

# The PAYSTREAK

Volume 16, No. 2, Fall-Winter, 2014

The Newsletter of the Alaska Mining Hall of Fame Foundation (AMHF)

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## Alaska Mining Hall of Fame Foundation New Inductees

### AMHF Honors Three Pioneers Associated with the Kennecott Mines in Alaska



**Alan Mara Bateman:** After working for more than half a century as the editor of the journal *Economic Geology*, Yale University Silliman Chair Alan Mara Bateman died at his home in New Haven, Connecticut in 1971 at the age of 82. His in-depth understanding of the Kennecott-type copper-silver deposits in the Wrangell Mountains of south-central Alaska formed the foundation of a new mineral deposit type. Bateman's recommendations to decision makers were important to the early success of Alaska's 'home grown' Kennecott Copper Corporation. During World War II, Alan served as Director of the U.S. Metals and Minerals Branch, which was in charge of insuring that strategic and critical minerals were secured for the nation's war effort.



**Edward M. MacKevett, Jr.:** Renowned U.S. Geological Survey geologist and minerals consultant Edward M. MacKevett, Jr., passed away in Reno, Nevada on December 29, 2006. He is best known in Alaska for his pioneering work at the Bokan Mountain U-REE deposit, the Red Devil mercury-antimony district, mineral resource investigations in Glacier Bay National Monument, and especially, his work on the Kennecott-type copper deposits in the Wrangell Mountains. Alaskans involved in both regional geology and mineral resource analysis today honor the memory of this humble man for helping answer how and where many of Alaska's important metallic mineral resources occur today.



**William H. Seagrave:** Best known for his skills as a mine manager both in the United States and abroad, Seagrave oversaw Kennecott Copper Corporation mines in Alaska during their start-up periods, both in the Wrangell Mountains and in Prince William Sound. During the first six years of operations, Seagrave was the general manager of Kennecott's mines near McCarthy, where his trouble-shooting and excellent employee relationships resulted in a successful mine plan for others to follow. He established a similar work environment at the Beatson Mine. After Seagrave left Kennecott in 1916, he continued Alaskan work at the Chichagoff mines near Sitka, before his death in 1929.

**Co-sponsored by the Alaska Miners Association  
Alaska Mining Hall of Fame Foundation (AMHF)  
Induction Ceremony, Thursday, November 6, 2014  
Dena'ina Civic and Convention Center, Anchorage, Alaska**

**Program**

**The general public is invited to attend the Alaska Mining Hall of Fame Foundation (AMHF) induction ceremony from 7:00 to 9:00 PM on Thursday, November 6, 2014. The induction ceremony will take place in the Kahtnu (Kenai) Room #1 of the Dena'ina Civic and Convention Center at 660 West Seventh Avenue, Anchorage, Alaska.**

**There is no charge for admission. Refreshments will be served.**

**Coffee and Donuts.....6:30-7:00 PM**

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

**Presentation of Inductees**

Alan Mara Bateman..... 7:15-7:40 PM

Edward Malcolm MacKevett, Jr..... 7:40-8:05 PM

William H. Seagrave..... 8:05-8:30 PM

**Coffee Break..... 8:30-8:45 PM**

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

**Adjournment..... 9:00 PM**

## Introduction, Acknowledgments and Announcements

The November 6, 2014 inductees into the Alaska Mining Hall of Fame Foundation (AMHF) are three pioneers associated with the Kennecott copper mines in Alaska. The three offer distinct contrasts in their respective professional careers.

Yale University graduate Alan Bateman arrived in McCarthy, Alaska in 1916 as a mine consultant for Kennecott President Stephen Birch. Bateman provided mine management with sound geological reasoning that led to the acquisition of the Mother Lode Coalition Mine in the Kennecott district. In 1920, along with his student, Don McLaughlin, Bateman published a classic paper on the Kennecott copper-silver deposit in the journal *Economic Geology*, a paper that is still relevant today. Bateman is best known to many exploration geologists as the man who was the chief editor of the journal *Economic Geology* for more than 50 years, a reign that lasted until 1970, ending shortly before his death.

Edward M. MacKevett, Jr. was a renowned U.S. Geological Survey economic geologist who studied Alaska's diverse geology and mineral deposits for more than 30 years - beginning at Statehood. He made important contributions at the Bokan Mountain uranium-thorium-rare earth element deposits near Ketchikan, in the Red Devil district of southwest Alaska (now a part of the Kuskokwim Mineral Belt), and throughout southeastern Alaska, but his most important achievements were his studies of the Kennecott copper-silver deposits in the Wrangell Mountains for which MacKevett is perhaps synonymous. Ed's framework geologic mapping in the McCarthy quadrangle has contributed heavily toward understanding the large scale tectonic framework and geological evolution of a large region of southern Alaska.

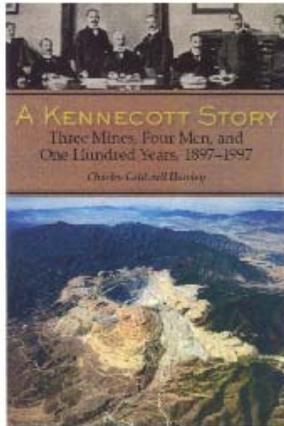
After William H. Seagrave received a mining engineering degree at the University of Nevada, he spent his life in the private sector, holding management positions in metal mines in South Africa, Nevada and Alaska, where he was enlisted by the Guggenheims to help with respective start-up operations. His contribution to Alaska's Kennecott operations was his hands-on approach to management, which would set the stage for successful operations well into the 1930s.

This induction ceremony is a continuation of the AMHF recognition of pioneers important to the Kennecott mines. In 2007, the AMHF inducted the pioneering Kennecott prospector Reuben McClellan, mine manager William C. Douglas, and mine executive Earl T. Stannard. Their biographies and a brief history of the Kennecott mines are presented in Volume 10, No. 2 of the AMHF *Paystreak*.

Tom Bundtzen wrote the biographies of Alan Bateman and Edward MacKevett. The editor of this *Paystreak* newsletter (Bundtzen) constructed the biography of William Seagrave from materials published in *Wesley Earl Dunkle - Alaska's Flying Miner*, by Charles C. Hawley. The publisher of Hawley's book is the University of Alaska Press. The AMHF thanks Travis and Patti Hudson, George Plafker, Charles C. Hawley and Brian Skinner for their reviews of the biographic materials presented here, and Tina Laird for her assembly of this *Paystreak* newsletter.

## Announcement of Kennecott Book Release

AMHF Honors Committee Chair, Charles C. Hawley, will soon be releasing a book: *A Kennecott Story - Three Mines, Four Men, and One Hundred Years 1897-1997*. This narrative summarizes the history of the Kennecott Mining Corporation, from its routes here in Alaska to its position as the world's largest copper producer. Anyone interested in Alaska's mining history should acquire this book. The book should be available for purchase by the end of the year.



"I know of no book that attempts to do what this volume does. This is a major contribution to the field of mining, mining history, the history of the American West, the history of copper production, and economic history."  
—Richard Sadler, professor of history, Weber State University

"A significant contribution. Placing the story of this company's development and impact into broader national and international patterns will have value transcending the immediate."  
—John Sillitto, Professor Emeritus of Libraries, Weber State University, Ogden, Utah

### A Kennecott Story

Three Mines, Four Men, and One Hundred Years, 1897-1997

Charles Caldwell Hawley

While copper seems less glamorous than gold, it may be far more important, as it was vital to the industrial revolution and indispensable for electrification. Kennecott Copper Corporation, at one time the largest producer of copper in the world, played a key role in economic and industrial development. This book recounts how Kennecott was formed from the merger of three mining operations (one in Alaska, one in Utah, and one in Chile), how it led the way in mining technologies, and how it was in turn affected by the economy and politics of the day.

