PETROLEUM HISTORY SOCIETY

ARCHIVES

Newsletter of the Petroleum History Society *November 2015; Volume XXVI, Number 7*

P.H.S. Lunch and Learn Meeting – Wednesday, November 25, 2015

Crafty Petroleum Storytelling – A Geologist and a Historian Explain the Process

For Canada's 150th anniversary in 2017 Alberta is opening a new museum. Petroleum displays will tell the story of the Western Canadian oil industry based here in Alberta. Our speakers hail from the Royal Alberta Museum in Edmonton and will explain how ideas come to life in a museum. Oil is a big topic. Museum professionals break it down into bite-sized pieces, find stories to illustrate them, and then build interesting displays. Engaging, entertaining and educating - that's the goal. Learn about the research, the planning process, the design elements and the twists and turns - things don't always go as planned as a museum goes through its birthing pains.
Extra feature: Sisi Fu (U. of C.) will describe some interesting subsurface land ownership influences. **Please see page 3 for additional information on our speakers and their topics.**

Time:	Time: 12 noon, Wednesday, November 25, 2015
Place:	Calgary Petroleum Club 319 – 5 Avenue SW, Calgary; Viking Room (but check marquee) Business casual dress.
Cost:	P.H.S. Members and Student Members $30 and Guests $35 (most welcome). Only cash or cheque at the door. Payment can be made in advance by credit card or by e-mail. Please advise payment method with reply.
Lunch:	Soup, sandwiches and cookies. Gluten-free? Vegan? Advise with reply.

NOTE: New Instructions for Registering for the Luncheon:

Reply, if you wish to attend, to: Loreen Sherman at 403-289-2292 or phs@star-ting.com by noon, Monday, November 23, if not sooner.

Those who register but do not come, or cancel after the deadline, will be invoiced.

Those who do not register by the deadline may not get a seat.

The Bull Wheel

Holiday Greetings: Although it may seem a bit early for this, the current issue of Archives will be our last formal communication for 2015 and we'd like to take this opportunity to thank all of you for your continuing support and to wish you the best for the holiday season.

2015 Donations to the P.H.S.: We are very pleased to inform you that, in addition to the payment of dues, our generous members contributed a total of $1940 to the Society. They were: Dave Barss, Josh Groberman (and BOE Report), Adriana Davies, Charlie Fairbank, Earle Gray, Rick Green, Micky Gulless, Dave Hargrave, Dick Haskayne, Adam Hedinger, Roy Lindseth, Jeff Mackie, Gerry Maier, Len Maier, Art Patterson, Charlie Stelck, Doug Stoneman, Uldis Upitis, Tony Vanden Brink and Gordon Wells. Thanks a million (almost).

Call for contributions and speakers: The Petroleum History Society values your input. If you have an article that you'd like to see in *Archives* or if you have a talk that you'd like to give, please be sure to get a hold of us. Contact President Clint Tippett at the address indicated on page 3.

Hard Copy Archives: Members are reminded that if you would prefer to receive *Archives* as a hard copy through the mail rather than via e-mail, you can request that by contacting Micky Gulless at the "contact" address indicated on page 3 or by calling her at 403-283-9268. This option is also offered when membership dues are paid and/or information verification is sought at the beginning of each year. Different strokes for different folks – we just want to ensure that you read *Archives* one way or the other!

Upcoming P.H.S. Events:

January 20, 2016: Luncheon with Dr. Leslie Reid (U. of Calgary) on her experiences as an interpreter at the now-dissolved E.R.C.B. Energeum interpretive centre and as a professor of geoscience at U. of C.
February 17, 2016: Luncheon with David Sandmeyer (Orphan Well Association) on the status of orphan wells in Alberta.
March 30, 2016: P.H.S. Annual Meeting featuring keynote speaker Charlie Fairbank discussing the interpretation of petroleum history in southwestern Ontario.
May 4, 2016: Luncheon with Graham Taylor (Trent University) on International Petroleum Ltd., the subsidiary of Imperial Oil that operated in South America, including the parallels in developments with Western Canada.
June 1, 2016: Luncheon with Chris Turner (author) on the use of the P.H.S. Oil Sands Oral History Project records in the Glenbow for the research involved in his forthcoming book on the oil sands.

