



ARCHIVES

Newsletter of the Petroleum History Society

March 2015; Volume XXVI, Number 3

P.H.S. Annual Meeting and Awards Ceremony – Wednesday, March 25, 2015

The Biggest Changes in 100 Years: Oil and Gas in Transition

by Peter Tertzakian (ARC Financial) – Petroleum Economist and Author

Peter Tertzakian is Chief Energy Economist and Managing Director at ARC Financial Corp., Canada's leading energy focused private equity firm. An accomplished author, Peter's two best-selling books, *A Thousand Barrels a Second* (McGraw-Hill, N.Y. 2005) and *The End of Energy Obesity* (John Wiley & Sons, N.Y. 2009) provide insights into the dynamic world of energy transitions through a thoughtful and highly readable examination of economic, environmental and geopolitical pressures. His books have been translated into several languages including Chinese, Japanese and Arabic.

Peter has agreed to be our keynote speaker for this year's Annual Meeting. This will be a tremendous opportunity for our members and guests to hear Peter's perspectives on where we have come from in the petroleum industry and, at least as equally important, where we are likely headed. We do live in interesting times and his thoughts will be important for decisions that need to be made - whether they be personal, political or financial.

Peter's biography can be found on page 3 of this issue of Archives.

TIME: 4:00 p.m., Wednesday, March 25, 2015 – see page 2 for agenda.
PLACE: Calgary Petroleum Club, 319 – 5th Avenue S.W. – McMurray Room.
COST: Members and guests (most welcome) – free of charge.
DRESS: Business dress casual, ties not required.

For the sake of our snack planning, please reply if you wish to attend to: Micky Gulless, 403-283-9268 or micky@petroleumhistory.ca by noon, Monday, March 23, 2015.

The Bull Wheel



Still Time to Renew Your P.H.S. Membership: If you haven't done so already, please renew your membership for 2015. (Check your membership status on your mail label or email, or contact Micky at 403-283-9268 or micky@petroleumhistory.ca.) Please renew your annual membership for \$30 by:

- E-mail transfer via your own bank's website to micky@petroleumhistory.ca
- Credit card via PayPal if you have an e-mail address. Contact Micky for a PayPal invoice
- Cheque payable to "Petroleum History Society" and mailed to Micky Gulless, 1638 Broadview Rd. NW, Calgary T2N 3H1

Petroleum History Society Elections: These elections will take place during the Annual Meeting. A slate of candidates will be presented but there is always the opportunity to add your name ahead of time (please contact us) or to volunteer on the spot.

Annual Meeting Agenda:

The agenda for the P.H.S. Annual Meeting on March 25 will be:

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| 4:00 p.m. | Meeting commences |
| 4:05 p.m. | President's Report |
| 4:20 p.m. | Treasurer's Report and related business including motion to amend the bylaws. |
| 4:30 p.m. | Election of P.H.S. Officers and Board for the 2015-2016 term |
| 4:45 p.m. | 2014 P.H.S. Awards |
| 5:15 p.m. | Keynote Speaker: Peter Tertzakian on: <i>The Petroleum Industry in Transition</i> |
| 5:45 p.m. | Questions, Answers and Discussion |
| 6:00 p.m. | Mix and Mingle with snacks and cash bar – please stay and join us. |

Next luncheons: We are always looking for speakers and topics related to the petroleum industry. If you might be interested in giving a talk, please contact Clint Tippett, President of the P.H.S., at the e-mail address indicated on page 3.

Donations to the Petroleum History Society: In the course of membership renewals we have received many generous donations from our members. These gifts enable us to undertake additional projects in keeping with our mandates to protect and communicate the heritage of the Canadian petroleum industry. Amongst our donors this year are David Barss, Rick Green, Micky Gulless, Dick Haskayne, Adam Hedinger, Roy Lindseth, Jeffrey Mackie, Art Patterson, Charlie Stelck, Uldis Upitis, Antonie Vanden Brink and Gordon Wells. Thanks from all of us!

