



**PETROLEUM
HISTORY
SOCIETY**

ARCHIVES

Newsletter of the Petroleum History Society

March 2002; Volume XIII, Number 2

2002 ANNUAL GENERAL MEETING

4:00 p.m., Wednesday, March 27, 2002

Palliser Hotel, Leduc Room (Mezzanine Level)

AGENDA (There is no charge to attend the meeting)

4:00 – 5:00 Business Meeting and Elections

5:00 – 5:45 Guest Speaker – Art Patterson – Geologist and Explorer

5:45 – 6:30 Reception – mix and mingle, munchies provided, cash bar

TOPIC

GLOBAL CLIMATE CHANGE – PAST, PRESENT AND FUTURE

Art Patterson will be addressing our meeting on this controversial topic that is very timely given the debate now ongoing in industry and government circles concerning the Kyoto Accord. In Art's words "The science behind so-called "global warming" is flawed and there is an astounding amount of evidence that proves this". Come out and enjoy Art's presentation on this subject!

Art was born in Calgary in 1924 and following his education here became a navigator in the R.C.A.F. during World War II. Following the war he obtained a degree in Geological Engineering from U.B.C. in 1949. His employment record is wide ranging, having begun with Imperial Oil (1949-1955) and Western Decalta (1955 to 1974, where he became Exploration V.P.). His career continued at Corexcal and Paribas Bank of Canada. Since 1985 Art has been involved in Marpat Resources, a private firm co-owned with his wife. He has worked in many areas of the world, enjoys outdoor activities and, as he puts it, "has a very serious interest in the environment".

R.S.V.P. Clint Tippett, 691-4274 by noon Monday, March 25

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Next lunch May 15, guest speaker Andrew Nikiforuk on his book "Saboteurs: Weibo Ludwig's War against Big Oil"

if you missed the luncheon talk...

Canadian Oil Company Activities in the former Soviet Union during the Cold war Era: 1973-1980

Wednesday, February 6, 2002

By P.H.S. Director Hugh Leiper

...enjoy a condensed version of Hugh's presentation in this issue of Archives

THE PETROLEUM HISTORY SOCIETY

Calendar of Events

Next Director's Meetings: March 27, 2002 in the Spanish Room prior to the Annual General Meeting. Short discussion only - 3:30-4:00 p.m.

Board Strategic Planning Sessions: Your Board continues to wrestle with issues surrounding the future directions of the Society. An outline of our operations and aspirations has been forwarded to the Daily Oil Bulletin. It is hoped that they may pick this up as a newsworthy item and that we will gain some additional exposure within the industry. Thanks to Director Neil Leeson for taking the initiative on this communications project.

Future Events: As mentioned on the first page, our May speaker will be Andrew Nikiforuk who will be discussing his recent book about Weibo Ludwig. We were unfortunately unable to get John Ballem for the Annual General Meeting due to his being under the weather but we hope to be able to bring him in at a future date. If you have something that you've been working on and would like to present it at an upcoming luncheon, please contact one of the Board members and we'd be very happy to fit you in.

Glenbow: As you may have seen in the Herald on February 26, 2002, the Glenbow Museum is facing a money crunch and is being forced to make some significant cuts in its programs. If this is of concern to you or if you wish to express your opinion, please contact Treasurer Doug Cass at the Glenbow at 268-4203.

Society E-Mail Address: All members with e-mail service who have not already done so, please send in your address to Micky Gulless, Past President, Membership Committee at her address "micky@fuzzylogic.ca".

Membership: Membership stands at 98. Please consult your mailing label for the status of your membership. Thanks to Micky for her continuing hard work in maintaining our records!

Donations: Several of our members have generously made donations to the Society in support of our operations and projects. We will be making an effort to thank them individually but wish at this time to express our thanks for their support.

Canadian Society of Petroleum Geologists Convention Booth: The P.H.S. is planning to have a booth at the upcoming convention at the Telus Convention Centre June 3-5, 2002. The theme of the Convention is the 75th Anniversary of the CSPG and our participation is in recognition of this important historical event. We are also planning this event as an opportunity to recruit additional members. We need volunteers to man the booth and mingle with convention delegates. Time slots will be fairly short. As there are a number of our members who are geologists and/or CSPG members, we hope that they will be eager to get involved. Please contact Director Joyce Wright at 252-4143.

Executive and Board Nominations: If you would like to become a Board member – Executive position or Director – please contact President Clint Tippett at 691-4274 at your earliest convenience so that we can try to accommodate you on the 2002-2003 Board.

