are ubiquitous in the stratigraphic record. Although the sedimentologic criteria indicative of shoals, their subfacies, and the general factors that control the distribution of shoals on platforms have been well documented, details of the spatial geomorphic and sedimentologic patterns within individual shoals, the processes active within these shoals, and feedbacks are less systematically explored. To start to fill this gap, the goal of this talk is to summarize persistent themes in landscape-scale patterns and depositional processes from Holocene tidally-dominated ooid shoals of the Bahamas. The insights provide information on the origins of possible shapes of oolitic geobodies and trends in depositional porosity and permeability that could be present within the bodies, information useful for building more robust reservoir models.

Geomorphic, sedimentologic, and hydrodynamic observations from oolitic systems in the Bahamas illustrate that:

1. Shoals are characterized by systematic trends in grain type, size, and sorting. At the largest scale, many oolitic facies belts include a platformward fining trend related to wave and tidal energy dissipation. Similarly, sedimentology across individual bars varies. Commonly, where bounded by fixed (e.g., rocky) margins, channel sediments are coarser than bar crests; if mobile sandy bars flank channels, bar crests include coarser sediments.
2. Sedimentologic trends are shaped by close linkages and feedbacks among hydrodynamics, morphology, and sedimentology. In many systems, mutually evasive tidal flows establish a net circular flow pattern around oolitic bars, facilitating transport of ooids as they encircle bars, but their remaining in the shoal system, facilitating growth of ooids.
3. Bar morphology is closely related to flow velocity, and feedbacks can result in the emergence of a series of bars with similar geomorphic shapes, as oolitic bars concomitantly are formed by, and direct, tidal flows.
4. Although many shoals are influenced by lateral restriction from bedrock highs, shoals do not require underlying highs on which to nucleate.
5. Shoals are not markedly impacted by tropical storms. Instead, day-to-day processes appear more significant in shaping their morphology.
6. Shoals are morphodynamically akin in numerous ways to siliciclastic systems, even though their carbonate sediment can be produced and cemented in place.

Crude Oil and Natural Gas – Where do we get it, how do we use it, and what can we say about the future?
David G Rensink

Our government continues to wrestle with a national energy policy, and the members of the oil and gas community continue to question how the government can develop a national energy policy when the policy makers do not seem to know the facts. What are the basic energy facts every American should know? AAPG can help with that. Have you ever heard something said about energy on the radio or in conversation that did not sound right, but you did not have the facts at hand to refute it? We can help with that. AAPG is developing a website to provide our members and the public with energy information in a concise, graphical form without much interpretation attached to it. This presentation makes use public data to show how energy use has changed over the last few decades and makes some general predictions about the next few decades.

"Legacy of mining: Aerial photography in southeastern Kansas and northeastern Oklahoma."
Drs. Susan and James Aber - Emporia State

Abstract: For more than a century, beginning in the mid-1800s, mining lead, zinc and coal in the Tri-state district supported economic growth in the region. Both ground and aerial photographs were employed to promote the mining industry. Mining was portrayed in positive terms as essential for national industrial development, economic strength, and military needs. Following World War II, however, Pb-Zn mining began a long decline, and most of the mines were closed by 1970. By the late 20th century, the negative consequences of uncontrolled mining had become readily apparent, and the positive image of mining was replaced by a legacy of severe pollution, collapsed and wasted land, ruined communities, and serious environmental and human-health issues. New methods of remote sensing were utilized. Satellite imagery and manned-space photography provide synoptic, region-wide overviews of the devastated landscapes. We have applied small-format aerial photography (SFAP) for obtaining large-scale images that depict surface features in great detail. Kites and a helium blimp are utilized to acquire vertical and oblique views using radio-controlled camera rigs. Pictures taken from heights of less than 150 m have exceptionally high spatial resolution (2-5 cm). Preliminary SFAP has been collected already at West Mineral and Galena in Kansas as well as Picher, Oklahoma. SFAP of a passive water-treatment facility at Commerce, Oklahoma demonstrates the potential of this method for highly detailed investigations of relatively small sites (few hectares). Repeat visits to these and other sites will provide imagery for documenting the effectiveness of reclamation and remediation efforts in future years.

Continued on page 10

From The Manager

Dear Members,

Here's hoping that by the time you are reading this that winter has started to wind down! We feel for you guys that have been out sitting on wells this winter. Your credo is better than the mailman's…..through sleet and snow and muddy roads……...through walking in to a well site…….you are all to be admired for your gumption!

The Library has been fairly busy this winter with processing orders and we thank you all for that business. We are getting several of you to use our new Neuralog color printer for your plotted geo reports and if you haven't tried us for that service, please consider it. You can email your files to tammy@kgslibrary.com and Tammy will make sure you get the best copy possible!

We have our annual Bass Tournament coming up this spring on Friday, April 23rd. This year the committee has chosen Chase County Lake which sounds like a little piece of heaven right here in Kansas! See the flyer that is inserted in this issue or if you are looking on-line, go to Events tab and you will be able to download the Entry Form.

The KGS will be attending AAPG in New Orleans this April so if you are also attending, please stop by the booth to say hi. I will be there showing our new software so it would be a good time to check that out if you haven't seen it yet. The flow of new data into the system has begun and in the month of February, over 80,000 new images were added. You will see this continuing throughout the spring months so if you have checked an area for information on the digital library at some time in the past, you might want to keep checking to see what new information has been added. We are also adding all of the **East range** headers and will work in the future to add images to those headers.

Please join me in welcoming Tom Dudgeon, our newest employee at the library. Tom is a geology student at Wichita State and we are very glad to have him on board.

Respectfully submitted,
Rebecca Radford

Let Us Print Your Geo Reports
And Save Your Time For Finding More Oil & Gas

Top Quality Color Printing For Our Membership

Email your files to: tammy@kgslibrary.com

The Kansas Geological Society & Library

Abstract continued from pg. 8

WHAT'S NEW IN CARBONATE DIAGENESIS: WHAT WE THOUGHT WE KNEW AND WHERE WE'RE GOING

ROBERT H. GOLDSTEIN

University of Kansas
Department of Geology
1475 Jayhawk Blvd, 120 Lindley Hall
Lawrence KS 66045
gold@ku.edu

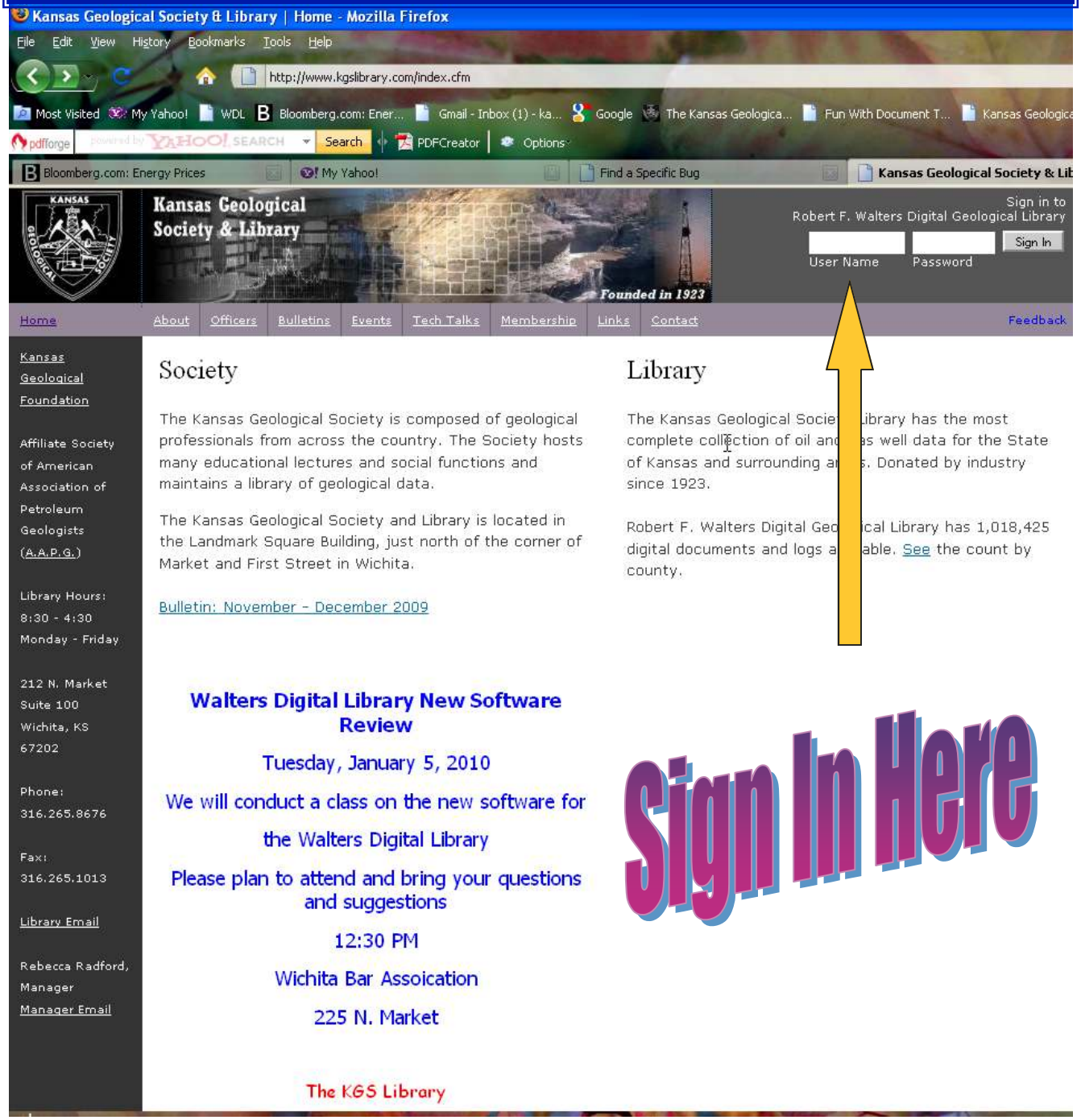
Porosity prediction remains a fundamental challenge in carbonate reservoir work – one in which we still must learn what rules apply for making predictions with accuracy. Most researchers have been fed a steady diet of freshwater vadose, freshwater phreatic, mixing zone, and marine diagenesis at low temperature. The simplistic views of these systems have commonly held that if you get one of these salinity realms, then you get a particular diagenetic product in the rock -whether it is dissolution, cementation, or replacement. The idea that predictable salinity realms should lead to a predictable diagenetic record has been pervasive, but the rock record and modern systems tell another story that should lead us to rethink this model. It is clear that many variables must be included in models of low-temperature meteoric systems, including fluid flow, pCO_2, degassing near the water table, mixing at the water table, microbially controlled chemistry, and rates related to unstable minerals. Much porosity and calcite cement forms in environments other than low-temperature meteoric systems, and has been ascribed inappropriately to meteoric waters. It also has become apparent that seawater can no longer be treated as a constant. Its composition has varied enough over time to yield different diagenetic reactions than modern systems. Work on mixing zones has made great progress, and is more complex than expected. Finally, those searching for reservoir porosity in carbonates may have underestimated the importance of reflux, hydrothermal systems, microbial controls on water chemistry, and direct microbial controls on nucleation and precipitation.