Peter Tertzakian Speaker Biography – Annual Meeting: Peter Tertzakian's career began as a geophysicist in 1982. He then moved from oil and gas to the finance and economics sector in 1990. This background, combined with his entrepreneurial spirit, helped him rise from the trenches of hands-on oil exploration fieldwork to become an internationally recognized expert in energy matters. Peter publishes *ARC Energy Charts*, a weekly journal of real-time business indicators, and writes a weekly column for Canada's National Newspaper, *The Globe and Mail*. A collector of energy antiques and antiquarian books, Peter's passion is studying how society evolves in its energy use, and applying the lessons of the past into today's strategic business issues. His collective knowledge and experience in geophysics, innovation, history and economics allows him to give audiences thought-provoking insights into today's pressing energy issues. Peter has an undergraduate degree in Geophysics from the University of Alberta, a graduate degree in Econometrics from the University of Southampton UK, and a Master of Science in Management of Technology from the Sloan School of Management at MIT. In addition to his principal role at ARC Financial, he is an Adjunct Professor at the University of Calgary and has lectured at many leading universities and conferences around the world.



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Back issues are archived on our website at <http://www.petroleumhistory.ca/>
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Canadian Drilling Rig Museum Update: We have received the Fall 2014 newsletter from this organization which is headquartered at Selkirk, Ontario on the Canadian shore of Lake Erie. It was the recipient of the 2005 P.H.S. Preservation Award. Amongst the activities reported was a May 18, 2014 memorial gathering at the museum which was established to promote and preserve the history of natural gas in the region. They have purchased a new building with some assistance from Union Gas Co. On June 21, 2014 they held their annual Lake Erie Perch fish fry. Over the year some large gas meters and a gas lamp torch lighter were donated and incorporated into their collection. There is an active social program associated with the museum that helps it to maintain its viability. Donations qualify for tax receipts as it is a registered charity. Please let us know if you would like to have their contact details.

Petroleum History Society – Canadian Society of Petroleum Geologists Field Trip: We are currently scoping out a one day bus trip up to Devon, Alberta (just southwest of Edmonton) to visit the Leduc #1 Energy Discovery Centre. The tentative date is Saturday, **June 20, 2015**. Stay tuned for details and consult our website. The site has a large indoor display complex that is supplemented by a significant number of pieces of large equipment in their yard. We hope to be on location there for about 5 hours, bookended by 2.5-3 hour bus rides to and from the location. A bit of a long day but certainly worth it. As a footnote to our earlier story about the upcoming demise of the south Edmonton Highway 2 visitor centre and the Leduc #1 rig sited there, it was reported in the November 2014 issue of the Centre's "Catwalk" newsletter that the Devon group is actively lobbying the Provincial Government to allow them to bring the rig to the Devon Centre to "be reunited with the well that made history". Which brings up another interesting question that was recently raised: Where exactly is Leduc #1 – and specifically, is it at the location of the Discovery Centre? And where is Leduc #2 which was more likely the more important well as it found the oil in the massive Leduc (D3) reef?

Petroleum History Society Downtown Calgary Petroleum History Walking Tour: We have committed to lead a half-day walking tour as a part of Historic Calgary Week. As it stands, the event is scheduled for **10:00 a.m. on Sunday, July 26, 2015**. The P.H.S. last ran this excursion in 2007 and it seems to have been well received. Stay tuned for details on this and also check the website.

