

# The PAYSTREAK

Volume 17, No. 1, Fall-Winter, 2015

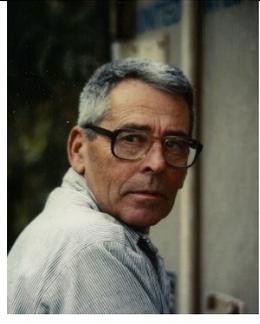
The Newsletter of the Alaska Mining Hall of Fame Foundation

**In this issue:**

AMHF New Inductees-----	Page 1
Introduction and Ceremony Program-----	Page 2
Introduction and Announcements-----	Page 3
Red Dog Mine-----	Page 4
AMHF Operates Museum in Fairbanks-----	Page 8
Donations-----	Page 10
Previous AMHF Inductees-----	Page 12
New Inductee Biographies-----	Page 21
Distinguished Alaskans Aid Foundation-----	Page 33
Alaska Mining Hall of Fame Directors and Officers-----	Page 33

## Alaska Mining Hall of Fame Foundation New Inductees

### AMHF Honors Two Pioneers Associated with the Red Dog Mine Discovery in Northwestern Alaska and a Prospector and Miner Well Known in South-Central Alaska

	<p><b>Robert (Bob) Baker</b> was born in Windsor, Colorado, and came north in 1946 after serving in the U.S. Marine Corps during WWII. Initially, he worked for the U.S. Fish and Wildlife Service before flying for Wien Airlines and finally his own air taxi service—Baker Aviation. While flying logistical support for the USGS, Baker strongly encouraged veteran geologist Irv Tailleir to investigate red gossan exposed in Ikalukrok Creek in the DeLong Mountains. Tailleir’s sampling confirmed that strong zinc mineralization existed at the prospecting site—named for Baker’s dog, O’Malley. Baker was killed flying a mercy mission to Savoonga on St. Lawrence Island in March, 1968, without understanding the significance of his ‘Red Dog’ find. His surviving wife and seven children have contributed greatly to the welfare of the NANA Region.</p>
	<p><b>Irv Tailleir</b> was an outstanding regional geologist who did much to unravel the geologic framework of Northern Alaska. Growing up in Yakima, Washington, he studied earth science at Harvard, Cornell and Stanford before accepting a position with the USGS as an assistant geologist for work in northern Alaska. He spent decades studying the Brooks Range. In 1968, he landed a helicopter at a reddish oxidized area pointed out by Bob Baker. Tailleir recognized that ore minerals of barium, lead and zinc were present in great abundance; which were the surface manifestations of the giant Red Dog zinc-polymetallic deposit. He published his findings in a 1970 USGS open-file report. After acquisition by NANA Corporation, the Red Dog Mine was placed into production by Cominco in 1989 as one of the world’s largest zinc mines.</p>
	<p><b>Don S. Rae</b> was a Canadian-born miner, prospector, assayer and mine promoter who worked throughout the West, including Arizona, Oregon, Montana, Nevada and ultimately Alaska. He would spend nearly half of his career in the Yukon-Alaska region; especially in south-central Alaska. Rae was successful in mining gold and bismuth in Montana and gold and silver in Oregon and Nevada. Wherever he went, he generally succeeded in the mining business. His Alaskan career began in 1903 as he left Dawson in the Yukon to attend to mine developments in the Juneau and Porcupine districts of southeast Alaska. In 1908, he initiated a long term relationship with several mine owners in the Hatcher Pass and Broad Pass districts, Alaska, which only ended at his death in 1924, when he succumbed to Pulmonary Tuberculosis.</p>

Co-sponsored by the Alaska Miners Association  
**Alaska Mining Hall of Fame Foundation (AMHF)**  
Induction Ceremony, Wednesday, November 4<sup>th</sup> 2015  
Kenai-Denali Room, Downtown Marriott Hotel, Anchorage, Alaska

**Program**

The general public is invited to Alaska Mining Hall of Fame Foundation (AMHF) induction ceremony from 7:00 to 9:00 PM on Wednesday, November 4<sup>th</sup>, 2015. The induction ceremony will take place in the Kenai-Denali Room, Downtown Marriott Hotel, Anchorage, Alaska. There is no charge for admission. Refreshments will be served.

Coffee and Donuts----- 6:30-to-7:00 PM

Introduction, Purpose of the AMHF, by Tom Bundtzen President of the AMHF--- 7:00-to-7:15 PM

*Presentation of Inductees*

Robert (Bob) Baker----- 7:15-to-7:40 PM

Irv Tailleir----- 7:40-to-8:05 PM

Don S. Rae----- 8:05-to-8:30 PM

Coffee Break----- 8:30-to-8:45 PM

Recollections of Inductees from the Audience----- 8:45-to-9:00 PM

Adjournment----- 9:00 PM

## Introduction and Acknowledgements

The November 4<sup>th</sup> 2015 induction of the Alaska Mining Hall of Fame Foundation (AMHF) features two pioneers associated with the discovery of the giant Red Dog zinc-polymetallic mine and one focused on mining in southern Alaska.

Born (in 1921) and raised in the wheat farming center of Windsor, Colorado, Robert (Bob) Baker came north to Alaska in 1946 after serving in the U.S. Marine Corps during WWII, with whom he received a Purple Heart for his service in the South Pacific. He took courses at the University of Alaska School of Mines in Fairbanks and became interested in prospecting. His love of flying led him to fly commercially with Wien Airlines during the 1950s and eventually to establish his own air taxi--quite prophetically--the Red Dog Mine Flying Service (later Baker Aviation in 1967). The flying service was named after his prospecting companion O'Malley, a reddish Irish Terrier. While flying logistical support for several USGS programs, Baker strongly encouraged USGS geologist Irv Tailleir to sample obvious red-stained color anomalies in the Ikalukrok Creek basin of the DeLong Mountains. Tailleir sampled the mineralized zones in August, 1968, which were the surface exposures of the giant Red Dog zinc-lead-silver deposit. Irv published his results in a 1970 USGS Open File report. Bob Baker was killed flying a mercy mission to Savoonga on St. Lawrence Island in March, 1968, without any knowledge as the significance of his 'Red Dog' find.

To any Alaskan geologist (such as the editor), Irv Tailleir was an outstanding regional geologist who did much to unravel the geologic framework of Northern Alaska over a career spanning several decades. As stated above, Tailleir landed a helicopter in 1968 at the red gossan pointed out by Baker in the DeLong Mountains. Irv recognized that ore minerals of barium, lead and zinc were present in great abundance. He published his findings in a 1970 USGS open-file report. Beginning in 1975, others would visit the site and confirm the find. NANA Corporation, one of the twelve landed regional corporations created under ANCSA, selected the site as part of their land entitlement. Drilling in 1982 by Cominco for NANA confirmed the enormous size and richness of the discovery. Seven years later, 'Red Dog', named after Baker's dog O'Malley, was placed into production as one of the world's largest zinc mines.

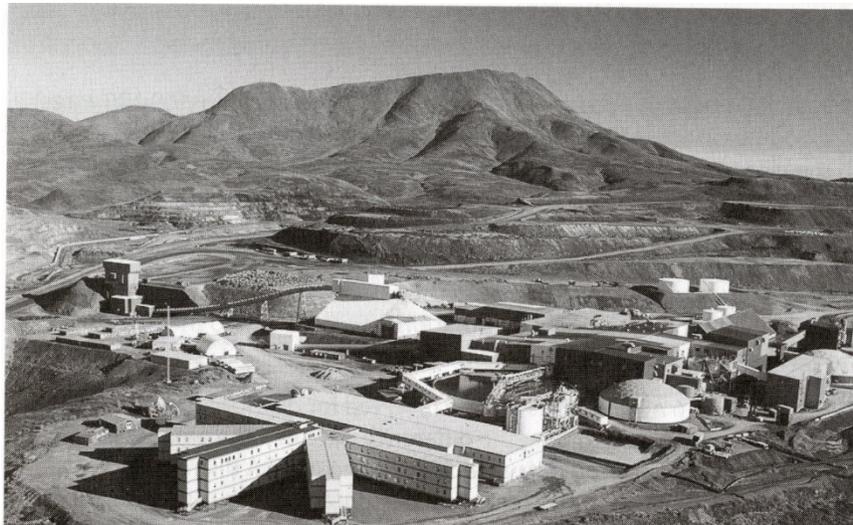
Canadian-born Don Rae was a miner, prospector, assayer and mine promoter who worked throughout the West, including Arizona, Oregon, Montana, Nevada and ultimately Alaska. His Alaskan career began in 1903 as he left Dawson in Yukon to attend to mine developments in the Juneau and Porcupine districts of southeast Alaska. In 1908, he initiated a long term relationship with several mine property owners in the Hatcher Pass and Broad Pass districts, Alaska, which only ended at his death in 1924, when he succumbed to Pulmonary Tuberculosis.

Paul Glavinovich wrote the biographic sketch of Robert (Bob) Baker, with assistance from Lori Henry and other Baker relatives. Travis Hudson prepared the biography of Irv Tailleir, using numerous published and private sources. Charles C. Hawley and Dan Carney prepared the biographic material of Don Rae. Tom Bundtzen prepared and edited the AMHF newsletter, which includes a summary of Red Dog.

