ALASKA GEOLOGY

Newsletter of the
Alaska Geological Society

Thomas R. "Tom" Marshall

August 4, 1925 - February 19, 2020

Longtime Alaskan Thomas R. "Tom" Marshall Jr., 94, died on Feb. 19, 2020, at Alaska Regional Hospital in Anchorage, Alaska.

Born Aug. 4, 1925, in a parsonage in Loupe City, Neb., to Rev. Thomas and Rose Marshall, he grew up in Nebraska and Webster Groves, Mo.

During World War II he was assigned to the I Co., 302nd Infantry Regiment of the 94th Division as a rifleman and assault team member. He landed on Omaha Beach, fought in Brittany, the Battle of Bulge and the Siegfried Line Breakthrough. He was awarded the Purple Heart, the Bronze Star and three battle stars.

Tom attended Westminster College in Fulton, Mo., and graduated in geology from the University of Colorado in 1950. He worked for the Texas Company in Black Mountain area. As a consulting geologist, he was active in oil, gas, uranium and phosphate exploration in the Rocky Mountains.

Donna Cooper and Tom were married in 1956 and moved to Alaska in 1958. They homesteaded on Wallace Lake in the Matanuska Valley in 1959. As an independent consulting geologist in 1958-1960, Tom made geological evaluations on the North Slope, Southcentral Alaska and on the Alaska Peninsula. In 1960, Tom took a job with the Division of Lands selecting the statehood entitlement lands. After the federal land freeze on statehood selections, he worked as a state geologist, Petroleum Supervisor and Chief Petroleum Geologist for the Department of Natural Resources while serving concurrently on the Alaska Oil and Gas Conservation Commission. He expressed gratitude that he was able to work for Roscoe Bell and Phil Holdsworth, whom he considered key people in the work of making Alaska a viable state. Tom, under the leadership of Holdsworth and Bell, was a central figure in the process of selecting statehood-compact-entitled Federal North Slope lands for State ownership and State-conducted oil and gas leasing. Later exploration of these lands resulted in the discovery of the Prudhoe Bay oil field beneath State of Alaska lands, an event that transformed the economy of Alaska and that provided immense lasting benefits to its citizens.[1] See interview with Alaska Public Radio at:

https://www.alaskapublic.org/2017/06/22/midnight-oil-doesnt-he-know-its-frozen-how-alaska-almost-overlooked-prudhoe-bay/.

After retiring from State service in 1978, he subdivided land adjacent to his homestead and worked as an expert witness for the State and Federal Trade Commission until about 1990. Then he pursued his hobbies of blacksmithing, fruit tree growing, marksmanship and the study of history. He was proud to have been a founder of the Alaska Geological Society and the Alaska Sailing Club. He was an original member of the Alaska chapter of the Society of Petroleum Engineers.

In 1982, Tom was presented with the Distinguished Service award by the UAF School of Mineral Industry. He was awarded for a lifetime honorary membership in the Alaska Geological Society and the American Association of Petroleum Geologists. He was a Legion of Honor member of the Society of Petroleum Engineers. In 1997, the Alaska Legislature formally honored Tom for his contributions to the State. In 2009, by formal order, the Alaska Oil and Gas Conservation Commission designated their hearing room in perpetuity the Thomas R. Marshall Jr. Hearing Room. In May 2015, Tom received an Honorary Doctorate of Science Degree for his state contributions from the University of Alaska Fairbanks.

Tom is survived by his son, Charles Ridley Marshall of Anchorage, and friends young and old. His insatiable curiosity and willingness to stand for what he believed in will be remembered by those who knew him. At his request no service will be held, however a local veterans service will be announced in the future.[2]

[1] *Paraphrased from information provided in Rutledge, G., 1987, Prudhoe Bay…Discovery!: Alaska Journal of Commerce, Wolfe Business Services, p. I.1.; and Roderick, J., 1997, Crude Dreams: A Personal History of Oil and Politics in Alaska, Epicenter Press, Fairbanks/Seattle, p. 267-273.*

[2] *Modified with permission of the Marshall family after obituary published by Anchorage Daily News/Legacy at:* https://obituaries.adn.com/adportal/listingView.html?id=385 *(accessed 09 march 2020).*

‘Marshall’s Folly’ Changes Course of Alaska History

Discovery of Prudhoe Bay

by Heather Saucier, AAPG Explorer Correspondent

(reprinted with permission of AAPG; article originally appeared in the February, 2015 Explorer)

Tom (then)

Tom (2015)

Tom and Gill Mull, 2009

It wasn’t easy, that’s for sure.

But AAPG member Tom Marshall - a geologist who moved to Alaska in his early 30s, enamored by the idea of homesteading in the Matanuska-Susitna Valley - managed to change the future of the entire state with a suggestion that sounded as promising as a dry hole.

Marshall’s homesteading, which he funded by random consulting jobs for investors in minerals and petroleum, led him down a path that culminated in a series of discussions with the Alaska governor and ultimately opened the door to the Prudhoe Bay discovery.

It all took place in the late 1950s and early ‘60s, against a backdrop of tremendous controversy. The public at large, the oil and gas industry and the newly formed state government put Marshall’s theory about a large oil field on the North Slope farther left than left field.

