

Archives

Newsletter of the Petroleum History Society

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P.H.S. Luncheon – Wednesday, February 28, 2024 Jaremko Jottings - by David Finch

Gordon Jaremko changed the way people see the petroleum industry. And he recorded the story of oil with unique intelligence, insights, passion and clever wit. David Finch, also a graduate of the University of Calgary history department with an MA in History - Gordon's was in 1973 - will discuss several aspects of the bibliography of Jaremko. As a journalist, Gordon was also a philosopher, social historian, political commentator and so much more. While other newspaper hacks fell into the easy pattern of writing daily articles on deadline based on little more than a news release from a company flack, Gordon insisted on slogging through the trenches. He was always downtown in the middle of the action - in Edmonton and Ottawa and Calgary - notebook in hand, jotting down quotes and facts in his own self-styled shorthand. His sly, straight thin-lipped smile always kept the person he was interviewing engaged, and talking, even revealing more than they had intended. Using excerpts from Gordon's writings, this presentation will cover topics from the five decades of Gordon's writing career.

See Page 3 for the luncheon speaker's brief biography.

Time:	12 noon, Wednesday, February 28, 2024
Place:	Calgary Petroleum Club
	319 - 5 Avenue SW, Calgary (Check marquee for room)
	Dress – business casual.
Cost:	P.H.S. Members and Student Members \$40 and Guests \$45 (most welcome).
	Only cash or cheque at the door. Payment can be made in advance by credit
	card, e-mail or PayPal. Please advise payment method with reply.
Lunch:	Soup, sandwiches and cookies. Gluten-free? Vegan? Advise with reply.

NOTE: Instructions for registering for the Luncheon:

Reply, if you wish to attend, to: Ross Hicks at 403-271-7753 or click on ross_hicks@yahoo.com (note the underscore: ross_hicks) by noon, Monday, February 26, 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.

We Are Back!

MESSAGE TO PETROLEUM HISTORY SOCIETY MEMBERS – FEBRUARY 2024

As communicated to you last month, I am pleased to confirm that our Society is moving forward once again. The Board of the P.H.S. is strongly of the belief that the history of our petroleum industry must be preserved and that the accomplishments of its individuals, businesses and related organizations should be communicated to Canadians and celebrated with pride. While we are not an advocacy group, our voice will support the recognition of the contributions that the petroleum industry has made in the past and continues to make in support of our prosperity. This is not to say that other opinions are to be ignored – indeed a wide range of viewpoints and related debate are essential in charting the way forward, but a positive mindset about our industry is often lacking in the face of opposition on several fronts. Let's make sure that the good things are not diminished by an overaggressive rush to judgement.

So back to business! After a few false starts, our Board met in late November and has charted a path involving a new allocation of responsibilities and a revived slate of events. We hope that we will be successful in this endeavor and appreciate your support and involvement. We have also added well-known petroleum history experts and enthusiasts David Finch and Deborah Jaremko to the Board to help us on our way. If you have any ideas about Canadian petroleum history that you'd like to pursue, please let us know and we can take them forward. We have an enhanced communications plan under development including a revamp of our website. Stay tuned.

Our luncheon program will start on February 28 with an event at the Petroleum Club – as detailed in this issue of Archives. David Finch will be our speaker. Luncheons are also planned for May and June and into the Fall. Our Annual Meeting will be held at the Petroleum Club on March 27. It will involve our elections, a keynote speaker and associated aspects, including our annual awards presentations. Given our lull on the award front, this year we will be including recognition of winners for 2021, 2022, and 2023. In addition, the winners for 2019 and 2020 who have already been announced and have their awards will be invited to join us given that they missed out on being recognized in this forum due to the pandemic-related restrictions. Our dues notices for 2024 are currently going out so please keep an eye out for them. The level of dues will remain as it was for 2020 and individuals who renewed for multiple years will be handled appropriately.

It bears repeating that long time Board member, Past-President and Treasurer Micky Gulless has passed the reins on several fronts to other Board members and has stepped back from the responsibilities that she has been carrying for many years. Micky will still be advising us to maintain continuity. As one of the founding members of the P.H.S. Micky has been instrumental in our growth over the years and has contributed tremendously through her creation of the P.H.S. website and the maintenance of our many day-to-day operations. We thank Micky for all her good works.

