

# Shale Shaker

*THE JOURNAL OF THE OKLAHOMA CITY GEOLOGICAL SOCIETY*

VOLUME 62

~ MAY | JUNE 2012 ~

NUMBER 6

“Regional Significance of Diabase Dikes in the Mount Scott Granite as exposed at Lake Elmer Thomas Dam,”

“An Integrated Geophysical Analysis Of Crustal Structure In The Wichita Uplift Region Of Southern Oklahoma,” and

“Custer County Oysters”





### Shale Shaker Staff

**EDITOR:**

Michael Root, CEO, TerraQuest Corporation  
mroot@ocgs.org; mroot@weatherbank.com  
405-359-0773

**ASSOCIATE EDITOR:**

Neil H. Suneson, Oklahoma Geological Survey  
nsuneson@ou.edu

**GEOLOGIST WIVES ASSOCIATION:**

Stacy J. Harris, Geologist Wives

**PRODUCTION & DESIGN:**

Theresa Andrews, Art Director,  
Visual Concepts & Design, Inc.  
visconcepts@cox.net  
405-514-5317

**EDITORIAL BOARD:**

M. Charles Gilbert, Geologist,  
ConocoPhillips School of Geology and Geophysics, OU  
mcgilbert@ou.edu

Michael W. Smith,  
Geologist, Weston Resources, Inc.  
msmith@mkbllc.net

Raymond W. Suhm,  
Independent Geologist, Consultant  
suhm@aol.com

Kris Wells,  
Geologist, Mustang Fuel Corporation  
Kris.Wells@mustangfuel.com

### OCGS Executive Committee

**PRESIDENT:**

Greg Flournoy, Schlumberger Oilfield Services

**VICE PRESIDENT:**

Mark Goss, RKI Exploration & Production

**SECRETARY:**

Jami Poor, MAP

**PAST PRESIDENT:**

Suzanne Rogers, Sandstone Energy Acquisitions Corporation,  
Chair of Energy Libraries Online

**TREASURER:**

Hank Trattner, Trattner & Associates

**LIBRARY DIRECTOR:**

Steve Harris, Okland Oil Company

**COUNCILOR:**

Jim Franks, Independent Consulting Geologist

**WEBMASTER:**

John McLeod, Chesapeake Energy Corporation

**SHALE SHAKER EDITOR:**

Michael Root, CEO, TerraQuest Corporation

**SOCIAL CHAIRMAN:**

Greg McMahan, SandRidge Energy, Inc.

**AAPG MID-CONTINENT REPRESENTATIVE:**

H.W. (Dub) Peace

**ENERGY LIBRARIES ONLINE CHAIRMAN:**

Suzanne Rogers, Sandstone Energy Acquisitions Corporation

**OCGS Offices and Geological Library:**

120 North Robinson, Suite 900 Center,  
Oklahoma City, OK 73102  
Phone: (405) 236-8086 | Fax: (405) 236-8085  
Website: www.ocgs.org

**Michelle Hone,**

Accounting Manager/Administrative Assistant

Email: ocgs.mhone@logixonline.com

**Pam Yeakley, Library Manager, OCGS**

Email: ocgs@logixonline.com

**Shale Shaker Features**

- 402** *Natural Gas Prices ~ How the Summer Will Set the Stage for The Rest of 2012*; Michael Root, Editor, CEO, TerraQuest Corporation, Edmond, OK
- 420** *Oklahoma Well Status*; Randy Peterson, IHS
- 479** *State of the Industry*; Michael Root, Editor, CEO, TerraQuest Corporation, Edmond, OK

**Oil and Gas Exploration**

- 432** *An Integrated Geophysical Analysis of Crustal Structure in the Wichita Uplift Region of Southern Oklahoma*; Amanda (Rondot) Buckey, Marathon Oil Company
- 456** *Regional Significance of Diabase Dikes in the Mount Scott Granite as exposed at Lake Elmer Thomas Dam*; Jonathan D. Price, Midwestern State University; M. Charles Gilbert, University of Oklahoma; John P. Hogan, Missouri University of Science and Technology

**My Favorite Outcrop**

- 422** *Custer County Oysters*; Neil H. Suneson, Oklahoma Geological Survey

**About the Cover**

Michael Root creates the covers of the Shale Shaker. His cover for this Issue utilizes several images supplied by the Wichita Mountains Wildlife Refuge, as well as photomicrographs from articles within this Issue.