Voicing a common belief at the time that oil could not be produced from icy ground, the late Gov. William Egan once asked, “Don’t you know the North Slope is frozen?”

So Wrong, So Right

Hired on the spot as an assistant land selection officer in 1960, Marshall’s experience in geology piqued the interest of the director of the newly created Division of Lands in the Department of Natural Resources after Alaska became a state in 1959. Marshall was tasked with making recommendations for the selection of state lands that the federal government would deed to Alaska under the 1958 Statehood Act.

The Division of Lands was permitted to select 102 million acres over a 25-year period of time, and it focused on multi-purpose acreage that would bring the state revenue via thtimber industry, parks and recreation, agriculture, and oil and gas activity - particularly in Cook Inlet.

Marshall’s idea to select 1.59 million coastal acres on the North Slope - believing that oil might lay beneath the Barrow Arch - drew laughs and even disdain, as little was known about North Slope geology at the time.

On Marshall’s application to the Bureau of Land Management requesting acreage that included Prudhoe Bay, a colleague had written “Marshall’s Folly,” and it was buried at the bottom of the stack.

“I wish I had pulled that sheet out and kept it as a souvenir,” said Marshall, now 89 and living in Anchorage. “No one wanted to believe it could be a huge oil field. Maybe it was too good to be true. I don’t know.”

But Marshall stuck to his guns.

If he was wrong, Alaska would own useless land that yielded no revenue. The state would have spent roughly $40,000 in federal filing fees for naught and significantly reduced its federal funding for infrastructure and fire protection, explained Herb Lang, a retired lands officer for the Division of Lands.

However, if Marshall was right ...

Discovery of the Century

In 1968, the Prudhoe Bay State No. 1 well, drilled by Atlantic Richfield Company (Arco) and Humble Oil (now ExxonMobil), tapped into the largest oil field in North America. The well was located on state lands officially selected by Marshall and leased to Richfield Oil and Humble in a 1965 auction.

A confidential report confirming oil at Prudhoe Bay slid across Marshall's desk before the news hit the public. Working as the state geologist for Alaska's Division of Mines and Minerals at the time, Marshall read the report before walking outside to his next appointment.

"I'll never forget that day," he said. "I was walking toward the Westward Hotel in Anchorage. It was a seven-story building, and I thought, 'Holy Moses! That pay section is as thick as this hotel is tall.'"

The discovery made headlines around the world. Its success drew countless explorers to the North Slope in the late 1960s and '70s - all paying millions to lease state lands in search of another Prudhoe Bay.

Initially estimated to contain 25 billion barrels of oil in place, Prudhoe Bay has produced an excess of 13 billion barrels to date and brought billions of dollars in revenue to Alaska - transforming it from a poor mining state into an oil and gas Mecca of sorts. The state's Permanent Fund, established by its constitution and worth $52 billion today, pays yearly dividends to all Alaska residents.

"It has long seemed to me that every time an Alaskan resident cashes or deposits a Permanent Fund dividend check, he or she should stop for just a moment and say a short word of thanks to Tom Marshall," said Gil Mull, an AAPG member who mapped extensively on the North Slope for Richfield and Humble and served as a wellsite geologist when the Prudhoe Bay State No. 1 well struck oil.

"Of course, the Permanent Fund is just a fraction of the other state services that have been paid for over the years by revenue the state has received as a result of Tom's foresight," added Mull, who also worked for the Alaska Division of Geological and Geophysical Surveys, Division of Oil and Gas, and the U.S. Geological Survey.

"The problem has been that only a few have ever heard his name."

Common Name, Uncommon Man

"Tom Marshall" may be a common name, but the Tom Marshall who was born in Nebraska, went to college in Colorado, accepted his first geology job in Wyoming and then headed to the 49th state is no common man.

While working in Casper, Wyo., Marshall crossed paths with AAPG member John Wold, a well-known geologist and businessman (and AAPG Pioneer Award winner) who opened up coal exploration in the Powder River Basin in the 1950s. Wold hired a young Marshall to evaluate properties he owned in the Lower 48 for uranium potential.

Marshall often talked of a mysterious Alaska. He shared stories about the U.S. territory told by his grandfather, who worked as a mounted policeman in Canada and often crossed the border to take in Alaska's majestic landscape. Marshall wanted to see the land for himself, and Wold hired him on a retainer to scope properties with investment potential.

Aware of the U.S. Navy's efforts to find oil reserves on the North Slope with assistance from the USGS, Marshall studied "the dickens" out of the USGS's reports, accumulating a library of papers and maps.

Running out of money as a homesteader, Marshall applied for a job at the state's Department of Natural Resources and was hired by the director, Roscoe Bell, to help select lands that might enable the nascent state to support itself.

Arctic Wasteland

While other land selection officers worked to identify tracts suitable for agriculture, the timber trade and other means of revenue, Marshall put his petroleum geology background to use. He was the first to suggest land for single-use purposes, and the first to suggest land on what many had dubbed the "Arctic Wasteland."

The state polled the oil and gas industry, and the six operators exploring in Alaska at the time all expressed interest in leasing land much farther south of the North Slope - on the same latitudinal line as the small, non-commercial discoveries made by the Navy near Umiat in the National Petroleum Reserve No. 4 (NPR-4).