Speaker information for November Luncheon: Historian Cathy Roy and geologist Melissa Bowerman will use illustrations projected onto the screen at the front of the room and stories to explain the process. They will take questions during and after the presentation. Come prepared to learn about museums, ask questions, and provide your input into the fascinating process of educating the public about the story of oil!

Cathy Roy holds the M.Sc. in Historic Dress from the University of Alberta, lectured at the University of Alberta for 6 years and has most recently worked as the Curator of Western Canadian History at the Royal Alberta Museum.

Melissa Bowerman holds the M.Sc. in Geology from the University of Alberta. She participated in research and exploration in a number of remote locations in the Canadian Shield, High Arctic, and the northern and southern Rockies. Her research interests include igneous petrology and mineralogy as well as geochronology and early earth history. As Assistant Curator, Geology, her responsibilities include maintaining and developing the existing collection, scientific research, public outreach and exhibitions.

Sisi Fu is a Ph.D. candidate at the Department of Economics at the University of Calgary. Sisi received the P.H.S. Graduate Scholarship at the University of Calgary for 2014-15 and she will make a short presentation at this luncheon. Her research topic was "How Crown and Freehold Ownership Affects the Oil Industry."

Awards: P.H.S. Director Doug Cass was presented on June 10, 2015 with one of the 2014 Calgary Awards from the City of Calgary. This was in the Community Achievement Awards category for Heritage. P.H.S. Secretary Loreen Sherman's Company Star-Ting Inc. was also recently recognized as the winner of the Best Oil and Gas Risk Management Consulting Services – Alberta for 2015 as a part of Corporate Vision's Consultancy Awards program.

Have a Cool One: Here is a new contribution to our discussion of the term "rig pig". Brewsters (Calgary) are producing a "Rig Pig Pale Ale" that is described as follows: "This North American style pale ale gets its rig-sized aroma [!] from the lethal pairing of Cascade and Centennial hops that are paired with Victory malt to offer a caramel counterpoint" with 5% alcohol, $13.99 plus $0.60 deposit for a six-pack of 355 ml bottles at Willow Park Wine and Spirits.

Editorial Comment: Please note that unless otherwise indicated, all contents of this newsletter have been created or assembled by P.H.S. President and Archives Editor Clinton Tippett.

Archives is published approximately eight times a year
by the Petroleum History Society for Society members.

Back issues are archived on our website at http://www.petroleumhistory.ca/
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SOME PERSPECTIVES ON THE PURSUIT OF OIL AND GAS IN OFFSHORE NEWFOUNDLAND AND LABRADOR

BY BRIAN MAYNARD, PRESIDENT, MARATHON OIL CANADA CORPORATION

On October 28, 2015, the P.H.S. was lucky enough to have the opportunity to hear a presentation by Brian about his career, the initial stages of which were associated with offshore activities in NL. As a preamble to his personal perspectives on that period, Brian provided us with an overview of the earlier history of the offshore which is excerpted from his remarks below. Thanks to P.H.S. Director David Finch for arranging for Brian to be with us.

Let's start with some history about oil developments offshore Newfoundland and Labrador as that should help put some of my later remarks in perspective. Mobil Oil carried out the first seismic surveys on the Grand Banks in the 1960s, and exploratory drilling continued during the 1970s. Chevron discovered the first commercial oilfield, Hibernia, in 1979, but development could not proceed until the provincial and federal governments resolved the offshore ownership and management disputes, which went on from 1967 until 1985. The federal government had taken the position that offshore resources fell under its jurisdiction. A 1967 Supreme Court of Canada decision had awarded seabed resources off the British Columbia coast to the federal government and Liberal Prime Minister Pierre Trudeau suggested the decision applied to the east coast as well. In December of 1968 Prime Minister Trudeau announced a plan for sharing of offshore revenues so that provinces would receive half of the revenues accruing from offshore mineral resources in the waters off their coasts. Newfoundland wasn't content with that, arguing that international law granted Newfoundland ownership of mineral resources on the continental shelf before 1949, which was not transferred to Canada upon Newfoundland joining Confederation. After years of unsuccessful negotiations with Newfoundland and Labrador, Trudeau asked the Supreme Court to settle the question in 1982. So why was Newfoundland so insistent in its position that it keep all revenues from offshore development? Well the Newfoundland economy has seldom been strong; there were problems in the fishery and the government struggled on the revenue side. Beyond that, there were a number of long-standing public grievances. These included that, under Confederation with Canada, fisheries management had passed to Ottawa and that the Churchill Falls hydroelectric agreement benefited Quebec far more than Newfoundland. Offshore oil provided a blank slate - an opportunity for the province to gain control of a lucrative new industry and was also in keeping with the provincial government's larger goal of acquiring greater control over resource development in general.