Clint Tippett, President – Petroleum History Society

The Bull Wheel



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 get a hold of us. Contact President Clint Tippett or Editor Bill McLellan at the addresses indicated on page 6.

Luncheon Speaker Biography: David Finch is a public historian, the author of dozens of books and hundreds of articles on stories about the Canadian West. He co-authored books with Gordon Jaremko on the oil industry, as well as one on some of the most legendary men to climb into the saddle of a horse in the West.

Annual Meeting Presentation: The PHS 2024 Annual Meeting will be held at 4:00 pm on March 27 at the Petroleum Club. Our guest speaker will be Dr. Sabrina Peric, Associate Professor in the Department of Anthropology and Archeology at the University of Calgary. Sabrina has been conducting research on Dr. Ted Link, one of the giants of Canadian petroleum history. Link is credited with the discovery of the Norman Wells Field in the Northwest Territories in 1920 and was Imperisl Oil's Chief Geologist when Leduc was discovered in 1947. Between those dates, Link was very active in trying to pull together the geological history of Western Canada. This promises to be an excellent talk! A Memorial to Theodore August Link (1897-1980) can be found in the PHS website copy of the February 2020 issue of *Archives*.

Membership Renewals: PHS Treasurer Ian Kirkland is sending out renewal notices and contact verification requests to our members. Due to the pandemic the membership fees situation has been more complicated. Membership fees were waived for years 2020-2023. There was some confusion in 2020 with the onset of the pandemic, with some members paying, and some not, so we will consider all members current to end 2023. Membership fees will be held at the previous rates of CAD\$30 for individuals and CAD\$100 for corporate/institution. Some members paid during 2021-2023 and will be credited on their renewal notices, on a best efforts basis. If you feel your assessment is incorrect, please contact lan at treasurer@petroleumhistory.ca. You can renew your membership:

- (1) with an Interac e-mail transfer from your bank to <u>treasurer@petroleumhistory.ca</u> preferred (no fees to PHS), or
- (2) on our website via PayPal with only an email address and a credit card <u>http://petroleumhistory.ca/about/member.html#pay</u>, or
- (3) pay cash at an event, or
- (4) mail a cheque to Petroleum History Society c/o 19 Roselawn Cres NW Calgary T2K 1K7

Donations and endowments: We would like to ask members to consider adding a small donation to our Society as a part of your estate planning to ensure the preservation of Canadian petroleum history and enable us to promote the contributions made to the Canadian economy by our petroleum industry and by the many dedicated individuals who have been and are involved in it. As you are aware, the P.H.S. does not have charitable status with the Canada Revenue Agency and therefore cannot issue tax receipts – but that does not detract from the worthwhile nature of our endeavors. Thank you for your consideration.

Election: The election of the P.H.S. Executive and Board takes place at our Annual Meeting. This year it will be held, as mentioned above, on March 27 at the Petroleum Club. If you would like to volunteer in any capacity, please let us know.

Free Student Memberships Available: The Petroleum History Society offers free membership to full-time students until the end of the year in which they graduate. They will receive the same benefits as regular members – *Archives* newsletters and invitations to our events. Membership applications are available at: www.petroleumhistory.ca/about/index.htm#join.

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

Archives is published approximately eight times a year by the Petroleum History Society for Society members. Archives is copyright to the P.H.S. 2024 – all rights reserved. Back issues are archived on our website at http://www.petroleumhistory.ca/ Contacts: info@petroleumhistory.ca President: Clint Tippett – clintontippett88@gmail.com 403-208-3543 Editor: Bill McLellan – mclellaw@telus.net 403-288-9089

The Early Years: The Rise of the Petroleum History Society

Author: Bill McLellan - Petroleum History Society

The Petroleum History Society was founded upon the efforts of four prior, somewhat loosely structured, organizations:

Firstly, it all started in 1980 with Aubrey Kerr, petroleum geologist, amateur historian, and budding author. Aubrey proposed that the Glenbow be a formal partner in his endeavors to write at least one book about the history of Alberta's oil industry and the people who made it what it became. Bill McKee, Chief Archivist at the Glenbow, agreed to let Doug Cass, Assistant Chief Archivist, devote a small portion of his time to work with him. Aubrey proposed to interview and tape record relevant, knowledgeable people. He hired Betty Cooper and Jack Peach to do these interviews. I joined this group later in 1981 when it was well underway, to help recommend people that should be interviewed. This research resulted in two of Aubrey's books – *Atlantic 1948 No. 3*, published in 1986 and *Leduc*, published in 1991, and four others. The interviews were tape recorded, transcribed, and are currently stored in the Glenbow Western Research Centre at the University of Calgary.