## **The Red Dog Zinc-Polymetallic Mine in the NANA Region of Northwest Alaska**

### *Introduction*

Since 1989, the Red Dog zinc-polymetallic mine has produced sulfide concentrates containing zinc, lead, silver and several specialty metals such as germanium and gallium for the world's metal markets. Within significant time intervals during the last 25 years, the Red Dog Mine has been the world's largest producer of mined zinc, accounting for from 6-10 percent of sulfide concentrates globally (currently, approximately 800 mine operations from six continents sell zinc concentrates). Because of the deposit's richness, the entire mine complex, including mill, tailings facilities, living quarters, and the mine itself, is relatively small and lies within an approximately 1.5 square mile area. Red Dog's 550 full-time jobs represents an important economic anchor for the NANA region. In 2014, the Red Dog mine, which shipped 1,050,000 tons of zinc concentrates to buyers in Europe, Asia and North America, accounted for about half of the production value and revenue attributed to the Alaskan Mineral Industry. The mine is owned by NANA Corporation and operated by Teck Resources. Red Dog is truly a world class mine and wherever the editor travels, colleagues always ask about the status of the project.

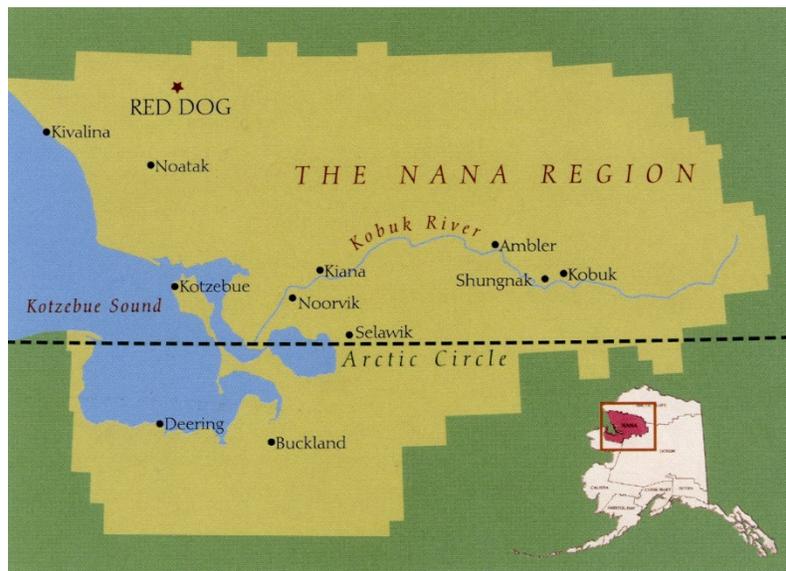


***Red Dog mine and mill complex, Northwest Alaska; from 2014 AMA Directory***

### *History and Location*

Alaska's Native land claims were settled with Congressional passage of the 1971 Alaska Native Claims Settlement Act (ANCSA), which awarded nearly 44 million acres of land and \$962 million to thirteen (13) regional corporations and about 200 village corporations. The regional corporations were given subsurface rights to develop mineral and energy resources. Eligible Alaska Natives with 25 percent or more Indian, Aleut or Eskimo blood were enrolled as shareholders of the appropriate Native Corporations. The Inupiat Eskimos of the Northwest Arctic became shareholders of NANA Regional

Corporation. Today more than 85,000 are Alaskan Natives and 12,900+ of the total are Inupiat Eskimo shareholders of NANA.



***The NANA Region of Northwest Alaska, showing the location of the Red Dog Mine. Map graphic courtesy of NANA.***

The NANA region, which is home to about 8,000 people in twelve major villages, covers about 36,000 square miles. Numerous rivers, including the Kobuk and Noatak, flow west to the Beaufort Sea. The terrain varies from mountains to tundra to boreal forests and sand dunes. Much of the region, the boundaries of which are the same as the Northwest Arctic Borough, is taken up by national parks, wildlife refuges, and national monuments created by the 1980 Alaska National Interest Lands Conservation Act (ANILCA), where resource development is restricted or prohibited. About 2.2 million acres of the NANA region (10 percent of the total) is owned by NANA Corporation. In 1980, NANA selected 120 square miles of land encompassing the Red Dog deposit area as part of their ANCSA land entitlement.

### *Early Mine Development Activities*

Robert (Bob) Baker and Irv Tailleir, whom are the main subject of the 2015 AMHF induction ceremony, are credited with the original discovery of the Red Dog deposit (see biographies in this newsletter). In 1975, Cominco Limited, a pioneer in the development of metal mines throughout Canada, became interested in the Red Dog deposit. After an arrangement was consummated with NANA, Cominco sent teams of geologists and engineers to the site for several years, who classified the deposit as a 'Sedimentary Exhalative' (SEDEX) zinc-polymetallic deposit hosted in favorable marine sedimentary rock facies; i.e., metals extruded from black smokers on the sea floor about 350 million years ago. Cominco geologists found that Red Dog was very similar to what their firm had mined at Sullivan, British Columbia for many decades. Cominco drill-tested the main zone of mineralization, and confirmed the large size

and exceptional grades of the deposit, which were estimated to be 85 million tonnes containing 17 percent zinc, 5 percent lead, 3 ounces/ton silver, and credits of germanium and gallium. Also present is an enormous barite (ore mineral of barium) cap rock resource totaling several hundred million tonnes. Several more zinc-polymetallic deposits were subsequently found.

In 1982, NANA and Cominco entered into to a lease with wide-ranging terms. Cominco Limited merged with Teck Corporation in 2001. The evolving agreement has promised net profits and, importantly, shareholder involvement in the operation of the mine. After profits were finally realized later in the life of the operation, NANA began to share Red Dog's profits with all other landed regional corporations created by ANCSA.

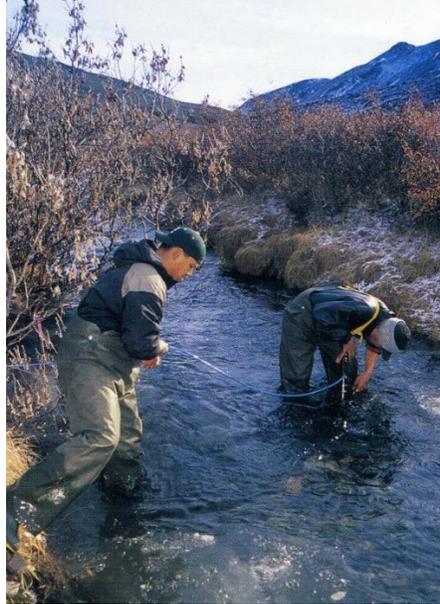
After NANA selected Cominco as mine operator, mine development commenced, which took place from 1986-to-1989. The State of Alaska through the Alaska Industrial Development and Export Authority (AIDEA) also shared project risk by providing a low interest loan to construct the Delong Mountains Transportation System. The AIDEA involvement covered costs of a 55-mile-long road and port facility on the Beaufort Sea. This loan package has been completely paid back to the State of Alaska with interest.

### *Balancing Act--Protection of Lands and Culture*

During Red Dog's initial exploration phase, NANA officials held meetings in local villages to discuss the potential ramifications of deposit development. Many shareholders expressed concerns about a large scale mineral resource development in a wilderness area that sustained Inupiat peoples for many generations. However, in the end, a majority of the NANA shareholders wanted to realize the benefits of a cash economy, such as purchasing snow machines, rifles, boats and aircraft to help sustain their subsistence lifestyles. The dominance of a single indigenous group (Inupiat Eskimo) gives the NANA Region a high degree of unity, where subsistence activities are emphasized. Year-round fishing and hunting opportunities are important values that must be taken into account during any resource extraction activities.

### *Red Dog and the Environment*

Since its beginning, the Red Dog mine has been scrutinized and is heavily regulated. It complies with nearly 200 issued permits and more than 2,700 individual stipulations that must be met on a daily, weekly, monthly and annual basis. Several hundred environmental studies have been financed by the mine to achieve regulatory goals and better understand the overall environment. Beginning in 2003, Red Dog initiated an international management standard (EMS) in order to better meet U.S. Environmental Protection Agency (USEPA) and Alaska State stipulations. Red Dog can demonstrate that their EMS conforms to the International ISO 14001 standard. One such demonstration has been the cleanup of Red Dog and other nearby creek basins, which cut the ore body. There were almost no fish in Red Dog Creek prior to mineral development due to metal toxicity caused by the eroding ore system. Through rerouting of streams, arctic char are now thriving in areas where they couldn't before.



***Red Dog Creek is much cleaner now than it was when water ran over naturally exposed, oxidized mineralization of the Red Dog deposit—prior to the mine’s existence, PHOTO Credit: NANA***

### *The Future of Red Dog Mine*

In 2010, Teck Resources entered into a new era of operations when it finished mining and began reclaiming the ‘Main Deposit’ and began to develop the adjacent ‘Aqqaluk Deposit’—a faulted off part of the original Red Dog ore system. Although two environmental groups; 1) the Trustees for Alaska; and 2) the San Francisco-Based Center for Race, Poverty and Environment, objected to the issuance of the National Pollution Discharge Elimination System permit (NPDES) and the State’s 401 certification for the Aqqaluk deposit, the permits were granted by the USEPA and State, with some further regulatory stipulations. Subsequently, the Red Dog mine has continued operations with the mining of the Aqqaluk deposit.