Although the conservative way to explore was near known accumulations, Marshall insisted that to bring oil to market, a huge field would be needed to pay for a very long pipeline to tidewater.

The “little wrinkles” in Cretaceous rocks in NPR-4 would not cut it. The large structural high Marshall studied near Prudhoe Bay had much better potential - and oil seeps near Cape Simpson added interest to his claim.

“I was very appreciative of the fact that the North Slope would be a place to commit financial suicide if you tried to develop small fields like Umiat,” Marshall recalled. “Size meant everything.”

While many may have regarded Marshall as a pariah - or perhaps a tad insane - his opinions caught the attention of the late Phil Holdsworth, a fellow homesteader and the first commissioner of the Department of Natural Resources.

Holdsworth was aware that Marshall was the first to use aerial photographs to piece together a map to evaluate mining properties in Alaska - particularly in the Cashe Creek area.

“I could show the difference in the gradients of that stream and where the gradient changed rapidly. That’s where you could expect to find gold to accumulate,” Marshall explained.

His map made many rounds through the geological community and eventually landed in front of Holdsworth.

Whistling a Different Tune

Intrigued by Marshall’s map and geological savvy, Holdsworth conferred with Bell of the Division of Lands and took a closer look at Marshall’s recommendations for state land selection. Soon after, several meetings were held with the governor to sell Marshall’s controversial idea.

“We did not have enough money in our budget to do what Tom recommended,” Lang recalled, explaining that the new state had little means to pay for the federal filing fees for a land selection that large. “The governor was very cautious. It was a whole new game for us.”

Using a plethora of maps and reports, Holdsworth and Bell translated Marshall’s technical analysis into words that resonated with the governor, who then dug deep into the state’s pockets to fund the selection - keeping his fingers crossed.

“We took chances in the early days,” Lang said, “and sometimes we even won.”

After the discovery at Prudhoe Bay, operators were bidding in the millions - hitting a record $900 million in 1969 - for state leases on the North Slope.

“It was a shock to people that this oil and gas was really worth something,” Marshall recalled. “Oil and gas just didn’t have the stature that it has now. Alaska was a mining state.”

Lost in the Wrinkles of Time

As with many political successes, the governor received credit for the billions of dollars that flowed alongside the oil at Prudhoe Bay. Marshall has been honored from time to time for his insights, but he mostly remained out of the limelight for the remainder of his career - becoming state petroleum supervisor in 1965 before retiring in 1978.

After all this time, however, Marshall’s contributions have again reached radar level.

In May, he will receive an honorary doctor of science degree from the University of Alaska Fairbanks, said Marmian Grimes, a spokeswoman for the university. He will be joined by his son, Charlie, at the commencement ceremony.

As rich in modesty as Prudhoe Bay is in oil, Marshall credits his success to simply being “in the right place at the right time with the right knowledge.”

Others see him quite differently.

“Many people in public service in Alaska have made important contributions that make Alaska what it is today,” Mull said. “But in my estimation, the decision that Tom Marshall made as an Alaska state employee stands at the top of the list as the single most important decision ever made by anyone in service to the state of Alaska.”

“It all started with Tom,” Lang added. “He is the man who came up with the idea.”

For Marshall, he’s simply glad that some people are willing to entertain seemingly outlandish ideas.

“If they aren’t going to be tested, then people are going to continue believing that these are just crazy, crazy, crazy ideas,” Marshall said.

Discovering Prudhoe Bay “blew everyone’s mind,” he added. “Including mine.”

Tom Marshall's Recollections of the 1964 Good Friday Earthquake

In the early 2000's Greg Wilson received a letter from Tom Marshall. In it he included a three-page type-written story of his remembrances of the 1964 Good Friday Earthquake. Greg didn't know it at the time, but Tom had collected his thoughts on the topic to be included in a book published in 2004 "Stories from the '64 Alaska Earthquake….The Day Trees Bent to the Ground" compiled by Janet Boylan and edited by Dolores Roguszka. Dolores passed away in 2013. Janet Boylan has given permission to reprint this in the AGS Newsletter. Janet would be especially happy if you enjoy this passage enough to want to read the many more recollections published in the book. What follows is Tom's unedited and unabridged description. Those of you who knew Tom will recognize his version of humor.

On Good Friday 1964 I was alone in the office of the Petroleum Branch of the Alaska State Division of Mines and Minerals Building on 3rd Avenue in Anchorage waiting for a phone call from the operator of an offshore drilling rig in Cook Inlet. They needed state approval of their well completion program. I was reading a book by a Dutch geologist, Peter Umgrove, who was disagreeing with the then new concept of earth crustal movement called "continental drift." Umgrove believed that the crustal changes occurred in a catastrophic manner which he called "pulses," thus the book title, "Pulse of the Earth." One of those pulses was about to happen.

I was only mildly startled at the initial swaying of the building because it didn't seem to be any different that the Lituya Bay quake of July 9, 1958, which devastated Lituya Bay but caused only slight swaying of Anchorage buildings. But when the top section of a steel filing cabinet fell on the desk and put a permanent crease in the book I was reading, exiting the building became a top priority. I was closest to the rear basement entrance of the building, but by this time had convinced myself that this was no earthquake – it was a Cold War atomic bomb attack on Elmendorf Air Force Base, which was just across the Ship Creek Valley. Consequently, I chose not to use the rear entrance but to run for the front door facing the 4th Avenue business district.