Secondly, the Petroleum Industry Oral History Project (PIOHP) grew from this loose association in about 1981. This project began small, but by mid-1982, it was realized that there were a lot of people who needed to be interviewed, and soon, as many were significantly advanced in age. With enthusiastic support of the Glenbow Archives, the Alberta Historical Resources Foundation, and several companies and societies in the petroleum industry, approximately 50 interviews were conducted and recorded from 1981 to the beginning of 1983.

A much larger scale activity was launched in early 1983 with funding from the Devonian Group of Charitable Foundations. The funding enabled the PIOHP to hire a full-time four person staff in office space graciously supplied by Esso Resources Canada Limited. The PIOHP had a 2-year mandate. By the end of December 1984, a total of 223 interviews of people in the petroleum industry, with a wide cross-section of backgrounds, were conducted, recorded, transcribed and also archived at the Glenbow Western Research Centre. A second, somewhat more modest, phase of the PIOHP resulted in an additional 84 interviews between April and December of 1984.

Thirdly, as the PIOHP was in its final "push" in 1984, the people involved in the project realized that a place for research, etc. was needed – namely a Centre for Petroleum Industry History. At this time a great effort was underway to have the old Turner Valley Gas Plant site turned into an Alberta Historic Site. Representatives of the PIOHP had joined the Town of Turner Valley, the Turner Valley Oilfield Society, and other organizations to advance the idea of making the old gas plant an historic site. The proposed name for the site was "Hell's Half Acre Interpretive Centre."

The Ad Hoc Committee for Petroleum Industry History was created, largely with individuals involved in PIOHP, to propose the creation of the Centre for Petroleum Industry History, in association with the University of Calgary, at the site of the Hell's Half Acre Interpretive Centre.

The Centre was officially proposed in December of 1984 with the publication of an 8-page booklet entitled: *Centre for Petroleum Industry History – A Proposal*.

Unfortunately, the inability of the Ad Hoc Committee to obtain a charitable donations designation from Revenue Canada and serious delays in getting governmental approvals resulted in an indefinite postponement in the project to create the Hell's Half Acre Interpretive Centre. And the Ad Hoc Committee's proposal "died" a quiet "death."

Fourthly, in 1985, the Petroleum History Society (PHS) rose from the "ashes" of the Petroleum Industry Oral History Project and the Ad Hoc Committee for Petroleum Industry History.

PETROLEUM HISTORY INSTITUTE SYMPOSIUM CANMORE, ALBERTA, CANADA MAY 20-22, 2024

Author: Clint Tippett, President – Petroleum History Society

The Oil City, Pennsylvania-based Petroleum History Institute (not to be confused with our Calgary-based Petroleum History Society) annually organizes a symposium at a location somewhere in North America that is either in or close to a major petroleum-producing fairway. Although most have been held in the United States, Canadian venues have been Oil Springs/Sarnia in 2008 and St. John, New Brunswick in 2019 in recognition of the first oil well in North America (1858) and the 1850's kerosene-related exploits of Abraham Gesner, respectively. In 2024 this important event will be showcased in Canmore, Alberta on May 20-22. The P.H.I. website is <u>www.petroleumhistory.org</u> for more information.

The agenda for the meeting comprises a welcoming reception on the evening of May 20, a full day of talks and posters followed by an awards dinner on May 21 and a field trip to Turner Valley and the Museum of Making, near Cochrane, on May 22.

The symposium is being chaired by P.H.S. award winner Rick Green of Canmore and P.H.S. President Clinton Tippett of Calgary. Both Rick and Clint are P.H.I. members as well.