There are additional, albeit smaller Red Dog type zinc-polymetallic ore zones identified on NANA lands and more opportunities to the north in what has been referred to by many geologists as the Noatak zinc-lead province. Assuming favorable metal prices and continuing metal use trends, the Red Dog project, a model partnership between one of Alaska’s Native groups and the private sector, should continue to play an important role in the NANA Region’s economy and in Alaska’s mineral industry as a whole for many years to come. It all started with two men—one, an observant air taxi pilot and prospector and the other, a regional geologist employed by the federal government. Those two are, of course, Robert (Bob) Baker and Irv Tailleir, who we are honoring at the induction ceremony. For more information about Red Dog, visit [www.reddogalaska.com](http://www.reddogalaska.com)

## **Alaska Mining Hall of Fame Foundation Operates Museum in Fairbanks**

On July 18<sup>th</sup>, 2013, the Alaska Mining Hall of Fame opened up a museum at 825 1<sup>st</sup> Avenue in downtown Fairbanks. The 2,000 square foot facility, formerly known as the Rebecca or Odd Fellows Hall, was built in 1908 and is on the National Historic Register. It is situated just down the street from the Bridgewater Hotel, and has easy access to downtown Fairbanks. The AMHF is leasing the facility from Fairbanks historian Candy Waugaman.

This year (2015), the museum was open from 11:00 AM to 5:00 PM from May 25<sup>th</sup> to September 20<sup>th</sup>. We had more than a thousand visitors from all 50 states and 27 foreign countries visit the facility during the four month season. With volunteers from such organizations such as Santa's Senior s (North Pole), we will be able to man the museum this summer. The AMHF wishes to express its sincere gratitude to the more than twenty (20) individuals who pitched in to help this year. Like many museums in Fairbanks, we closed the doors on September 20<sup>th</sup>. Although now closed to the public, the museum will be open to educators bringing through students from area schools and for special functions.

The museum is designed to honor the 100+ pioneers that have been inducted since 1997. The inductees are arranged through time, which feature different events in Alaska's rich mining history. These include: pre-Gold Rush activities, pioneers of the Juneau Gold Belt; and pioneers of the Alaska-Yukon gold rush, and then moving into other categories such as pioneers associated with copper and coal mining, pioneers associated with strategic mineral developments, and pioneering families and individuals of modern placer mining. Considerable space is devoted to pioneer educators, geologists, engineers, and finally, those in the legal profession. During the summer, historic mining videos from several sources were shown. The Chuck Herbert family donated an enormous commercial-grade gold scale from the 40-Mile district, which now sits in the front office of the museum.

One important function of the AMHF Museum will be the establishment of an archive. We have already accepted records from the Earl Beistline, Chuck Hawley, Don Cook, Don Grybeck, and the Doug Colp families. *Paystreak* Newsletters are for sale, and we sold mining history books that specifically feature AMHF pioneers. We now have AMHF Coffee mugs and tea shirts for sale.

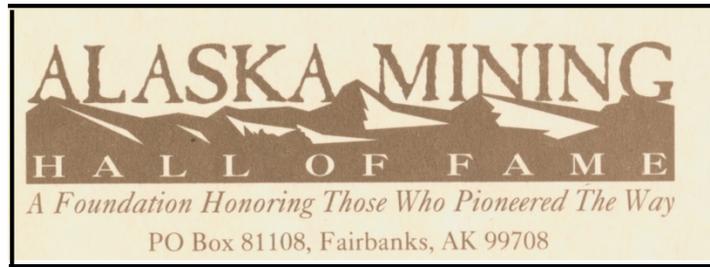
The museum opening and continued operations have thus far been made possible from various income sources acquired by the AMHF—a non-profit organization. Donations are graciously accepted. More information concerning this organization appears on our website: [www.Alaskamininghalloffame.org](http://www.Alaskamininghalloffame.org). We encourage the reader to visit this website, which already has a worldwide audience.



**The Alaska Mining Hall of Fame Foundation Museum at 825 1<sup>st</sup> Avenue in Fairbanks; note plaque indicating the national historic register designation and Reeves historic library building in foreground**

**Features:**

- *Paystreak* Newsletters that Provide biographic sketches of AMHF Pioneers—from 1997 to Present
- Biographies with Plaques and numerous photos and narratives that describe Alaska's Mining History
- A store with AMHF Coffee Cups and tea shirts
- Movie clips and other digital media that feature mine activities



## **Contributions**

The Alaska Mining Hall of Fame Foundation is funded through donations of money, time and effort, and through sales at this Museum. The Foundation is a tax-exempt organization, so all donations are tax deductible.

### **Donations to the Foundation should be mailed to:**

Karl Hanneman, Treasurer  
Alaska Mining Hall of Fame Foundation  
P.O. Box 81108  
Fairbanks, Alaska 99708

## **Recent Contributions to the Foundation**

The AMHF would like to acknowledge individuals and organizations that have made financial contributions to the Alaska Mining Hall of Fame Foundation. These generous donations allow us to publish the *Paystreak* Newsletter, maintain this website, organize and carry out induction ceremonies Statewide, and especially pay for the expenses of the AMHF Museum in Fairbanks, which is being leased from Candy Waugaman. Contributions allow the AMHF Foundation to plan for future expansion plans and acquisition of materials.

We thank all contributors, regardless of the level of their donation, which are: Copper (\$1-\$99), Silver (\$100-\$499), Gold (\$500-\$999); '98er, (\$1,000) and Platinum (>\$1,000). Some of the more recent contributions have been in memory of legislator, businessman, and placer gold miner Robert Bettisworth, gold miner Walt Wigger, and mine educator Jim Madonna—who passed away in 2015. The AMHF especially thanks Teck Resources, operator of the Red Dog Zinc-Lead-Silver Mine, for the most generous donation ever to be given to the Foundation. Included below are those that have contributed through the Pick-Click-Give Program. We thank all those who have contributed (see below).

Name	Contribution Level	Dedication	Date(s)
Lyndon Transport	Gold	General	2013
Teck Resources Red Dog Mine <sup>(1)</sup>	Platinum	General	2013
Doug Colp Family <sup>(1)</sup>	98er	General	2013
Jason Brune <sup>(2)</sup>	Silver	General	2014
Malie Gray <sup>(2)</sup>	Copper	General	2014
Clark Milne <sup>(2)</sup>	Copper	General	2014
Peter Montesa <sup>(2)</sup>	Copper	General	2014
Jules Tileston <sup>(2)</sup>	Copper	General	2014
Six Anonymous <sup>(2)</sup>	Silver	General	2014
Usibelli Foundation	Gold	General	2014
Candy Waugaman	Platinum	General	2015
Karen Erickson	Copper	General	2015
Usibelli Foundation	Gold	General	2015
Alaska Women in Mining	Gold	General	2015
Brian Rogers and Sherry Modrow	Gold	General	2015
Marty K. Rutherford	Gold	General	2015
Karen Purdue	Gold	General	2015
Mr. and Mrs. Jim Thurman	Silver	General	2015
Karen Clautice	Copper	General	2015
Christine and Corbette Upton	Silver	General	2015
Bill Brophy	Copper	In Memory of Bob Bettisworth	2015
Leo and Fredi Brown	Copper	In Memory of Bob Bettisworth	2015
George Horner-Trust	Silver	In Memory of Bob Bettisworth	2015
Laurence Peterson	Silver	In Memory of Bob Bettisworth	2015
Sigwald and Arlene Strandberg	Silver	In Memory of Bob Bettisworth	2015
Laurence Peterson	Gold	In Memory of Jim Madonna	2015
Lisa and Milton Behr	Gold	In Memory of Walter Wigger	2015
David and Aldean Kilborn	Silver	In Memory of Walter Wigger	2015
Nathaniel May <sup>(2)</sup>	Copper	General	2015
Michael Whelan <sup>(2)</sup>	Silver	General	2015
Aaron Pfeil <sup>(2)</sup>	Copper	General	2015
Clark Milne <sup>(2)</sup>	Silver	General	2015
Joel Stratman <sup>(2)</sup>	Copper	General	2015
Karen Lapp <sup>(2)</sup>	Copper	General	2015
Jeff Lapp <sup>(2)</sup>	Copper	General	2015
William Groom <sup>(2)</sup>	Copper	General	2015
Jerry Sadler <sup>(2)</sup>	Copper	General	2015
Matthew Hanson <sup>(2)</sup>	Copper	General	2015
Jason Brune <sup>(2)</sup>	Silver	General	2015
Patricia Peirsol <sup>(2)</sup>	Copper	General	2015
John Cook <sup>(2)</sup>	Copper	General	2015
Daniel Graham <sup>(2)</sup>	Copper	General	2015
Six Anonymous <sup>(2)</sup>	Silver	General	2015

(1) Also listed as 98er in back of newsletter

(2) From Pick-Click-Give Program

## Previous Inductees, Alaska Mining Hall of Fame

Fairbanks, Fall 1997

**Six charter members of the Alaska Mining Hall of Fame Foundation were previously elected into the National Mining Hall of Fame in Leadville, Colorado.**

**Stephen Birch:** Founder and developer of Kennecott Copper Mines.

**Frederick Bradley:** Successful manager of Treadwell and A-J Mines, Juneau.

**John Treadwell:** Founder of Treadwell Mines, Juneau.

**Alfred H. Brooks:** Chief Geologist of U.S. Geological Survey in Alaska.

**Earnest Patty:** University of Alaska, and manager of Placer Dredging Venture.

**Clarence Berry:** Prominent Klondike and Interior Alaska miner.

Fairbanks, Spring 1998

**Induction Ceremony Honoring Early Yukon Basin Traders and Prospectors**

**Alfred Mayo:** “Captain Al” well-known Yukon River trader, prospector.

**Jack McQuesten:** Known as the “Father of the Yukon” grubstaked many prospectors.

**Arthur Harper:** Respected trader and prospector and promoter of the Yukon; his son Walter, first stepped foot on the summit of Mount McKinley (Denali).