Eamon's Camp and Gas Station Status: Efforts to preserve this historic downstream marketing structure located near the Tuscany LRT station appear to have run aground as no one has stepped forward to take the lead and the City is tired of spending money on it (apparently more than \$400,000 to date). In late February it was reported that last ditch efforts had fallen through as of a Feb. 1 deadline. Perhaps the problem is that there isn't a logical fit for this piece of 1950's-1960's architecture at that location. But don't we have a place in Calgary where our older buildings can be preserved? Isn't it called Heritage Park? I know that much of the Park is dedicated to buildings that are a lot older but it seems like Eamon's is potentially falling through the cracks due to a Goldilocks syndrome – a bit too old to be useful but a bit too recent to be saved. Maybe Heritage Park should try to be creative in terms of designating part of its layout for more modern but endangered structures. Or at least take it and wait a few decades until people are willing to consider it old enough to matter. Personally a more modern theme might be an interesting counterpoint to the Wainwright Hotel.

Historic Summer Planning: If any of you are considering an excursion you might want to check out the list of petroleum museums around the world at www.petroleumhistory.com

PASSINGS (with thanks to the Calgary Herald)

KEITH, J. Walter: Born June 19, 1921 at Duck Lake, Saskatchewan and died February 1, 2015 at Calgary, Alberta at the age of 93. Walter served in the Royal Canadian Signals Corps 1941-1944 and commanded 16 Platoon, D Company of the Regina Rifles Regiment during the final European offensive of World War II. Walter worked as a geologist for many companies and as a consultant in Calgary and Houston for 53 years. Walter's soaring operatic tenor voice has comforted many families in wedding, memorial, and church services over the years. He volunteered and loved gardening and documenting the stories of his fellow Regina Rifle WWII veterans. Walter was a long time member of the P.H.S.

MAWDSLEY, James (Jim): Born January 29, 1930 at Saskatoon, Saskatchewan and died February 25, 2015 at Calgary, Alberta at the age of 85 years. Jim was the first of three sons to Robert and Gertrude Mawdsley who ran a family farm near Cereal in eastern Alberta. Gertrude went to Saskatoon for the birth of her first child but, as Jim used to joke: "I had to return home at three weeks of age, because I was needed on the farm." Being born at the start of the Great Depression, Jim was indeed required to work on the farm at a young age, first driving a team of horses and running the tractor at six years of age. Growing up on a farm during this time taught Jim the value of family, hard work, ingenuity and resourcefulness, traits he passed on to his children and grandchildren. Jim attended the University of Alberta where he met Beth and where the two made many life-long friends. He completed both B.Sc. and M.Sc. degrees in geology, married Beth and moved to Calgary where he started his 40-year career as an exploration geologist. He had many fond memories of field geology work in the early stage of his career at Texaco and made many close friends while working in various roles before completing his career as VP Exploration at Discovery West.

COX, John William: Born September 27, 1927 at Pincher Creek, Alberta and died February 28, 2015 at Calgary, Alberta at the age of 87 years. John was born and raised on the family ranch near Pincher Creek. He attended the U. of A. and obtained his degree in Electrical Engineering. John spent the majority of his career with Schlumberger of Canada and, in the later part of his career, pioneered the Dipmeter logging technology. John met Shirley, the love of his life, while working in Dawson Creek, B.C. Because of John's work they were able to travel the world and enjoyed many trips together. In his spare time John loved to hunt, camp, fish and boat with his family. One of John and Shirley's passions was building their family cabin on the Ghost River. John was always tinkering in his garage fixing things and could always be counted on for free car repair.

STANTON, Michael (Mike) Stuart: Born October 1, 1917 and died June 23, 2014 at the age of 96 years. Mike Stanton was born in Leamington, Warwickshire, England and immigrated to Canada in 1919 with his parents. He attended the University of Manitoba, receiving a Bachelor of Science degree (Honours) in Geology in 1939, and Queens University, Kingston, Ontario, receiving a Master's degree in Geological Engineering in 1941. He served as a navigator with the R.C.A.F. during the Second World War from 1943 to 1945, and married his life-long companion, and best friend, Ellie, in 1945. In his early career, Mike worked as a geologist, pioneering field work, mapping and mining geology in Manitoba, the Northwest Territories, the Yukon and the Arctic. During these years Mike worked with the Geological Survey of Canada, the Manitoba Mine's Branch and the Hudson's Bay Mining and Smelting Company (Flin Flon, Manitoba). Mike continued his career as a petroleum geologist with Chevron Standard