The P.H.I. focusses on the history of the petroleum industry and publishes an annual issue of the journal Oil-Industry History. Tables of Contents of these issues have been included in P.H.S. Archives in the past, so when you examine them on the P.H.S website you will get a flavour of the sorts of topics that their contributing authors have investigated. The stories of individuals and companies feature prominently along with descriptions of the important petroleum technologies that have evolved over time.

The theme of the 2024 Symposium is "Exploration in the Canadian Rocky Mountain Foothills: From Drilling the Bumps to Deeper Insights". It is hoped that about half of the program will feature material that is related to the Foothills – its history of hydrocarbon discovery, the technical insights that have been made along the way and the colourful people and companies that have been involved. The other half of the program will be comprised of a wide range of other subjects driven by the interests of the delegates.

Arrangements for hotel accommodations and meals have been made by Rick. Details and registration materials are available on request from Rick at <u>vrgreen1@telus.net</u> or Clint at <u>clintontippett88@gmail.com</u>. The hotel reservation deadline for the reserved block is March 20

so your early attention is recommended. Provision has been made for registration for either all or a portion of the program in order to allow for flexibility in participation. We hope that you will attend the symposium and consider making a presentation there about

your petroleum historical interests.

THE CENTENNIAL CELEBRATION OF A GAMECHANGER – ROYALITE #4 AT TURNER VALLEY – 1924

Author: Clint Tippett, President – Petroleum History Society

There is often a well that can be said to have "made" an exploration play. A test drilled 100 years ago meets that criterion and, in the process, it opened up a huge fairway for the Canadian petroleum industry that has continued to pay dividends ever since.

That well was Royalite #4 at Turner Valley.

The back story is, of course, the 1914 Dingman #1 well that discovered natural gas with condensate in the Lower Cretaceous section on the crest of the Turner Valley anticline. Despite the excitement that accompanied this find, its pursuit was hampered by the onset of WWI combined with some disappointing follow-up wells. To add to the misery, the small processing plant that Calgary Petroleum Products Ltd. had constructed burned down accidentally in 1920. It was only the entry in 1921 of Royalite, a subsidiary of Imperial Oil, that salvaged the play with the construction of a new condensate-extraction facility. In 1922 Royalite, hoping to expand production, spudded Royalite #4, approximately one mile NNW of the Dingman well (itself now named Royalite #1).

Royalite #4 was located at 12-7-20-2W5 and was spudded on September 7, 1922 with a wooden cable tool rig owned by Royalite. The subsurface rights were owned by the CPR and had been leased to Royalite, superseding a 1915 lease to Calgary Petroleum Products Ltd. It took 400 days to drill to 2890 feet – or an average of just seven feet per day. According to Aubrey Kerr's account, by September 1923 the well had hit the Home Sand (the productive zone in the Dingman well) at 2871 feet and flowed at 5 million cubic feet per day. Drilling ceased at 2890 feet so that this flow could be run through the gasoline absorption plant with the residue gas flowing to the City of Calgary during that winter.

In 1924 drilling resumed. The top of the Paleozoic carbonates was penetrated at 3430 feet. Casing was set at 3450 feet. Drilling then continued to 3740 feet. The Turner Valley Formation, directly below the Jurassic Fernie shale, is approx. 100 m (330 feet) thick so at that point they had basically reached the bottom of the prospective section. The well, on the crest of the anticline, probably had little deviation so there was not much dip-thickening.

It was only at 3740 feet on October 14, 2024 that the well blew out with the tools still in the hole. The drillers tried to shut the well in but the pressures were too great and both the 6.25 inch and 8.25 inch uncemented casing strings were forced out of the hole, becoming tangled with the drilling cable. The flow rate was estimated at 21.5 million cubic feet per day of slightly sour gas with a spray of light oil. Later measurements found the gas to be 80.8% methane with abundant heavier fractions and to contain 1.43% H2S.

On November 9 the well caught fire and the rig was destroyed. Blow-out specialists from the U.S. were engaged. Seven boilers to generate steam were ordered through Imperial's Calgary refinery. After several missteps the fire was snuffed out and the well brought under control. It is estimated that the well was then able to produce as much as 900 bbl/d of water-white gasoline (condensate). Horse teams and trucks hauled these volumes to the railhead at nearby Okotoks. The natural gas was initially flared in an adjacent coulee that came to be known as Hell's Half Acre. In 1925 a welded 4-inch liquids pipeline was installed between the well and Imperial's Calgary refinery and a new 10-inch natural gas line was run into Calgary from the processing facility.