**Howard Franklin:** Fortymile prospector, discovered first “bedrock” placer gold in Alaska.

**John Minook:** Creole-Athabascan prospector who discovered Rampart district.

**Felix Pedro:** Discoverer of Fairbanks district in 1902.

Nome, Summer 1998

**Induction Ceremony Honoring Pioneers of Nome Gold Rush**

**John Brynteson:** A ‘Lucky Swede’; an experienced hard-rock miner, discoverer of the Cape Nome district.

**Erik Lindblom:** The eldest of the “Lucky Swedes”, a tailor.

**Jafet Lindeberg:** The Norwegian of the ‘Lucky Swedes’, president and manager of the very successful Pioneer Mining Company.

**Charles D. Lane:** Tough, honest, and wealthy miner who helped the Lucky Swedes in their legal battles.

Juneau, Spring 1999

### **Induction Ceremony Honoring Discovery of Juneau District**

**Joe Juneau:** Native of Quebec, a California 49er, co-discoverer of gold in the Juneau district.

**Richard Harris:** Irish immigrant, co-discoverer of gold in Juneau district.

**George Pilz:** German immigrant who sent and financed the Juneau and Harris prospecting ventures in the Juneau area.

**Kawa.ée:** Tlingit leader who brought rich gold samples from Gastineau Channel area to George Pilz

**Livingston Wernecke:** Geologist-engineer for the Bradley companies of Juneau.

**Bartlett Thane:** Promoter-founder of the world's largest gold mine, the Gastineau at Juneau.

### Anchorage, Fall 1999

#### **Induction Ceremony Honoring Mining Pioneers of Southern/Southwest Alaska**

**Andrew Olson:** Swedish immigrant, innovator at Flat; the original organizer of the platinum mining complex in the Goodnews Bay Mining district.

**Evan Jones:** Welsh immigrant; the true father of Alaska coal mining industry.

**Wesley Earl Dunkle:** Kennecott engineer and innovative geologist, co-founder of Star Air Service, predecessor of Alaska Airlines.

### Fairbanks, Spring 2000

#### **Induction Ceremony Honoring Early 20<sup>th</sup> Century Interior Pioneers**

**Emil Usibelli:** Italian immigrant and founder of Usibelli Coal Mine, Inc., Alaska's only and historically largest producer of coal; civic benefactor in Fairbanks.

**John B. Mertie Jr.:** Leading U.S. Geological Survey geologist; outstanding earth scientist, mathematician, and world expert on platinum.

**Fannie Quigley:** Prospector, renowned for her bush skills, legendary Kantishna character.

### Juneau, Spring 2001

#### **Induction Ceremony Honoring Early Government Role in Mining**

**Benjamin D. Stewart:** State and Federal mining administrator, Alaska constitutional delegate at Alaska Statehood Convention in Fairbanks.

### Fairbanks, Summer, 2001

#### **Induction Ceremony Honoring the Pioneers of the Large Scale Gold Dredging Industry of Nome and Fairbanks Districts**

**Norman C. Stines:** Visionary engineer who planned and supervised original USSR&M activities in Fairbanks district.

**Wendell P. Hammon:** Installed the first three dredges in Cape Nome district; helped design financing for what became USSR&M dredge fleets in Alaska

**James K. Davidson:** Designed and built Miocene and Davidson ditch systems.

Anchorage, Fall 2001

**Induction Ceremony Honoring Discovery of Flat District**

**John Beaton:** Co-discovered Iditarod district with William Dikeman.

Fairbanks, Spring 2002

**Induction Ceremony Honoring Successful Miners and Engineers of Early 20<sup>th</sup> Century**

**Frank G. Manley:** Highly successful miner in Fairbanks, Hot Springs district, and Flat. Founder of the First National Bank, Fairbanks

**Herman Tofty:** Norwegian immigrant who worked prospects near Manley Hot Springs.

**Chester Purington:** Acclaimed international mining engineer; wrote treatise on Alaska placer fields.

**Thomas P. Aitken:** Arguably the most successful small scale mine developer during the Alaska-Yukon Gold Rush; worked both lodes and placers in Alaska and Yukon.

Anchorage, Fall 2002

**Induction Ceremony Honoring Immigrant Pioneers**

**Peter Miscovich:** Croatian immigrant who settled in Flat, Alaska 1910. Pioneered the use of hydraulic mining techniques.

**David Strandberg:** Swedish immigrant who joined the Klondike gold rush in 1898 and the Iditarod rush of 1910. Built placer mining dynasty Strandberg & Sons, Inc.

**Lars Ostnes:** Norwegian immigrant who mined in the Iditarod district and developed placer mines in remote western Alaska for over 50 years.

Fairbanks, Summer 2003

**Golden Days Induction Ceremony (also recognized during Fall AMA convention)**

**Kyosuke “Frank” Yasuda and Nevelo Yasuda:** Japanese immigrant and his Eskimo wife, discovered Chandalar gold and founded the community of Beaver.

Anchorage, Fall 2003

### **Induction Ceremony Honoring Early and Mid-20<sup>th</sup> Century Placer Miners**

**John Gustavus (Gus) Uotila:** By 1915, Gus Uotila was known as a tough Iditarod teamster. He mentored placer mining operations throughout Alaska and became a respected overland freighter.

**Simon Wible:** He mined gold, built water canals, and became a wealthy man in California. When the time the gold rush came along, he pioneered hydraulic mine technology on the Kenai Peninsula.

Fairbanks, Spring 2004

### **Honoring Early Pioneers Associated with USSR&M Dredge Fleet**

**Roy B. Earling:** Built pre-World War II FE Company into one of the most efficient and successful dredge mining firms in the world.

**James D. Crawford:** Well organized manager who acquired new dredge properties and guided FE Company into successful post-World War II period of gold mining.

**Jack C. Boswell:** Engineered the development of the rich Cripple deposit; and helped build giant FE machines used to dig deep placer deposits. Published historian of USSR&M era.

**Genevieve Parker Metcalfe:** Breakthrough woman mining engineer who developed initial plans for FE Fairbanks operations, wrote a landmark thesis on Alaska placer mining, and was a champion athlete and scholar.

**Earl Richard Pilgrim:** First Professor of Mine Engineering at University of Alaska. Independent Kantishna miner and pioneer, and noted FE consultant; “Mr. Antimony” in the US.

Anchorage, Fall 2004

### **Honoring Those in the Mining Legal Profession,**

In Cooperation with the History Committee of the Alaska Bar Association

**William Sulzer:** Bill Sulzer became a prominent New York attorney and politician and briefly served as Governor of New York. The ever-optimistic Sulzer mined copper in southeast Alaska and developed gold in the Chandalar district.

**Joseph Rudd:** Shortly after statehood, Rudd drafted the State’s mining law on state lands and was sought for his expertise on natural resource issues throughout his career. He was killed in a plane crash in Anchorage upon his return from Juneau after discussing with other Alaskans challenges to President Carter’s Implementation of the 1978 Antiquities Act.

Anchorage, Fall 2005

### **Honoring the Discoverers and the Developer of Platinum Resources at Goodnews Bay**

**Per Edvard (Ed) Olson:** Born in 1898, Edward Olson was born into a large farm family in Sweden and immigrated to the United States in 1905. In 1934, he assumed the position of general manager of the Goodnews Bay Mining Company (GBMC), the largest supplier of platinum in the U.S. during 1934-1975.

**Walter Smith:** In the summer of 1926, Yupik Eskimo Walter Smith and his young apprentice Henry Wuya found placer platinum in a stream draining a remote, uninhabited coast of southwest Alaska. The GBMC eventually purchase Smith's claims. Smith and Wuya are recognized as discoverers of Goodnews Bay platinum.

**Henry Wuya:** Henry Wuya was born to Eskimo parents in Quinhagak on the Yukon-Kuskokwim Delta. Wuya was proficient in English when few Yupiks knew English. He mentored with the older and experienced prospector, Walter Smith.

Fairbanks, Spring 2006

### **Honoring Two Pioneers Important to both Canadian and American Mining Communities**

**Ellen (Nellie) Cashman:** Ellen (Nellie) Cashman was a quintessential gold stamper who participated in many gold-silver rushes of the late 19<sup>th</sup> and early 20<sup>th</sup> Centuries. Nellie's final home was Nolan Creek in the Koyukuk district of northern Alaska. Cashman died in 1925 at St. Anne's Hospital, Victoria, British Columbia, a medical facility she helped found several decades earlier.

**Jack Dalton:** One of the premier horse freighters of the Alaska-Yukon gold rush era, Jack Dalton opened up the 'Dalton Trail' for prospectors and trades from Haines to Central Yukon, Canada. In later years he worked as a freight engineer for the Alaska railroad. The Dalton Highway is a tribute to the Dalton family in Alaska.

Juneau, Summer 2006

### **Honoring the Mining Legal Profession, in Cooperation with the History Committee of the Alaska Bar Association**

**Frederick (Fred) Eastaugh:** Nome-born Fred Eastaugh was an Alaskan accountant a ship's officer for the Alaska Steamship Company, and Alaska mining attorney. Eastaugh was appointed to the Alaska Minerals Commission in 1991 by Governor Walter Hickel. Upon Eastaugh's death a year later, Hickel ordered state flags flown at half mast.