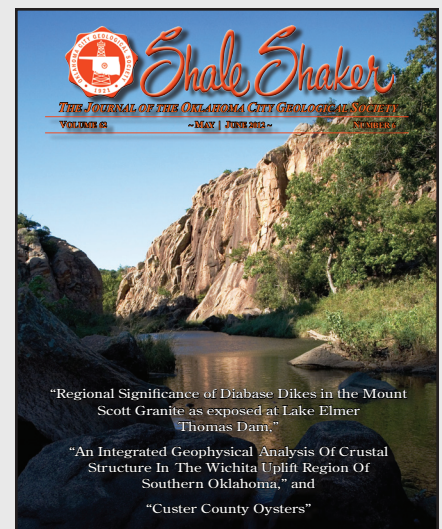
The cover ties nicely with this Issue’s technical subject matter: “Regional significance of diabase dikes in the Mount Scott Granite as exposed at Lake Elmer Thomas Dam,” by Jonathan D. Price, M. Charles Gilbert, and John P. Hogan; and “An integrated geophysical analysis of crustal structure in the Wichita Uplift Region of Southern Oklahoma,” by Amanda (Rondot) Buckey.

**Professional Organizations**

- 408** *Oklahoma City Geological Society Officer Candidates - 2012-2014*
- 410** *Oklahoma Geological Foundation Report*; Thomas C. Cronin, OGF Chairman, CEO, K. Steward Exploration LLC
- 416** *Dan Boyd and the Oklahoma Geological Survey*; Richard Andrews, Oklahoma Geological Survey; Neil H. Suneson, Oklahoma Geological Survey

**Announcements**

- 414** *On The Rocks: Palo Duro Canyon AAPG Mid-Continent Section Presents 2012 Biennial Field Conference October 5-7, 2012*
- 455** *The 2012 5th Annual Real Deal Mid-Continent Prospect Expo*
- 476** *Oklahoma City Geological Society Library Geological Treasure Chest*





**Dan Boyd and the Oklahoma Geological Survey**

By: Richard Andrews, Oklahoma Geological Survey | (405) 325-3991 | rdandrews@ou.edu;

Neil H. Suneson, Oklahoma Geological Survey | (405) 325-7315 | nsuneson@ou.edu

Dan Boyd came to the Oklahoma Geological Survey (OGS) 11 years ago after a nationwide search for a petroleum geologist. He topped the list of about 30 candidates, largely as a result of his industry training and experience. Because of this, he approached every project in a practical manner bestowing professionalism, value, and urgency. Through his work, Dan assisted the OGS gain national recognition as an authoritative resource for the oil and gas industry and the State of Oklahoma.

Dan's enthusiasm was fueled by an ambition and attitude that caused him to undertake projects beyond the immediate scope of his assignments. For instance, when he first started working at the Survey, the OGS had no current map identifying boundaries of oil and gas fields in the state (the last having been published in 1985), so Dan compiled a series of maps that are now used extensively by the industry (GM 36, 37, 38). Similarly, the Survey did not have a stratigraphic guide to oil and gas reservoirs until Dan made one (SP 2008-1).

Dan's insight regarding the needs of the Survey to optimize our petroleum research motivated him to acquire an agreement between the OGS and IHS that allows us access to well and production data. Additionally, he guided the Survey into an agreement with TGS for retrieval of on-line well logs. Under a cooperative agreement with Geomap, Dan also made it possible for us to acquire professional display maps which are used by staff petroleum geologists.

Public assistance and service to the local petroleum industry are intangible activities that Dan also excelled in. Because of his extraordinary organization of information and references, Dan routinely assisted the public by providing valuable data either by email or during phone conversations. And during the past seven years, Dan created an immensely popular, interesting, and informative summary of Oklahoma's



*Dan and Starla Boyd will celebrate their 36<sup>th</sup> wedding anniversary this spring in Doha, Qatar.*

oil and gas activity that is published annually in the Oklahoma City Geological Society's Shale Shaker. Because he genuinely believed in helping the state's petroleum industry, he became the Board Chairman of ELO – Energy Libraries Online. This organization undertook the scanning of thousands of old sample logs and making this information available through the ELO website.