(California Standard) in Calgary for over 33 years, from 1949 until he retired in 1982 at the age of 65 years. Mike was an accomplished and respected geologist. He is credited with many professional papers, scientific articles, reports, publications and discoveries. His very active and inquiring mind did not dim with age. He was writing scientific articles well into his mid-80's, several of which were published in both Canada and the United States. Mike was a proud and lifetime member of A.P.E.G.A., the C.S.P.G. and the A.A.P.G. Mike enjoyed engaging in political and controversial discussions. These discussions, and at times debates, were interesting, motivating and sometimes frustrating, as Mike seemed to have pertinent facts readily available at his fingertips to support his arguments. As a hobby, before his eyesight started to deteriorate, he wrote many politically motivated articles and letters to the editor, published in the Calgary Herald, which were always interesting, informative and thought-provoking. Mike liked to travel and explore new places around the world, in search of knowledge, history, archeology and the local lifestyle. He travelled extensively, throughout 46 diverse countries around the world, and his experiences in these countries were far-reaching and well researched.

THORSTEINSSON, Eirikur Thorvaldur: Born December 18, 1945 at Wadena, Saskatchewan and died February 15, 2015 at Calgary, Alberta at the age of 69 years. Erik was caring, accomplished and a real gentleman. He had a real zest for life and radiated happiness. He graduated from Laurentian High School in Ottawa 1964, and went on to achieve a B.Sc. from University of Alberta 1968, before completing his M.Sc. from University of Iowa 1972, and his University of Calgary Education degree in 1974. Over the years he was involved in Geological field work summer jobs in the Arctic with the Geological Survey of Canada (G.S.C.), taught junior high school Earth Sciences in Iowa, worked as an Exploration Geologist for Panarctic Oils, for Petro Canada, and for Norcen Energy, where he supervised an exploration team under the management of Dale Dolphin. After leaving Norcen, Erik contracted as a geologist with BP Canada, Husky Energy, and Rife Resources. He was a member of the Canadian Society of Petroleum Geologists (C.S.P.G.), as well as of the Association of Professional Engineers and Geoscientists of Alberta (A.P.E.G.A.). He was predeceased by his parents Dr. Raymond and Jean Thorsteinsson of Calgary.

CLIFTON, Roy Douglas: We sometimes think of the industry just in terms of the people in the office but there are a lot of other folks out there without whom our activities would grind to a halt in about 5 minutes. A recent obituary for Roy Douglas Clifton brings this to mind. Roy was born in Claresholm, Alberta on October 18, 1944 and passed away on February 19, 2015. According to his obituary, *“Roy was a long haul truck driver for most of his life. For a brief time in his career he took time out to try his hand at mechanics and other endeavors but that was just a blip on the radar of life. His true life was trucking and he could not stay away from his lifelong calling. His stories of the road were entertaining and sometimes harrowing with many close calls that truckers see on the lonely highways.”* His friend Jenna M. captured her feelings of remembrance in a poem, part of which is copied here:

*I now find comfort in strange places, not just in friends and familiar faces,
but in sounds and smells and sights and places.
These small things lessen my heart's spaces, the smell of diesel, the sound of the Jake,
these small things make my heart quake.
I hear these sounds, I smell these smells,
I know that you think of me as well.*

BOOKS OF NOTE

A steady stream of new books has appeared that are of some interest to those of us who are fascinated by the many facets of our industry. Some books are core references while others have only a tenuous petroleum connection. We will leave it to you to decide which ones are worth pursuing. If the following information is insufficient for you to track them down, please let me know.