As it traces the story of the three mines, the narrative follows four mining engineers—Stephen Birch, Daniel Cowan Jackling, William Burford Braden, and E. Tappan Stannard—self-made men whose technological ingenuity was responsible for much of Kennecott's success. While Jackling developed economies of scale for massive open-pit mining in Utah, Braden went underground in Chile for a copper-caving operation of unprecedented scale. Meanwhile, Birch and Stannard overcame the extreme challenges of mining rich ore in the difficult climate of Alaska and transporting it to market. The Guggenheims, who brought these three operations together, provided the funding without which the infrastructure necessary for the mining operations might not have been built.

As a geologist with first-hand knowledge of mining, author Charles Hawley describes the technology behind the Kennecott story in a way that both specialists and the general reader will appreciate. He places Kennecott and the copper industry within their historical context and allows the reader to consider the controversial aspects of mineral discovery and sustainability.

Charles Caldwell Hawley has had a long career as a geologist. After working for the USGS, he moved to the private sector, eventually forming his own consultant company for the mining industry. Hawley has served on national and state land-use advisory councils and ~~today~~ is director of three public mining companies. He is the author of the book *Wesley Earl Dunkle: Alaska's Flying Miner*.

336 pp., 6x9  
54 b/w photos, 8 maps  
Cloth 978-1-60781-369-9  
\$36.95

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

On July 18, 2013, the Alaska Mining Hall of Fame opened a museum at 825 1<sup>st</sup> Avenue in downtown Fairbanks. The 2000 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 is easily accessible from downtown Fairbanks. The AMHF is leasing the facility from Fairbanks historian Candy Waugaman.

This year (2014), the museum was open from 11:00 AM to 5:00 PM from May 25<sup>th</sup> through September 20<sup>th</sup>. We had nearly a thousand visitors from nearly 35 states and 15 foreign countries visit the facility during the four month season. With volunteers from organizations such as Santa's Seniors (North Pole), we were 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. We closed the doors for the season on September 20<sup>th</sup>. Although now closed to the public, the museum will be open to educators bringing students from area schools and for special functions.

During the winter of 2013-2014, the museum was opened a few times, including for the first annual AMHF Christmas Party, for a visit by attendees of the Society of Economic Geologists field trip, and for an event by *Opera Fairbanks*, who designed the opera 'Good as Gold' given March 14 - 16, 2014 in Fairbanks.

The museum is designed to honor the 100+ pioneers who have been inducted since 1997. The inductees are arranged through time, featuring 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, 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 to those who were 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. Back issues of *The Paystreak* newsletter are available for sale, and we also offer mining history books that specifically feature AMHF pioneers. In addition, we now have AMHF coffee mugs and T-shirts available for purchase.

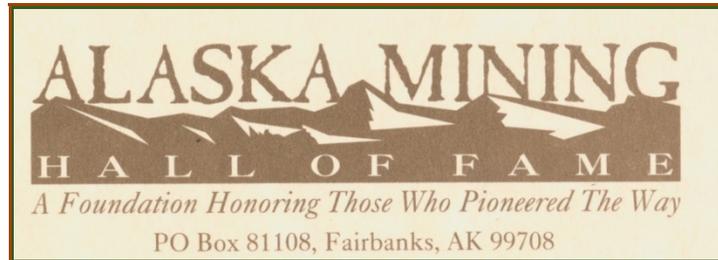
The museum opening and continued operations have thus far been made possible from various income sources acquired by the AMHF - a non-profit organization. Donations are graciously accepted. More information concerning this organization appears on our website: [www.alaskamininghalloffame.org](http://www.alaskamininghalloffame.org)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



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

Features:

- Back and current issues (from 1997 to present) of *The Paystreak* newsletter, which provides biographic sketches of AMHF inductees.
- Plaques with biographies and numerous photos and narratives that describe Alaska's mining history.
- A store, with AMHF coffee cups and T-shirts, and mining history books that specifically feature AMHF inductees.
- 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 its 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

## **Notice on Pick.Click.Give Program**

Since 2012, the Alaska Mining Hall of Fame Foundation (AMHF) has been eligible to participate in the Alaska Permanent Fund Dividend (PFD) program *Pick.Click.Give*. The AMHF is included in a list of educational organizations, community foundations, and charitable organizations that are eligible to receive charitable contributions as designated by PDF applicants on the electronic permanent fund dividend application. The AMHF is again eligible for 2015.

We encourage Alaskan residents interested in Alaska's mining pioneers to contribute to this effort. It helps the AMHF cover the organization's day-to-day expenses.

Regardless, thanks much for your support!

## Previous Inductees, Alaska Mining Hall of Fame

### *National Mining Hall of Fame Inductees*

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.

### *Alaska Mining Hall of Fame Foundation Inductees*

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” grubstaker for prospectors.

**Arthur Harper:** Well known and respected trader and prospector and promoter of the Yukon.

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

**John Minook:** Creole-Athabaskan 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 who 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 Mining 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 in Alaska, and became the Postal Inspector of the Alaska Territory.

**Irving McKenny Reed:** Notable Associate Mining Engineer for the Alaska Territory and a pioneer of Nome; was Chair of the Alaska Game Commission prior to World War II and the Territorial Highway Engineer just before Alaska Statehood.

Anchorage, Fall, 2010

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

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

**Carl S. and Walter A. Glavinovoch:** A pair of brothers who, collectively, devoted more than one hundred years of their lives to the prospecting, deciphering, drilling, thawing, and dredging of the Nome, Alaska placer gold fields.

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 altitude Binocular copper prospect. He never made a mine, but his dreams live on.

**Arthur Shonbeck:** He joined numerous mining stampedes during the Alaska-Yukon gold rush, and became an outstanding business leader in Anchorage, Alaska, where he helped found Providence Hospital. He drowned in Ganes Creek, west of McGrath, Alaska, while on a trip with AMHF inductee John Beaton, the man who discovered Iditarod.

Fairbanks, Spring, 2012

### **Honoring Pioneers Important to Mid-20th Century Interior Alaska's Placer Mining Industry**

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

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

**Donald Cook:** An Oregon born graduate of the University of Alaska, who pursued a long career in both mining and in education.

Anchorage, Fall, 2012

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

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

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

**Toivo Rosander:** A Finnish immigrant, who mined in the Ophir-Innokko area for nearly 70 years with his wife, Dyna, and sons, Ron and Ken. He managed to convince many skeptics about the value of the placer mining culture.

Juneau, Spring, 2013

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

**Alexandre Choquette:** A French-Canadian prospector who began in the 1849 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 in southeast Alaska. He served as the 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 southeast 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 United States 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 who specialized in the study of Alaska placer gold deposits in glaciated areas. Was among the first to study strategic minerals in Alaska.

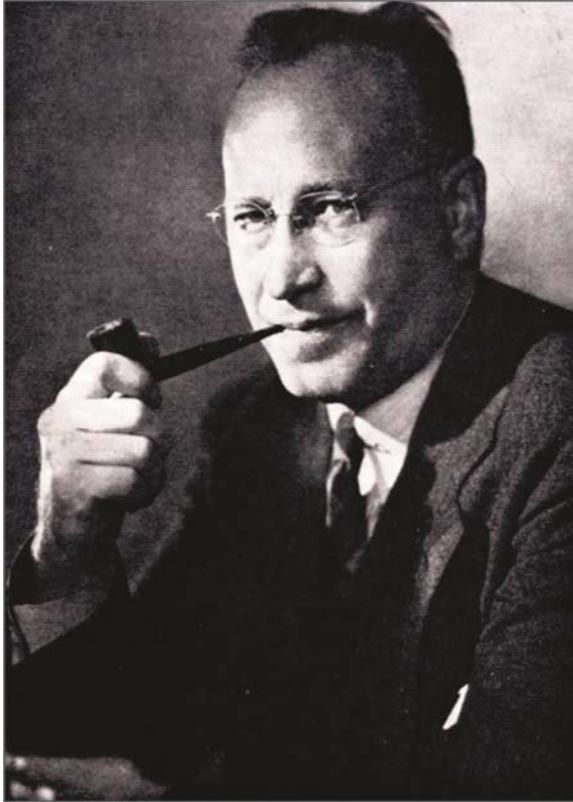
Fairbanks, Spring, 2014

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

**'Wise Mike' Stepovich:** A self-educated Montenegrin immigrant who came to Fairbanks shortly after the 1902 gold discovery and mined gold on Fairbanks Creek for 40 years. His son, Mike Stepovich II, became Alaska's last territorial governor.