Horizontal Drilling Of Deep Granite Wash Reservoirs in the Anadarko Basin of Oklahoma and Texas

John Mitchell
St. Mary Land & Exploration Company
Tulsa, Oklahoma

Since 2002, over one hundred horizontal gas and condensate wells have been drilled in Wheeler Co., TX and in Roger Mills, Beckham, Custer and Washita Counties, OK. These wells produce from Desmoinesian and Atokan Granite Wash reservoirs at depths between 12,000 and 15,000 feet. Most of the horizontals have been development wells in reservoirs already defined by vertical wells, but in a large area of Washita County many of the horizontal wells were exploratory tests that have now merged into a single field. The Granite Wash bearing portion of the Desmoinesian Series ranges in thickness from 1,800 to 3,100 ft across the area. It is comprised of a lower carbonate rich sandstone interval referred to as the "Skinner Wash", a middle interval of silty marine shale, and an upper series of arkosic sandstones known as the "Marmaton Wash". The initial fifteen horizontal gas wells were drilled in the Skinner Wash in southern Roger Mills County, Oklahoma between 2002 and 2006. Since late 2006 over one-hundred Marmaton Wash horizontal gas and condensate wells have been drilled, mainly in Washita County, Oklahoma and in Wheeler County, Texas. Recently a number of highly productive horizontals have been drilled in arkosic wash in the upper portion of the Atoka series in Wheeler Co. Horizontal wells typically demonstrate much higher initial rates than nearby vertical wells and also see a 3X to 5X improvement in ultimate recoveries. Greater recovery efficiencies and better economic profiles can be achieved in these reservoirs through horizontal drilling rather than vertical drilling. Lateral lengths and reservoir stimulations techniques have varied among operators, with four or more fracture stages being applied along laterals as much as 5,000 feet long.

Below is a screen shot of the KGS website where you now access the Robert F. Walters Digital Library
www.kgslibrary.com



Security for AAPG Members
& Their Families
Through Group Insurance

Life
Health
Dental
Disability
Auto and Homeowner
Supplemental Plans

AAPG's
GeoCare Benefits Insurance Program
P. O. Box 189
Santa Barbara, CA 93102-0819
800-337-3140
E-mail: geocarebenefits@agia.com
www.geocarebenefits.com

KANSAS GEOPHYSICS IN THE 21ST CENTURY

A symposium to be held in
Wichita in the fall of 2010.

An update of the Kansas Geological Survey's Bulletin 137 (1959)
Symposium on Geophysics in Kansas

Sponsored by:

Kansas Geological Society
Kansas Geophysical Society
Kansas Geological Survey

Watch for time & venue

Kansas Geological Foundation Video / DVD Collection

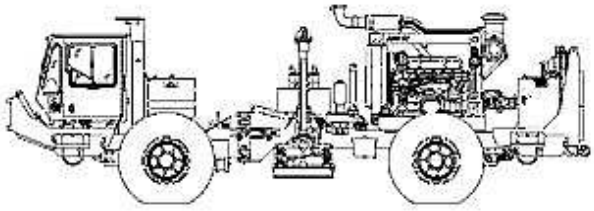
The KGF has an extensive collection of videos available for check-out at no charge.
Only pay for shipping back.

These are ideal for classroom or general public viewing.

See the web for
titles & descriptions
www.kgfoundation.org

Call 316-265-8676
Ask for Janice to check out videos

PARAGON
GEOPHYSICAL SERVICES, INC



~The TOP CHOICE for 3D SEISMIC~

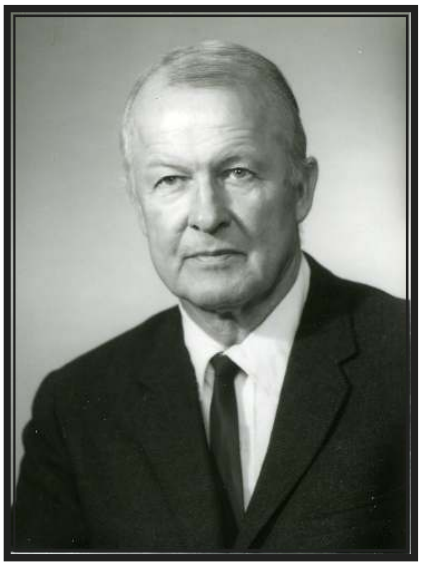
John H Beury III ~ Pres John Aguilar ~ Op. Mgr.

PHONE (316) 636 - 5552 FAX (316) 636 - 5572

3500 N. Rock Rd., Bldg 800, Suite B
Wichita, KS 67226

paragon@paragongeo.com

Profile — *William Clark*



Floyd Clark (my father) dropped out of college at Missourian Wesleyan (now defunct) and joined a Missouri Guard unit which soon found itself mobilized to help General "Black Jack" Pershing catch Poncho Villa, after Villa's raid on Columbus, New Mexico. One of dad's fellow soldiers was another Missourian named Harry S. Truman. After Gen. Pershing gave up trying to catch Gen. Villa, the guard unit was returned to Missouri and demobilized. After a year it was again mobilized and sent to France, again with Mr. Truman to help fight the war to end all wars. When that was over, Dad again returned to Missouri with skin burns and lungs full of mustard gas. Eventually he grew restless and went to northeastern Colorado to engage in cowboying for an uncle.

Ella Hammand's (my mother) family moved from South Dakota to Fort Morgan, Colorado, where she graduated from high school. While there, she played in the school band with a trumpet player named Glenn Miller. She was fond of saying that her one claim to fame was that she played in the Glen Miller band. After high school she attended Northern Colorado State at Greeley long enough to obtain her teaching credentials.

While teaching in a country school in northeastern Colorado, she met (at a school dance I think) a cowboy named Floyd Clark. The courted married, and set about producing a family of six children. Of these, I was third in order or appearance. Despite the insistence of a registration clerk at K State that I tell what town I was born in, that would have been misleading. I was born in a farm house along Salt Creek in southern Osage County, Kansas. I was named William after another William Clark, whose adventures so far have surpassed mine. During the depression my family moved to Topeka where we lived a block from the Washburn University campus. It was there that I learned to play golf on their 9-hole sand-green course and hung around the Biology Department where Prof. Kingman let me help feed the reptiles on Saturday mornings. It was also there that I decided teaching would be an attractive way to spend one's working years. I enlisted in the U. S. Navy aviation cadet program while I was still a high school senior. Although they didn't call me to active duty until I completed the requirements for graduation. When graduation time arrived my commanding officer showed me a letter from my high school principal, asking if I could come home for graduation. The commanding officer explained the reasons he felt compelled to refuse. And so technically, I never graduated from high school. The Navy wouldn't let us near their airplanes until we were better educated and I spent much of my service involved in that process. During the war I never had to shoot anybody. The only time I ever drew my weapon was when I was herding a group of prisoners from the station brig at a California base. And they were on our side, sort of. After the war I returned to Notre Dame (I had been in school there earlier) and received the B.S. degree in 1947. At Notre Dame I studied geology with Dr. Archie MacAlpin which stirred my interest in doing things out of doors. Then I enrolled in the Geology Department at Kansas State, completing my M.S. in 1950. During my stay I served as a graduate assistant and later as a temporary instructor. After graduation from K-State I worked for the National Associated Petroleum Company (now defunct) of Tulsa doing well-site geology and surface geology. I was based in Tulsa and then El Dorado, but the work took me all over the Midcontinent. Eventually with the prospect of teaching in mind, I entered a doctoral program at the University of Colorado. While involved in this I spent a couple of summers with the U. S. Geological Survey doing surface geology in Wyoming. During one of these summers my boss was Ernie Rich, who later was dean of mineral studies at Stanford. In the fall of 1956, I hired on as an instructor at Kansas State, and spent the next several years immersed in physical geology and paleontology. But the doctorate became more and more elusive and eventually the dean and I agreed that my future lay elsewhere, and I started the transition back into petroleum geology.

During this transition, I received help from a number of persons. The ones that come immediately to mind are Charles Steincamp, Dick Robey, Don Strong, Lee Paulsen, Bernard Lounsbury, Gerald Becker, Hal Brown, Harold Tripp and certainly others. Many of them are classmates from an earlier time and I caution students now to get to know the people they spend time with in class and maintain ties as much as possible after graduation, not just because you enjoy their company but because the time may come when you need to lean on each other.

While I was working out of Tulsa I married a young lady I had met at Kansas State. The marriage only lasted 35 years (better than some, I'm told), but it produced two attractive young ladies. The first one appeared after we had been married nine years; we were told after that we had got the significant time units all wrong. The older girl is married to a mechanical engineering graduate from Kansas State and lives near Mannford, Oklahoma. He commutes each day to an aircraft design job in Bristow, Oklahoma. The younger girl married a biology graduate from Kansas State and lives in Hays, Kansas. She graduated from Kansas State with a biology degree and

from North Carolina State with an M.S. in Entomology. She and her husband teach at Fort Hays State University, she part time. The rest of her time is spent raising two small boys. You will note that both girls married Kansas Sate graduates. It's one of the advantages of living in a university town.

Most of us as we go through life accumulate memories of events that we have experienced. Here are some that I have been involved in others have related to me during my life as an geologist. Once I was sitting a well on a promising seismic prospect in Illinois which management had directed was to be held "tight" at all costs. This is usually a difficult enterprise. The farm was owned by a nice older couple who had received an attractive offer for all or any part of their landowner's royalty. And so we were treated, day after day, to a delicious hot lunch, while the couple hoped we would at least drop a hint to help them to decide. Always believed that the royalty offer came from my company's management – indirectly or course. In that case, the wrong statement to the couple would have been a good way to get fired The well, of course, turned out to be a dry hole. I decided then "whole hog or none" philosophy can be treacherous.

The glacial changes of the Illinois Basin are legendary. One winter a National Associated engineer driving a road in which the deep ruts had frozen and had most of his brake liners torn off by the frozen ridges of clay. He nursed his car into a Terra Haute garage using lower gear and the hand brake. The garage had a two story arrangement, with an elevator to move the cars up and down. The entrance was on the upper floor. The service manager wrote down the work order, got in to move the car and forgot two important items: (a) he forgot he had been told the car had no rakes, and (b) the elevator was in the down position. I think the engineer received a new car unlike Shell field personnel in this country who received instructions from Amsterdam to use bicycles for their field work as a cost cutting measure.

I remember a derrick-floor accident on a drill rig in Illinois resulted in one of the hands being thrown several feet off the derrick floor into the mud. When he was unable to raise himself, the crew assumed he had become paralyzed and they were on the verge of calling an ambulance. But when enough hands arrived to extricate him from the mud, they discovered he was mostly unhurt. He had only been held fast by the tenacity of the clay.

Another memory is **w**hen I worked for the USGS in the Powder River Basin, we went to town on weekends to take a bath and get groceries. One Saturday night in Gillette, I talked with an old lady who had grown up near Buffalo on the west side of the basin. She said her earliest childhood memory was of the day her mother wouldn't let her in the front room of their house because they were hanging a lady across the road. The great horror at this event was a nice Kansas girl from up near Reamsville in northern Smith County. She wasn't one of the rustlers. She was engaged in another business and some of the rustled stock ended up in her corral.