In retrospect, it was quite foolish to think that the choice of escape routes would make any difference to an atomic bomb, but, as a matter of fact, it almost certainly saved my life because the downslope thrusting of the building collapsed the first floor over the basement entrance and crushed our basement well sample library and storage items into unrecognizable trash.

Running at full tilt down the hallway to the front entrance was not possible because of the violent shaking. At the place where the new cement block annex joined the old cast concrete building, a 4-foot gap had already developed due to the different rates of speed that the annex and the old buildings were sliding down the hill toward Ship Creek. Seismologists soon named this are the "Fourth Avenue Slide." Fourth Avenue dropped and Third Avenue rotated out toward Ship Creek. Later, when the land was reclaimed, it was known as the buttress area. I umped that gap with only inches to spare and thought perhaps the worst was over. It wasn't. The roof of the old building mysteriously started to rise, exposing the grey sky, then fell on the walls, crunching the clothes closet door and the front door so that they couldn't be opened. I decided to break a

(*continued*)

window and get out while the getting was good. I grabbed a heavy mailing tube and for one of the large plate glass windows facing the front parking lot. Suddenly, my Scottish blood told me not to break a $500 front office window when there was a $20 window in the library that would serve just as well. I broke that window and had one leg outside when I heard a loud screeching and rumbling sound as the Warren Painting Company Building tore off the vertical steel siding of our building as it moved by at a brisk rate. I withdrew my leg and then broke the $500 plate glass window. I high-jumped a mineral display case and surprised a group of would-be rescuers who were unsuccessfully trying to pry open the jammed front door. They figured someone was in the building, because my Chevy Corvair was parked in front. I couldn't drive home because the keys were in my coat in the clothes closet and the door was jammed shut. (*continued*)

I started running home. On Gamble Street a lady returning from a church service stopped her car and offered me a ride to 15th Avenue. There a minister picked me up and drove me to the front door in the Airport Heights neighborhood.

Two thoughts dominated my mind on the way home. How did my family and my house survive and did the oil and gas drilling rigs withstand the shake structurally? Did the oil and gas production and storage facilities maintain their integrity?

A joyful reunion occurred at my front door. My wife, Donna, and five-year-old son, Charles, had weathered the quake mainly in the front doorway safe from a falling television set and gun cabinet. They were uninjured and I had only a small cut on my little finger from climbing through the broken window frame. Charlie had been watching a popular animated puppet television program called Fire Ball XL5. The puppets had boarded a rocket ship and started to blast off to outer space. Just then the whole house started shaking mightily adding great realism to the episode. When the television set fell to the floor they moved to the front doorway. The newspaper boy couldn't stand up on the porch and was lying on the concrete steps. Telephone poles were moving wildly and Charlie saw large "waves" in the asphalt paving moving from south to north up Birchwood Street.

Almost everything that had been on shelves was now on the floor. A serious problem was averted by my neighbor, Everett Skinner, who came to our house within minutes of the quake and offered to check out our basement hot water heater and turn off the master water valve. Hi heater had fallen over in his garage and had broken pipes. Everett figured the same might happen to us. Sure enough, our 50-gallon heater had "walked" about 1- feet to the middle of the basement floor, trailing the 220-volt electric lines and the broken water pipes while still remaining upright. North-south movement of the main structural beam in the basement had broken the mortar in the cement block wall, but our wooden frame house was otherwise undamaged. The next hour was eerily quiet. We enjoyed a candlelight beef pot roast dinner prepared in the oven before the power and phone lines were broken. My wife had the foresight to mail postcards to our parents in the "South 48" as the rest of the country was called. The cards were delivered with no undue delay and the stamps were not cancelled. Getting the cards saved our parents a lot of worry because telephoning was not possible for many days. The quiet was ended by a knock on the front door. It was Karl and Phoebe Vonder Ahe. Karl was the state's petroleum engineer. We worked together at the Petroleum Branch and were the only employees of that agency in 1964. Karl and Phoebe were at a birthday party on the top floor of the 14-story L Street apartment building where they lived. The quake slid Phoebe from one side of the large party room to the other, giving her some bruises and a black eye. Karl managed to hold onto a radiator pipe while trying to grab Phoebe as she slid by. Karl asked us if they could occupy the spare bedroom in our basement. The elevators were not working and large pieces of concrete were dangling in the stairwells in their apartment building. We put an ice bag on Phoebe's eye and everybody had settled down for a welcomed night's sleep by 10 p.m. (*continued*)