**Helen Van Campen:** She had a remarkable career in Alaska that included equestrian sports, journalism and gold mining. The Helen Van Campen Scholarship Fund at UAF provides journalism students with funding to help start their careers.

**Peter Petrovich Doroshin:** A Russian mining engineer who discovered placer gold on the Kenai Peninsula in 1848. He was also a pioneer in investigating Alaska's abundant coal resources.



Alan Mara Bateman, undated. Photo from the Mining Engineering Magazine, 1964.

### **Alan Mara Bateman (1889-1971)**

After working for more than half a century as the editor of the journal *Economic Geology*, Alan Mara Bateman died at his home in New Haven, Connecticut, at the age of 82. Thus ended more than 60 years of highly competent and devoted service to the field of economic geology, the mining industry and to his country. His in-depth understanding of the Kennecott-type copper-silver deposits in the Wrangell Mountains of south-central Alaska formed the foundation of a new ore deposit type in the field of economic geology. Bateman's recommendations to Kennecott's decision makers, including Alaska Mining Hall of Fame inductees Stephen Birch and Earl

Tappen Stannard, were important to the early success of Alaska's 'home grown' Kennecott Copper Corporation, which would become the world's largest copper producer by the mid-20<sup>th</sup> Century.

Alan Bateman was born on January 6, 1889, in Kingston, Ontario, one of four children from the family of George Bateman and Elizabeth Mara Bateman. Alan was given the same middle name as his mother. Alan's father whetted his children's interest in practical knowledge, and taught Alan carpentry, plumbing and wiring skills before he was ten years old. Alan's father was also an ardent outdoorsman, and taught Alan expert camping and sport fishing skills while the family spent time at their summer home in the Thousand Islands, an archipelago of more than 1,800 islands that straddles the Canada-U.S. border in the Saint Lawrence region. Memories of these early outdoor experiences would give Alan pleasure for his entire life.

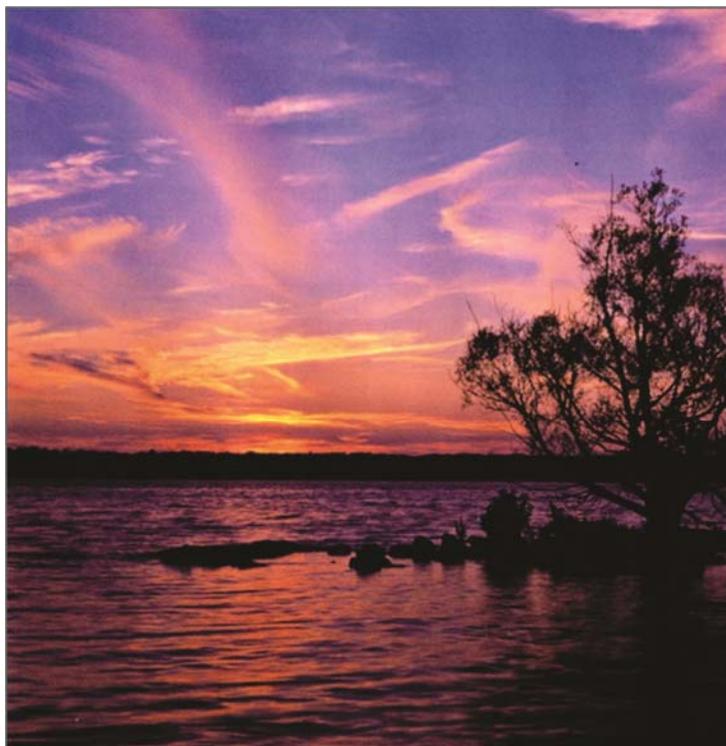
Alan entered Queens University in 1906. One of Bateman's classmates remembered him as:

**"A very active, red-haired and burly hell raiser, but otherwise an excellent student."**

The strong, athletic Alan Bateman played varsity football and soccer. But Bateman was also an accomplished musician and a star performer in the Queens University Mandolin and Guitar Club.

Alan's interest in economic geology began while he was still an undergraduate at Queens. From 1907 through 1910, Alan

was employed as a prospector in the Chibougamau district of Ontario, under the direction of economic geologist A. E. Barlow. He gained a reputation as being a savvy and successful exploration hand, adept at operating in remote, bush conditions.



The Thousand Islands archipelago in the Saint Lawrence Region, US-Canada Border, where Alan Bateman spent much of his youth. Photo from the Wikipedia Commons.

After his graduation from Queens in 1910 with a Bachelors Degree in Mining Engineering and Geology, Alan Bateman entered graduate school at Yale University, which began a long association with that institution. Although his main interest from the onset was the field of economic geology under the mentorship of John D. Irving, he was also influenced by some of Yale's other talented faculty, which included igneous petrologist L. V. Pirsson, and the well-

known mineralogists Edward S. Dana and William E. Ford.

During the summers of 1911 and 1912, Bateman served as Assistant Geologist with the Geological Survey of Canada in the Bridge River gold mining district in southern British Columbia, Canada. His work there formed the basis for his dissertation, entitled: "Geology and ore deposits of the Bridge River district, British Columbia". In 1913, the thesis earned Alan M. Bateman a Ph. D. in Geology from Yale University.

After completing his post-graduate education, Bateman joined two other geologists to carry out the *Secondary Enrichment Investigation* project, a scientific research effort inspired by L. C. Graton and largely funded by several large mining companies. The research effort combined both field observations and laboratory experiments in order to better understand secondary enrichment mechanisms, with a large emphasis on

bulk tonnage, low grade copper deposits.

The work resulted in the publication of many papers from Yale's Geophysical Laboratory, which for years influenced scientific studies of secondary enrichment and sulfide systems, and with direct applications to mineral exploration.

In June, 1916, Alan Bateman married Grace Hotchkiss Street of New Haven, Connecticut. She accompanied Alan on numerous international consulting trips

during his long career in economic geology. Their family would include close relatives and contemporaries during Alan's long professional career.

As part of the *Secondary Enrichment Investigations*, Bateman, accompanied by his wife Grace, first visited Kennecott, Alaska in 1916. The Kennecott mines contained world renowned concentrations of high grade chalcocite, hosted in Triassic limestone above the Nikolai Greenstone, a basalt-dominated complex also of Triassic age. Through a 27 year long production period, the mines produced nearly 600,000 tons of copper and millions of ounces of by-product silver from about 4.5 million tons of ore - at an average mill head grade of 13 percent copper. Ores and concentrates were shipped from mine sites in the Wrangell Mountains by rail to Cordova, where they were loaded onto ships for transport to smelters. By the time Bateman visited the site, it was already in operation and had reached maximum copper production levels during the high prices caused by World War I - then known as 'The Great War'.