Anchorage, Fall 2006

### **Honoring an Outstanding Statesman and an Outstanding Prospector Active in the mid-20<sup>th</sup> Century Alaska Mining Industry**

**Charles F. (Chuck) Herbert:** Chuck Herbert was one of the premier miners of his generation. Educated at the School of Mines in Fairbanks, he mined placer gold deposits, sought metalliferous lodes, and served with distinction in several public roles. During early years of Statehood, he played a crucial role in the selection of Alaska's North Slope Lands. Later as DNR Commissioner, he revitalized the State land selection process.

**Rheinart M. (Rhiny) Berg:** Berg's strength and stamina were legendary during most of his 86 years of life. He worked as an underground miner in the Wrangell Mountains and Fairbanks districts, as a trapper and prospector, and he found the Bornite copper-cobalt deposit. He later developed the Candle placer district on the Seward Peninsula. He gained great wealth, which he mostly gave away.

Juneau, Spring 2007

### **Honoring an Outstanding Statesman and a Mine Attorney Active in Southeast Alaska's Mineral Industry**

**Phillip R. Holdsworth:** Phil Holdsworth's professional career extended nearly seventy years. He was a practical miner at the age of sixteen. Later he operated mines, assay labs, and mills. In World War II, he defended a Philippine mine as a guerilla warrior. After serving as Alaska's first commissioner of Natural Resources, Holdsworth became Alaska's elder natural resource statesman before his death in 2001.

**Herbert L. Faulkner:** H.L. (Bert) Faulkner's law career extended for almost seventy years. He was a sheriff, U.S. Marshall and attorney. He would represent almost every major mining company operating in Alaska during his lifetime.

Fairbanks, Summer 2007

### **Honoring Two of Alaska's Outstanding Mine Educators**

**Earl H. Beistline:** Earl Beistline had a distinguished career as mining educator at the University of Alaska in Fairbanks. Beistline brought to the classroom a unique blend of theoretical and practical knowledge in the field of mining. During all of his adult life, he has been a tireless and outspoken advocate of Alaska mining industry interests.

**Ernest N. Wolff:** Ernie Wolff was a notable personality on Alaska's mining landscape for more than sixty years. During this time he prospected, mined, taught and administered at the University of Alaska, wrote a classic book, *Handbook for the Alaskan Prospector*, and served on public bodies; all of this always in his unique style with a kind of gentle truculence.

Anchorage, Fall 2007

### **Honoring Those Involved in the Southwest Alaska's Quicksilver Mining Industry**

**Robert F. Lyman:** Besides operating small scale mercury lodes, he managed Alaska's largest mercury mine at Red Devil, Alaska, which, during the 1950s, produced nearly 20 percent of U.S. domestic requirements of the strategic metal.

**Wallace M. Cady:** Produced, with other USGS colleagues, 'The Central Kuskokwim Region, Alaska', a geological framework of a large, 5,000 mi<sup>2</sup> area centered on Alaska's premier mercury mining region.

**Russell Schaefer:** One of Alaska's 'tough guy prospectors' that accomplished much in the Kuskokwim Mercury Belt of southwest Alaska.

Fairbanks, Spring 2008

### **Honoring Three Attorneys and a Civic Minded Woman Important to the Interior Alaska Mining Industry**

**Luther Hess:** First rate mining lawyer and active mine developer in several interior Alaska gold camps. Helped organize the Alaska Miners Association (in 1939) and served as AMA's first President.

**Harriett Hess:** Worked with husband Luther on a variety of mining education issues and was a pioneer regent of the University of Alaska system. Worked as pro-development, pro-mining Democrats during the Roosevelt Administration.

**Earnest B. Collins:** Pursued a long and successful career in Interior Alaska as a placer miner, lawyer, Alaska Territorial legislator, and delegate to Alaska Constitutional Convention.

**John (Johnny) McGinn:** A smart mining lawyer who, with James Wickersham, cleaned up corruption in Nome and financed many small gold and silver projects in Interior Alaska and Yukon, Canada.

Anchorage, Fall 2008

**Honoring Two Engineers and a Prospector Who Helped Bring Success to the Kennecott Mines in the Chitina Valley of South-Central Alaska**

**Earl Tappen Stannard:** An innovative engineer at Kennecott’s Alaska mines, and later a CEO of Kennecott Copper Corporation.

**William Crawford Douglass:** A gifted mining engineer and exceptional manager at Kennecott’s Alaska mines.

**Reuben Frederick McClellan:** Organized the mining partnership that made the initial discoveries and negotiated the sales of the mineral claims that became the Kennecott mines in Alaska.

Anchorage, Fall 2009

**Honoring Four Pioneers Important to the Willow Creek Mining District**

**Robert L. Hatcher:** Began the lode mining boom in the Willow Creek district when he discovered gold-quartz veins on Skyscraper Mountain that later became part of the Independence group of mines.

**Orville G. Herning:** Instrumental in forming the east-coast based exploration group, Klondike and Boston Gold Mining Company and in forming the Willow Creek Mining district.

**Byron S. Bartholf:** Represents a large family group that was instrumental in the development of the gold lodes in the Willow Creek district.

**Walter W. Stoll:** An exceptional mine operator of the Independence gold mine, which became the largest gold producer (in ore tonnage) in the Willow Creek district.

Fairbanks, Spring, 2010

**Honoring two-civic-minded pioneers important to Interior and Western Alaska Development**

**John P. Clum:** Long after his involvement with the capture of Geronimo in Arizona, Clum established reliable postal service throughout Alaska—he became the Postal Inspector for the Alaska Territory.

**Irving McKenny Reed:** Notable Associate Mining Engineer for the Alaska Territory and pioneer of Nome; was chair of the Alaska Game Commission prior to WWII and the Territorial Highway Engineer prior to Statehood.

Anchorage, Fall, 2010

**Honoring Pioneers Important to the Seward Peninsula Gold Dredging Industry**

**Nicholas B. and Evinda S. Tweet:** Partners in marriage and mining, they created a family-owned firm that has mined gold in Alaska for more than 100 years.

**Carl S. and Walter A. Glavinovich:** Brothers who devoted more than 100 years of their collective lives to dredging in the Nome district, one of Alaska's Premier placer gold districts.

Anchorage, Fall, 2011

### **Honoring Two Pioneers Active in South-Central Alaska Mining and Economic Development**

**Martin Radovan:** A Croatian prospector who prospected the Chitina Valley for decades and found the high grade but also high altitude 'Binocular' copper prospect. He never made a mine but his dreams live on.

**Arthur Shonbeck:** He joined numerous stampedes during the Alaska-Yukon Goldrush and was an outstanding civic leader of Anchorage. He drowned with AMHF Inductee John Beaton in Ganes Creek west of McGrath.

Fairbanks, Spring 2012

### **Honoring Pioneers Important to the Mid-20<sup>th</sup> Interior Placer Mining Industry**

**Oscar Tweiten:** Arrived in Fairbanks during the Great Depression and mined on Cleary Creek in the Fairbanks for more than 50 years.

**Glen D. Franklin:** A gifted athlete who studied business administration at the University of Alaska in the 1930s; mined with others in Alaska and Yukon Territory.

**Donald Cook:** An Oregon-born graduate of the University of Alaska, who pursued career in education.

Anchorage, Fall, 2012

### **Honoring Pioneers Important to the Iditarod and Innoko Districts of Southwest Alaska**

**Merton Marston:** Indiana newspaper man who became wealthy as a result of grubstaking the discoverers of the Iditarod district—later managed hotels in the Pacific Northwest.

**Mattie 'Tootsie' Crosby:** Beloved personality in Flat, the center of the Iditarod district for more than 50 years—the only Afro-African who lived and worked in that district.

**Toivo Rosander:** Finnish immigrant who mined in the Ophir-Innoko area for early 70 years with wife Dyna and boys Ron and Ken. Managed to convince many skeptics about the value of placer mining.

Juneau, Spring 2013

### **Honoring Two Pioneers Important to Mineral Development in Southeast Alaska**

**Alexandre Choquette:** French Canadian prospector who began in the 1949 California Gold Rush and ended in the Klondike Gold Rush of 1896. At the time of his death, Choquette was a true north-country legend.

**John F. Malony:** Was important to early mineral development of Southeast Alaska—served as mayor of Juneau and helped form Alaska Electric Light and Power, Alaska’s first modern electric utility.

Fairbanks, Summer 2013

**Honoring an outstanding citizen, educator and placer mine expert**

- **Doug Colp:** Born and raised in Southeastern Alaska, Colp Became a Legendary Expert on Placer Mine Technologies, a UAF Educator, and, with his Wife Marcel, a Civic-Minded Resident of Fairbanks

Anchorage, Fall 2013

**Honoring Geologists from the U.S. Geological Survey**

- **Arthur C. Spencer:** Provided the first geologic descriptions of the Kennecott Mines in the Chitina Valley and authored a classic: USGS Bulletin 287—The Juneau Gold Belt in 1906.
- **Josiah E. Spurr:** Forged a career as a renowned economic geologist—and helped found the Society of Economic Geologists. Best known for his pre-Klondike adventure--*Through the Yukon Gold Diggings*.
- **Stephen R. Capps:** An outstanding regional geologist that specialized in the study of Alaskan placer gold deposits in glaciated areas. Was among the first to study strategic minerals.