Coin: The Royal Canadian Mint has recently released a \$100 gold coin commemorating the discovery of Leduc 55 years ago. In their promotional material they stress the importance of Leduc to Western Canada and indeed to Canada as a whole as a major hydrocarbon province in a global sense. It has been pointed out that the illustration is actually a mix of the rig from the discovery and the vast pools of oil on the ground at Atlantic #3. Obviously Aubrey was not consulted! The coin has been struck in an edition of 10,000 and sells for \$260.95 (\$274.95 with case) (both prices before tax). Unfortunately our Society gets none of the proceeds.

Member Interviewed: P.H.S. Director Aubrey Kerr was featured in an article about the history of the oil patch in the March 9, 2002 issue of the Calgary Herald. Well done! (that's a drilling pun).

CANADIAN OIL COMPANIES IN THE FORMER SOVIET UNION DURING THE COLD WAR ERA: 1973-1980

A talk to the Petroleum History Society Luncheon of February 6, 2002 By Director Hugh Leiper

On March 5, 1946 Winston Churchill received an honorary degree from Westminster College in Fulton, Missouri. He used the occasion to deliver a landmark address about the widening gulf between east and west. "From Stalin in the Baltic to Trieste in the Adriatic, an iron curtain has descended across the continent" he growled. Some years later, President Ronald Reagan called the Soviet Union as an evil empire following the shooting down of a Korean 707 AirLiner.

You are probably asking yourself – why would a group of Canadian Oil and Gas Companies want to become involved with this suspicious and secret country right in the middle of a Cold War? In 1959, the western world was shocked and stunned when the Soviets successfully launched an earth satellite into space called Sputnik. Since they had this kind of technology, the question then arose – What other advanced technology might they have achieved in other fields of science, especially for us in the oil and gas industry?

In January 1971, an agreement was signed by the Canadian Government Industry, Trade and Commerce – Minister Jean Luc Pepin to promote Canadian-Soviet cooperation in industrial applications of science and technology. This agreement established a mixed Canadian-Soviet Commission, and working groups were formed to foster cooperative technical contacts and exchanges on a systematic long-term basis. Our oil and gas-working group was comprised of three persons from Industry, and one representative from the Federal Energy Department. I was placed on the Board by the Canadian Government.

It was soon apparent that we in Industry collectively had to join together to form an Association; since, cooperation by oil companies would be needed and in addition, large financial sums would be required. In April 1974, eleven major and independent companies formed the Canadian Drilling Research Association. Several months later one of the members, Gulf Oil of Canada resigned because their parent company Gulf Oil was concerned that the U.S. State Department would impose sanctions on them because of carrying out relations with the Soviet Union when we were in the midst of the Cold War. The executive was comprised of a Chairman, Treasurer, Secretary and a full-time Project Manager, who reported to the Chairman, however, his company was fully reimbursed for his time. The Association objectives were:

1. To engage in drilling and production research involving matters and problems of interest to its members.
2. To develop and improve drilling techniques for the exploitation and development of natural resource in Canada.
3. To engage in the exchange of drilling research with Foreign Governments or entities operating in foreign countries of its members.

At this time, research and development of a mud motor was being conducted in the United States and also in France, but it appeared that a successful downhole mud motor would require several more years to develop. We of course knew that the Soviets had downhole mud motors called Turbo-drills, which originally were brought to Canada for testing by Shell Oil at Pincher Creek in 1957.

Unfortunately, they did not perform successfully as failures frequently occurred with the type of ball bearings. It was imperative that our industry obtain a downhole mud motor as soon as possible, as the potential was enormous. We could visualize the opportunities using mud motors – faster drilling penetration, directional and horizontal drilling, cluster drilling from pads, short radius drilling, multi-well drilling programs, and drilling steam-assisted gravity drainage wells.

Since seventeen years had now elapsed since the Turbo-drills were first tested in Canada, and with the known Soviet achievements in nuclear weapons and space science, it was only logical to assume that improvements would have been made to their Turbo-drills. Accordingly, our first priority was to bring the Turbo-drills to Canada for testing under Canadian operating conditions.

For those of you who are not familiar with the mechanics of a mud motor, I would like briefly to describe its function. The Turbo-drill consisted of a high-speed motor, which is activated by mud pressure; it in turn rotates the rock bit. The drill pipe remains stationary; thus huge savings could be achieved by less wear and tear when compared to conventional rotary drilling.

Sufficient mud pressure is mandatory with mud motors; it stands to reason that you wish to achieve maximum horsepower at the bit. In conventional rotary drilling, a tremendous amount of horsepower is lost in rotating the entire drilling string. They used aluminum drill pipe instead of steel, years later we realized that one of the main reasons for this was because of a severe shortage to their Industry of high-grade steel, as their military had first priority for all high-grade alloyed steel.