Many years later, Alan Bateman would relate to an interviewer, Henry Carlisle, the following about the Kennecott deposits in Alaska:

**"The Kennecott deposits are among the most unique mineral deposits in the entire world. When they were found, they (the Syndicate) didn't recognize what they might be, but took a chance on building a railroad in there (the Wrangell Mountains) for 196 miles, and it turned into an unusual Bonanza. There was one ore body that was 113 feet wide. It was solid chalcocite. You could look at the**

**back across the stope and not see a bit of limestone. From the deposits, railcar after railcar would carry out un-milled ores averaging 75% copper."**

Bateman knew many of the early Kennecott pioneers. He was a good friend of Henry DeWitt Smith, who was then the General Superintendent of the Kennecott mines in Alaska. Alan and Henry were students at Yale, and Alan served as an usher at Henry's wedding. Henry took his wife to Alaska in the spring of 1916. Alan would bring his new bride to Alaska three months later.

Upon arriving at Kennecott, Alan became acquainted with Stephen Birch, the President of Kennecott Copper Corporation, and Earl Tappan Stannard, who was then mine manager and later the President of the company. Stannard himself was a graduate of the Sheffield Scientific School at Yale. After Stannard became President of Kennecott, Dave Irwin became mine manager. Dave, who was also at the mine site during Bateman's visit, was also a classmate of Alan Bateman at Yale. Wesley Earl Dunkle, one of the first geologists to work at Kennecott and later a well-known Alaskan leader, was also a graduate of the Sheffield Scientific School at Yale. In many ways, Kennecott, Alaska was a Yale University mining camp!

After Kennecott President Stephen Birch returned to the East coast, he cabled Alan Bateman:

**"Do you think we should obtain the Mother Lode mine? Dr. Godfrey, the President of that firm, won't talk to me.**

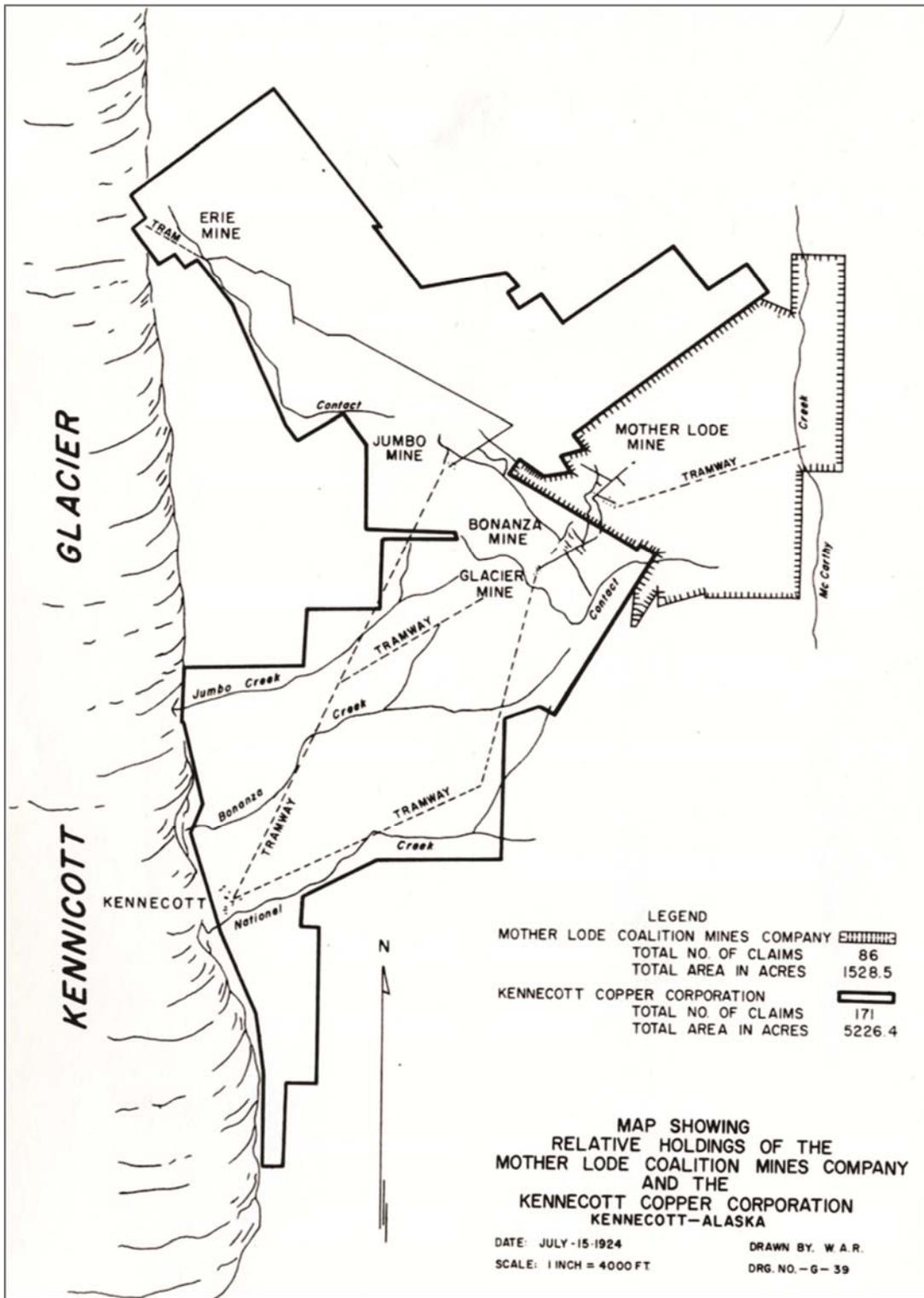
**See if you can obtain permission to examine. Need to make a decision soon."**

The Kennecott mines in Alaska were actually several, spatially separated mineral deposits - the Jumbo, Bonanza, Mother Lode, and Erie deposits. The Mother Lode deposit was on the north side of a prominent ridgeline, whereas the Bonanza deposit was on the south side of the prominent ridge. Bateman obtained permission from Godfrey, the property owner, to inspect the Mother Lode mine, and he spent two long days examining the property. At the time of Bateman's visit, the deposit was being mined by the Mother Lode Coalition Mines Company at a relatively small scale, essentially high-grading massive chalcocite lenses, with infrastructure based in McCarthy Creek east of Kennecott. Besides recognizing key features common to both deposits, Bateman concluded that the Mother Lode deposit projected along the same high angle fault plane as the Bonanza deposit, and was hence a continuation of the latter deposit.

Bateman finished the inspection at midnight of the second day and crawled up a slippery talus slope over the mountain to the Kennecott side. He reached the Kennecott camp early in the morning, where Mine Manager E.T. Stannard had coffee waiting for him and a gas rail car to rush him to Chitina so that he could catch the morning train to Cordova, and then a ship to Seattle. But alas - the gas rail car train from the mine site to Chitina got stuck in a landslide, an all too common mishap along that portion of the route. But the company found another gas rail car, and Bateman made it to Chitina

in time to catch the train for Cordova. From then on, he made all the connections to the East Coast, and in a few days sat in the office of Stephen Birch in New York. He laid out his geologic reasoning to Birch, and told him to acquire the Mother Lode Mine. Based on Bateman's recommendations, Birch decided to begin the acquisition of the Mother Lode Coalition Mines Company, which took a period of time. The Mother Lode was placed into production by Kennecott in 1919, and it became an important source of high grade chalcocite ores for Kennecott's Alaska operation - especially in later years.

That initial recommendation solidified Bateman's relationship with Birch and Kennecott Copper Corporation. His next Kennecott assignment was to examine the properties of Utah Copper, west of Salt Lake City, Utah, now known as the Bingham Canyon district. Like the Mother Lode in Alaska, Bateman liked what he saw, and, after forwarding his recommendations to Birch, joined Louis Gates and several Kennecott professionals in the office of J.P. Morgan and Company to work out a deal. Ultimately, Kennecott would acquire Utah Copper from D.C. Jackling, which would become one of the world's largest copper mines.



Map illustrating locations of differing claim groups in the Kennecott area circa 1939. At the time of Bateman's 1916 visit, the Mother Load Coalition Mines was operated separately, and was not a Kennecott property. Map from Douglass, 1964.