Early in Dan's career at the Survey, he spearheaded a popular spring symposium that resulted in the publication of Circular 108, "Finding and Producing Cherokee Reservoirs in the Southern Midcontinent, 2002." Dan edited this publication and also authored the paper "Oklahoma Oil and Gas: Three Moments in Time". One of Dan's main responsibilities was to investigate a major petroleum reservoir. This resulted in a well-respected play-based study of the Booch Gas Play in

Southeastern Oklahoma (SP 2005-1). The companion publication co-authored by Dan and me (NS), "Guidebook to the Booch Sandstones" (GB35), became one of the best OGS field trips to examine a conventional reservoir. It dealt with surface to subsurface characterization and correlation of the many depositional facies contained in the Booch.

As the role of the OGS changed with its incorporation into the Mewbourne College of Earth and Energy, Dan's expertise and industry experience lured him into teaching. He started as a co-leader (with us) of a field trip for petroleum engineering majors taking GEOL 3003 "Structural Geology and Stratigraphy for Petroleum Engineers" to view different kinds of reservoir rocks in the Arkoma Basin and Arbuckle Mountains. This evolved into teaching a practical course in petroleum geology, also with us. The course,



GEOL 4233 “Subsurface Methods,” is now required of students seeking an undergraduate geology degree with a petroleum emphasis and has become increasingly popular in the last four years.

We are glad that Dan is pursuing a long-standing dream of returning to the international petroleum arena with his departure to Doha, Qatar. Already, there are so many moments we miss and so many questions we would like to ask him. (Thank goodness for the internet, because we will!) We would like to express our gratitude for his unselfish contributions, his generous and highly valued professional opinions, and his unwavering dedication to the Survey. And on a personal note, we would like to thank him for all he taught us and for his friendship.

#### Bibliography

1988. War-Wink South Field Study (Bone Spring – Wolfcamp) – Ward County, Texas. West Texas Geological Society Symposium Volume V, Oil and Gas Fields in West Texas.
2001. With Brian Cardott. Oklahoma’s Energy Landscape. OGS Information Series 9.
2002. Oklahoma Oil: Past, Present, and Future. Oklahoma Geology Notes.
2002. With Charlie Mankin and Bob Northcutt. Petroleum Developments in the Southern Midcontinent – An Overview. OGS Circular 107.
2002. Editor. Finding and Producing Cherokee Reservoirs in the Southern Mid-Continent, 2002 Symposium. OGS Circular 108.
2002. Oklahoma Natural Gas: Past, Present, and Future. Oklahoma Geology Notes.
2002. Oklahoma Oil and Gas Fields (Distinguished by GOR and Conventional Gas vs. Coalbed Methane). 1:500,000-scale map and 128-page explanatory text. OGS GM-36.
2002. Oklahoma Oil and Gas Fields (Distinguished by Coalbed Methane and Field Boundaries). 1:500,000-scale map and 128-page explanatory text. OGS GM-37.
2002. Oklahoma Oil and Gas Fields (by Reservoir Age). 1:500,000-scale map. OGS GM-38.
2003. Oklahoma Oil and Natural Gas: Our Place in the Big Picture. Oklahoma Geology Notes.
2004. Oklahoma Oil, Natural Gas and Our Place in the Big Picture. OGS Information Series 10.
2004. Oklahoma Oil, Natural Gas and Our Place in the Big Picture. Shale Shaker.
2005. Oklahoma Oil and Gas Production: Its Components and Long-Term Outlook. Oklahoma Geology Notes.
2005. The Booch Gas Play in Southeastern Oklahoma: Regional and Field-Specific Petroleum Geological Analysis. OGS Special Publication 2005-1.
2006. Oklahoma’s Oil and Gas Industry and the Global Forces Controlling It. Shale Shaker.
2006. Oil and Gas Production. Historical Atlas of Oklahoma (4<sup>th</sup> edition). OU Press.
2007. Oklahoma 2006 Drilling Activity. Shale Shaker.
2007. With Rick Andrews and Neil Suneson. PE Students See Reservoirs in the Wild! OU Earth Scientist.
2007. With Neil Suneson. Sequence Stratigraphy and Depositional Environments of Booch Sandstones (McAlester Formation / Desmoinesian), Arkoma Basin, Oklahoma. AAPG Mid-Continent Section Meeting, Wichita, Kansas.
2008. Oklahoma 2007 Drilling Highlights. Shale Shaker.
2008. Oklahoma: The Ultimate Oil Opportunity. Shale Shaker. Reprinted in Oklahoma Geology Notes.
2008. Oil and Gas Production and Facilities of Oklahoma. OGS Educational Publication 9.
2008. With Neil Suneson. Guidebook to the Booch Sandstones: Surface to Subsurface Correlations. OGS Guidebook 35.
2009. Stratigraphic Guide to Oklahoma Oil and Gas Reservoirs. OGS Special Publication 2008-1.
2009. The Booch Gas Play in Southeastern Oklahoma: Regional and Field Specific Petroleum Geological Analysis. Oklahoma Geology Notes.
2009. With Neil Suneson. The OGS Booch Field Trip – Return to the Arkoma Basin. Oklahoma Geology Notes.
2009. Fighting the Tide: Morrow – Springer Gas in Oklahoma. OGS Circular 111.
2009. With Neil Suneson. The OGS Booch Field Trip – Return to the Arkoma Basin. OU Earth Scientist.
2010. Oklahoma 2009 Drilling Highlights. Shale Shaker.
2011. Oklahoma 2010 Drilling Highlights. Shale Shaker.
2011. Electronic Oil and Gas Database Continues to Grow. Oklahoma Geology Notes.