The Soviets were using Turbo-drills in the remote swampy areas of Western Siberia, the Caucasus, and in the Caspian Sea areas by drilling a series of wells from a pad or a drilling platform. United States high altitude flights (U2) had reported the vast number of drilling rigs operating in these areas together with abundant smoke and numerous flares.

Our main objective was to be able to reduce operating days on our drilling and to increase production from our wells, thus achieving vast savings for our industry. Accordingly, we were anxious to begin horizontal and multi-well drilling operations.

In June 1974 in Moscow after lengthy and frustrating discussions, we negotiated a Protocol Agreement with the Soviet Oil Ministry and their export ministry "Machinoexport" to bring Turbo-drills to Canada. They agreed to ship six various size drills to Canada and to provide five technicians. We in turn would drill a 4000 m development well in their Arctic region, but at the Soviet's expense, using Canadian equipment and Arctic expertise.

The Turbo-drills together with four Turbo-drill specialists and one KGB officer arrived in Canada in the summer of 1975. Testing commenced the following December. Testing could only be carried out at one drilling location at a time because the supply of different sizes was limited, and also we suffered a shortage of Russian-English translators.

In addition, we encountered a variety of personal problems with the Soviet Turbo-crew. Keep in mind that these men had all been born and raised under the Communist rule, and for them coming to Canada was the first time they had left their homeland. They were astonished over our free society, envious in a sense of what we had, and often commented to me when the KGB agent was out of sight about our right to choose the opportunities and prosperity. Needless to say, that at times, their extracurricular activities interfered with their job performance.

Five oil companies at their expense carried out the testing at these various sites:

Shell Oil at Pincher Creek

Pacific Petroleums at Ricinus

Dome Petroleum at Rosevear

Imperial Oil at Miskiki and

Hudson Bay Oil and Gas at Edson

These sites represented a cross-section of different drilling conditions and problems. The KGB officer reported once a month travelling to Ottawa to report all happenings to the Soviet Embassy. After exhaustive testing, the results clearly indicated that extensive modifications would have to be implemented in order for these drills to be used economically in Canada. We were assured by the Soviets that these could be made and the modified drills would be returned to Canada. It took two years before we received back the modified versions. Testing once again resumed with disappointing results, as numerous failures occurred with the quality of steel. It was finally pointed out to us by the Soviets that the better quality of steel was all being channeled to their military, consequently, all other industries had to use inferior low grades of steel. This then finished testing of Turbo-drills in Canada. However, we gained valuable engineering data and this information was instrumental in the speeding up of the manufacture and development of modern-day mud motors that are in use today in the drilling industry.

The planning of the well in the Soviet Arctic was a giant undertaking. We were handicapped because of a lack of personnel to work on this project. At that time our CDRA members were all too busy with their own operations in order for them to furnish any engineering or manpower assistance in this planning.

We were eventually able to make an arrangement with one member company for them to furnish one full-time engineer, and they would be fully compensated for his services. We were also handicapped in formulating a drilling program because of a lack of technical information provided to us by the Soviet Oil Ministry.

The electric logs from their nearest wells were of extremely poor quality and were obsolete. No rock bit records or drilling mud information was provided as their nearest wells had used Turbo-drills with diamond bits, consequently, no rock bit information was obtained.

Under the Soviet bureaucracy, three different ministries drilled and operated wells. The Oil Ministry, the Gas Ministry, and the Ministry of Exploration. There was absolutely no cooperation or liaison between these ministries. Indeed, animosity and jealousy existed between them. Consequently, we were unable to obtain any information from these other ministries even though the Gas Ministry had drilled the closest well to the one to be drilled by us.

The well to be known as Vosey No. 100 was located 200 miles north of the Arctic Circle, west of the Ural Mountains, and in the far northern Republic of Komi.

The financing for the equipment and materials all to be bought in Canada was arranged by the Soviets through the Royal Bank International Department, the Russian Bank of Foreign Trade, and they drew on their line-of-credit through the Canadian Export Development Corporation. This enabled them to purchase Canadian equipment and material in the amount of approximately ten million dollars from twenty-seven different Canadian manufacturers and suppliers.

The purpose of the Vosey well was to investigate the geological structure of permafrost, as well as drilling and production conditions and to detect oil and gas presence in the Devonian and Upper Silurian formations. The well was programmed in the same manner as a Canadian well in the McKenzie Delta or Arctic regions.

The arranging, procurement, and shipping all the equipment and material was a formidable task, as only the dollar amounts had to be approved by the Soviets.