At midnight there was a pounding at the front door. It was Irwin Mitchell, the state's mineral assayer. Mitch was white as a sheet and was obviously startled to see me. "I came to your house to tell your wife she was a widow," he blurted, "and instead you answered the door. Are you a ghost?" Mitch had made his way to the Mines and Minerals Building to check on hi x-ray diffraction analytical equipment and found my car in front of the building and the rear entryway nearest my office totally collapsed. He had called my name and looked around for me until his flashlight failed. I fixed Mitch a cup of coffee on the camp stove to calm him down and thanked him for his concern. He left for his home near Bootlegger's Cove but was back to my house within the hour with his wife, Marion, and three small children. Marion was crying and would not stay in their house because she smelled natural gas and a neighbor's house had exploded and was set afire when they lit a candle. They were pleased to spend the night on camp cots and backpack mattresses in our living room, the last unoccupied room in the house. The next morning the 10 of us consumed two dozen scrambled eggs. The gas company repaired the broken pipes in the Mitchell's neighborhood by the following noon, so they only spent one night in our living room. This was good timing, because by the next day I had moved all the file drawers from work containing well records held confidential for two years into the living room and in effect had set up the Petroleum Branch Office there. It gradually became apparent that there was no structural damage to any of the offshore or onshore drilling and production facilities and no wells were damaged. Only one small, upright, glycol gas dehydrator had been slightly damaged.About two weeks later, we found temporary office space at the old unused Providence Hospital, then on L Street. My office was in the former nursery, a fact that amused my son because he had spent some time there five years before.

The Corps of Engineers removed some of the first-floor structure of the Mines and Minerals Building with a large backhoe, enabling us to remove the well cuttings and core samples. We found some temporary locked storage for them. My five-year-old son, Charlie, was a great help in this operation. He could easily handle the 4-pound, cardboard well sample boxes and the sturdy lad soon made friends with some National Guard troops guarding the Fourth Avenue slide area.

The ruins of our building had been declared a hazard and a few weeks later it was bulldozed flat and the rubble hauled away. The last wall to fall was one in the map room where the geological map of Alaska was hanging. It was the 1958 version with great white areas in Interior and Northern Alaska indicating no information. Now that map is completely colored in, although subject to change by new interpretations and changes in the land itself, as we witnessed on that Good Friday. The Alaska Geological Society organized small teams of volunteers to map ground movements around town before soil slumping and reclamation of buildings and ground surfaces removed evidence of displacement. Gordon Herreid, a mining geologist, and I re-mapped the Government Hill School area where the cafeteria and playground were severely damaged. Fortunately, Good Friday was a school holiday.

In a cold Olympian view of the world, earthquakes have a function and purpose. Without them our planet could be a dismal swamp or perhaps a shallow sea, but would certainly lack the majesty of our mountains. Shortly after the quake, seismologists calculated the magnitude to be between 8.3 and 8.6 on the Richter scale. A more universal and modern designation of simply 9.2 Magnitude has been back-calculated by the U.S.G.S.

Forty years have passed. Within a few years of the quake most of the city's structural damage was repaired or replaced with improved and less earthquake-prone construction. My only souvenir is that geology book with its broken back and deep crease where the filing cabinet fell on it and pleasant memories of the kindness of strangers and neighbors.

There is no April AGS Meeting

For more information call (907) 854-2363 or visit the AGS website: http://www.alaskageology.org

From the President's Desk:

Dear Alaska Geology Society Member and Friend,

We hope this April's newsletter finds you, your family, and friends well and practicing Covid-19 safety recommended measures. Within this dark cloud hanging around, we want to brighten your geoscience picture by sharing our great AGS success we are having this year.

Brief 2019-2020 highlights:

1) Membership is up since this time last year.
2) Our scholarship 2020 program was just announced, and the candidates and recipients were stunning. We maintained our strong commitment to Alaska Universities and their geoscience programs. This is a fundamental core of the organization. We will send out the names of recipients in a separate note to provide a focused announcement.
3) Many of our wide-ranging topics in our Anchorage monthly presentations were filled to capacity.
4) We continued with our mini technical conference's sessions with the last one the Baker Hughes – VAS- Smith held at the Geological Material Center. This presentation was informational, packed, and well received.

Next week, we would have been kicking off the field trips, backroom Alaska Museum of the North tours, and an evening Welcome dinner for our UAF, UAA, AGS Technical Conference on Saturday.

Fairbanks is a beautiful location and UAF a wonderful campus. The event was fully subscribed to by the University, AGS, and local communities. We are committed to supporting the geosciences at the University of Alaska.

About a month ago we decided that the lives and safety of our members were far more important. We are extremely sad that we won't get to see our members, see amazing geology, and learn about the tremendous work that our AGS members and community contribute to their respective Universities and Companies at this time. When the time comes, we will reschedule, with early talk about a September 2020 date.

To the generous sponsors of this technical conference we are offering a options for your conference donations due to unforeseen change to our plans. No matter your decisions we are thankful for your support and will continue to share you in our stories.

Options: Just let us know!

1) Full refund
2) Allow us to roll this donation over to the next technical conference
3) Roll these funds into our Scholarship Program.
4) Let the board make the appropriate decision.

Please contact the President, Treasure, or Conference Chair listed on the AGS Website.

We use 100% of all membership's dues, donations, and book earnings on Scholarships, sharing the love of the geosciences with our meetings, and our technical conferences.

We are in the same limbo as many of you about how future meetings and social gatherings will be held. Rest assured we are adapting. We hope that we can return to normal soon and understand normal may shift along the x-axis.

For more information: http://www.alaskageology.org/

Baker Hughes, in conjunction with the Alaska Geology Material Center (GMC) and Alaska Geology Society presented the findings using the cuttings from a well drilled in 1952. This well is stored at the Alaska Geological Material Center and is still providing answers.