In March 1984, the province suffered a setback, when the Supreme Court ruled in Ottawa's favour. And I remember that day well. I was working for the provincial government at the time. When the Supreme Court decision was released, then Premier Peckford declared a national day of mourning, government workers were sent home and many wore black armbands in protest. But you couldn't keep Premier Peckford down. He immediately shifted

his efforts to gaining joint management and most of the revenues. The timing worked in Peckford's favour: 1984 was a federal election year and the Progressive Conservative leader, Brian Mulroney, made a written promise that, if elected, he would give the province equal say over offshore management and make it the "principal beneficiary" of the oil and gas industry. A September election returned a Conservative majority to the House of Commons. The new administration began talks with the province, which resulted in the signing of a Canada-Newfoundland Atlantic Accord on 11 February 1985. The Accord granted the province significant decision-making powers and financial benefits. It made the federal and provincial governments equal partners in the management of offshore developments through the Canada-Newfoundland Offshore Petroleum Board. A $300-million offshore development fund was established to help prepare the province for industrial growth, to which Ottawa contributed $225 million. The Accord ensured that residents of Newfoundland and Labrador would benefit from jobs and training opportunities. Developers had to hire qualified local workers before considering outside applicants and help pay for local research and education programs. They also had to give first priority to local businesses able to provide the goods and services needed for offshore projects. A major component of the Accord dealt with revenue distribution. It allowed the province to collect taxes and royalties from petroleum resources as if it owned them. This income was also protected from a dollar-for-dollar loss of equalization payments for the first 12 years of oil production. Protection from equalization claw-back was critical because it allowed the province's income to grow, instead of losing as much to equalization as it earned from the oil industry. Otherwise there would have been little incentive to see development proceed.

The Accord was widely hailed as a success for the Peckford administration and a turning point for the provincial economy. At the signing, Peckford predicted it would allow "this province to catch up socially and economically to the rest of Canada", and "have-not will be no more", while Mulroney famously stated "I am not afraid to inflict prosperity on Newfoundland and Labrador." All interesting rhetoric and I'm not sure if many believed it at the time. However, with the offshore administration uncertainty resolved, this led to an agreement in principle for the development of the Hibernia offshore project being reached on July 18, 1988 between the Government of Canada, the Government of Newfoundland and Labrador and the Hibernia consortium led by Mobil, with partners Chevron, Petro-Canada and Gulf Canada.

My involvement in the industry started in the fall of 1988 as a junior researcher/analyst providing support to the provincial team negotiating the binding agreements to give effect to the agreement in principle. These binding agreements covered a range of topics from royalties, corporate and sales taxes, industrial and employment benefits and loan guarantees. The negotiations lasted over two years and it was during this time I first visited Calgary. I think I probably made 30 trips here to Calgary over that period as we negotiated a number of agreements. With the completion of the agreements in the fall of 1990, the

construction of the project then began. Construction continued for several years until the Hibernia platform was towed to the Grand Banks and installed there in the summer of 1997. From 1995 until about 2000, I led the project negotiations on behalf of the Province that saw the development of the Terra Nova Project and the development of the White Rose Offshore Project with Terra Nova coming on stream in January 2002 and White Rose coming on stream in November 2005. These were all big projects, particularly for a small economy like Newfoundland's. Recall the total provincial population at the time was about a half million people. Hibernia originally cost $5 billion to build, had reserves of 1.25 billion barrels and daily production of 220,000 bpd. Terra Nova originally cost $2.5 billion to build, had reserves of 506 million barrels and daily production of 125,000 bpd. White Rose originally cost $2.3 billion to build, had reserves of 440 million barrels and daily production of 140,000 bpd. So over a ten to fifteen year period, my home province saw billions of dollars in new investment and production grow from zero to over 400,000 bpd. We saw significant new employment created, significant new revenues in the form of taxes and royalties and an economic boom that led to the Province getting off the equalization support program. Have-not was indeed no more. And without a doubt, offshore development did give Newfoundland and Labrador a significant economic boost that continues to this day, although low oil prices are impacting Newfoundland, just as we are being impacted here in Alberta.