Alan's assistant during his first trip to Kennecott was Don McLaughlin, who was just beginning his economic geology career. Bateman and McLaughlin would later publish a classic paper in *Economic Geology* (in 1920) that described the deposits at Kennecott, Alaska. Bateman made a number of trips to Kennecott over the years. He described a new Kennecott deposit at Glacier Creek east of Kennecott that he helped discover in the late 1920s. Bateman worked with one his students, S.G. Lasky, on refining the structural controls and mineralogy of ores at Kennecott, publishing those results in 1932. Bateman's final paper on the Kennecott deposits, which emphasized the structural controls of the ores, was published at the onset of World War II.

Bateman was an important economic geology consultant for Kennecott from 1916 to 1942, and then briefly during the 1950s. He worked in Rhodesia, Rio Tinto in Spain, Morocco, Algeria, Tunisia, South Africa, Tanganyika, the Belgian Congo, and Kenya. He consulted extensively throughout Europe between the two World Wars, and also consulted in Peru, Chile, Argentina, and Brazil, as well as nearly all the countries in North America. Bateman traveled to, and reviewed mine projects in, India, China, Japan and the newly created Soviet Union. Although global coverage can be more easily accomplished today, in a world connected by international aviation, Alan Bateman was, without question, one of the most traveled mining consultants of his generation.

In 1915, Bateman returned to Yale University as an Instructor in Economic Geology under John Irving, who was the editor of the journal *Economic Geology*. At the entrance of the United States into the Great War (World War I), Irving took a leave of absence from Yale and was appointed a Captain in the United States Army Engineers, aka the U.S. Army Corps of Engineers. Irving served in an engineering division involved with railroad building. In 1918, he died of pneumonia following a bout with the flu.

In July, 1918, Alan Bateman was made the Assistant Editor of *Economic Geology*, and was appointed Editor of that journal in March, 1919. At Yale, he initially substituted for Irving during the latter's absence in Europe, and then made Professor of Economic Geology upon Irving's death. He was made Associate Professor in 1922, Professor in 1925, and Silliman Professor in 1941. Following his return from government service in Washington after World War II, he became the Geology Department Chair at Yale, a position he retained until 1957.

From 1942 to 1945, Bateman served as the Director of the Metals and Minerals Branch of the Board of Economic Warfare (BEW), later the Foreign Economic Administration (FEA). When the United States entered World War II in December, 1941, the Roosevelt Administration became ruefully aware that the country would have to depend on more than 60 different types of metals and minerals to maintain its war industries, instead of the 12 or so that had been thought

to be critical previous to the US entrance into the War. Bateman's broad base of knowledge of the minerals industry and its people enabled him to recruit a top flight staff of dedicated professionals knowledgeable in geology, mining technologies, ore concentration, metallurgy, transportation logistics, and energy issues as they relate to mining. After the War, he described with some pride the degree of success achieved by this group, which included both private and public sector participants. One, for example, was Alaska Mining Hall of Fame inductee and U.S. Geological Survey geologist Stephen R. Capps, who helped locate manganese deposits in Brazil for the war effort. Bateman would continue to work with the BEW and FEA after the War, and served on several strategic and critical minerals boards.

Probably Bateman's most important achievement was his editorship of the journal *Economic Geology*. For all practical purposes, Alan was editor from the time Irving left Yale in the spring of 1917 until 1969, a term of 52 years, plus an additional seven months in 1970, when he filled in during a sabbatical leave of his successor. For most of that time, the journal was pretty much a one man show. Amazingly, he consistently maintained the journal's international prominence as a forum for those interested in mineral deposits. At the same time, he taught classes at Yale, chaired for a time the Geology Department of that institution, and consulted during summer months, well into the late 1950s. How he accomplished all of

these tasks and more - and he did them well - is truly mind boggling.

Bateman was an accomplished author. His textbook, *Economic Mineral Deposits*, first published by John Wiley and Sons in 1942, was popular with teachers of economic geology at both the undergraduate and graduate levels. The second revised edition, released in 1950, sold more than 40,000 copies, and appeared in the English, Spanish, Japanese, and Korean languages. Shortly before Bateman died in 1971, he asked his close friend and colleague, Mead Jensen, from the University of Utah, to prepare a third edition of *Economic Mineral Deposits*. Bateman felt that it was important to keep up with changing times and technology, and a new edition was necessary to accomplish this goal. The third edition, which was eventually published in 1981 with Jensen as lead author, offered a broad perspective of mineral deposits. The third edition of *Economic Mineral Deposits* not only updated metallic mineral production and exploration and ore deposit types, but included a large section on industrial minerals and their uses, energy minerals, including coal, uranium, and petroleum, and how mineral use has changed through time.

Bateman himself made contributions to scientific theory. His principle article of the Kennecott deposits, which was published with Don McLaughlin in 1920, advocated that the chalcocite had a primary hypogene origin, and he believed that the copper was sourced from the underlying Nikolai Greenstone via circulation of meteoric waters. His principle opponent of this

theory was his boss during the Secondary Enrichment Program, L.C. Graton, who advocated a secondary oxidizing process for the formation of the ore deposits. Although his ideas would be modified by economic geologist Ed MacKevett and his colleagues during the 1970s through the 1990s, a primary hypogene origin for the Kennecott deposits in Alaska has prevailed. The newest twist for the formation of the Kennecott deposits as advocated by Jason Price and his colleagues, invokes low grade regional metamorphic fluids as a mobilizing source for the copper. Bateman's theories on magmatic origins for some large iron deposits, i.e., Kiruna in Sweden, have also survived the test of time, although new researchers continue to debate how those great Swedish iron deposits formed.

Alan Bateman was honored in many ways throughout his career, and his numerous awards will only be summarized here. He was a member of many professional organizations, including the Mineralogical Society of America (MSA), the Geological Society of America (GSA), the American Association of Petroleum Geologists (AAPG), the American Institute of Mining, Metallurgical and Petroleum Engineers (AIME), the American Geophysical Union (AGU), and the American Academy of Arts and Sciences (AAAS). Bateman was the President of the SEG in 1940, and awarded that organization's Penrose Metal in 1962. At Yale, he served for many years on the executive committee of the Sheffield Scientific School. In 1970, Queens University awarded him an honorary Doctorate of Science degree. In January,

1971, shortly before his death, a special issue of *Economic Geology* was dedicated to him.

Outwardly, Alan Bateman radiated a well justified self assurance that, combined with his impressive physique, produced an almost Olympian air. Yet he was a warm and kindly man. He liked people, and rarely ever downgraded a colleague - even during intense debates about this or that scientific theory. Bateman would bend over backward to avoid making a student uncomfortable. Bateman was an enthusiastic sportsman for nearly his entire life, and fished for Brook Trout and Atlantic Salmon in Canada; he also caught Bluefish and sailed extensively off the east coast of the United States. It was hard to persuade him to retire as editor of *Economic Geology*, despite a serious disabling operation on his lower jaw, which would ultimately contribute to a painful death.

Alan Bateman would continue an association with Alaskan mineral deposits well into the 20<sup>th</sup> Century. He was an advisor to Kennecott Copper Corporation during the mid-1950s, when Kennecott returned to Alaska to review properties and mines in an effort to revive its roots. Kennecott decided that there was insufficient ore potential to justify the reopening the famed Kennecott mines - especially in lieu of the lack of surface transportation and energy infrastructure. The Copper River and Northwestern Railroad had long been abandoned. But Kennecott and its exploration arm, Bear Creek Mining Company, did look at and

ultimately acquire the promising Bornite Prospect, a carbonate-hosted copper-cobalt deposit in the southern Brooks Range, from Alaska Mining Hall of Fame inductee Reinhart Berg. Bateman joined others to recommend the property to the company. After years of dormancy, the Bornite Prospect is now getting a new look with a diamond drill core exploration program, computer-based deposit modeling, and an economic analysis by NovaCopper, Inc., a Vancouver-based firm.