Fairbanks, Spring 2014

**Honoring Three Early Mining Pioneers Important in the Alaskan Mining Industry**

- **‘Wise Mike’ Stepovich:** Self-educated Montenegren immigrant came to Fairbanks shortly after the 1902 discovery and mined gold on Fairbanks Creek for 40 years; his son Mike Stepovich II would be Alaska’s last territorial governor.
- **Helen Van Campen:** Had a remarkable career in Alaska that included equestrian sports, journalism and gold mining. Helen Van Campen Memorial Scholarship Fund at the University of Alaska-Fairbanks provides journalism students with funding to help start their careers.
- **Peter Petrovich Doroshin:** A Russian Mining engineer that discovered placer gold on the Kenai Peninsula in 1848; was a pioneer in investigating Alaska’s abundant coal resources.

Anchorage, Fall, 2014

**Honoring Three Pioneers Associated with the Kennecott Mines in Alaska**

- **Alan Mara Bateman:** Important Kennecott consultant at McCarthy; Editor of *Economic Geology* for more than five decades.
- **Edward M. MacKevett Jr.** Pioneer geologist of Kennecott deposits near McCarthy and Alaska’s premier mercury-antimony and REE-Th-U districts.
- **William H. Seagrave** Best known for his management skills in the early Kennecott mines of Alaska.



**Robert (Bob) Baker in Kotzebue, Circa 1950s**

### **Robert (Bob) Baker 1921-1968**

Robert (Bob) Baker was born in 1921 in the then wheat farming center of Windsor, Colorado and graduated from Windsor High School in 1939. He then attended Colorado College in Colorado Springs during 1940 and 1941. In 1941 Baker joined the United States Marine Corps and was deployed to the South Pacific. He was awarded the Purple Heart for wounds received on the island of Guam in 1944 and then honorably discharged that same year.

Baker came to Alaska in 1946. The family believes that his first interest in prospecting/minerals led him to enroll in a geology/prospecting course taught at the then University of Alaska, School of Mines, now the University of Alaska-Fairbanks. He moved to Kotzebue, Alaska as a U. S. Fish & Wildlife

Enforcement Agent in 1949. Following several years in that capacity, Baker then flew for Wien Airlines for several years during the mid-1950's and in 1964, with his wife Marjorie, founded Red Dog Flying Service based in Kotzebue. Baker Aviation was formally incorporated in 1967.

In 1957, Bob married Marjorie Rotman of Selawik in Kotzebue. The couple spent their honeymoon in Mexico.

Bob Baker was not only a professional pilot but also an amateur prospector and a keen observer of the changes in the landscape that he witnessed as it passed beneath the wings of his aircraft. On many of his flights he was accompanied by his dog, a red-colored Irish Terrier, O'Malley, and the source name of his prospecting entity, *Red Dog Mining Co.*

In the 1960's Bob became acquainted with USGS geologist Irv Tailleir who at that time was engaged in the geologic mapping of the DeLong Mountains quadrangle northwest of Kotzebue. Baker frequently flew in support of that mapping effort and in the course of a conversation with Tailleir, suggested that the geologist check out a very distinguishable red colored area in the Ikalukrok Creek drainage. Tailleir did in fact follow up on Baker's suggestion and sampled the outcrops along what was to become Red Dog Creek. The color anomalies were the surface manifestations of the giant Red Dog zinc-polymetallic deposit. He published the results of that sampling effort in a 1970 USGS open file report and you all know the rest of the story.

The Red Dog color anomaly first observed

by Baker in the 1950s. The sampled area studied by Talleur in 1968 came into production in late 1989 as the Red Dog Mine. The mine has produced continuously since that time and will do so for at least another 15+ years and is the major economic driver of the Region.

Bob Baker was killed flying a mercy mission to the village of Savoonga on St. Lawrence Island in March 1968 and was never aware of the results of his astute observations and recommendations to U.S. Geological Survey geologist Irv Tailleu.

Bob's widow Marjorie raised their seven children, four of which remain directly involved in the Red Dog mine. Marjorie ran Baker Aviation, the first woman to own and operate an airlines company in Alaska. A model business woman, Marge ran the air taxi and cared for every customer she served in Arctic Alaska. She was an active member of the Alaska Air Carriers Association; she also served on the Board of Directors of NANA Corporation, the Kotzebue Electric Association and was later

the station manager of Alaska Airlines in Kotzebue. Marjorie Baker died December 24th, 2011, while on holiday visiting her daughter and family in Punta Mita, Mexico.

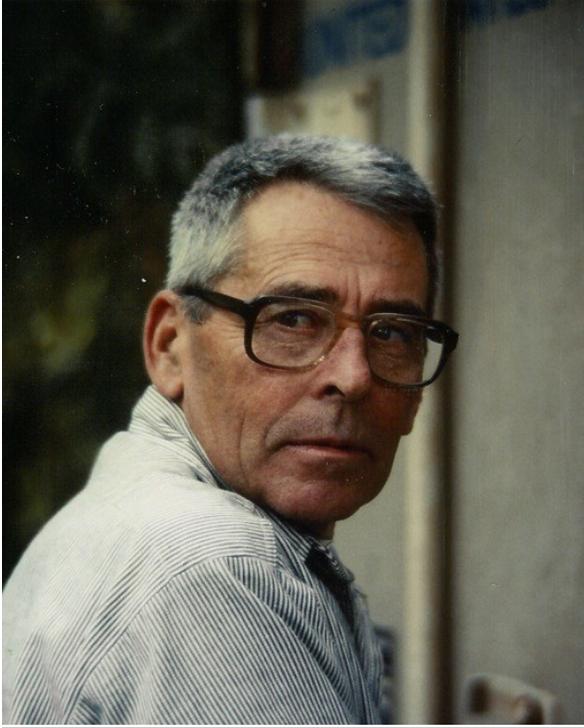
Daughter Lori Henry is the COO of NANA Regional Corporation, the owner of the mine. Son Mike is the General Manager for Tuuq Drilling LLC, the prime diamond drill contractor to the mine. Son John is a professional dog musher sponsored by the mine and the winner of the 2011 Iditarod Sled Dog Race. For many years, John has served as a motivational speaker for the youth of the NANA Region. Son Andy Baker remains involved with aviation in the Kotzebue area and has frequently served as a lobbyist for the Red Dog mine.

Bob Baker and his red dog O'Malley will always be key elements of the Red Dog story.

*Written by Paul S. Glavinovich, October 24th, 2015 using family recollections and unpublished sources from NANA Corporation*



**Bob Baker standing next to his Beechcraft D50 Twin Bonanza, circa 1967, about one year before his death.  
Photo Credit: Lori Henry**



*Irv Tailleir undated from Gil Mull collection*

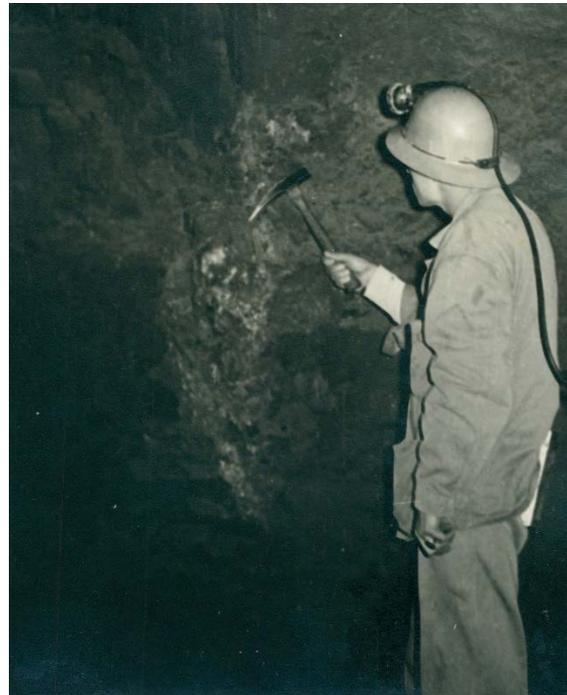
**Irv Tailleir  
1924-2004**

I. L. “Irv” Tailleir was born on June 20, 1924 and grew up in the Yakima area of central Washington. His parents were caretakers of the local dam near Selah, Washington and the rock exposures at the dam got his early attention. Being an avid boy scout, Irv obtained a merit badge in geology and cemented his dedication to becoming a geologist.

He graduated from high school in 1942 and went off to university at Harvard the next fall. In 1943 he transferred to Cornell University where he completed his undergraduate studies in 1945. This is also the year he married his high school sweetheart, Mary. He continued studies at Cornell from 1946 to 1948 and obtained his M. S. in Geology in 1948. In 1951 he spent a semester at George Washington University studying economics and from 1951 to 1953 he took graduate courses in geology at Stanford University.

Irv’s initial professional work was in economic geology. While in graduate school he studied the structure and stratigraphy of base metal deposits in the Bay Horse district, Custer County, Idaho during the 1946 and 1947 field seasons. In 1948, fresh out of graduate school at Cornell, he became a mine geologist at International Nickel Company of Canada, Ltd.’s Carson Mine (Sudbury district). As Irv described it, he was responsible for mapping, sampling, and estimates of grade, production, and reserves for about 50 working faces (including development headings, square set, cut and fill and shrinkage stopes) or about one fourth of the mine’s workings. Irv logged core from throughout the mine.