The discovery that came to be known as "The Wonder Well" set off the second Turner Valley boom with numerous new wells drilling into this new objective along strike. Over the following years, significant enlargements and modifications were made at the gas processing facility at Turner Valley.

Royalite #4 was abandoned in 1934 due to depletion after having produced over 35 billion cubic feet of sales gas and 925,000 barrels of condensate. Some wellbore damage may have contributed to its early demise. There is no record of the well having been "shot" with nitro to enhance production.

Royalite #4 Mysteries:

Why?

The logic of drilling a step-out from Dingman #1 seems obvious as Royalite was chasing the proven Cretaceous reservoir (although rock properties vary and structural complications are possible). What isn't clear is why Royalite decided to drill into the deeper Paleozoic section (then called the Madison Formation because of its correlation to that unit in the U.S. – and now labelled as the Mississippian Turner Valley Formation of the Rundle Group). According to Aubrey Kerr and others, that deeper section had been barren of hydrocarbons (i.e. wet or tight) where it had been penetrated to date. So why spend all of that extra time and effort basically wildcatting in a poorly known part of the stratigraphy?

As it turns out, that section hadn't been condemned by drilling in Montana across the U.S. border to the south. The Kevin-Sunburst Field had been discovered in 1922 with crude oil and natural gas production from the Mississippian section. Its original oil reserves are now pegged at 81.4 million barrels. Indeed, a paper published in the Bulletin of the American Association of Petroleum Geologists in 1923 recommended deeper drilling beneath known Cretaceous accumulations, as driven by improvements in drilling technology. Royalite geologists would no doubt have been aware of such discussions and with the encouragement derived from the Kevin-Sunburst results would have had a solid basis for recommending a deep test at Turner Valley.

How Deep?

As most stories about Royalite #4 go, the blowout occurred when the well penetrated the top of the Madison. This would make sense if that formation was porous throughout. However, the details of the Royalite #4 drilling record tell another tale. It seems that 310 feet of carbonate was drilled before the well came to life. The lithology log (the description of the chip samples

recovered during drilling) lists limestone from 3430 feet to TD at 3740 feet. Most significantly, the comment is made on the log that the last 30 feet drilled more quickly than the overlying 280 feet. It can be deduced that these basal strata were more porous and therefore easier to penetrate.

There are several stories about Royalite management wanting to abandon the well at the top of the Paleozoic with the heroic drillers insisting on keeping going. This renegade behavior is implausible for several reasons. For one thing, who would intentionally ignore orders at the risk of one's employment? More importantly, how could one possibly drill an extra 310 feet of hole without authorization – remembering that this was a cable tool operation capable of only a slow rate of deepening. Although the drillers were undoubtably a spirited crowd, these fanciful stories seem to be just a part of oil patch lore.

Why Keep Drilling?

One would think that drilling several hundred feet of tight carbonates would have led to a decision to stop drilling, but this didn't happen. It can only be speculated that there was some sort of encouragement leading to the conclusion that the section contained hydrocarbons – i.e. shows of gas or oil as the well progressed. Indeed, as we now understand it, the tighter upper section is well within the gas cap and the pore space and fractures would have contained hydrocarbons – but the permeability of these rocks would have been insufficient to allow for a commercial scale of flow. In support of this conclusion, the scout ticket for the well lists gas shows between 3507 and 3519 feet. It is only when the more porous and permeable rocks at the base were penetrated that such commercial-scale performance was demonstrated.

The well had a surface elevation of 3975 feet so that, given their drill depths, the carbonate reservoir was between 545 and 235 feet above sea level. Based on later development results, the gas-oil contact is known to be at 2200 feet below sea level so the zone penetrated by Royalite #4 was more than 2500 feet above the GOC – so the rocks would have been well saturated with natural gas.

Footnotes:

For those of you interested in numbers, the following may be of interest.