Some of our college students grumble about how hard they had to work to get that B. S. degree. It used to be harder. The last victim of the Indian wars in Campbell County, Wyoming was a University of Wyoming student who was on his way back to Laramie for the fall semester and was caught by the Sioux in the southern end of the county.

An old sheepherder told us this tale (in the book of Luke they are always called "shepherds" and I don't know why) One afternoon while he was tending his flock in the high meadows of the Big Horns, he said down on a log to rest, and soon notice one end of the log contained a number of arrow points. He devised a scenario in which a hunting party had treed a bear or a bobcat. They finally brought the animal down but left a number of their arrows embedded in the tree, where they remained until the shafts rotted away. They tree grew old, died, fell to the ground and remained until the herder came along and discovered the points. A fair number of the points were made of sheet iron instead of flint. Collectors of arrow pints report that a Chicago company stamped out steel points, which through the commerce of the day found their way to the end users who used them to shoot, or antelope or white eyes.

I remember **o**ne night as I was leaving a well location in southern Osage County, Oklahoma along a twisting, narrow road, I met the land owner and a friend on their way back from town. I stopped to let them pass on the narrow one tract road. They stopped too, pulled out their bottle and insisted I have a drink with them. I declined explaining that I couldn't drink while on the job. They finally drove on, clearly annoyed at my refusal that I had committed a serious faux pas.

My brothers were dentists and I have admired their income and their neat vacations and summer homes, but I suspect my life has been more interesting that theirs, and I notice that some geologists when they leave their working life as geologists still pursue some aspect of it as a hobby. As my brothers tell me one eventually becomes weary of looking down people's mouths.

The problem of periodic down turns in employment as petroleum geologists has been addressed by the A. A. P. S., which has had sessions at conventions devoted to guiding geologists into other occupations where their skills can be useful. I have looked wistfully at professions that don't have the cyclical nature of the petroleum industry. This issue was treated recently in the AAPG Explorer (was it by Scott Tinker?). Still if I had it to do over I'd probably make the same decisions. Those occupations that involve much time enclosed within four walls always seemed a little too much like prison life. Many mornings I have stood beside a drilling rig, watching the sun come up over a patch of God's beautiful earth and wondered how I got so lucky.

Herd Viola Pool Trend

Comanche County, Kansas
By Larry J. Richardson
Pickrell Drilling Co., Inc.
100 S. Main, Ste. 505
Wichita, Kansas 67202
(316) 262-8427
Lrichardson@pickrelldrlg.com

Abstract

The area of the pool study covered in this paper is located just southwest of the town of Coldwater, Comanche Co. Kansas in T32S-R19W. Originally, the objective of this study was to characterize the occurrence of oil and gas in the Herd Viola Pool, but drilling and development following the discovery of Viola oil in the pool actually turned out to encompass parts of five officially designated pools and included production not only from the Viola, but also the Mississippian and Marmaton. While these other producing stratigraphic units were mapped and will be discussed, the primary focus of this paper will remain with the Viola in and around the Herd Pool.

In late 1997, Thoroughbred Associates of Wichita, Kansas, drilled the discovery well for the Bird Northeast Pool with their #1 Bird at the C SE SW Sec. 16-T32S-R19W on a pronounced, seismically-defined structurally high feature. The well ran very high structurally to the sparse surrounding well control and had significant shows of gas from two Lansing-Kansas City zones as well as Marmaton Altamont and Mississippian St. Louis. The #1 Bird was offset successfully by the Thoroughbred #1 Rietzke at the N/2 NE NW Sec. 21-T32S-R19W based upon a 3-D seismic survey that was acquired after the drilling of the #1 Bird discovery.

Based upon the 3-D seismic survey, in early 2000, Thoroughbred drilled the #1 Herd, one mile to the east of the Bird and Rietzke wells at approximately E/2 SE SW Sec. 15-T32S-19W in an attempt to further extend the prolific gas production found in the Bird and Rietzke wells. Commercial shows were, in fact encountered in the Marmaton and Mississippian during drilling, but the most significant surprise was found in the upper Viola (middle Ordovician). The well was completed through perforations in the Viola flowing over 400 BOPD through a ¼" choke and has proved to be one of the most, if not the most significant oil discoveries in Kansas in the last decade. The discovery of Viola oil of this magnitude resulted in much leasing and drilling in the area and a play over the next 6 years that resulted in 65 new wells being drilled in the immediate vicinity of the Herd discovery well resulting in 50 producing wells and 13 dry holes. To date, over 2.3 MMBO and 19 BCFG[1] has been produced from these wells.

One of the most interesting aspects of the Viola production in the Herd pool is that the main trapping mechanism appears to be paleogeomorphic in nature. That is the dolomite reservoir in which the oil and gas is trapped only exists in erosional remnants or "hills" on the Viola unconformity surface where the stratigraphic interval which contains the reservoir is preserved. Detailed isopach mapping can reveal the presence or absence of the stratigraphic interval that is preserved after the erosional episode has passed. The erosional nature of the Viola unconformity is further complicated by local early post-Viola faulting which has affected local erosional patterns and subsequent deposition of overlying Kinderhookian age sediments.

—Larry Richardson will be our speaker on March 2nd at the Kansas Geological Society Technical Meeting

Kansas Geological Society Board Minutes

Note: Official minutes of KGS Board meetings are available at the KGS Library.

January 12, 2010 President Rick Saenger called the meeting to order at 11:35 A.M.

A. Treasurer's Report- Mr. Clothier presented the Treasurer's Report, as presented to him by past-Treasurer Mrs. Isern. *Mr. Clothier motioned to accept the Treasurer's report as presented, Mr. Davis seconded the motion and the motion passed unanimously.*

B. **Manager's Report-** Mrs. Radford presented the Manager's Report as of December 31, 2009. The library had a monthly income of $38,093.51 with expenses at $41,696.01. The Society ended the year with 713 Society members and 261 Paper Library members. Ms. Radford also reported the yearly income for the Walters Digital Library was $126,888.25 ending the year with 162 members.

OLD BUSINESS

A. WDL Update- Database & Programming- *Mr. Davis made a motion to accept the 2010 contract based on the recommendation of the WDL committee and the programmers statement of work. Mr. Dean seconded the motion and the motion passed unanimously.*

B. Type Log Committee- January 12, 2010 was postponed to a future date.

C. Geo-Tech Membership– Discussion regarding re-vamping this category of membership. No decision made at this time.

NEW BUSINESS

A. Possible Field Trips—were discussed and will be decided on at a later date.

B. Promoting New WDL Software at AAPG New Orleans

C. WDL- All Member Survey- Future Plans Committee should look into this.

D. Employee Performance Review - to be discussed at a later date.

E. Publishing Board Meeting Minutes in KGS Bulletin

The meeting was adjourned at 1:40 PM

February 9, 2010 President Rick Saenger called the meeting to order at 11:40 A.M.

A. Treasurer's Report- *Mr. Davis motioned to accept the Treasurer's report as presented. Mr. Watney seconded and the motion passed unanimously.*

B. Manager's Report- Mrs. Radford presented the Manager's Report as of January 31, 2010. Reporting a monthly income of 39,677.36 with regular expenses at $41,530.75. The library membership stands at 512 Society members so far in 2010 with 126 Paper Library members. Ms. Radford also reported that the Walters Digital Library had income of $18,633.00 with 172 members.

OLD BUSINESS

A. Geo-Tech Membership Category- Mr. O'Dell will look over current student guidelines and come up with recommendation.

B. Membership Survey- Mr. Pierce and Mr. Gunzelman have been out of town. Both agree to help.

C. Employee Review Process– Mr. Saenger will bring this to discussion at a later date.

NEW BUSINESS

A. Mazzullo-Wilhite Field Trip- Dr. Sal Mazzullo and Mr. Brian Wilhite would like to plan a field trip to study Mississippian outcrops. The goal is to have this field trip the first week in October.

B. Inter-School Prize Competition- Mr. Saenger has introduced the idea of having a contest for undergraduate and graduate students studying Kansas fields. Mr. Davis, Mr. Morrison, Mr. Watney and Mrs. Noel volunteered to start a committee.

C. Change Board Meeting Dates for April & May- The April meeting has been moved to April 5th and the May meeting to May 13th.

D. AAPG Delegates- Mr. Morrison, Mr. Cowdery and Mr. Davis

E. WDL Committee Meeting- The WDL committee will meet on February 24th.

The meeting was adjourned a*t 1:15 p.m.*

Respectfully submitted,
Marjorie Noel, Secretary

Memorial to Carroll Van Buskirk

With the passing of Carroll Van Buskirk on January 17th the Kansas Geological Society lost a valuable and highly respected member. Carroll (Van) was born in Avard, Oklahoma near Alva Oklahoma in 1927. He was raised with four brothers and one sister all deceased. He received his schooling prior to college there and graduated in a high school class of seven in 1945.

Van as he preferred to be called attended Northwestern State in Alva for two years before transferring to Oklahoma A & M (Oklahoma State) where he graduated in 1951 with a degree in Geology and a minor in chemistry and Petroleum Engineering. Two of his classmates were Boone Pickens and Merv Mace formerly a geologist in Wichita, now deceased.

Following graduation, he was employed in the summer by Wendell Johns and Jack McGathan, two prominent Wichita Geologists. Van was then employed by Monark Mining in NW Arkansas for a short period. Following this employment he joined Alfred Ainsworth of Wichita where he became involved in core drilling. Later he was transferred to Scobey, Montana.

In Scobey, he met Haddis Barstad, a registered nurse and they were married in 1953. She survives, as do the three children born to this union: Linda Cope, Steve Van Buskirk, and Kent Van Buskirk and also four grandchildren.

The following year, Van joined Homestake Royalty and Homestake Oil and Gas in Tulsa. With the accidental death of his brother-in-law in 1956, Van moved to Independence, Kansas to help his sister with her deceased husband's business, Bison Oil, a company involved in trucking and pipelining oil.

In 1967, Van was named City Manager of Independence, a position he held for eight years. During that employment he was involved with building an industrial park, building ball parks, building structures for Riverside Zoo, renovating the airport and getting started 101 senior citizen high rise units. He then re-entered the "oil business" and in 1979 moved back to Wichita and formed Vanmax Exploration.

Van remained an Independent in Wichita until 2000 when he retired and moved to Black Forest, Colorado near Colorado Springs. A memorial service for Van was held at the Black Forest Lutheran Church on January 22nd.l Donations in Van's memory may be made to Black Forest Cares c\o Black Forest Lutheran Church at 12455 Black Forest Road, Black Forest, Colorado, 80908

Memorial to Don Strong

With the passing of Don Strong on January 19th, many KGS members lost a long time friend and the petroleum industry lost an outstanding geologist. Don was born in 1927 in Morland, Kansas and attended grade school and High School in Hill City. After graduation from high school, Don enrolled at Kansas State University as a Physical Science/Geology major. After graduation, Don began his professional employment with Skelly Oil where he worked for five years. Included in this period were two years that Don spent in the Army during the Korean War. Don terminated his employment with Skelly in 1955 and joined Imperial Oil. In 1961, Don resigned from Imperial and commenced his consulting geologist practice.

In 1962, Don married Lou Ella Siemsen-Zajic. Together they had three children: Layton Strong and his wife Shelley live in Pleasant Valley, Missouri, Richard Zajic and wife Sharyl live in Tonitown, Arkansas and Vicki and her husband reside in Wentzville, Missouri.