Just seven years before his death, Alan Bateman recalled in an interview with *Mining Engineering Magazine* his first involvement as a mines consultant, when he visited Kennecott, Alaska. He remembered the importance of those properties to an emerging giant in the mining industry. In that interview, he stated:

**"Few people realize that the great Kennecott Copper Corporation, with its big Utah Copper Corporation (Bingham Canyon), Nevada Consolidated (in Nevada), Chino Copper and Ray Consolidated (in Arizona), and the Braden mine in Chile all originated from the small mines at Kennecott, Alaska."**

*Written by Thomas K. Bundtzen, October 21, 2014*

The writer appreciates the review comments of Brian Skinner, a long-time editor of the journal *Economic Geology* and friend and colleague of Alan Bateman.

### **Selected Bibliography:**

**Bateman, A.M., 1914, Lillooet Map area, British Columbia, Canadian Geological Survey Summary Report, Pages 188-210.**

**Bateman, A.M., 1932, Notes on a Kennecott type of copper deposit—Glacier Creek, Alaska: *Economic Geology*, Volume 27, Pages 297-306.**

**Bateman, A. M., 1942a, *Economic Mineral Deposits, 1st Edition*: New York, John Wiley and Sons, Inc. 855 pages.**

**Bateman, A.M., 1942b, The ore deposits of Kennecott, Alaska, in, Newhouse, W.H., editor, *Ore deposits as Related to Structural Features*: Princeton University Press, pages 188-193.**

**Bateman, A.M., 1946, Wartime dependence on foreign minerals: *Economic Geology*, Volume 41, pages 308-327.**

**Bateman, A. M., 1950, *The Formation of Mineral Deposits, 2<sup>nd</sup> Edition*: New York, John Wiley and Sons, Inc. 916 pages.**

**Bateman, A.M., 1951, The formation of late magmatic oxide deposits: *Economic Geology*, Volume 46, pages 404-426.**

**Bateman, A.M., and McLaughlin, D.H., 1920, Geology of the ore deposits at Kennecott, Alaska: *Economic Geology*, Volume 15, pages 1-80.**

**Bateman, A.M., and Lasky, S.G., 1932, Covellite-chalcocite solid solution and exsolution: *Economic Geology*, volume 27, pages 52-86.**

**Carlisle, Henry, 1964, An Interview with Alan M. Bateman: *Mining Engineering Magazine*, November, 1964, pages 74-77.**

**Douglass, W. C., 1964, A history of the Kennecott Mines, Kennecott, Alaska: Published by Alaska Department of Natural Resources, Division of Mines and Minerals, 29 pages.**

**Jensen, M.L., and Bateman, A.M., 1981, *Economic Mineral Deposits, 3<sup>rd</sup> Edition*, John Wiley and Sons, Inc., 589 pages.**

**Lasky, S.G., 1929, Transverse faults at Kennecott and their relations to the main fault systems: *American Institute of Mining and Metallurgical Engineers*: Volume 85, pages 303-317.**

MacKevett, E.M. Jr., Cox, D.P., Potter, R.W., and Silberman, M. L., 1997, Kennecott-type deposits in the Wrangell Mountains, Alaska—high grade copper ores near a basalt-limestone contact: *Economic Geology* Monograph #9, pages 66-89.

Price, J.B., Hitzman, M.W., Nelson, E.P., Humphrey, J.D., and Johnson, C.A., 2014, Wall-rock alteration, structural control, and stable isotope systematics of the high grade copper ore bodies of the Kennecott district: *Economic Geology* Volume 109, pages 581-620.

Skinner, Brian, Editor, 1971, An Issue Dedicated to Alan Mara Bateman: *Economic Geology*, Volume 66, Number 1, 214 pages.

White, W.S., 1973, Memorial to Alan Mara Bateman: *American Mineralogist*, Volume 58, pages 364-367.



Alan Mara Bateman (1889-1971); from a painting by Deane Keller, presented by Bateman's students in 1958; reproduced from *Economic Geology*, September-October, 1971, Volume 66, page 1.



Edward M. MacKevett, Jr., undated, photo from the MacKevett family collection.

### **Edward Malcolm MacKevett, Jr. (1918-2006)**

Renowned U.S. Geological Survey geologist and minerals consultant Edward M. MacKevett, Jr., known by his nickname 'Tigrone' to his friends and family, passed away in Reno, Nevada on December 29, 2006, shortly after life support was removed. He had received mortal injuries as the result of a fall in his home near Carson City, Nevada. Thus ended the life of one of the premier Alaskan economic geologists of the 20<sup>th</sup> Century.

Ed was born in New York City on September 29, 1918, to Edward and Josephine MacKevett. He was one of two brothers, and he grew up in New Jersey and Florida before the family moved to the West Coast. Both brothers dropped out of school

during the Great Depression and moved to Miami Beach to live with their grandmother. Most of the time, the MacKevett brothers were on their own. They worked in the commercial fishing industry making a dollar a day, and learned the value of hard work. At the age of 14, Ed contracted Dangué Fever, a mosquito-borne, tropical disease that often progresses into a life-threatening, hemorrhagic fever; but he was strong, and he survived. When he finally recovered, he hitched a ride on a railroad car to California and lived for a time with his mother.

Ed graduated from University High School in Los Angeles in 1938. He attended UCLA, and earned an undergraduate degree in geology. He went onto graduate school at Cal Tech, and would eventually earn a Masters Degree in Geology there. Ed was on the boxing team of both universities. At UCLA, he also played football. Later in life, his opponents on the handball court were often surprised by his lightning-fast 'boxer hands' and consistent success, despite him playing much younger players attending Stanford University. MacKevett's slightly stooped, shuffling gait misled many Stanford athletes - he was a near-professional level handball player.

Ed MacKevett's university education was interrupted by World War II. He enlisted in the U.S. Navy and became a ship's storekeeper. He served in the Aleutian campaign, the first of many encounters with the Territory, and later State, of Alaska.

Field geology would become Ed MacKevett's life-long passion. He began

his career in the late 1940s working in Costa Rica and then in Nevada and California. But he is best known for mineral resource studies in Alaska beginning at about the time that the 49<sup>th</sup> State joined the Union. MacKevett's approach was to produce framework geologic maps in addition to detailed ore deposits studies in significant Alaskan mining districts. Ed often led teams of professionals in an operational model not unlike that implemented during the later USGS Alaska Minerals Resource Assessment Program (AMRAP).



Ed MacKevett, second from left, on a geological field trip near Mount Whitney in southern California, circa 1948; photo courtesy of the MacKevett family files.

His first major Alaskan study was the Bokan Mountain uranium-thorium-REE deposit, to this day, Alaska's only producer of uranium. The mapping and ore deposit studies, which took place during seven months of field work over a two year period (1956 - 1958), was completed for the Division of Raw Materials of the U.S. Atomic Energy

Commission (AEC), which at the time was conducting a broad national canvas of uranium and thorium resources to be used in both peaceful and military applications. Art Kimball, later a well-known U.S. Bureau of Mines Engineer, assisted Ed at Bokan Mountain. Ed worked closely with mine personnel of Climax Molybdenum Company, which operated the Ross Adams uranium mine. MacKevett's detailed petrographic and geochemical studies of the unusual alkalic igneous rocks at Bokan Mountain were considered to be among the

finest completed by the USGS during that time. Some of his work at Bokan Mountain was originally classified, but MacKevett eventually received permission from the AEC to publish all of his exhaustive study as a USGS Bulletin in 1963. Bokan Mountain is now being re-evaluated as a Rare Earth Element (REE) resource; MacKevett was aware of and