Ranson, Rick, 2014. Bittersweet Sands – 24 Days in Fort McMurray. NeWest Press, 145 p. \$19.95. *“Rick Ranson recounts a twenty-four day shift at an oilsands operation undergoing a shutdown, giving us a glimpse at a world most of us only know from the evening news. Along the way he encounters a group of engaging roughnecks, including a husband-and-wife welding crew, a petty fascist safety inspector and a tough-as-nails secretary who keeps them all in line.”* You may be familiar with Ranson’s earlier books on the D.E.W.line and canoeing to New Orleans.

Eyles, Nick, 2011. Canadian Shield – The rocks that made Canada. Fitzhenry and Whiteside. 128 p., \$40.00. Nick is from Toronto so perhaps he can be forgiven for the obvious error in the title of this book. Everyone knows that it is the stromatoporoid-bearing limestones and dolomites of the upper Devonian in Western Canada, for example at Leduc, Redwater, etc. that are really “the rocks that made Canada”. Seriously, this is a very attractive book and is a good complement to another newish geology book by Nick [together with Andrew Maill] entitled “Canada Rocks – The Geologic Journey” from the same publisher. The latter is listed at \$60.00 for 512 pages but can be purchased at a lower rate from the C.S.P.G. office.

Christo and Jeanne-Claude, 2012. The Mastaba Project for Abu Dhabi AUE. Taschen. 172 pages. \$64.99. This coffee table book is about the construction of a huge truncated pyramid of oil drums in the desert in Abu Dhabi – 410,000 brand new drums of 55 gallons each to be exact. Apparently a mastaba is a traditional mud bench that used to be situated outside homes in the deserts of ancient Arabia for travelers to rest and receive water from the owner of the house. A mastaba has two slanted walls and two vertical walls with a flat top.

Helbig, Louis, 2014 (although not visibly dated). Beautiful Destruction. Rocky Mountain Books. Approx. 280 p. \$75.00 This book reminds me of the volumes “Quarries” and “Oil” produced by photographer Edward Burtynsky, also of “Manufactured Landscapes” fame. For anyone who stares out the window of any aircraft that they happen to be flying in, this large book contains many aerial images related to the oil sands including site clearing, construction, mining, waste, refining, tailings, tailing ponds, and sulphur piles among other things. Each shot is accompanied by a short technical description. As a person interested in both geological and industrial processes I found the book to be very interesting – but there are certainly lots of views that environmental people will find somewhat alarming. The pictures also have intrinsic artistic merit.

Bercuson, David J. and Herwig, Holger H., 2014. Long Night of the Tankers – Hitler’s War against Caribbean Oil. University of Calgary Press – Beyond Boundaries: Canadian Defence and Strategic Studies Series. 344 p. \$29.95 (est.). The movement of crude oil during the Second World War was a critical aspect of the defeat of the Axis powers in Europe. As described on the back cover of the book: *“Long night of the Tankers presents a fresh account of*

a critical but often overlooked component of the Atlantic naval theatre in World War II. Using war diaries, after-action reports, and first-hand accounts, authors Bercuson and Helwig examine the story behind Operation Neuland, the German Plan to prevent vital oil supplies reaching the United States and the United Kingdom from key refineries in the Caribbean. The Allies ultimately overcame the German effort and transformed the Caribbean shipping lanes into a death trap for German U-boats. For context it should be pointed out that major production in that region was from Trinidad, Venezuela, Mexico and the U.S. Gulf Coast with refineries in those same locations, hence a complex web of crude and refined product movements. The book contains numerous pictures of ships, submarines, aircraft and people – but somewhat bizarrely does not contain any maps, even in cartoon form, that would show where production, refining and the shipping lanes were. This is a major shortfall.

Black, T., D’Arcy, S., Weis, T., and Russell, J. K. (Editors), 2014. A line in the Tar Sands – Struggles for Environmental Justice. PM and BTL Presses. 372 p. \$25.95. If the title of the book isn’t enough to tell you the agenda, then the front cover with a black cloud hanging over an oil sands mining operation will do the trick. The book contains 28 articles about the oil sands and the social and environmental issues related to them.