"There She Blows": Production tests in September, 1979, confirmed a major discovery at Hibernia, on the Grand Banks of Newfoundland, by Chevron Canada Resources Ltd. and Mobil Oil Canada Ltd. (Mobil Oil Canada Ltd.)

ON FIRE

By Peter McKenzie-Brown, P.H.S Member, Author and Petroleum Historian

The following article concerning an important issue that is impacting the Western Canadian oil industry was written by Peter for Oilweek's September 2015 issue and was provided to us by Peter for Archives as well. Thanks to Peter for this contribution.

As fire roared through the boreal forest toward Cenovus's Foster Creek last May, the company took the precaution of evacuating 1,800 employees from the site, according to company spokesman Reg Curren. "The big challenge was that it was threatening to cut off the road in and out of the facility," he said. "We couldn't take the chance of having people stranded, and provincial forest fire officials asked us to get ready for a potential evacuation." The company decided to evacuate. Most people left in the large buses already on-site to transport workers, while those with personal vehicles drove to safety. We thought we might be able to continue to operate, with reduced staff, so about 140 people stayed behind to continue operating the plant," he said. "When it became clear that we couldn't do that, we brought helicopters into play. Over a period of a few hours, we were able to get the last people off-site." The facility was down 11 full days, and "we returned to full operations on June 11." Operations quickly returned to normal.

The company was lucky. So was Canadian Natural Resources, which needed to close down its Foster Creek and Kirby South operations at the same time. The reality, however, is that the number and extent of the forest fires Alberta's boreal forest are increasing. As far as oil sands operations are concerned, the risk of forest fire disruptions is on the rise. That is the view of Mike Flannigan, who is director of the University of Alberta's Western Partnership for Wildland Fire Science. Global warming and climate change are real, he says, and they are affecting the way the oil sands business operates. Warming up to the topic of climate change, he says it is no coincidence that Earth's hottest ten years have all taken place this century. Indeed, the most recent meteorological winter – from the beginning of last December to February 28th – was the warmest Earth has seen since record keeping began, more than 135 years ago. Another piece of evidence: Alberta's official fire season now starts March 1 – a full month earlier than only five or ten years ago.

This spring the province's fires were less destructive than in some years past, and they had a curiously positive impact on the bottom line of oil sands producers as a whole. By closing access to oil sands facilities, they reduced supplies to the booming downstream sector, accelerating increases in Western Canada Select oil prices after nearly a year of declines. From April to the middle of June, the price differential between WCS and West Texas Intermediate stood at about $7.50 per barrel despite high oil inventories in the US. That was the narrowest differential in more than five years.

These bottom-line impacts reflected reduced production representing represented more than 8 per cent of the province's total oil output. There were 917 fires, compared to the average over the last five years of 690. At this writing, some 90,000 hectares have burned this year, compared to the average 30,000 hectares per full year between 2009 and 2014.

Northern Alberta's boreal forest surrounds most oil sands projects, which are designed to resist the ravages of fire. Careful planning notwithstanding, fire does disrupt operations. As events this year demonstrate, they can lead to evacuations from field camps – sometimes by helicopter,

when fire makes rural roads impassable. Smoke can close airports, complicating helicopter rescue. In addition, of course, people with respiratory ailments can suffer from the smoke itself.

In the past, according to Flannigan, “we often talked about the wildland/urban interface. People enjoy living in the country, and that is fraught with risk if you have a wildfire.”

For rural communities and those who want to live on properties in the woods, big fires can lead to the destruction of property. In 2011, for example, a bush fire torched the Town of Slave Lake, with 40% of its structures going up in smoke. During that time there was “a huge fire, 600,000 hectares—it was a huge fire –” near Fort McMurray, several hundred kilometres away. Those fires were so severe that they had a measurable impact on Canada’s GDP. According to a StatsCan report, oil and gas production decreased 3.6% in the second quarter of that year – the biggest single contributor to a quarterly decline in the country’s output. “Wildfires in Northern Alberta as well as maintenance shutdowns reduced petroleum production,” wrote the federal agency. “Extraction of natural gas also decreased.”