Using a process named Volatiles Analysis Service (VAS) they were able to answers some question first raised in the original analysis done in mid-1950's.

What is VAS? Volatiles Analysis Service (VAS), provided by Advanced Hydrocarbon Stratigraphy and distributed by Baker-Hughes, is an advanced geochemical analysis that can be carried out on multiple types of geologic materials. The VAS analysis provides relevant information on the presence and composition of hydrocarbon (HC) resources, the presence of non-HC compounds (water, helium, H2S, C02, organic acids, and many more), plus rock properties in terms of permeability and mechanical strength indices.

While commonly applied to "fresh" samples, legacy samples are very viable, valuable, and often overlooked data resource. The GMC is a library waiting to be read with newer digital scanning and VAS tools. Brief Summary of new results from data that was first obtained in 1952.

1) Oil and gas are observed at all depths suggesting migration occurred

2) Unwashed nature of the cuttings likely changes the standard model of interpretation of legacy materials; more is more

3) High organic acids observed throughout bore hole; biodegradation of hydrocarbons

4) Toluene benzene ratio suggests migration events below 2000 ft

The Alaska Geological Society strongly supports this type of collaboration and strongly supports the GMC.

In summary, we are busy, we are adapting, and we are looking towards the changing future. We are glad you are part of this geological journey. We wish you a wonderful emerging from hibernation spring.

Steve Carhart - President, Alaska Geological Society

2020 AGS Scholarship Awards

2020 Scholarship committee members:
Sue Karl, Chair
Rick Levinson
Ken Helmold
Laura Gregersen
Game McGimsey
Tom Morahan
Marion Richter
Pam Richter

Richter Memorial Scholarship:

Erin Donaghy, PhD candidate, Purdue University
Project: The role of oceanic plateau collision in the growth of western North America: geologic connections between Pacific northwest, Alaska, and the Yellowstone hotspot

Alaska Geological Society Scholarships:

Brandon Keough: MS candidate, Purdue University
Project: A sedimentary record of the growth of continents by collisional processes, Cantwell basin, central Alaska Range, Alaska

Zena Robert: MS candidate, University of Alaska Fairbanks
Project: The effects of rapid climate change on mass movements in Denali National Park and Preserve, Alaska

Caleb Walcott: MS candidate, University of Buffalo, New York
Project: Hunting for ice refugia: A 10Be-based deglacial chronology from the northern Alexander Archipelago, Alaska

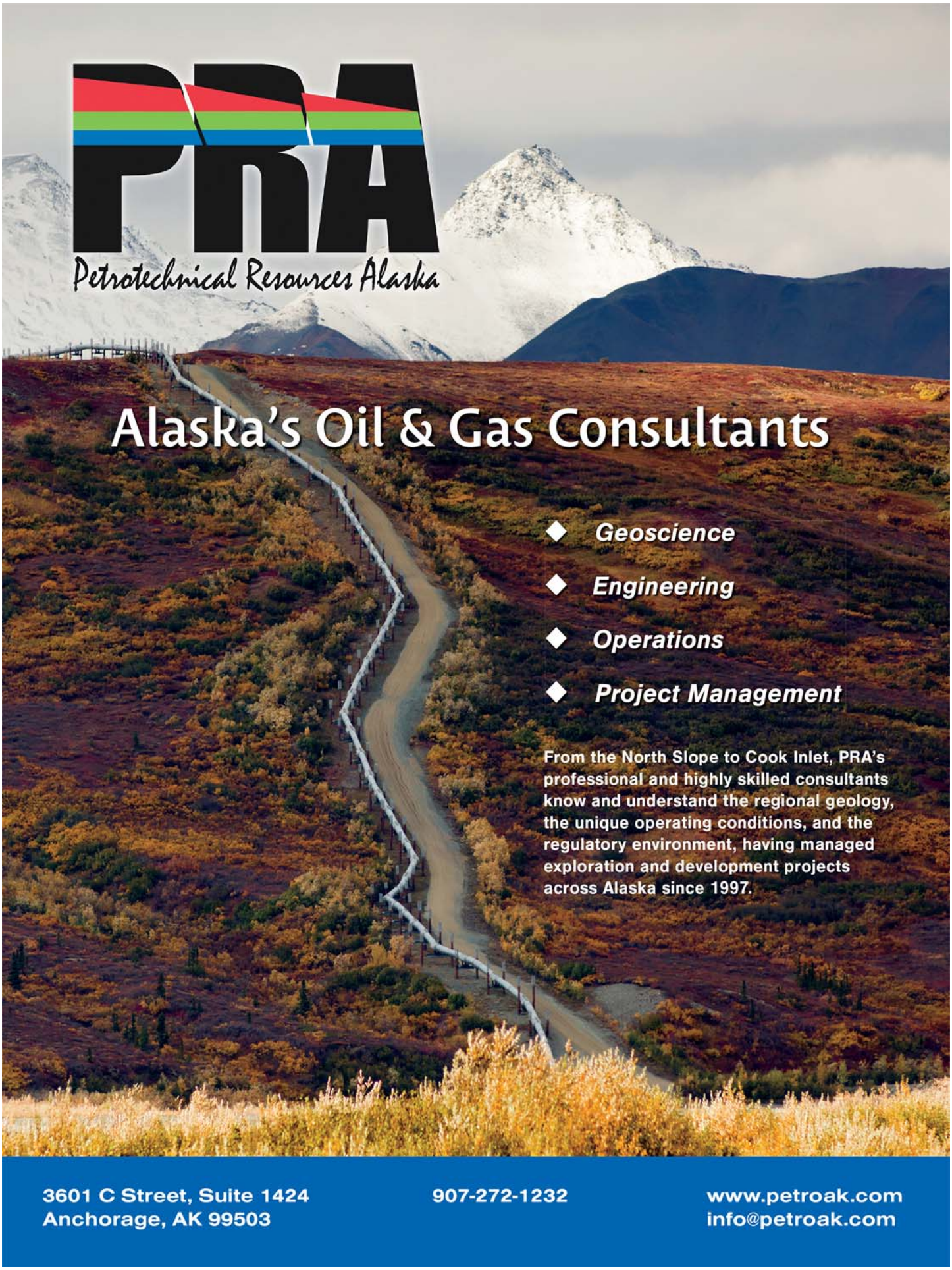
Hannah Weaver: MS candidate, Purdue University
Project: An integrated geophysical analysis of the tectonics of the central Alaska Range