Bamberger, M. and Oswald, R. 2014. The Real Cost of Fracking – How America’s Shale Boom is threatening our families, pets and food. Beacon Press. 230 p. \$31.00. Bamberger is a veterinarian and Oswald is a Professor of Molecular Medicine. An assault on our pets? Is nothing sacred? Can anyone say bandwagon?

Darcy, Dame, 2008. Gasoline. Merrell Press. 191 p. \$27.50. The description on the back of the book says it all: *“In a post-apocalyptic world, the search for precious gasoline pits a family of orphaned witches against conniving nihilists who lurk in the decaying urban sprawl, the family must learn to forsake a life of materialism and adopt new, alternative means of living in order to survive. Written and illustrated by artist, musician and film-maker Dame Darcy, Gasoline is a fantastical and eco-conscious gothic tale of danger, heartbreak, and the perseverance of magic and love.”* This is a graphic novel. There is also an accompanying audio album by the same name and there were hopes to adapt the book as a screenplay.

May, Gary, 2013. Groundbreaker – how the brilliant inventions of Leo Ranney transformed water and energy technology. Your Story Publishing of Windsor. 274 p. \$30.00. According to the publicity released when it was published: *“It’s the biography of Leo Ranney, an American who devised the now-famous horizontal drilling more than 80 years ago. Ranney also had ties of more than 50 years to Petrolia’s leading oil barony. Ranney married the widow Claire Fairbank, whose father-in law from her first marriage, John Henry Fairbank, was Canada’s largest single oil producer in 1900 in this oil-rich area of Ontario. Leo and Claire divided their time amongst Petrolia, New York City and Morro Bay, California. Ranney obtained more than 300 patents for his technology and processes. Methods for finding and drilling water wells were amongst them. It was said that Ranney’s work on water wells was the first true innovation in 2000 years. Ranney died in 1950.”*

Langenberg, Willem and Cruden, Dave, 2014. John Allan – The Founding of Alberta’s Energy Industries. Edmonton Geological Society, 85 p. \$20.00. This book is built around the extensive photographic archives of the University of Alberta. Available at the Glenbow Bookstore. Willem spoke about this at a recent P.H.S. luncheon.

THE TURNER VALLEY GAS PLANT PHOTOGRAPH PORTFOLIO 2013

A presentation by photographer George Webber at the joint luncheon of the Petroleum History Society and the Lougheed House Society at Lougheed House, February 25, 2015, with accompanying remarks by petroleum historian David Finch.

This luncheon was well attended by member from both groups. After the meal, David led off with a description of the situation at the Turner Valley Plant that George followed with an overview of his photographs including a visual presentation. The collection was on display in the basement of Lougheed House where attendees were free to linger and observe them after the main event.

George indicated that he had been introduced to the site by David after a chance encounter with him and had spent a day in June 2013 taking his photographs. George clarified that his interest was not in documenting the site or understanding its technology but rather in capturing the visual beauty of the setting, buildings and machinery. There is no hidden agenda to be found, in particular of any negative aspects related to the original use of the facility or its current condition. He also shared with us some of the technical aspects of his photography, for example his preferences for black and white to capture the essence of the shot and his use of “flat” light, for example on an overcast day, to bring out the best of a scene. He used a Nikon, tripod-mounted camera with a bracketing of his exposures. The pictures are printed with a special technique that should make them last for up to 450 years. In his final remarks, George asked the audience if they know of any other locations that could be similarly photographed.

For those of you who act quickly, there is an article with some accompanying pictures from the exhibit in the March 2015 issue of the free “Calgary Senior” newspaper.