Irv’s experience as a mine geologist was short (June 1948 to March 1949). He must have been casting about for other opportunities and the one that soon came up set in motion and long and productive Alaskan career that included discovery of the Red Dog deposits.



*Irv Tailleir examining mineralized zone, Carson Mine, Sudbury, Canada circa 1948*

In March 1949 he joined the U. S. Geological Survey as an assistant geologist on the team studying the stratigraphy and structure of Naval Petroleum Reserve #4 (NPR-4 or just Pet 4) which is now National Petroleum Reserve in Alaska (NPPRA). Bill Patton was his project chief and for the next several years extensive field studies were carried out, especially in the foothills of the central and western Brooks Range. This was the beginning of a long and dedicated effort by Irv to understand the geology, evolution, and resources of the Brooks Range and North Slope.

In the Pet 4 projects early days, before the advent of helicopters, field transportation was by small fixed wing aircraft, small track vehicles (“weasels”), boats floating down rivers, and a lot by foot. As a result of this initial work, Bill Patton and Irv authored the first regional map and report on the stratigraphy and structure of the northern Endicott Mountains and foothill in the vicinity of Anaktuvuk Pass (Geology of the Killik-Itkillik region, Alaska; USGS Professional Paper 303-G, 1964).

In the process of these early investigations, they named many of the geographic features that are in common use today and shown on the topographic maps of the area. This was the beginning of the acquisition of a very large amount of detailed data that became packed into Irv’s brain. He had an amazingly complete memory of outcrop details, even outcrops visited once many years previously. The advent of helicopter use for fieldwork in the 1950s enabled him to further expand his knowledge into an encyclopedia of the details of the geology of the western Brooks Range.

It was inevitable that Irv’s and Bob Baker’s paths would cross. Irv needed fixed-wing support for his extensive field studies and Baker was the pilot who provided a lot of it. While flying, Bob’s sharp prospecting eye helped him identify anomalous features on the ground that could be related to mineral deposits. The rusty weathering areas and iron-stained creeks of the Red Dog area that he observed were not accessible to him (due to a lack of fixed-wing so he encouraged



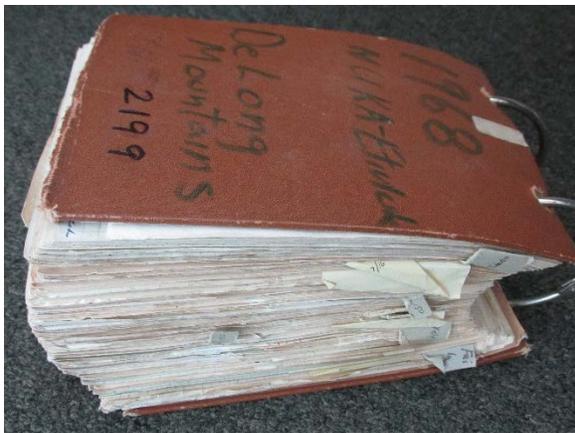
***Red Dog Creek prior to the development of the Red Dog Mine, circa 1975. Photo by Jerry Booth***

Irv to examine them for their mineral potential if the opportunity arose during parts of Irv's helicopter-supported field work. Irv finally got this opportunity in 1968.

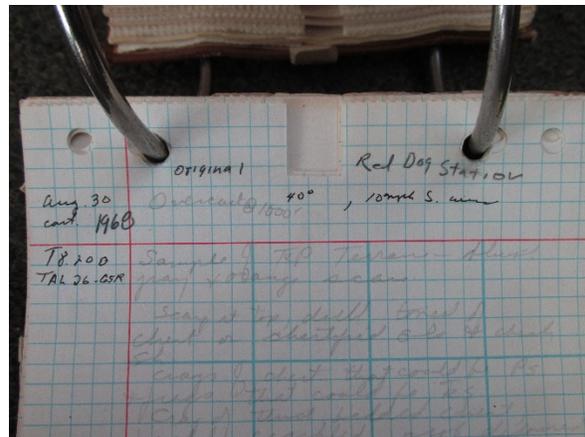
As Irv was conducting a reconnaissance helicopter traverse in the western DeLong Mountains, one of his landing sites was near an iron-stained creek brought to his attention by Bob Baker. He decided to examine this creek and hurriedly traversed down a spur from the landing site. He examined and described the rocks along this foot traverse and collected a suite of eight rock samples for semi-quantitative spectrographic analysis. In the creek, he collected one stream sediment sample for analysis as well. In the rocks, lead levels exceeded 0.5% (up to greater than 2%), zinc levels reached 1% or more in two samples, and barium ranged from 0.1% to greater than 0.5% (Irv megascopically identified barite in these samples). The stream sediment sample contained greater than 10% lead, 0.2% zinc, and greater than 0.5% barium. These sample results became the foundation of an open-file report Irv published in 1970.

Irv's 1970 report (Lead-, zinc-, and barite-bearing samples from the western Brooks Range, Alaska; U. S. Geological Survey Open-File Report 70-319, 16 p.) was timely and helpful in several ways. His description of the rocks he walked over on his way down to the creek read as though they came directly from his field notes ... "The lower outcrops and talus consist of moderately thick-bedded black chert and brownish-gray impure chert which produces dark colored and silvery gray slopes and scars".

Irv's field notebooks are a treasure chest of detailed observations. He augmented them with photographs and other data such as fossil reports and topo maps showing station locations that he reduced and pasted directly in them. The notebooks he created are exceptional records of his work and are still available for review at the USGS's offices in Anchorage. These archives are the direct descendent of the Alaska Technical Data Center that Irv's wife Mary diligently managed for many years in Menlo Park, California. The field notebooks now in Anchorage are now accompanied by a digital file



**Example of Irv Tailleux's field notes, which included fossil reports, stratigraphic sections, photographs, and field observations. Photo courtesy of Jill Schneider, USGS**



**Start of notations of mineralized samples taken at Red Dog outcrops, August 30th, 1968. Photo courtesy of Jill Schneider, USGS**

of geographic coordinates for each of Irv's field stations. Although these were digitized directly from his paper field station maps (not stable bases) they enable potential uses to recreate his traverses and place his observations in a geographic context.

The 1970 open-file report also includes a discussion of the geologic setting and possible origin of the newly discovered mineralization at Red Dog. He correctly surmised that deposits were syngenetic in origin and suggested that the lead, zinc, and barite deposits of Meggan, Germany were appropriate analogs. Having just briefly examined one iron-stained creek, which he named Red Dog Creek (in the 1970 report) after Bob Baker's Red Dog Mining Company (in turn named after Bob's faithful companion O'Malley, a red dog). Irv knew that other areas of similar appearance could be equally or even more important. So, on his map (Figure 1 of the 1970 report) he identified the location of several other areas of similarly colored soils, limonitic-stained creeks, and "blueish-gray slopes suggesting the same rock or stratigraphic interval as at the sample locality". Although these areas indicated the weathering of sulfide mineral concentrations, Irv also cautioned that they need not all reflect the same type of deposit. To this point he shared analytical data for samples collected from Ferric Creek in 1955 (also called Ferrous Creek some places in the 1970 report) that contained negligible base metal and barium contents. Ferric Creek is an area where iron-sulfide layers and disseminations led to iron staining and discoloration of the creek.

Irv appreciated that his and the reader's understanding would benefit from contributions by others with different skills and expertise. This is why he talked Don Eberlein and Don's lab assistant Ray Wehr into contributing a separate petrography and mineralogy section in the 1970 open-file report.

Don was an expert with the optical microscope and routinely checked his mineralogy calls with the x-ray diffractometer. Don and Ray's work verified the host lithologies and the ubiquitous presence of barite in the heavily iron-stained samples. They also focused on understanding the very strong stream sediment anomaly and showed that this sample contained sphalerite and an abundant lead- and iron-bearing oxidation product that they provisionally identified as plumbojarosite.

Irv didn't stop there in his efforts to better understand the Red Dog deposits. Because of land status changes that removed the immediate Red Dog Creek area from staking for a few years and a general lack of interest in the 1970 report results, explorationists did not immediately follow-up on the new data reported by Irv and his colleagues. As late as 1974, Irv was actively soliciting help in studying the new discovery. For example, he invited State geologists Milt Wiltse and Tom Bundtzen to examine the Red Dog area with him. Milt and Tom were studying the Arctic deposit during the 1974 field season and wanted to follow up on Irv's invitation to visit the Red Dog area with him. Unfortunately eight of the ten days they had a helicopter that fall were not flyable due to weather conditions. They didn't make it out west to visit Irv and many times over the years Tom has wondered how his career might have developed if the weather had cooperated that summer. Irv knew Red Dog was important and Tom and Milt would have recognized this too.

As important as Red Dog is, Irv's major commitment was to understanding the Brooks Range. Although others had observed the presence of thrust sheets in the western Brooks Range, Irv was the first to define and map them. He observed stratigraphic differences between thrust sheets and collected evidence that demonstrated they constituted far-travelled rock assemblages, now called allochthons, that represent

several hundred miles of crustal shortening. This superposition of far-travelled allochthons was documented in his suite of detailed field maps of the Nuka-Elivluk region of the eastern DeLong Mountains (USGS Open-File Report 66-128) for which his wife Mary did much of the drafting. This was the beginning of a wealth of ideas he conveyed, mostly through talks and discussions at meetings and in one-on-one conversations with anyone interested in the Brooks Range and North Slope. For example, Irv modified S. Warren Carey's ideas on large-scale continental rotation and formation of oroclines, and he was the first to suggest that northern Alaska down to the southern flank of the Brooks Range has rotated away from the Canadian Arctic Islands to form the Canada Basin.