Alec Wildland: MS candidate, University of Alaska Fairbanks
Project: Petrochronology of the shear zone separating allochthonous Yukon Tanana terrane from parautocthonous North America

PSAAPG Matching Grants

Timothy Scott Williams: MS candidate, University of Alaska, Anchorage
Project: Lithofacies modeling of the HRZ and the Hue Shale Formations, North Slope, Alaska

Marlee Haralson: MS candidate, University of Alaska, Fairbanks
Project: A comparison of three Cretaceous high-latitude greenhouse paleoenvironments: the Cantwell, Chignik, and Nanushuk Formations


PRA
Petrotechnical Resources Alaska
Alaska's Oil & Gas Consultants
Geoscience
Engineering
Operations
Project Management
From the North Slope to Cook Inlet, PRA's professional and highly skilled consultants know and understand the regional geology, the unique operating conditions, and the regulatory environment, having managed exploration and development projects across Alaska since 1997.
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Greetings Alaska Geological Society Members,

The election of the 2020-2021 AGS Board of Directors will take place prior to our annual AGS meeting on May 21, 2020.

For those of you that are active members, we ask that you participate as voters in this election. If you are uncertain as to your status, please ask (email: membership@alaskageology.org). Due to COVID-19 restrictions, we are setting up a vote-online process using google forms.

We have some nominations for officers, but we are always looking to get new involvement into the board. We also have several chairmanship positions that volunteers may handle (memberships, publications, newsletter editor, advertising, fundraising, etc—see p. 12 of the February 2020 AGS Newsletter [http://www.alaskageology.org/uploads/1/1/9/5/119566579/february-2020-newsletter.pdf].

If interested in serving on our board please contact the entire board of officers and directors (*"reply all" to include board member emails in the "cc" panel, this email*) for more information about the roles. Please respond by Friday, May 1, 2020.

Open positions

President –

Vice President -

President-Elect -

Treasurer –

Secretary –

3 Directors for 2020-2022 (Two-Year Terms)

We will send out complete voting instructions in a separate note via email early next month. The vote will be online for those who can. We will attach a mail-in ballot for those who prefer that method.

Alaska Geological Calendar of Events

Date	Time	Organization	Event	Location
May 15, 2019	5:00 pm - 8:30 pm	GSA	GSA 2019 Spring Scholarship Picnic	AK Airman's Assoc Hall, 4200 Floatplane Dr
May 29, 2019	11:45 am	AGS	Laura Gregersen, Alaska DOG, "The history and aerial distribution of exploration drilling targets categorized by play type, North Slope and offshore arctic Alaska"	BP Energy Center, Anchorage
May 30, 2019	7:00 am - 5:00 pm	AOGA	AOGA Conference	Dena'ina Center, Anchorage
May 31, 2019	9:30 am - 4:00 pm	AOGA	AOGA GMC Technical Beakout Session	Geol Material Center 3651 Penland Pkwy.
August 12, 2019	11:45 am	AGS	Pedro A Restrepo-Pace, Oil Search Ltd., "Technical Progression in Tackling the Papua New Guinea Fold Belt : A Fit for Purpose Tool-kit, a Learning Curve and the Persistence that Led to Success in One of the Most Challenging Surface and Geological Settings	BP Energy Center, Anchorage
Sept 17, 2019	11:45 am	AGS	Greg Wilson, ConocoPhillips, A Regional look at Nanushuk Formation facies in outcrop, Brooks Range Foothills, Alaska"	BP Energy Center, Anchorage
Oct 22, 2019	11:45 am	AGS	Tom Homza, Shell Exploration & Production, "Deconvolving Alaska's Barrow Arch"	BP Energy Center, Anchorage
Nov 19, 2019	8:30 am - 11:30 am	AGS/USGS	Dave Houseknecht, USGS, "US Geological Survey Public Assessment Review"	BP Energy Center, Anchorage
Dec 9, 2019	11:45 am	SPE/AGS	Oliver Mullins, Schlumberger, "Asphaltene Gradients, Connectivity and Tar Mats All Treated by Simple Chemistry and Reservoir Fluid Geodynamics"	BP Tower, Anchorage
Jan 23, 2020	11:45 am	AGS	Pat Druckenmiller, UAF, "Little bones from a big state: baby dinosaurs from the Cretaceous paleo-Arctic of Alaska"	BP Energy Center, Anchorage
Feb 18, 2020	11:45 am	AGS	Jennifer Aschoff, UAA, "Context, internal characteristics and controls on Brookian "shelf-edge deltas", North Slope, AK: Insight from integrated seismic facies mapping and core description"	BP Energy Center, Anchorage
March 17, 2020	11:45 am	AGS	Dave Buthman, Hilcorp, "Cook Inlet Exploration: Past, Present, and Future"	Webex meeting
May 21, 2020	11:45 am	AGS	Tom Douglas, Cold Regions Research and Engineering Laboratory, Title to be determined	Webex meeting
Sept 17, 2020	11:45 am	AGS	Stephen Hubbard, University of Calgary	BP Energy Center, Anchorage
Oct 22, 2020	11:45 am	AGS	Barrett Salisbury, DNR, "Neotectonics of Interior Alaska"	BP Energy Center, Anchorage
Nov 19, 2020	11:45 am	AGS	Speaker to be determined	BP Energy Center, Anchorage
Dec, 2020	11:45 am	AGS	Date and speaker to be determined	BP Energy Center, Anchorage