From Don's own description, it is readily apparent that he really enjoyed his career including in particular his work as a well-site geologist. Don served the Kansas Geological Society as Library Chairman during the first two years of the library's existence. In 1955, Don and Lou moved to Arkansas. While in Arkansas, Don continued to pursue some of the activities that he enjoyed in Wichita including fly fishing using flies that he had tied, bird watching, reading and in particular "flint knapping". He and Lou attended8 to 10 "Knapp Ins" and artifact shows each year. If you wish to remember and honor Don, memorials have been established with Johnson Center for Basic Cancer Research, 1 Chalmers Hall, Kansas State University, Manhattan, KS 66506 and Christ by the Lake Lutheran Church, 1304 CS Woods Rd, Bull Shoals, AR 72619.

Memorial to Gordon Cox

(Information for this memorial was derived from a memorial in the Rocky Mountain Association of Geologists "Outcrop" written by Walt Johnson and permission was obtained from him to use the information. Also considerable information was obtained from his widow, Lydia Cox)

Gordon Cox maintained a membership in the KGS from 1993 until his passing on June 12, 2009 in Thornton, Colorado. He was born in 1928 in Hutchison Kansas during a period when his parents were living in Nickerson. This was during a period when

his father was working as a tool dresser. Later the family lived for a time in Wellington. At a later date the family moved to California where his father was employed in the shipyards of the San Francisco area.

After his high school graduation he spent two years in the Army. Following his discharge, he enrolled at El Camino Junior College where he met his wife, Lydia. They were married in 1950 and they had five children: four boys and one girl plus grandchildren and great grandchildren.

Following marriage and Junior College, Gordon attended Tulsa University where he graduated in 1954 with a BA in Geology. His early years were spent with Conoco in the United States and later in Canada. He later joined Husky Oil where he rose to the position of Vice- President of Exploration. In later years he was an Independent Geologist.

His wife notes that he "enjoyed camping, traveling, and missionary work when not well sitting, drawing maps and looking for oil". Walt Johnson reported that his missionary work took him to Russia and Africa.

Walt Johnson's statement explains about Gordon "perhaps the most noteworthy statement that can be made about Gordon was that his values and morals affected every part of his professional life".

Memorial to Ronald Mercer

As Published in The Oklahoman on February 11, 2010

RONALD GENE MERCER So few people in this world are larger than life. But sometimes, the stars align and that rare person emerges. Ronald Gene Mercer was one of those extraordinary individuals. He passed away Monday, Feb. 8, 2010, at Mercy Hospital from a massive stroke. He was born Oct. 14, 1930 in Newton, Kan., to Clifford and Mary Mercer. He was the youngest of the three Mercer boys, but only by 20 minutes. His twin brother Rich wrestled him for the No. 1 spot. It was the height of the Great Depression. His father Cliff had found work as a roustabout for Derby Oil and settled the family south of McPherson, Kan. They moved to Hutchinson, Kan., in 1936. Ron attended Hutchinson High School and graduated in 1948. While there, he played football, baseball, tennis and basketball. When he was 16, he met Patricia Ann Riggs at a tennis tournament in Wichita. Neither knew that they would meet again two years later at the University of Kansas, fall in love and get married, but she recalls often how she went home that day and told her mother she had met the kind of man she wanted to marry. After high school, Ron attended KU on a football scholarship and pledged Phi Kappa Psi fraternity. He considered three career paths - animal husbandry and ranching, pro baseball (he was recruited by the New York Giants), or the oil business. He decided on the oil business, a decision he has never regretted. Officially, he majored in geology with a minor in math. Patty and Ron were married in 1950 and moved to Wichita where he could work as a tech in his chosen field. Their first son Ron was born in 1952. Graduation followed in 1953 and he went to work for Gulf Oil. In 1955, a second son, Mike, came along. And, in 1959, daughter Melissa was born. In 1960, Ron went to work for Ferguson Oil, an association that would last 15 colorful years. While with Ferguson, he moved the family from Wichita to Edmond to open an Oklahoma City office in 1966. He left Ferguson Oil in 1975 to establish a new company, Ennex Inc. The Ennex partnership dissolved in the mid-1980s and he moved his office to Edmond where he lunched with his cronies, worked up geology, played golf and bet on football, basketball and golf for the remainder of his life. He was a member of the Kansas Geological Society, The Oklahoma City Geological Society and the American Association of Petroleum Geologists where in 1971, he served as president of the mid-continent section. He also was a director of the Oklahoma Independent Petroleum Association and was co-founder of the Oklahoma City Exploration Managers Group. It is difficult to describe the character of a man who is so adored by all, especially his family. Think John Wayne, Will Rogers and a little bit of James Garner rolled into one package. His light shined just a little brighter than most. Everyone who met him liked him. Everyone who knew him respected and valued his judgment. Everyone who knew him well loved him. His grandmother was born in Scotland and true to his heritage, he loved a "wee nip of the spirits." He had a unique sense of humor with emphasis on "sense." His storytelling was legendary and always laced with embellishment. And he could always say the right thing, do the right thing and could pull off things that no one else could. Heroes are often painted in shades of gray, but to him right was right and wrong was wrong, especially when it came to his country. When one considers what it means to be a great man, he needs to look no further than Ron Mercer, and the legacy he has left. When Teddy Roosevelt died, his son announced, "The great lion is gone." Indeed this great lion is gone from our lives, but it is hoped that stories about him swapped among family and friends will be told in true Ron Mercer fashion - larger than life. He is survived by Patricia, his wife of 59 years, brother Richard D. Mercer and wife Helen, brother Robert A. Mercer and wife Sis, son Ronald R. Mercer and wife Elaine, son Michael D. Mercer and wife Kay, daughter Melissa Mercer Howell, grandchildren Tami and Paul Brunner, Cristin Mercer, Ronald G. Mercer II and wife Sara, Kate Howell, Christina Rico and husband Rick, Conner Mercer, and great-grandchildren Brayden Kopp, Melody Fields and Cash Brunner and Ricky Rico. A private burial at Memorial Park Cemetery will be followed by a memorial celebration at 2 p.m. Saturday, Feb. 13, at First Presbyterian Church, 1001 S. Rankin in Edmond. In lieu of flowers, donations may be made to: "The Children's Center," Attn: Development Office, 6800 NW 39th Expressway, Bethany, OK 73008.

Memorials continued on pg. 20

Memorial to Peter JP Stubbs

Peter Stubbs, 81, died January 20, 2010. He is survived by his 3 children, Tammy Stubbs of New York, Bill Stubbs of Lawrence & Emily Stubbs of Dallas, TX. He was interred in Wichita, the city where he lived & worked as a Geologist. In his early career, he was a Naval pilot on the Oriskany. Notable contribution to the state of Kansas was his work with the Atomic Energy Commission ot help deter the deposit of nuclear waste in the Lyons Salt Mines. In retirement, he was a passionate restorer of vintage Cadillacs and an avid coffee drinker. Private services were held at Old Mission Mausoleum.

Memorial to John Stone

Stone, John J., 87, retired geologist and former member of the Kansas Geological Society, passed away Monday, February 15, 2010. Memorial services were held 10:30 a.m., Thursday, February 18, 2010, at Eastminster Presbyterian Church Chapel. John was born in Marshfield, Missouri May 24, 1922 and graduated from Drury College, Springfield, Missouri. He was employed by Amerada Petroleum working at various time in Wichita; Casper, Wyoming: and Columbus, Ohio. John was later employed by several other companies and finished his career with Gear Petroleum in Wichita. Survivors include his wife, Betty Taft Stone; son, Michael (Carol) Taft Stone of Hoover Alabama; daughter, Rebecca (Gene) Sallee of Yorkville, Illinois; Memorials established at Eastminster Presbyterian Church and Botanica Gardens at family's request. In additional a memorial has been established with the Kansas Geological Foundation

Photos From KGS Annual Banquet

Honorary Members in attendance

Past Presidents in attendance

Gary Wilkins , Forrest Woodside, and Jay Swanson
3 of our newest 50 year member inductees.
Not able to attend were Denny Furst, Jack Bowles, & Bob Lewellyn

Paul Gunzelman receiving his
Honorary Member gold hammer

ADVERTISER'S DIRECTORY

ADVERTISER'S RATES: 2010

Full Page	**B&W**	**Color**
6 issues	$2,000	$2,500
3 issues	$1,080	$1,325
1 issue	$480	$525
1/2 Page		
6 issues	$1,000	$1,500
3 issues	$540	$825
1 issue	$225	$350
1/4 Page		
6 issues	$600	$900
3 issues	$325	$525
1 issue	$150	$250
1/8 Page		
6 issues	$300	$500
3 issues	$175	$325
1 issue	$75	$185
Professional Ad (Business Card)		
6 issues	$90	$180

For one-time ads, call Rebecca at 316-265-8676

PROFESSIONAL DIRECTORY

Kirk Rundle
Consulting Geophysicist

3D Seismic Design, Acquisition to Processing QC., Interpretation and Analysis, Subsurface Integration
7340 W. 21st. N., Ste. 100
Wichita, Kansas 67205

Office: 316-721-1421 **Fax: 316-721-1843**

Email:kirk@rundlegeo.com

ROGER L. MARTIN
Independent Petroleum Geologist

200 E 1st St, Ste 405, Wichita, KS 67202

Office 316-833-2722 **Cell: 316-250-6970**
KS Field Cell: 316-655-1227
Home: 785-492-8427
Email: rogermartingeo@yahoo.com

DON V. RIDER
Consulting Petroleum Geologist
Well Site Supervision
Geological Studies
Completions

8910 W. Central Park Ct.
Wichita, KS 67205
Office PH: 316-729-4445 **Cell PH: 316-706-7199**

ALFRED JAMES III
Petroleum Geologist
Kansas - Colorado - Utah

200 W. Douglas, Ste. 525, Wichita, Kansas 67202

SIPES # 1111
Office (316) 267-7592
alfred.james55@yahoo.com

Tel.: (972) 712-9036
Fax: (972) 712-0258
Cell: (214) 223-1784

LANG J. FUQUA
Certified Petroleum Geologist

4201 Tanglewood Ln.
Frisco, Texas 75035

M. Bradford Rine
Honorary Life Member—Kansas Geological Society

Licensed Geologist—KS. #204
Registered Professional Geologist—Wyo. # 189
Certified Geologist—A.A.P.G. # 2647
S.I.P.E.S. # 1584 S.P.E. #109833-4

PROSPECT EVALUATION • PROSPECT GENERATION
WELLSITE SUPERVISION • EXPERT TESTIMONY • OPERATIONS
PROPERTY EVALUATION • RESERVOIR STUDIES
DRLG./COMP. CONSULTATION

Suite 415
100 S. Main
Wichita, KS 67202

Office: (316) 262-5418
Fax: (316) 264-1328
Cell: (316) 250-5941

WESLEY D. HANSEN
Consulting Geologist
Well site Supervision
Geologic Studies
212 N. Market, Ste 257
Wichita, Kansas 67202
Off: (316) 263-7313
Mobile: (316) 772-6188

RMG
RESOURCE MANAGEMENT GROUP, INC.