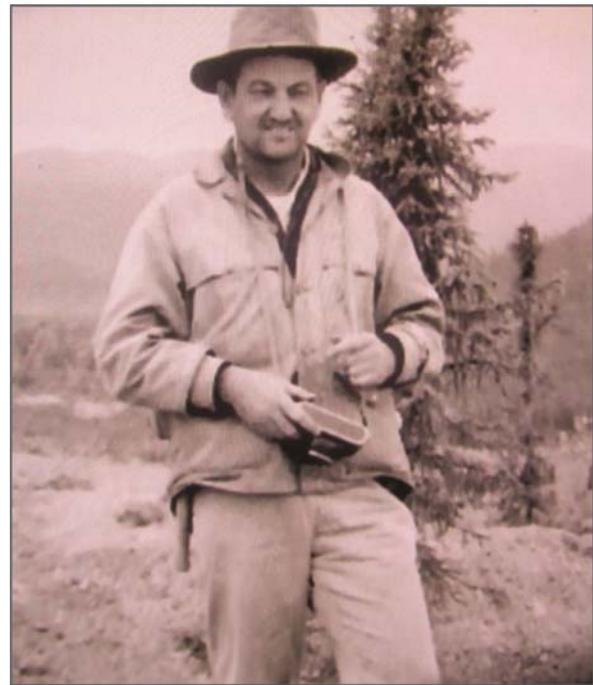
described REE mineralization at Bokan Mountain. MacKevett also undertook studies of radioactive minerals of other parts of Alaska while working at Bokan Mountain.

His second major assignment was the study of the Red Devil mercury-antimony deposit

in the Kuskokwim Mineral Belt of southwestern Alaska. This field work, which was completed with Hank Berg during 1958 and 1959, was under the auspices of the U.S. Defense Minerals Exploration Administration (DMEA). Most of the study was the construction of a detailed, underground geologic map, including a structural model, of the complex mercury-antimony deposit. The underground mapping was augmented by work completed by company geologist Gordon Herreid, as well as first hand technical observations offered to MacKevett and Berg by the mine manager and Alaska Mining Hall of Fame inductee Bob Lyman. At the time, the Red Devil mine was one of the nation's most important producers of mercury - then a strategic metal. The pioneer fluid inclusion expert, Edwin Roedder (*Economic Geology*, Volume 58, pages 167-211), visited the deposit with Ed, and produced the first fluid inclusion study of an Alaskan mineral deposit.

At the urging of MacKevett, the U.S. Geological Survey expanded the mercury investigations to include all of southwest Alaska in 1960 and 1961. In this investigation, the C. L. 'Pete' Sainsbury-Ed MacKevett team systematically evaluated more than twenty past producing mercury mines and promising prospects. Sainsbury and MacKevett utilized the excellent framework mapping of much of the field area completed previously by Alaska Mining Hall of Fame inductee Wallace Cady. Although this work did not lead to new mercury discoveries, it would be used in later years to help define world class gold

resources in the Kuskokwim Mineral Belt such as at Donlin Creek.



Ed MacKevett near the Red Devil Mercury Mine, circa 1959; photo from the USGS archives.

MacKevett assisted many prospectors in southeastern Alaska, including Kenny Eichner, Paul Pieper, Joe Soloy, Merrill Palmer and Don Ross, by conducting prospect examinations at various locales in that region. Some of these prospectors would later become pioneer Alaskan aviators. Ed completed work at the Sumdum copper-zinc deposit south of Juneau in southeastern Alaska, and later the Glacier Creek, a.k.a. Palmer barite-base metal deposit near Haines; the latter is now under detailed review and analysis by a Canadian mining company. Ed worked on, and published results of, investigations of iron-copper skarn deposits in the North Bradfield River east of Wrangell.

MacKevett and a group of USGS mappers, (including AMHF Board Member Chuck Hawley), petrographers and exploration geochemists conducted geologic mapping and mineral deposit studies during much of the 1960s in the then largely unknown Glacier Bay National Monument. This region was found to contain a diverse group of mineral deposits including porphyry molybdenum-copper, disseminated gold, volcanic-related massive sulfide, and mafic magmatic deposits. Ed personally studied the important nickel, cobalt, platinum and copper deposits there at Brady Glacier.

Probably MacKevett's most important Alaskan contributions took place in a region for which he would become synonymous - the Wrangell Mountains, which included the famed Kennecott copper-silver deposits. From the late 1960s to the late 1970s, Ed MacKevett produced ten detailed geologic maps of the central McCarthy quadrangle, which constituted his framework mapping of the Nizina mining district. In 1978, he and his colleagues published the geology of the entire McCarthy quadrangle at a scale of 1:250,000.

Ed was as much a geologic mapper as an ore deposits expert. Ed's eye for regional geology enabled many studies to identify key Paleozoic relationships between the Alexander Terrane and Wrangellia - as exposed in the Wrangell Mountains - thus helping many other geologists to better understand terrane analysis in southern Alaska. He first recognized the Border Ranges Fault in the McCarthy quadrangle and, with colleague George Plafker, traced

this fundamental structural boundary over most of its length in Alaska.

MacKevett, with colleague Augustus Armstrong, studied in detail the Chitistone Limestone, the host rock for the bonanza copper-silver ore deposits at Kennecott. They studied the minute sedimentary features of the Chitistone Limestone, and began to better understand the stratabound nature of the structurally controlled ore bodies at Kennecott. The research team acquired fluid inclusion and sulfur, oxygen and carbon isotopic data from the layered rocks and the copper deposits themselves. MacKevett and Armstrong agreed with Alan Bateman and Don McLaughlin, who first published the classic paper of the Kennecott deposits many years previously, that the source of the copper was likely the underlying Nikolai Greenstone. But they argued that a complex hydrologic and fluid mixing model involving sulfur sources in a sulfur-rich phase within the Chitistone Limestone, and permeability related to structural zones, were responsible for transport of copper-bearing fluids into fault zones more than 100 million years after deposition of the rock section. MacKevett's mechanism for copper deposition was a hydraulic fracturing event that allowed movement of copper up-section from the Nikolai Greenstone into a sabka facies of the Chitistone along high angle structural conduits. More recently, Jason Price and his colleagues (*Economic Geology*, Volume 109, pages 581-620) believe that copper was extracted from the Nikolai Greenstone during low grade regional metamorphism - using a mechanism not unlike one invoked

to describe the formation of mesothermal gold deposits. Obviously, deployment of new laboratory technologies has resulted in modifications of ore deposit models through time - from Bateman's original hypogene origin of the Kennecott ore bodies to more contemporary theories invoking hydrologic head and low grade regional metamorphism as mechanisms for transport and concentration of the rich copper deposits at Kennecott.



Travis Hudson and Ed MacKevett inspect underground mine workings at the Stray Horse Mine near Helena, Montana, circa 1986; photo courtesy of Travis Hudson.

Ed retired from the USGS in 1979 or 1980. As a consultant for ARCO, he returned to the Wrangell Mountains just before Wrangell St. Elias National Park and Preserve was established in December, 1980. He kept busy in subsequent years with long time geological colleague Rob Foster, exploring for mineral deposits throughout the western U.S. Foster had completed a PhD Dissertation in the Livengood mining district of Interior Alaska during the late 1960s. Ed remained active with his consulting partner Foster into the early 1990s, exploring metallic mineral

deposits and districts in Nevada, California, and Montana.

MacKevett's final contribution to the Wrangell Mountains area would be his involvement with his close friend and colleague Gary Winkler and others in a pictorial summary of the geology of Wrangell Saint Elias National Park and Preserve, which was released as a USGS Professional Paper, just a few years before his death. This photographic summary has proven to be an effective educational tool for a general public that wants to better understand the geology of America's largest National Park.