2011. J. Glenn Cole: A Stratigraphic Legacy Preserved. *Shale Shaker*.

2011. Energy Libraries Online: An Update. *Shale Shaker*.

2011. With Rod Tillman, Nelson Osorio, and Russell Standridge. An Eastern Oklahoma Stratigraphic-Legacy Preserved. AAPG Mid-Continent Section Meeting, Oklahoma City.

2012. Oklahoma 2011 Drilling Highlights. *Shale Shaker*.



**Richard (Rick) D. Andrews**  
Oklahoma Geological Survey

#### Biographical Sketch

Rick Andrews is a petroleum geologist for the Oklahoma Geological Survey. He was the lead geologist for the DOE Class I (oil reservoir) FDD project and is the principal author of several hydrocarbon plays including the Springer, Morrow, Cromwell, Hartshorne, Bartlesville, Red Fork, Skinner, and Prue plays. His responsibilities include regional subsurface mapping and analysis of oil and gas reservoirs (“plays”) in Oklahoma, detailed reservoir field studies, formation evaluation using wire line logs, presentation of “play” workshops, and field trip leader. Rick was employed 15 years with a major oil company and received additional training in formation evaluation, well log interpretations, reservoir engineering, reservoir testing, depositional environments, sequence stratigraphy, core and outcrop interpretations, subsurface mapping techniques, and surface to subsurface log correlations. He is proficient in many computer applications and in managing large-scale projects. His ties with the energy industry have been very beneficial to the success of all his workshops and field trips.

Since 2008, Rick was a principal instructor for the ConocoPhillips School of Geology & Geophysics newly established class “Subsurface Methods, 4233”. His responsibilities include core, sample, and well log interpretations, and formation evaluation. Rick also assists other OU geology and engineering classes as a guest lecturer and field trip leader. Currently, Rick is serving on

two thesis committees (Reed Stevens and Justin Newman). He continuously provides technical assistance for many other MS and PhD candidates regarding their research. Rick has earned several degrees, including a BS and MS in Geological Sciences, from University of Wisconsin-Milwaukee and a MS in Hydrology from Western Michigan University. Prior to joining the Oklahoma Geological Survey, he worked for Union Energy Mining Division, Union Oil Company of California (UNOCAL), Geo Information Systems (GIS).



**Neil Suneson**  
Oklahoma Geological Survey

#### Biographical Sketch

Neil Suneson has worked for the Oklahoma Geological Survey since 1986. His first major project with the Survey was mapping part of the frontal belt of the Ouachita Mountains and the very southern part of the Arkoma Basin, and many of his current interests focus on that part of Oklahoma. Prior to coming to Oklahoma he worked for Chevron USA as a development geologist in the San Joaquin Basin. He graduated from Amherst College in 1972, received his M.S. in geology from Arizona State University in 1976, and Ph.D. in geology from the University of California – Santa Barbara in 1980.





# Shale Shaker

120 North Robinson, Suite 900 Center  
Oklahoma City, OK 73102