AMA: Alaska Miners Association; **AGS**: Alaska Geological Society: **GSA**: Geophysical Society of Alaska

AAEP: Alaska Association of Environmental Professionals; **SPE** Society of Petroleum Engineers; **UAA** University of Alaska Anchorage.

NEW! UAA Geological Science Department Weekly seminars: Cook Inlet Exploration: Past, Present, and Future
https://www.uaa.alaska.edu/academics/college-of-arts-and-sciences/departments/geology/seminar.cshtml

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The Alaska Geological Society is an organization which seeks to promote interest in and understanding of Geology and the related Earth Sciences, and to provide a common organization for those individuals interested in geology and the related earth sciences.

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MEMBERSHIP INFORMATION

AGS annual memberships expire November 1. The annual membership fee is $25/year ($5 for students). You may download a membership application from the AGS website and return it at a luncheon meeting, or mail it to the address above.

Contact membership coordintor Kirk Sherwood with changes or updates (e-mail: membership@alaskageology.org; phone: 907-334-5337)

All AGS publications are now available for on-line purchase on our website. Check to see the complete catalogue:

http://www.alaskageology.org/publications.htm

ADVERTISING RATES

Advertisements may be purchased at the following rates:
1/10 Page--$190/9mo, $75/1mo; size=1.8 x 3.5 inch
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1/2 Page--$655/9mo, $125/1mo; size=9.0 x 3.5 or 4.5 x 7.5 inch
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1mo rate=(9mo rate/9)+$50 (rounded up).

Contact Keith Torrance at 907-952-1288 for advertising information.

Pick.Click.Give.

It's PFD Application Time!

Did you know that you can support the society through Pick.Click.Give? When you fill out your PFD application, just select Alaska Geological Society, Inc. in the list of non-profits and you can help AGS to promote the uniqueness of Alaskan Geology and provide for education, geologic research, and networking to all who are interested a well as provide scholarships to students across a wide range of geologic topics.

https://www.pickclickgive.org/index.cfm/pfdorgs.info/Alaska-Geological-Society-Inc

- **From the PFD home page http://pfd.alaska.gov/Application, select the green "Add or Change Your Pick.Click.Give. Donation" button**
- **You can change/add your donation at any time throughout 2020**

Additional Ways to Support AGS:

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Membership Note

Membership renewal is November 1

Annual dues are:

Full member - $25

Student member - $5

Lifetime membership - $250

2018 - 2019 Alaska Geological Society Board, Committees and Delegates				
Title	**Name**	**Phone**	**e-mail**	**Affiliation**
President	Steve Carhart	907-748-0494	steve.carhart@alaskageology.org	
Past-President	Art Banet	907-748-0494	banetak@gci.net	
President-Elect				
Vice-President	Andy Dewhurst	907-265-6229	andrew.dewhurst@conocophillips.com	ConocoPhillips
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Director 2018-2020	Laura Gregersen	907-375-8240	laura.gregersen@alaska.gov	AK DOG
Director 2018-2020	Trystan Herriott	907-451-5011	trystan.herriott@alaska.gov	AK DGGS
Director 2018-2020	Steve Wright	907-854-2362	AlaskaGeo@aol.com	Consultant
Director 2019-2021	Jennifer Crews	907-263-4516	jennifer.r.crews@conocophillips.com	ConocoPhillips
Director 2019-2021	Kirk Sherwood	907-334-5337	sherwook@mtaonline.net	
Director 2019-2021	Monte Mabry	907-230-4488	monte.mabry@live.com	
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PSAAPG AGS Representative	Ken Helmold	907-269-8673	ken.helmold@alaska.gov	AK DOG
Advertising				
Education/Science Fair	Jana DaSilva Lage	907-980-9368	jldasilva5@hotmail.com	APICC
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