Farm-out Document

David Finch distributed copies of the legal document wherein William Stewart Herron made a deal with a consortium of Calgary businessmen led by James A. Lougheed for the purpose of drilling a well on Herron’s Turner Valley acreage. The text is necessarily complicated but the major elements were: 1. Herron had assembled a tract of land – an array of surface and subsurface rights that seem to be a mix of freehold and Crown at a cost (paid or committed to pay) of \$40,000. 2. The consortium committed to pay Herron \$22,000 and to spend \$50,000 in exploration/development costs in order to earn an undivided 55% working interest in all of the lands. 3. The actual use of the \$22,000 was complicated by the fact that Herron still had to execute his original land acquisitions – so in essence the consortium was backing in on his deals and was leaving Herron with a 45% working interest. 4. Title search was required. 5. It seems reasonable to believe that the \$50,000 committed was to fund at a 100% level the work to be done. In other words, this wasn’t just for the consortium’s 55% share of the work, leaving Herron to come up with the other 45%. The consortium was carrying him for the initial period. 6. Work to begin within 2 months of the July 16, 1912 signature date. 7. Once the \$50,000 was spent or if there was a discovery, the members of the consortium were to form a company in which they all had an equal share. [This happened and was the origin of Calgary Petroleum Products Limited.] Note: it is not known if the \$50,000 carried the drilling through to the discovery in 1914 or if additional funds were required. Perhaps this detail is in the A.H.S. Herron volume. Any additional comments on the validity of this interpretation are welcome.

KNOWING THE VOCABULARY

The visibility of the petroleum industry in the news these days has led to many learning opportunities including the meaning of technical terms – both upstream and downstream.

Here is a selection:

Agency Shopping: When you don't get the answer you want from one regulatory body, you try to find one that will tell you what you want to hear. For example, President Obama's antics with the State Department and the Environmental Protection Agency over the Keystone XL Pipeline.

Black Swan Event: An event or occurrence that deviates beyond what is normally expected of a situation and that would be extremely difficult to predict. These are typically random and unexpected. An example might be the recent unpegging of the Swiss franc's exchange rate. The debate is whether the current fall in oil prices falls into this category – or whether it could have been foreseen. Closely related to *force majeure*.

Contango: A situation where the futures price of a commodity is above the expected future spot price, or put conversely, a situation where the future spot price is below the current price. This may be due to people's desire to pay a premium to have a commodity in the future rather than paying the costs of storage and carry costs of buying the commodity today. The opposite of contango is known as backwardation. A market is "in backwardation" when the futures price is below the future spot price for a particular commodity.

Crack Spread: Not a plumbing term. A crack spread measures the difference between the purchase price of crude oil and the selling price of finished products such as gasoline and distillate fuel that a refinery produces from the crude oil. In the Gulf Coast the 3:2:1 crack spread involves three barrels of Louisiana Light Sweet (LLS) crude oil, two barrels of Gulf Coast conventional gasoline and one barrel of Gulf Coast ultra-low sulphur diesel.

Dead Cat Bounce: A temporary recovery from a prolonged or bear market, followed by the continuation of the downtrend. Derived from the expression that "even a dead cat will bounce if dropped from high enough". The question today is whether the stabilization of crude prices at about \$50 per barrel is a short reprieve before another plunge. Unfortunately most dead cat bounces can only be recognized in hindsight. The complete filling of storage capacity in the U.S. might set the scene for such the scenario of a second downward plunge.

Fraclog: This new term is intended to describe the practice of drilling and completing horizontal wells but not fracing them. The oil is still in the ground, waiting for a rise in prices. This is probably a temporary phenomenon driven by rigs caught on multiwell pad locations during the price crash. The logic would be that you "might as well" drill the wells when the equipment is there. Presumably this creates a backlog of "shut in" production that can be turned on easily.

Red Queen: This is a reference to the character in Lewis Carroll's book, "*Alice in Wonderland*" who tells Alice that "*It takes all the running you can do to keep in the same place*". The reference is to unconventional production that declines quickly and requires constant drilling.

WWRD: What Would Ralph [Klein] Do? Closely related to WWJD – What Would Jesus Do?