Irv was known for his firm convictions, questioning of models, and favorite saying – “except in the Brooks Range”. He vigorously defended his geological convictions – in camp often with a cup of strong coffee laced with Hudson Bay 151 proof rum – and took great delight in his apocryphal business card, which read: Irv Tailleur, Recalcitrant SOB. On one occasion, after making the classic statement “If



***Irv Tailleur and his 'Except in the Brooks Range' T-Shirt, circa 1976. Photo courtesy of G. C. Mull***

that's greywacke, I'll eat it” he followed through, grinding up said greywacke to spread with peanut butter on pilot biscuits. His apparent delight with this occasion is evidenced by the discovery after his death of a labeled sample of this greywacke in his rock collection.

Another example of Irv's willingness to face up to new data or observations comes from an encounter Lorne Young (a Cominco geologist who came to understand the DeLong Mountains and Brooks Range well) had with Irv in the field. This is how Lorne recalls it:

*“I worked with Irv in the field several times and even visited with him at his office. This is when I was a young brash geologist and Irv was an old brash geologist! One day in my early career, I took Irv to an area on the east side of Deadlock Mountain (very close to the Red Dog Mine) to explain that he had miss-mapped Early Cretaceous sandstone as Devonian sandstone. He was extremely skeptical, and as soon as he got out of the helicopter and glanced at the rock formation he declared me wrong. He then picked up a sample of the formation and ten seconds later, he declared me right.*”

*And this is what made Irv great. At once, he presented himself as confident, and all-knowing; yet with a single observation of definitive geological evidence he could change his opinion at a moment. He was never dogmatic; always curious, open-minded and concerned if his model of the western Brooks Range was correct. And I can say, that after working his old stomping-grounds over a period of four decades that Irv was largely correct, and that any improvements I may have contributed to his studies are because I stood upon his great shoulders”*

Irv was always interested in understanding the resource implications of his work and in 1978, after Pet 4 was transferred to the Department of



***Irv Tailleir making (and later consuming) greywacke sandwich after losing a geological argument; circa 1976 Photo by G.C. Mull***

the Interior and became NPRA, Irv got to apply his many years of experience and knowledge to guiding exploration on this part of the North Slope. He is probably very responsible for the unusually numerous cores that were taken for paleontology, geochemistry, and even paleomagnetism, in addition to typical reservoir cores. During this same time, he led the field parties that mapped much of the DeLong Mountains and produced, along with his younger colleagues Chuck Mayfield, Inyo Ellersieck, and Steve Curtis, a series of outstanding 1:63,360-scale color geologic maps.

Not satisfied with study of mineral and hydrocarbon resources, Irv also publicized the enormous coal resources of the North Slope. In another short publication, he reported the existence of a nearly complete skeleton of an *Ichthyosaur* in a remote part of foothills to the Endicott Mountains.

Nearly 30 years later, in 2002, this fossil was recovered through the efforts of the University of Alaska Museum of the North in Fairbanks.

After a 1985 AAPG seminar on the geology of the North Slope, Irv and Paul Weimer were editors of a major two-volume work (North Slope Geology, 1987) published by the SEPM and the Alaska Geological Society. This work contains most of the papers and abstracts presented at the seminar and Irv was a major driving force in getting it published. He and his wife Mary personally funded a significant amount of the secretarial work and drafting. Irv personally did many of the paste-ups and included numerous interesting space-fillers between papers. This is a work that needs to be in every North Alaska library.

After retiring from the USGS in 1989, Irv and Mary moved from Menlo Park, California to Sequim, Washington. Here, he maintained an office with his extensive files, maps, field notes, and rock collections. Anyone interested was welcomed by Irv and Mary and those making a trek to Sequim to visit and discuss geology with Irv were richly rewarded. Irv never stopped being committed to helping understand northern Alaska. He died August 27, 2004, at the age of 80, after a long struggle with emphysema.

*Written by Travis Hudson, October 22nd, 2015, Sitka, Alaska*

Acknowledgements: This compilation includes significant parts of memorials written by Gil Mull and Paul Weimer soon after Irv's death. Contributed here are amplifications of Irv's involvement with economic geology, his role in the discovery of Red Dog, and his continued interest in understanding Red Dog. Contributions from geologists Marti Miller, Jill Schneider, Julie Dumoulin, George Plafker, Gil Mull, Jerry Booth, Lorne Young, and Tom Bundtzen and Irv's and Mary's daughter Jacque DeBell were appreciated.



*Irv and Mary Tailleir in retirement in Sequim, Washington Photo by Jacque DeBell*



*Irv Tailleir and Gil Mull in the DeLong Mountains, near the Red Dog prospect area, circa 1975.*

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*Don S. Rae undated. Photo credit: Dan Carney*

## **Don S. Rae 1864-1924**

Don Rae was a prospector, miner, assayer, and promoter who was at home throughout the west: Arizona, Oregon, Montana, Nevada, several districts in Alaska, perhaps more successful than many, but never wealthy. Rae lacked the wealth generation capacity of other better known North Country pioneers; never-the-less, he represented a multi-faceted and successful, western mining entrepreneur active during the Alaska-Yukon Gold rush period and even earlier in the American West.

In 1914, Rae began a prospecting venture with Frank and Alonzo Wells, who had discovered

Rae was of Scottish decent, and born in Montreal, Canada, June 25, 1864. He naturalized as a U.S. citizen in Colorado in 1879. He moved often but stayed long enough to accumulate potential and establish a mining reputation.

Rae's early years have not been traced. He had acquired a lease on one of the substantial veins of the richly endowed Bi-Metallic Mine in the Philipsburg District, Montana in 1899. In 1901, he bought and operated the Klondike Mine at Grants Pass, Oregon.

His Alaska career began in 1903 when he departed Dawson City, Yukon Territory via the Porcupine District (Haines) near the Dawson Trail, and arrived in Juneau where he acquired a lease option on the Humbolt Mine. From 1904-1907, Rae acquired claims and water rights in the Humbolt, Jualpa, Reliance, Recine and Ebner mines in the Juneau and Porcupine districts. Rae may have worked in the Treadwell mine group on Douglas Island as he was called into court as an expert witness for the defense in a lawsuit concerning the deaths of several miners in the Treadwell mines.

From 1908-to-1910, returned to the American southwest and acquired numerous claims near Yuma, Arizona, including the area around near the North Star and Golden Star Mines near Castle Dome. Later in 1910, He was an assayer at the Buckhorn Mine at Eureka, Nevada.

By 1913, Don Rae had returned to Alaska to work in mines in the Hatcher Pass area, where he would spend much of the remainder of his career; he is mentioned in the diary of the Knik-Wasilla pioneer--Orville Herning in 1913. Rae operated a fire assay laboratory for miners and prospectors in Knik.

From 1920-to-1923, Don Rae reached the peak of his activities in the Willow Creek (Hatcher Pass)

what became the Golden Zone mine in Broad Pass district southeast of Cantwell. His original investigations included the Gold Dollar and Bluff Numbers 1 and 2, which cover important portions of the Golden Zone system. In 1915, Rae revisited the Broad Pass area, where he worked the Golden Zone Extension #3 property. Rae is pictured with the Wells brothers in an article and photograph published in a Butte, Montana newspaper.

The Rae-Wallace Mining Company was incorporated in Wallace, Idaho to operate in the Willow Creek (Hatcher Pass) mining district of south-central Alaska. The company proposed to develop eleven claims, including the Sun, Morning Star, Moon and Evening Star, which were acquired from well-known district miner William Martin, while locating seven additional claims. During mine development, Don Rae purchased lots in Wasilla town site and built a house.

From 1918-to-1919, Don worked at an Alaska Railroad pump station at Montana Creek south of Talkeetna. He also did some contract work for the Jonesville Coal Mine near Sutton.

mining district. In 1920 and 1921, he formed the Alaska Willow Creek Mines Development Company; the goal was to develop lodes and placers in the area. He located the Rae Group and Colorado #1 claims in the district. At the same time, he again resumed employment in the Jonesville Mine near Sutton until a fire and flood caused operations to temporarily cease there. He began to prospect with Paddy Marion and told Orville Herning that he had started a new company—the Virginia Mining Company.

What Rae is best known for during this latter period of activity was his compilation map of the Willow Creek Mines, a copy of which can be found in the Anchorage Museum archives. Future government economic geologists used his very useful compilation during their subsequent investigations.

By June, 1923, Don S. Rae was in poor health. He received medical assistance in Anchorage, where he was diagnosed with Pulmonary Tuberculosis. At the recommendation of hospital staff, he traveled to Seattle for further treatment. In Washington State, his condition progressively worsened and he signed over his mineral estate to long time fellow prospector and friend William Martin. In 1924, Don S. Rae passed away in Pocatello, Idaho.

*Compiled by Charles C. Hawley, Dan Carney, and T.K. Bundtzen October, 29th, 2015*

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The Alaska Mining Hall of Fame Foundation was incorporated as an Alaskan non-profit corporation on April 27, 1997. The Foundation was organized exclusively for educational and charitable purposes, including donations to organizations that are tax exempt under Section 501(c)(3) of the federal tax code. On September 17, 2003, the IRS confirmed the 501(c)(3) status of AMHF, and further categorized the organization under codes 509(a)(1) and 170(b)(6).

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