Paul Gunzelman
President/Geologist

Wichita, Kansas 316.634.6026
email p.gun@sbcglobal.net

KEVIN L. KESSLER
INDEPENDENT/CONSULTING PETROLEUM GEOLOGIST

WELLSITE SUPERVISION • GEOLOGIC RESEARCH
OIL & GAS PROSPECTS
KANSAS & EASTERN COLORADO

MAILING ADDRESS
1199 N. PONDEROSA RD.
BELLE PLAINE, KS 67013

PHONE
RES.: (316) 522-7338
MOBILE: (316) 706-6636

EMAIL: KKESSLER1199@AOL.COM

ROBERT J. GUTRU

Geologist

300 Farmers & Bankers Bldg.
200 East First Street
Wichita, Kansas 67202
Off: (316) 265-3402

KGJ ENTERPRISES

Contract Oil & Gas Accounting &
Office Management

Kathryn G. James, MBA
4278 SW 100th ST.
Augusta, KS 67010

(316) 775-0954
(316) 250-5989
kgjames@onemain.com

MELLAND ENGINEERING
Petroleum Engineering & Geological Consulting

James E. Melland, P.E.
Owner
Office: (620) 241-4621 Fax: (620) 241-2621
Cell Phone: (661) 319-5950
Email: jemelland@sbcglobal.net
Jamesm@mellandengineering.com

P.O. Box 841, McPherson, KS 67460

PROFESSIONAL DIRECTORY

Friday April 23rd is the KGS Bass Tournament

Help Wanted!
Integration Project

If you have *any* time you could give to the Library, we have projects that could move a little faster with some *Expert Professional Geologists*

Just a few hours a week would make such a difference.

To volunteer, please contact Ted Jochems or Rebecca at the Library
265-8676

PRELIMINARY ANNOUNCEMENT

FIELD TRIP & CORE WORKSHOP

MISSISSIPPIAN OUTCROP LITHOSTRATIGRAPHY AND DEPOSITIONAL ARCHITECTURE AS MODELS FOR SUBSURFACE PETROLEUM EXPLORATION

Led by S.J. Mazzullo, Brian W. Wilhite, and Darwin R. Boardman

Sponsored by the Kansas Geological Society

When: early Fall of 2010
exact time to be announced

This 4-day trip (including travel) will examine world-class exposures of Mississippian (Kinderhookian to basal Meramecian) carbonate rocks in SW Missouri, NW Arkansas and NE Oklahoma as analogs of petroleum reservoirs in the subsurface of Kansas and northern Oklahoma. The trip will be followed a few days later by a 1/2 day core workshop that features Mississippian cores from south-central Kansas to compare to what was seen in the field.

EXACT DATE OF THE TRIP AND CORE WORKSHOP, AND FINAL REGISTRATION INFORMATION AND COST WILL BE ANNOUNCED WHEN SUCH DETAILS ARE FINALIZED.

OUTCROP ANALOG OF MISSISSIPPIAN (OSAGEAN) TRIPOLITE RESERVOIRS IN SOUTH-CENTRAL KANSAS

S. J. Mazzullo[1] and Brian W. Wilhite[2]

[1]Department of Geology, Wichita State University, Wichita KS 67260
[2]Woolsey Operating Co., LLC, 125 No. Market, Suite 1000, Wichita KS 67202

INTRODUCTION

As petroleum reservoirs, Mississippian rocks in subsurface Kansas are considered by most geologists to be complex – and sometimes seemingly undecipherable – in terms of their lithostratigraphy and terminology, common difficulty of county-to-county or even well-to-well correlation, determination of major attributes of entrapment at the field level, relationship to unconformities, and production characteristics. The main reason why this is so is because the subsurface Mississippian section indeed ***is*** quite complex in terms of these attributes. By comparison, the stratigraphy and depositional environments of Pennsylvanian and Lower Permian petroleum reservoirs, although also complex, are relatively better understood partly because outcrops of these rocks are present throughout eastern Kansas, where they have been studied for decades as models for correlative subsurface rocks. In contrast, similar study of Mississippian exposures in Kansas is severely limited because outcrops are present in only a very small area in the southeastern part of the state (Cherokee County); and unfortunately, only a thin section (few 10s of feet) of uppermost Osagean strata (Keokuk limestone overlain by the Short Creek Oolite) is exposed here. Although Mississippian rocks are well-exposed in Missouri and adjoining states, whether or not they can be considered analogs of subsurface Mississippian strata has been equivocal. Hence, the published studies of Kansas Mississippian subsurface stratigraphy (e.g., Lee, 1940; Goebel, 1966, 1968; Maples, 1994) and petroleum reservoirs (e.g., Ebanks et al., 1977; Ebanks, 1991; Johnson, 1994; Watney et al., 2001; Franseen, 2006; Mazzullo et al., 2009) have had to rely largely on subsurface data with little input from outcrop counterparts.

In an on-going, joint study with Dr. Darwin Boardman of OSU, we have gone beyond the borders of Kansas into southwestern Missouri, northwestern Arkansas, and northeastern Oklahoma for the last 3 years to study the well-exposed Mississippian rocks of Kinderhookian to Meramecian age that are present in this area. Based on such study, we find that these outcrops are directly analogous to correlative subsurface rocks in Kansas. We intend to prove this contention in a field trip that we will lead in this tri-state area, for any interested geologists, in early fall of 2010 (through the Kansas Geological Society; announcements will be posted by early summer). In this paper we present one result of our long-term study – that is, the origin and stratigraphic setting of exposed Mississippian tripolite as an analog of the prolific tripolite reservoirs present in several well-known fields in south-central Kansas.

TRIPOLITE RESERVOIRS

The term "tripolite" is defined as weathered chert, implying diagenetic alteration in the subaerial and/or shallow subsurface environments by dominantly meteoric fluids (Mazzullo and Wilhite, 2010). Accordingly, tripolite is common along, and for some distance below, major unconformities in the Mississippian section. Such rocks are the main reservoirs in Glick Field and Spivey-Grabs-Basil fields in south-central Kansas. According to state records, Glick Field has produced 744.7 MBO + 457.3 BCFG, and Spivey-Grabs-Basil has produced 68.4 MMBO + 830 BCFG (mainly from Mississippian rocks but also from other reservoirs in the section). Mississippian

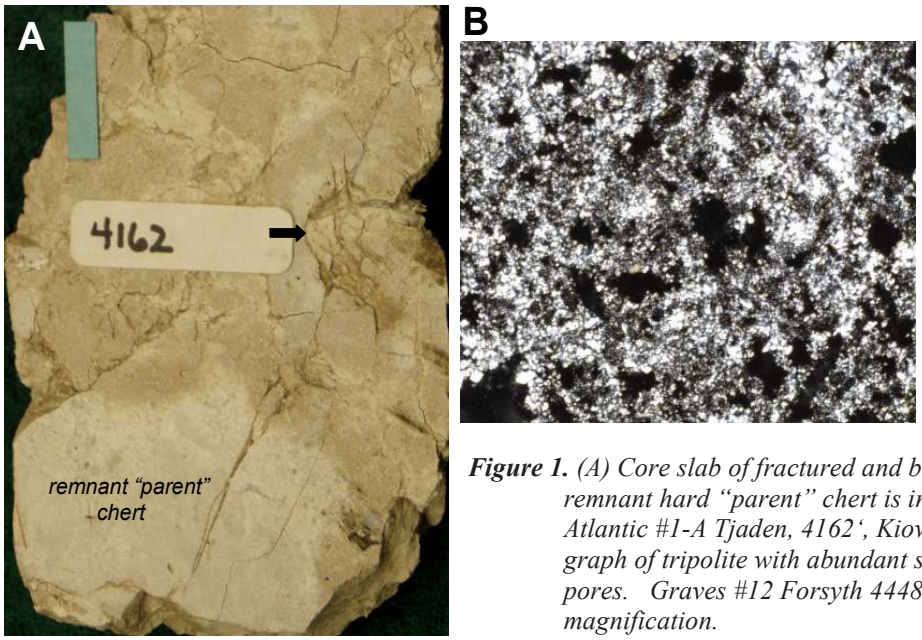


Figure 1. *(A) Core slab of fractured and brecciated (arrow) spiculite, Some remnant hard "parent" chert is indicated. Glick Field. General Atlantic #1-A Tjaden, 4162', Kiowa Co. (B) Thin- section micrograph of tripolite with abundant small vugs that represent micropores. Graves #12 Forsyth 4448'6", Barber Co. Cross polars, 40x magnification.*

tripolite reservoirs in Kansas and Oklahoma were specifically described by several workers (e.g., Difren, 1966; Colleary et al., 1997; Rogers et al., 1995), and peripherally described by others (Mullarkey et al., 1997; Montgomery et al., 1998; Rogers et al., 2001; and Watney et al., 2001). Such rocks generally are light-colored and of low resistivity, and light-weight because of high micro-porosity; the amount of porosity is upwards of 30%. Tripolites generally are soft, although remnants of less-altered, harder "parent"chert are present in some samples (Figure 1), and this chert may or may not have been spiculitic originally. Some tripolites are calcitic because of the presence of unsilicified carbonate particles or secondary calcite.

TRIPOLITE IN OUTCROPS

The exposed Osagean section in SW Missouri, NW Arkansas, and NE Oklahoma comprises, in ascending strati graphic order, the Pierson Limestone, Reeds Spring Limestone, Elsey Formation, and the Burlington-Keokuk limestones, the upper member of which is the Short Creek Oolite (Figure 2). The Reeds Spring and Elsey commonly are grouped together as the "Reeds Spring/Elsey".This stratigraphic terminology is from Thompson (1986). The Pierson Limestone is only slightly cherty in places, whereas the Burlington-Keokuk limestones generally are moderately cherty. In contrast, the Reeds Spring/Elsey formations are very cherty, and the amount of chert ranges from about 30% to as much as 100% in some beds. Average amounts of chert in the Reeds Spring and Elsey formations are about 50-60% and 70-85%, respectively. All of the chert in these rocks has replaced dominantly lime mudstones that were deposited on a moderate-depth, gently-sloping ramp.

Figure 2. Lithostratigraphy of Kinderhookian to basal Meramecian rocks in southwest Missouri and adjoining states (after Thompson, 1986). The Compton through Northview are known as the St. Joe Fm. in Oklahoma, and overlying strata are relegated to the Boone Fm. The unconformities indicated were identified by the authors.