Because of industrial development in northern forests, he says, “we have started using a new expression: wildland/industrial interface. Today there is so much industrial activity in the boreal forest that fires lead to all sorts of impacts and consequences.”

Unlike rural communities, the boreal forest “survives and thrives with regular fires,” Flannigan says. While he acknowledges year-to-year variability in forest burns across Canada, “roughly speaking, that area has doubled since the 1970s.”

For lift-off, forest fires need fuel, ignition and weather. Fuel is “the stuff that burns, like pine needles and decomposing organic matter,” Flannigan says. “How much do you have, how dry is it? What type of fuel is it?” Rivers and wetlands can block fires, so “what’s the continuity” of the fuel? The second factor is ignition – mostly lightning, but also such human activity as campfires. Weather is the third. “You need all three for a wildfire to burn,” he says. “You need fuel, you need ignition and you need hot, dry, windy weather.”

Besides an earlier start to the fire season, Flannigan’s explanation of the impact of global warming includes two other main factors. One is that warmer weather leads to more combustion from lightning. Also, rather counterintuitively, “the warmer it gets the more moisture you have in the air. That’s because the increased heat leads to more evaporation and therefore drier fuels.

Fire management philosophy is simple: “You hit it hard and you hit it fast. Once a fire gets the size of a football field (about one hectare) you have a real problem.” Yet despite modern, efficient fire management organizations across Canada and larger areas covered by fire-fighting personnel and equipment, annual burn areas are growing, with most of the impact coming from 3% of the forest fires.

For natural fire control, he says, “for every degree of atmospheric warming, we need a 10-15% increase in precipitation to compensate.” Yet projections created by atmospheric scientists “which you have to take with a great deal of salt” suggest that, in the future, fuels will be much drier. “This will make it easier for fires to spread. So what we now have is a longer fire season, more fires and drier fuel.”

Of course, to get a contrary opinion the person to talk to is a geoscientist, and Colin Yeo does not entirely disappoint. “Geologists have always noted that climate is subject to change, like the mini-ice ages before the Industrial Revolution” he says. Solar activity has caused warming and

cooling trends, and so have astrophysical cycles. “Earth tilts and goes through long periods of climate change over long periods of time.” The best known are the Milankovitch cycles. These three cosmic progressions give Earth a dramatically eccentric orbit, although over tens of thousands of years.

“Earth was getting warmer and colder even when there was little carbon dioxide in the atmosphere,” Yeo says, then gets to the heart of the matter. The geological community does agree – “because it’s measurable” – that there is an increased carbon dioxide content in the atmosphere, he says. “We also note that there has been an increase in global temperatures over recent years, although there was a pause for about ten years until about 1998.”

While the geological community recognizes that many factors influence climate, “we do not know which driver is dominant, and many geoscientists are ill-equipped to render a meaningful opinion because atmosphere science is so complex,” he says. “You need geophysics to truly understand this.”

Then he begins talking about a recent survey of Canadian earth scientists. How is the profession responding to a changing climate? For one, geology departments are shifting their primary focus from the science of exploration and extraction of resources to environmental science and environmental remediation. Most geoscientists believe climate change, over the last few decades, has been driven by a combination of natural and anthropogenic processes. Furthermore, public understanding and media representations of climate change are not based on good scientific knowledge, and politicians worry more about public opinion than science. By now, he is more willing to talk about climate change as a problem that could, indeed, contribute to more and larger wildfires in Alberta’s North. He begins talking about methane hydrate –a crystalline solid that consists of a methane molecule surrounded by a cage of interlocking water molecules. Stable on the seafloor at water depths below 500 meters, this substance also exists in large quantities in the permafrost of Northern Canada. It is the largest natural gas resource on Earth. While he acknowledges its potential as a source of energy, Yeo says gas hydrates themselves are potentially a serious problem. “If the planet’s temperature goes up enough and subsea hydrates are released as methane into the atmosphere that is going to cause a lot of grief.” The reason is that methane is a far more potent greenhouse gas than carbon dioxide.