The equipment was shipped by rail from Edmonton and Calgary to the Port of Montreal where it was loaded onto Soviet Cargo vessels and shipped to the Baltic Seaport of Archangel. From there it went several hundreds of miles by rail to Pechoria in Western Siberia and was offloaded and placed on barges for shipping down the Pechoria River to Osin where it was unloaded, but had to wait several months for freeze-up conditions. From there it was hauled overland on the frost to its final destination.

It took two years from the time it left Calgary and Edmonton to reach its final destination in the Soviet Arctic. Along the way numerous thefts occurred i.e. the modern Atco camp was stripped of all its electrical and plumbing fixtures and all windows and doors removed. Consequently, only shell buildings arrived at Vosey.

The well was spudded in July 1977 and in February 1978 it reached its total depth of 4536 m. This was of major historic importance as it was the first time the Soviets had ever permitted a group of foreigners to come into their country for the purpose of showing them how to drill a well under Arctic conditions.

However, we had many problems to overcome with the local Komi Republic personnel. Here again Soviet Bureaucracy entered the picture. Although all of our transactions were with the Soviet Oil Ministry in Moscow, the well was located in the Autonomous Republic of Komi and they were in charge of all drilling and production in their area.

There also was considerable animosity and rivalry between the two Bureaucracies. The local Komi personnel deeply resented our presence, as in no way did they want a group of foreigners to come into their county to possibly show them up. Keep in mind that they had absolutely no input whatsoever into the planning or approving of this operation.

Soviet crews who lived in quarters some miles away operated the rig. Soviet exploratory drilling personnel operating in the Arctic earned twice the average Soviet oil worker since they had to endure the harsh climatic and primitive living conditions in remote Arctic regions.

During the entire drilling and completion period, over 40 Canadian technical personnel were utilized. The language barrier made communications extremely difficult. Frustration and sheer boredom prevailed much of the time.

The well took nine months to drill and complete, whereas in Canada we would have normally taken only three months. The local Komi oil workers did everything possible to restrict progress, whereas, the Oil Ministry in Moscow wanted this venture to be highly successful. After all they had convinced the Communist Hierarchy that new ideas, techniques and equipment were urgently required in the Soviet Union Oil Industry.

As per our Agreement, our Canadians were to supervise the drilling and completion of the well. Regrettably this was not the case, as our people due to the locals, were relegated to an observer status. I complained bitterly to the head of the Soviet Oil Ministry in Moscow, and he was furious, assuring me that he would take immediate steps to rectify this situation, regrettably, nothing ever changed.

The well was cased to total depth completed and a series of testing was carried out revealing that the well was capable of producing at various rates between 5 – 15,000 bbl/day. A highly productive well indeed.

Because of the vastness of our oil sand reserves we were interested in what the Soviets were doing in their shallower oil sands deposits. We were taken to their operations near Ukhta in the Soviet Arctic to witness their oil mining operation. At this time they had been recovering heavy oil since the end of W.W.II. Large diameter shafts had been sunk to a depth of 300 m and horizontal tunnels created above and below the oil deposits. From the upper tunnels shallow wells were vertically drilled into the top of the reservoir and cased, then steam injected. Horizontal wells were drilled from the lower tunnels approximately 100 m into the formation and 1 m apart, slotted casing was used and from these horizontal wells, oil and water flowed out and was then pumped to the surface for treating. A control valve on each slotted casing permitted a regulated flow.

We were taken down into one of these mines lowered by an obsolete elevator to the top of the oil reservoir, from there we walked through the reservoir to the lower tunnels. This was to me an opportunity of a lifetime, as how often does one ever get to witness an actual oil-producing reservoir. The Soviets referred to this operation as oil mining. When I asked about the cost per barrel to mine this oil they declined to answer.

The information obtained from this oil mining technique was later given to AOSTRA and was used when they later drilled large diameter shafts at Ft. McMurray.

We toured their deeper lying oil sand deposits at Krasnodor near the Black Sea. This particular technique employed steam stimulation or the "*huff and puff*" method. Essentially, the same manner as Imperial today is using at Cold Lake.

Development of field exploitation methods capable of increasing petroleum recovery constitutes one of the most important problems confronting our industry. Therefore, we were inquisitive concerning their secondary recovery projects and methods. Astonishingly, we found that they paid scant attention to the quality of injection water, nor was any filtration or chemical treatments employed. In many cases, untreated muskeg water and corrosive produced water was used for injection purposes. Accordingly, several fields only produced a fraction of recoverable oil. Regrettably, some oilfield pressure maintenance schemes were not implemented.