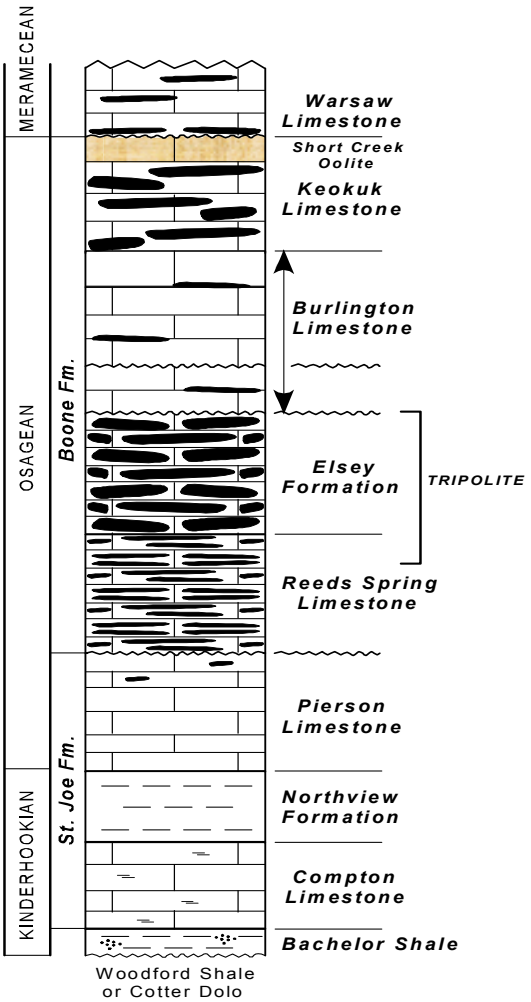


Figure 3. Roadcut exposures of thick tripolite in the Reeds Spring/Elsey on Highway 71 near Anderson, Missouri. Mobile home for scale (arrow).

Figure 4. Vuggy porosity in chert underlying the tripolite shown in Figure 3. Hammer for scale; same area as in Figure 3.

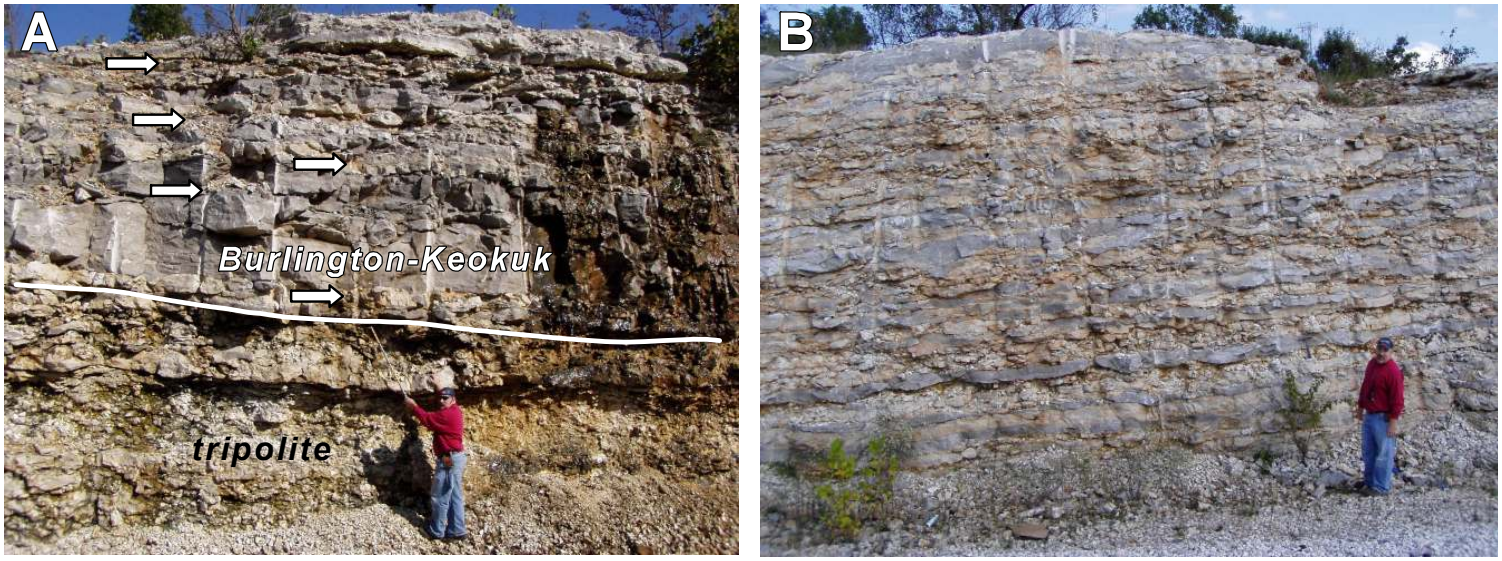


Figure 5. (A) Tripolite at the top of the Reeds Spring/Elsey overlain by the lower Burlington- Keokuk Formation that includes interbedded layers of non-porous limestone and discontinuous payers of porous, tripolitic chert (arrows). Exposure is along Highway 71 northeast of Anderson, Missouri. (B) Another view of a thicker section of interbedded tight limestone and porous tripolite in the lower Burlington-Keokuk. This roadcut is about 1 mi south of the exposure shown in "A", also along Highway 71.

The major unconformities that we recognize in the exposed Osagean section are at the tops of the (lower) Pierson and Reeds Spring/Elsey formations, and within the lower Burlington-Keokuk Formation (Figure 2). Thick exposures of tripolite are best developed along and beneath the top of the Reeds Spring/Elsey, and the presence of this by-product of chert weathering during Osagean time is evidence of a major unconformity in this part of the section. We can trace this unconformity throughout the study area, and in fact, we believe that we can also recognize its correlative in some cores from Barber County, Kansas. At its type locality along Highway 71 near Pineville, Missouri, this tripolite is about 42 ft thick (Figure 3), and it is associated with a minor amount of unaltered to moderately altered "parent" chert and some non-replaced lime mudstone. In other nearby exposures the tripolite locally is 50 ft thick or greater. At all outcrop locations the tripolite is light-weight, light color, and highly porous (micro-pores), and as noted above, it includes some "parent" chert – just like the tripolite in subsurface Kansas. At the Highway 71 type locality the tripolite grades downward through about 90 ft of semi- or sub-tripolitic chert and associated hard, non-tripolitic "parent" chert, the latter commonly with abundant large vugs (Figure 4), before the section becomes unaltered Reeds Spring lime mudstone and chert beds. Gradational lower contacts between tripolite and unaltered beds below are characteristic of diagenetic alteration in a meteoric, subunconformity environment. Together, the 42-50 ft-thick tripolite plus the 90 ft of underlying beds are evidence of about 140 ft of meteoric diagenetic alteration below the top-of-Reeds Spring/Elsey unconformity during Osagean time. We believe the thick tripolite exists at the top of the Reeds Spring/Elsey in outcrops because: (1) these rocks are very cherty, in contrast to in the Pierson Formation, so tripolite could develop from chert alteration; and (2) meteoric diagenetic alteration of earlier-formed cherts was very pronounced along the relatively long-term major unconformity. This tripolite therefore is considered to be analogous to the tripolite reservoirs in Glick and Spivey-Grabs-Basil fields in terms of their mode of formation (meteoric diagenetic alteration) and site of formation (along and for some distance below a major unconformity). Keep in mind that the tripolites in outcrops are present ***within*** the Osage, and they are overlain by younger Osagean deposits of the Burlington-Keokuk beds (Figure 2). The tripolite in Glick and Spivey-Grabs-Basil fields is at the top of the preserved Osagean in those areas, but not necessarily at the top of a *total* reconstructed Osagean section that was once present before being eroded in pre-Meramecian time.

An appreciable section of micro-porous, subunconformity tripolite underlain by a thicker section of partly tripolitic chert with vugs as in our described Reeds Spring/Elsey outcrops may be analogous to some Mississippian reservoirs in the subsurface, notwithstanding thickness differences, wherein average porosity decreases downward in the section as the amount of hard chert increases; and both lithologic are very likely to have distinctly different porosity-permeability systems and production characteristics. In this vein, consider the section of interbedded limestone and tripolite present in the lower part of the Burlington-Keokuk Formation in outcrops (Figure 5), which we also consider to be subunconformity strata (see Figure 2). The limestones in these rocks are non-porous, crinoid-rich mudstones to grainstones, whereas the intervening tripolites have high micro-porosities. Such a section would likely appear to have a more-or-less consistently low API count on gamma-ray logs that is not sufficient to discern limestone versus chert; but a corresponding alternating porous/non-porous and low resistivity/high resistivity characteristic on porosity and resistivity logs, respectively. Such sections could be good candidates for significant fracture jobs.

CONCLUSIONS

Tripolites and porous cherts at the top of the Reeds Spring/Elsey formations in SW Missouri and adjoining NW Arkansas and NE Oklahoma represent meteoric diagenetic alteration of earlier-formed chert along a major unconformity. As such, at least the tripolite here is considered to be analogous to Osagean tripolitic chert reservoirs in Glick and Spivey-Grabs-Basil fields in south-central Kansas. Porous tripolites are also present in outcrops in overlying lower Burlington-Keokuk beds and may be analogous to some reservations in the subsurface. Hence, when exploring for possible Osagean reservoirs in the subsurface one really must clarify by asking – *"For which Osagean are we exploring?"*.

REFERENCES

Colleary, W.M., E.D. Dolly, M.W. Longman, and J.C. Mullarkey, 1997, Hydrocarbon production from low resistivity chert and carbonate reservoir in the Mississippian of Kansas; AAPG Rocky Mountain Section, Program and Extended Abstracts, p. 47-51.

Difren, J.D., 1966, Some petrophysical aspects of the Mississippian "chat" Glick Field, Kiowa County, Kansas; The Log Analyst, v. VII, no. 4, 11 p.

Ebanks, W.J., 1991, Bindley field – U.S.A. Anadarko Basin, Kansas, in E.A. Beaumont and N.H. Foster, eds., Stratigraphic Traps II: AAPG Treatise of Petroleum Geology, Tulsa, p. 117-136.

Ebanks, W.J., R.M. Euwer, and D.E. Nodine-Zeller, 1977, Mississippian combination trap, Bindley field, Hodgeman County, Kansas; AAPG Bulletin, v. 61, p. 309-330.

Franseen, E.K., 2006, Mississippian (Osagean) shallow-water, mid-latitude siliceous sponge spicule and heterozoan carbonate facies: an example from Kansas with implications for regional controls and distribution of potential reservoir facies; Current Research in Earth Sciences Bulletin (Kansas Geological Survey), v. 252, part 1, p. 1-23.

Goebel, E.D., 1966, Stratigraphy of Mississippian rocks in western Kansas; PhD dissertation, University of Kansas, 187 p.

Goebel, E.D., 1968, Mississippian rocks of western Kansas; AAPG Bulletin, v. 52, p. 1732-1778.

Johnson, R.A., 1994, Distribution and architecture of subunconformity carbonate reservoirs: Lower Meramecian (Mississippian) subcrop trend, western Kansas, in J.C. Dolson, ed., Unconformity-Related Hydrocarbons in Sedimentary Sequences; Rocky Mountain Assoc. of Geologists, p. 231-244.

Lee, W., 1940, Subsurface Mississippian rocks of Kansas; State Geol. Survey Bulletin, v. 33, 112 p.

Maples, C.G., 1994, Revision of Mississippian stratigraphic nomenclature in Kansas, in D.L. Baars, compiler, Revision of Stratigraphic Nomenclature in Kansas; Kansas Geol. Survey Bulletin, v. 230, p. 67-74.

Mazzullo, S.J., B.W. Wilhite, and I.W. Woolsey, 2009, Petroleum reservoirs within a spiculite-dominated depositional sequence: Cowley Formation (Mississippian: Lower Carboniferous), south-central Kansas; AAPG Bulletin, v. 93, p. 1649-1689.

Mazzullo, S.J., and B.W. Wilhite, 2010, Chert, tripolite, spiculite, chat – what's in a name?; Kansas Geological Society Bulletin, v. 85, no. 1, p. 21-25.