So, is the outlook bleak, with nothing but worry ahead? “There will be a lot of spatial and temporal variability in terms of climate change, Flannigan says. “Just because the climate is getting warmer does not mean there won’t continue to be extreme events. In some places there will continue to be outbreaks of extreme cold and strange weather” – like last winter’s mountains of snow in the Maritimes. However, he says, “You have to look at climate over larger areas and over the longer term. There will be winners and losers.” The losers will be, in particular, those parts of the world where global warming is turning farmland into desert and creating droughts. The resulting poverty and other social issues often complicated by war. According to the United Nations, the number of people living as refugees from war or persecution now stands at 51.2 million – the highest level since World War Two.

By contrast, says Flannigan, Canada will be a winner. “Farming in more northerly areas is now possible, since our growing seasons are getting longer” and Canada has the world’s largest fresh water resources, for irrigation.

As an afterthought, almost, Flannigan says “our fuel bills are going down.” Those with central air conditioning, of course, will find their utility bills going up.

THE PURITY 99 FIRE OF 1953

Adapted from Isabelle Hartell, in “In the Light of the Flares”, pp. 61-62.

It was 8:40 a.m., Wednesday, January 28, 1953, and the little community of Mercury Camp was a-bustle with its usual morning activity after hustling the children off to school. Suddenly there was a deafening bang and the ground shook. Windows shattered, dishes fell out of the cupboards and pictures fell from walls. The shock of the explosion was felt in Turner Valley and Black Diamond. The heart-stopping shrill of the fire whistle filled the air. Women fled their houses and men raced for the refinery. Red-lined pillars of black smoke billowed into the sky above the plant. Turner Valley Civil Defencemen and Royalite Company equipment and personnel rushed to the scene and rendered extra assistance in extinguishing the fire. Working under dangerous conditions, workmen soon turned off the flow of gasoline in the area and with the use of chemicals, were able to finally bring the blaze under control that night.

After investigation it was discovered that gasoline leaking from a production line had come into contact with hot furnace bricks and ignited. In the lightning-fast chain reaction, the fire had reached a group of high pressure storage tanks and they exploded. Later, pieces of these tanks were found in yards of homes four hundred yards from the blaze. Luckily most of the extensive facility with its numerous storage tanks was not affected by the explosion. Damage estimates of the blaze ran from $500,000 to $1,000,000.

During the fire, the local women did their share by feeding hordes of hungry fire-fighters and keeping up their morale. The local teachers kept the children busy at school so the women would not have to worry about where they were. All-in-all the community showed the true small-town spirit of working together. Seven men were injured in the explosion. Seriously injured were Ron Nichols, William Person, Hubert Smith, George Murray and Alfred Ironsides. Two other men, Albert Neal and L. Lund received burns to the head and arms but did not require hospital treatment. William Person died in the Turner Valley Hospital early the following Monday. Later a special oil fields blood donor clinic was arranged in Calgary to “pay back” the blood supplies sent to aid the recovery of the injured men. Over a hundred residents from half a dozen villages in the Turner Valley area attended the clinic.

Background (from Google “Purity 99” – there is lots of interest in Purity 99 memorabilia)

In the 1930's oil exploration had swept over Calgary with much of its production coming from the discovery of wet gas and oil at Turner Valley, southwest of Calgary. In 1934 Albert H. Mayland brought refinery equipment up from Big Springs, Texas to begin construction of the Purity 99 gasoline refinery at Turner Valley. Mayland owned a series of production companies including Mercury Oils, Miracle Oils, Mill City, and Gas & Oil Products of Calgary. He chose to setup his own refinery as it's presumed that Mayland didn't favor dealing with Imperial Oil or Royalite who were already constructing their own plants at Turner Valley. Upon completion of the refinery, Purity Oil was producing some 2000 barrels per day and employed 50-60 men at the plant. During the 1930's, another individual named Sam Nickle Sr. had taken on leases of his own at the oil fields of Turner Valley, and had formed a company known as Northend Petroleums. Upon establishing a financial base and a reputation in the oil business he went on to found Anglo American Oils in 1944, before venturing into oil exploration in Nova Scotia. In 1953 he put all his resources on the line to finance the purchase of Purity 99 Oil Ltd. including the refinery and marketing system built by the late A.H. Mayland. [It is not known whether the explosion and damage had any bearing on this transaction.]