Our visits to their major oilfields such as Tyumen and Samatlor revealed extremely poor drilling and completion practices. In Western Siberia alone there are literally thousands of wells drilled and completed with inferior mud properties. Multi potential oil producing zones were mudded off due to high water losses plus no control over mud solids build-up. None of their rigs we saw were equipped with centrifuges, de-sanders and de-silters, or hi-speed shale shakers for solids control.

Many of these wells could be reentered, side tracked, re-drilled and re-completed with modern completion techniques. Russian production could be immensely increased and with their new announced discoveries, could make them the World's leading oil exporter.

You will recall that two Canadian Completion Companies, Canadian Fracmaster and Nowasco in the 1980's and early 1990's entered into production sharing agreements with the Russians to re-complete and stimulate old wells. Progress was made in boosting productivity with these new technologies. These companies eventually left the country because of Russian bureaucracy leading to not being paid for their share of the oil.

In some areas of Western Siberia large lakes of oil were evident on the Arctic Tundra as a result of failures to their oil pipelines. Here again inferior steel was used, no cathodic protection used, poor welding techniques were employed, and x-raying of welds was never done. No attempts were being made to clean up these areas to protect the environment. The oil was allowed to soak into the Arctic Tundra and eventually in some areas to reach and contaminate streams and other bodies of water.

In 1978 relations between the two countries became strained when the R.C.M.P. caught 13 Soviet diplomats in a spy ring. Russia retaliated with the expulsion of a number of Canadian Embassy personnel. All communications with the Soviet Oil Ministry were gradually halted, and by 1980 no further contacts were made by either party.

It was clearly evident that the high technology achieved by Scientists in space science and other scientific fields was certainly not the case in the oil industry. In my opinion, they were 20 to 25 years behind the Western World in all areas of the industry.

In conclusion, with the Turbo-drill data obtained from the testing plus information concerning oil mining, I would say we gained far more in this exchange agreement than the former Soviets.

Hugh Leiper is a native Albertan born in Didsbury, but raised in the Turner Valley Oilfields. During World War II due to a shortage of manpower, he roughnecked on drilling rigs in the summer months holiday period. He graduated from South Turner Valley High and later studied Petroleum Engineering at Mount Royal College. However, due to a shortage of funds, left Mount Royal and went to work on the rigs. He was in the rig cellar when the infamous Atlantic No. 3 at Leduc blew out of control in March 1948 and assisted in the killing of this wild well.

At the early age of 20 he was promoted to a Tool Push for General Petroleums. In 1954, he joined Great Plains Development Co. as Drilling Superintendent, and in 1957 joined Pacific Petroleums in the same capacity. He became Production Manager at Fort St. John and Edmonton, later moving to Calgary as Operations Manager for Canada, United States and International Operations.

In 1963 he was admitted to the Society of Petroleum Engineers and still maintains his membership in that society. He is a graduate of the AAODC Drilling School at Odessa, Texas, the Petroleum Production School at Kilgore, Texas, Offshore Drilling and Production School at Houston, Texas, the Atlantic Advanced Business School at Dalhousie University, Halifax, and the Business Management School at the Banff School of Fine Arts. His paper entitled "Use Offset Well Data to Reduce Drilling Problems" was presented to the CIME and published in the World Oil Magazine.

He was placed on the Board by the Federal Energy Department of the Soviet/Canadian Oil Working Group and assisted in the forming of the Canadian Drilling Research Association, becoming its Charter and only Chairman, and remained in that capacity during the years 1973 – 1980.

In 1980, he joined Morguard Resources as Executive Vice President and remained in this position until his retirement. Morguard operated, purchased and managed oil and gas properties for several large Canadian pension funds such as Pensionfund Energy Resources Limited, Ontario Municipal Retirement System, "OMERS", and Exchange Resources. Hugh remains active as President of his own Company "Leiper Energy Services Ltd."

He is on the selection committee for the Canadian Petroleum Hall of Fame, a director of the Petroleum History Society and a member of the Calgary Petroleum Club.

Thanks to Hugh for all the work that went into the preparation and presentation of this talk.



THE OPENING OF THE JUMPING POUND GAS PLANT IN 1951 BY NATHAN TANNER, ALBERTA MINISTER OF LANDS AND MINES.



SPINDLETOP IN 1926
"... a behemoth comes to life again with flank production"

SPINDLETOP, TEXAS IN 1926. DENSELY DRILLED SALT DOME STRUCTURE ALONG THE GULF COAST AND SITE OF THE DISCOVERY THAT FUNDAMENTALLY CHANGED THE OIL INDUSTRY (SEE ARTICLE IN AN EARLIER ISSUE OF "ARCHIVES").