Montgomery, S.L., J.C. Mullarkey, M.W. Longman, W.M. Colleary, and J.P. Rogers, 1998, Mississippian "chat" reservoirs, south Kansas: low-resistivity pay in a complex chert reservoir; AAPG Bulletin, v. 82, p. 187-205.

Mullarkey, J.C., W.M. Colleary, E.D. Dolly, and M.W. Longman, 1997, Hydrocarbon production from low resistivity, Mississippian chert and carbonate reservoirs in Kansas; AAPG Annual Convention, Program with Abstracts, p. A86.

Rogers, S.M., 2001, Deposition and diagenesis of Mississippian chat reservoirs, north-central Oklahoma; AAPG Bulletin, v. 85, p. 115-129.

Rogers, J.P., M.W. Longman, and R.M. Lloyd, 1995, Spiculitic chert reservoir in Glick field, south-central Kansas; The Mountain Geologist, v. 32 no. 1, p. 1-22.

Watney, W.L., W.J. Guy, and A.P. Byrnes, 2001, Characterization of the Mississippian chat in south-central Kansas; AAPG Bulletin, v. 85, p. 85-113.

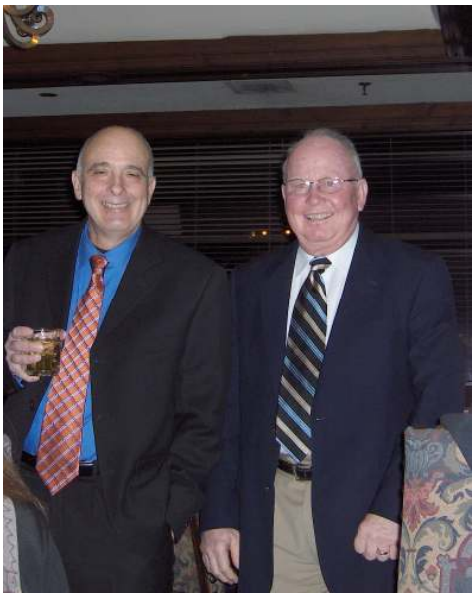
Thompson, T.L., 1986, Paleozoic Succession in Missouri: Part 4. Mississippian system. Missouri Dept. Of Natural Resources, Rept. Of Invest. No. 70, 182 p.

Out going President, Lynn Watney gave a special award to Mr. John Morrison of IOG to thank him for his contributions to the oil & gas industry in Kansas.

Wichita State University geology students helping out at the check-in table and meeting people in the industry.

Lynn Watney receiving his Past President's hammer And M.L. Korphage, our very entertaining emcee

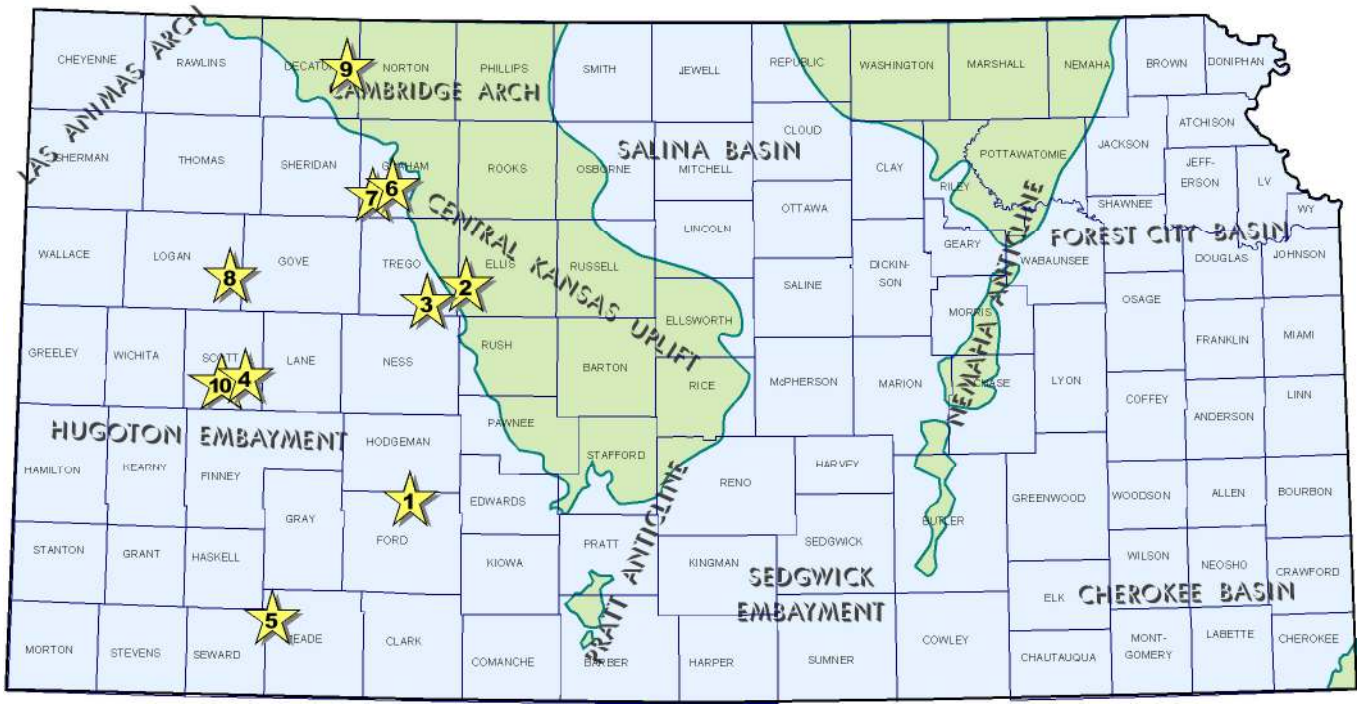
Paul Ramondetta and Bill Shepherd



Some of the crowd

Exploration Highlights

By John H. Morrison, III
Independent Oil & Gas Service



(1) Redland Resources, Inc. has established the Fort Dodge Field in extreme northern **Ford County**, near the Hodgeman County line. The company's No. 5-14 Warner, spotted in approximately NE SE SW in section 5- T25s- R23W, was completed for 80 barrels of oil per day, no water. Production comes from acidized perforations in the Mississippian formation from 4,656 to 4,679 ft. Crude gravity is 32 degrees. Duke Drilling Rig No. 1 bottomed the well at a total depth of 4,950 ft. The new oil field lies about seven miles northwest of Spearville, Kansas.

(2) Independent producer **R. P. Nixon Operations, Inc.** has completed its Neely No. 4 in **Ellis County** for 240 barrels of oil and 20 barrels of water per day. Located in approximately NE SE NW in section 16- T14s- R20W, the well is producing crude oil naturally from two and one-half feet of open hole in the Reagan Sand formation from 3,825 to 3,828.5 ft. Top of the Reagan Sand was called at 3,824 (-1616 kb). The 3-D seismic prospect ran nearly ten feet high structurally and is a development well in the Edseibel Field. Field area lies six and one-quarter miles south of Ellis, Kansas.

(3) Palomino Petroleum, Inc. has discovered new Cherokee Sand oil reserves in **Trego** county, resulting in the establishment of the Chalk Cliffs Field almost seven and one-half miles northwest of Brownell, Kansas. The Pearson Trust No. 1 is now being equipped for production after recovering an average of 9.2 barrels of oil per hour during a three hour swab test. Pay comes from perforations between 4,194 to 4,200 ft. Total depth is 4,300 ft. Production is natural. Well site is located in the SE/4 of section 15- T15s- R22W.

(4) Palomino Petroleum, Inc. has completed the No. 1 Kirk in **Scott County** for 34 barrels of oil and 78 barrels of water per day. The well establishes the new Rodeo Road Southwest oil field, located about eight miles southeast of Scott City, Kansas. The 4,853 foot deep well is producing crude from Lansing-Kansas City zone at a depth between 4,323 to 4,325 feet. Spot lies in the SW/4 of section 24- T19s- R32W.

(5) Keith Walker Oil & Gas Company, LLC is flowing 300 Mcf gas daily, plus 10 barrels of water, at the Tahoe No. 7-1, spotted in the SE/4 of section 7- T31s- R30W, in **Meade County**. Operator found the Mississippian Chester formation to be productive from two perforated zones at depths from 5,432 to 5,445 feet and 5,472 to 5,484 feet. The well is a westerly stepout and extension of the Hoss Lake Field, located six and one-half miles northwest of Plains, Kansas.

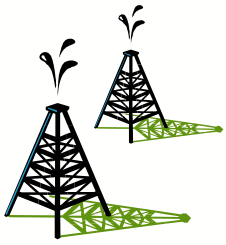
(6) Downing-Nelson Oil Company has extended production in the Hurlbut Field one-half mile further east with the successful completion of the No. 1-22 Ron Nickelson for 25 barrels of oil and 25 barrels of water per day. Three sets of perforations shot from an overall depth of 3,860 to 4,001 feet, in the Lansing- Kansas City formation, are producing crude. Well site is located in the NW/4 of section 22- T9s- R24W, six miles west of Penokee, Kansas, in **Graham County**.

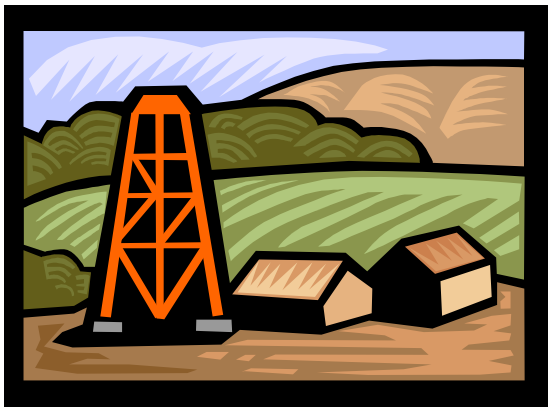
(7) Elsewhere in **Graham County**, **Downing-Nelson's** Herman Trust No. 1-27, SE/4 of section 27- T9s- R24W, has been completed for 30 barrels of oil and 47 barrels of water per day. The well is recognized as an infield wildcat discovery on the eastern side of the Kohart Field, located nearly five-eighths mile from existing production in the field. Production comes from the Lansing-Kansas City I and J zones from 4,022 to 4,042 feet overall. Total depth reached 4,135 feet.

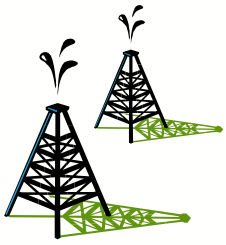
(8) Shakespeare Oil Company is producing crude oil from undisclosed source at the No. 1-27 Ottley in **Logan County**. Well site lies in the NW/4 of section 27- T14s- R32W, nearly two miles south of the Chalk Buttes Field. Shakespeare opened the field in mid-2009 after their No. 1-15 Ottley was completed with Mississipian oil pay. Development wells since have found the Lansing-Kansas City, Marmaton, Cherokee and Morrow zones all to be productive as in the area. The No. 1-27 Ottley well was drilled to a total depth of 4,420 feet with intentions of looking for deposits in the Lansing-Kansas City and Morrow zones.