The overall Mississippian gas cap at Turner Valley is 7920 acres (12.4 square miles) in extent. By 1969 there were 93 wells producing from it in addition to 22 dry and abandoned holes (presumably due to a combination of depletion and having encountered tighter zones in the reservoir). Average porosity in dolomitic limestones is quoted as being 8% with the role of fractures noted. Water saturation was 10%. Initial raw gas in place was determined to have been 1.5 trillion cubic feet of which only 405 billion cubic feet were salable due to a 70% surface loss largely driven by early flaring.

Background

Researching the story of Royalite #4 was hampered in two ways.

Firstly, the internal company well files from Royalite have not been found. Even Aubrey was dismayed about this gap back in the 1980's. One would hope that internal correspondence

would reveal the thinking of Royalite's management and the decision making that followed the well's progress. According to industry practice, these files should have been passed down through the successive ownership chain – so Royalite to Gulf to Decalta to Talisman to Crescent Point. Do they still exist? Is it possible that they are amongst the material donated to the Glenbow Archives by Imperial Oil?

The second source of information would be the regulator – so most recently the Energy Resources Conservation Board or the Alberta Energy Regulator. Approx. 15 years ago I went down this path – paid my fee at the Core Research Centre and waited for the motherload of Royalite #4 information. It was not to be. What I received was a paltry set of pages that only related to the well post-1930 or so (although they did include the abovementioned lithology log for the well from the time of drilling). On further inquiry it seems that the original regulator was the Federal Government (the 1922-1924 drilling predates the transfer of subsurface rights to the Provincial Government) and it would have been them that received the well reports. I would have assumed that with the federal-provincial transfer that all of the related lease and well files our have been transferred to the Province. But apparently not. It seems that because the pre-1930 leases continued as federal tenures, the Federal Government decided that they should retain all of the lease and well files related to those pre-1930 activities. I thought that perhaps these early records might be housed at the Geological Survey of Canada here in Calgary but that is also not the case. I can only conclude that the records of interest are stored somewhere under the jurisdiction of Archives Canada, probably in an Indiana Jones-style Ark of the Covenant facility in Ottawa. One might have to resort to the trench warfare of Freedom of Information in order to have this material see the light of day. Another thing for the "To Do" list. This disappointing result also applied to my request for records related to the 1914 Dingman #1 well.

I should also mention that since the time of my inquiries, obtaining A.E.R. well files has become even more onerous. Each file must be purged of references to individuals (for example tower sheets) and other privacy-related information. This process is time consuming and also detracts from some of the interesting facets of historical research.

For additional information on Royalite #4 and its context please get your hands on a copy of Aubrey Kerr's Corridors of Time (1988) and refer to Chapter 4: Royalite – The Glory That Was (pp. 32-53); Chapter 5: Royalite #4 (pp. 54-71) and Chapter 6: Turner Valley – Forgotten Giant (pp. 72-95).

I would like to thank David Finch for encouraging me in my interest about Turner Valley, the Turner Valley Oilfield Society for their support and also T.V.O.S member and gas plant tour guide Dustin Brodner who shared with me some of the results of his own investigations. This interpretation and any related errors are, however, my own.



Figure 1. Map of the Turner Valley area showing early well locations from Breen (1993). 16, 17, 18 and 19 are Royalite #1 (Dingman #1 at the Turner valley Gas Plant), Royalite #2 (Dingman #2), Royalite #3 (Dingman #3) and Royalite #4 respectively. Squares defined by road allowances are one mile to an edge. Black line is Sheep River.



Royalite No. 4 gives a spectacular display of fire power.

Figure 2. Royalite #4 blowout from Gould (1976).



Royalite No. 4 well under control, Turner Valley, c. 1925 n.d. (W.J. Oliver/Glenbow Archives/ND-8-429)

Figure 3. Royalite #4 tamed and on production. Frost on flow lines results from the cooling that accompanies the expansion of natural gas.



Figure 4. Aubrey Kerr standing beside the old Royalite #4 commemorative sign on the east side of Highway 22 just north of the town of Turner Valley. Note the erroneous "zone" said to be Paleozoic sandstone and not the actual carbonate or limestone. From the dust jacket of Aubrey's book *Corridors of Time* (1988).