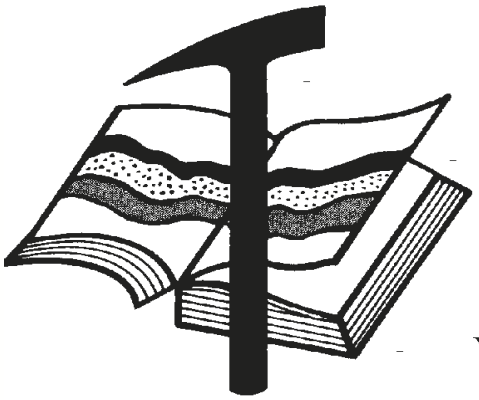
(9) Great Plains Energy is producing an undisclosed amount of crude oil from the Lansing-Kansas City limestones at their Votapka No. 1, located in the SE/4 of section 29- T3s- R26W, **Decatur County**. The wildcat well establishes a new unnamed field nearly two and one-half miles south of the multipay Lippelmann Field, located seven miles northeast of Jennings, Kansas.

(10) Palomino Petroleum, Inc. has completed the No. 1 Kirk in **Scott County** for 34 barrels of oil and 78 barrels of water per day. The well establishes the new Rodeo Road Southwest oil field, located about eight miles southeast of Scott City, Kansas. The 4,853 foot deep well is producing crude from Lansing-Kansas City zone at a depth between 4,323 to 4,325 feet. Spot lies in the SW/4 of section 24- T19s- R32W.









Kansas Geological Foundation

Web Site: www.kgfoundation.org

212 North Market
Wichita, Kansas 67202

A not-for-profit educational and scientific corporation

GOALS:

- promote geology and earth science
- preserve geological records
- establish memorials and endowments
- support field trips and seminars
- financial aid and grants to students

PLEASE HELP SUPPORT THE FOUNDATION

Kansas Geological Foundation Services

The Kansas Geological Foundation provides the following services as a part of the organization's commitment to educate the public regarding earth science.

Speaker's Bureau

A list of speakers available to talk about various aspects of geology may be obtained by contacting Janice Bright at the KGS Library, 265-8676. This service is free to the public.

DVD/Videotape Library

The KGF maintains a DVD & videotape library focused primarily on the various fields of earth science. These tapes may be checked out without charge by the public. To obtain a list of tapes, please contact the KGS Library, 212 N. Market, Ste. 100, Wichita, KS 67202, or call Janice Bright at 265-8676.

The Kansas Geological Foundation was founded in March, 1989 as a not-for-profit corporation under the guidelines of section 501(c)(3) of the tax code to provide individuals and corporations the opportunity to further the science of geology. It is dedicated to providing charitable, scientific, literary and educational opportunities in the field of geology for the professional geologist as well as the general public.

KGF can receive in-kind donations through which the donor may receive a tax deduction. Of equal importance, the KGF provides the financial resources to sort, process and file this data at the KGS library. If you have a donation to make, please contact the KGF at 265-8676.

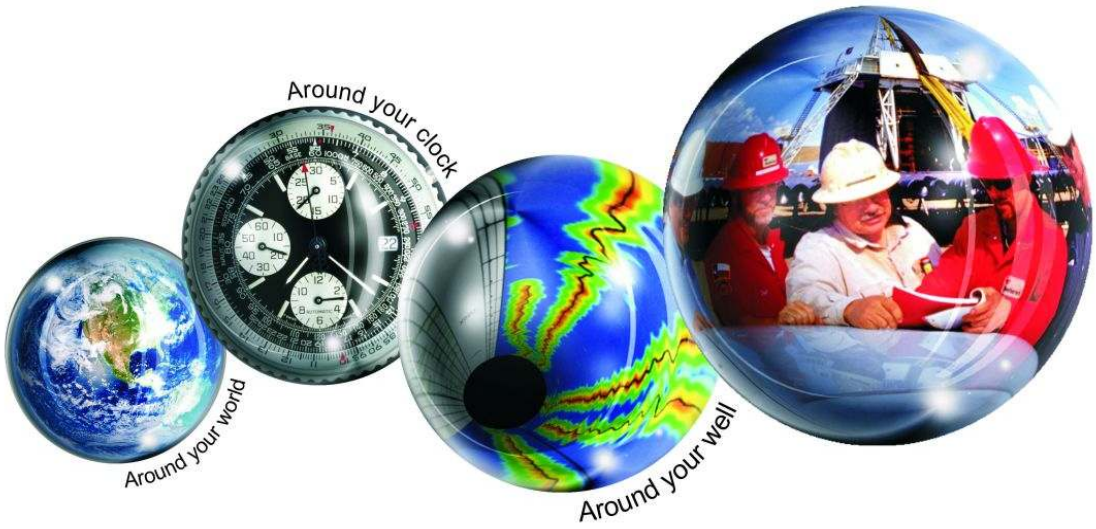
Your tax-deductible membership donation helps to defray the cost of processing donations and to support public education programs about the science of geology. Annual membership begins at $50.00 per year. Donations of $100.00 or more are encouraged through the following clubs:

Century Club	$ 100 to $ 499
$500 Club	$ 500 to $ 999
Millennium Club	$1000 to $5000
President's Club	$5000 and over

Kansas Geological Foundation Memorials

KGS Member	Date Deceased	Memorial Established
Dan Bowles	09/89	1990
John Brewer	10/89	1990
George Bruce	08/89	1990
Robert Gebhart	01/90	1990
Ray Anderson, Jr.	11/90	1990
Harold McNeil	03/91	1991
Millard W. Smith	08/91	1991
Clinton Engstrand	09/91	1991
M.F. "Ted" Bear	10/91	1991
James & Kathryn Gould	11/91	1991
E. Gail Carpenter	06/91	1993
Benton Brooks	09/92	1992
Robert C. Armstrong	01/93	1993
Nancy Lorenz	02/93	1993
Norman R. Stewart	07/93	1993
Robert W. Watchous	12/93	1993
J. George Klein	07/94	1994
Harold C.J. Terhune	01/95	1995
Carl Todd	01/95	1995
Don R. Pate	03/95	1995
R. James Gear	05/95	1995
Vernon Hess	06/95	1995
E. K. Edmiston	06/95	1995
Jack Rine	07/95	1995
Lee Cornell	08/95	1995
John Graves	10/95	1995
Wilson Rains	10/95	1995
Heber Beardmore, Jr.	09/96	1996
Elmer "Lucky" Opfer	12/96	1996
Raymond M. Goodin	01/97	1997
Donald F. Moore	10/92	1997
Gerald J. Kathol	03/97	1997
James D. Davies	08/88	1997
R. Kenneth Smith	04/97	1997
Robert L. Dilts	05/97	1997
Delmer L. Powers	06/72	1997
Gene Falkowski	11/97	1997
Arthur (Bill) Jacques	01/98	1998
Bus Woods	01/98	1998
Frank M. Brooks	03/98	1998
Robert F. Walters	04/98	1998
Stephen Powell	04/98	1998
Deane Jirrels	05/98	1998
William G. Iversen	07/98	1998
Ann E. Watchous	08/98	1998
W.R. "Bill" Murfin	09/98	1998
Donald L. Hellar	11/98	1998
Joseph E. Rakaskas	01/99	1999
Charles W. Steincamp	02/99	1999
Robert and Betty Glover	10/96	1998
Howard E. Schwerdtfeger	11/98	1999
W. W. "Brick" Wakefield	03/99	1999
V. Richard Hoover	01/00	2000
Warren E. Tomlinson	01/00	2000
James A. Morris	01/00	2000
Eric H. Jager	03/00	2000
Kenneth W. Johnson	03/00	2000
Dean C. Schaake	03/00	2000
Fred S. Lillibridge	05/00	2000
Jerry A. Langrehr	07/00	2000
Clark A. Roach	07/00	2000
Floyd W. "Bud" Mallonee	10/00	2000
Ralph W. Ruuwe	09/00	2000
Robert L. Slamal	02/01	2001
Jerold E. Jesperson	06/01	2001
William A. Sladek	06/01	2001
Harlan B. Dixon	06/01	2001
Edward B. Donnelly	08/01	2001
Richard P. Nixon	02/02	2002
Robert W. Frensley	12/01	2002
Gerald W. Zorger	01/02	2002
Don L. Calvin	03/02	2002
Claud Sheats	02/02	2002
Merle Britting	2002	2002
Harold Trapp	11/02	2002
Donald M. Brown	11/02	2003
Elwyn Nagel	03/03	2003
Robert Noll	09/03	2003
Benny Singleton	09/03	2003
Jay Dirks	2003	2003
J. Mark Richardson	02/04	2004
John "Jack" Barwick	02/01	2004
Richard Roby	03/04	2004
Ruth Bell Steinberg	2004	2004
Gordon Keen	03/04	2004
Lloyd Tarrant	05/04	2004
Robert J. "Rob" Dietterich	08/96	2004
Mervyn Mace	12/04	2004
Donald Hoy Smith	04/05	2005
Richard M. Foley	06/05	2005
Wayne Brinegar	06/05	2005
Jack Heathman	05/06	2006
Charles Kaiser	09/06	2006
Rod Sweetman	08/06	2006
Karl Becker	10/06	2006
Frank Hamlin	10/06	2006
Marvin Douglas	12/06	2006
Robert W. Hammond	04/07	2007
Eldon Frazey	04/07	2007
Pete Amstutz	05/07	2007
Charles Spradlin	05/07	2007
Donald R. "Bob" Douglass	09/07	2007
Vincent Hiebsch	11/07	2007
Glen C. Thrasher	03/08	2008
Peg Walters	06/08	2008
Theodore "Ted" Sandberg	07/08	2008
James Ralstin	11/08	2008
Earl Brandt	04/09	2009
Walter DeLozier	05/09	2009
John Stone	02/10	2010

Weatherford®



All Around You

Weatherford has always been driven by your needs.

Now, with the addition of Precision Energy Services we're continuing to build a world of skills, services and technologies that revolve – and evolve – around you.

The result?

An expanded global network of 25,000 people, 730 service bases and 87 manufacturing facilities in 100 countries.

This increased local knowledge and service is there to support you anywhere, anytime. From midday in the Middle East to midnight in the middle of nowhere.

And with greatly strengthened capabilities in the critical evaluation skills of directional drilling and wireline logging, we can do even more to improve the profitability and productivity of your wells.

To see how our sphere of services can work for you, visit **www.weatherford.com** or contact either your Weatherford or former Precision Energy Services representative.

Drilling | Evaluation | Completion | Production | Intervention

Kansas Geological Society & Library
212 North Market, Suite 100
Wichita, Kansas 67202

PRSRT STD
US POSTAGE
PAID
WICHITA KS
PERMIT NO 923

CHANGE SERVICE REQUESTED

KGS BULLETIN
March—April 2010

March 2010

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2 Tech Talk	3	4	5	6
7	8	9 KGS Board	10	11	12	13
14 	15	16 Tech Talk	17 	18	19	20
21	22	23 Tech Talk	24	25	26	27
28	29	30 Tech Talk	31			

April 2010

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4 Easter 	5	6 Tech Talk	7	8 KGS Board	9	10
11	12	13	14	15	16	17
18	19	20 Tech Talk	21	22	23 KGS Fishing 	24
25	26	27 Tech Talk	28	29	30	

AAPG Convention in New Orleans