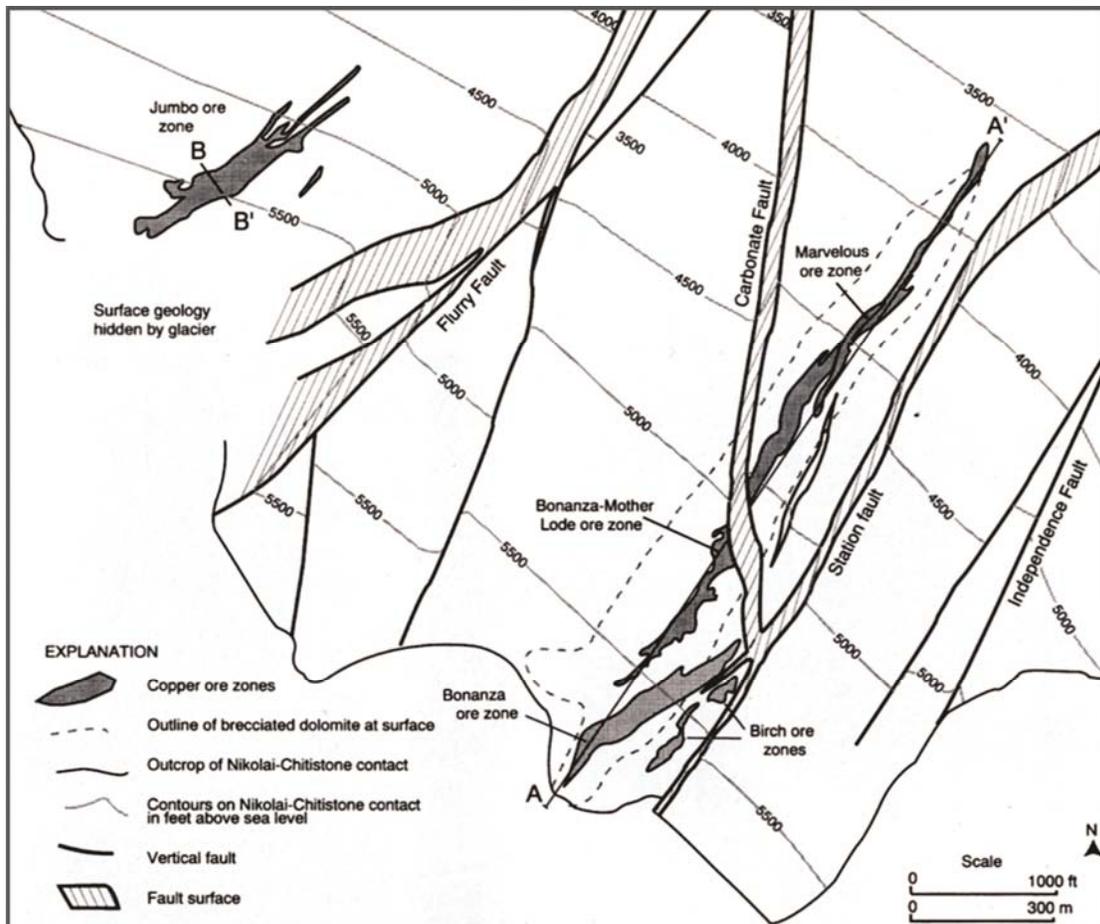
Throughout his life, one of Ed's passions was sport fishing. He fished the Atlantic

Coast from Miami to New York, and the Pacific Coast from Baja, California to the Kenai Peninsula in Alaska. According to a lifelong friend, Travis Hudson, Ed MacKevett never met a fish that he didn't like. MacKevett was a self-taught expert of birds and butterflies, and could identify them and assign their scientific Latin names. He liked to play the harmonica while listening to Mariachi music, and was an excellent poker player. Overall Ed was a very good gambler - his trips to Nevada were not just to explore for mineral deposits.

Ed married his first wife, Eddie, in San Francisco in the early 1950s, and from that

union would have a daughter, Patricia. Later, they divorced. In 1968, Ed married his second wife Betty. They shared a wonderful life in Mountain View, California during most of Ed's career with the U.S. Geological Survey. After Ed retired, Ed and Betty moved several times, and lived in Morro Bay, San Luis Obispo, and finally Rohnert, all in California. Betty passed away in 1999.

In 2000, Ed moved to Carson City, Nevada. He quickly learned to love the mountains, and appreciate the changing of the seasons - something that was not so readily apparent in his previous residences in California. He



Planar projection of three of the principle Kennecott deposits - the Bonanza, the Mother Lode, and the Jumbo, which Ed MacKevett worked on with Gus Armstrong and others during the 1970s; photo from MacKevett and others (1997).

was close to his exploration colleagues in the mineral industry, and was often sought out to consult in mineral deposit evaluations. Ed was quite the extrovert throughout his entire life and during his final years, and hosted many dinners and get-togethers at his Carson City home. In Nevada, he met a fine lady companion, Barbara Burrows, who taught him how to dance. Barbara and Ed traveled together for several years before Barbara's passing in 2006, a few months before Ed's death.



Travis Hudson and Betty and Ed MacKevett on a fishing trip on the Sacramento River, California, circa 1977.

Ed MacKevett was a steadfast friend to those who knew him; he rarely criticized or judged people. He was humble, and never talked much about himself or of his many economic geology achievements. Those in the mineral industry held him in high esteem, and frequently sought out his ideas on Alaskan metallogenesis. Alaskans involved in both regional geology and mineral resource analysis today honor the memory of this humble

man for helping answer how and where many of Alaska's important metallic mineral resources occur.

*Written by Thomas K. Bundtzen, October 25, 2014*

This biography benefited from a 2007 article published in the Journal of the Alaska Miners Association. This article included recollections from Ed's brother, Nate, and his good friends George Plafker and Travis and Patti Hudson. Conversations and recollections by Ed to Chuck Hawley and the writer were also used. Selected bibliographic sources are listed below.



Ed MacKevett collecting field data while mapping in the Wrangell Mountains, undated.

## **Bibliography:**

Armstrong, A.K., and MacKevett, E.M. Jr., 1982, *Stratigraphy and diagenetic history of the lower part of the Chitistone Limestone, Alaska*: U.S. Geological Survey Professional Paper 1212A, 26 pages.

Editor, 2007, Edward M. MacKevett: *The Alaska Miner*, Volume 35, Number 1, pages 8, 14, 26.

Gardner, M.C., Bergman, S.C., Chushing, G.W., MacKevett, E.M., Jr., Plafker, G., Campbell, R.B., Dodds, C.J., McClelland, W.C., and Mueller, P.A., 1988, *Pennsylvanian pluton stitching of Wrangellia and the Alexander terrane, Wrangell Mountains, Alaska*: *Geology*, v. 16, p. 967-971.

MacKevett, E.M., Jr., 1963, *Geology and ore deposits of the Bokan Mountain uranium-thorium area, southeastern Alaska*: U.S Geological Survey Bulletin 1154, 125 pages.

MacKevett, E.M.Jr., 1978, *Geologic map of the McCarthy quadrangle, Alaska*: U.S. Geological Survey Miscellaneous Investigations Map I-1032, one sheet @ 1:250, 000

MacKevett, E.M., Jr., and Berg, N.C., 1963, *Geology of the Red Devil quicksilver mine, Alaska*: U.S. Geological Survey Bulletin 1142-G, pages 1-16, five map plates

MacKevett, E.M. Jr., and Blake, M.C., 1963, *Geology of the North Bradfield River Iron Prospect, Southeastern Alaska*: U.S. Geological Survey Bulletin 1108-D, 21 pages.

MacKevett, E. M. Jr., Brew, D.A., Hawley, C.C., Huff, L.C., and Smith, J.G., 1971, *Mineral Resources of Glacier Bay National Monument*: U.S. Geological Survey Professional Paper 632, 90 pages.

MacKevett, E. M., Jr., and Plafker, George, 1974, *The Border Ranges fault in south-central Alaska*: U. S. Geological Survey Journal of Research, v. 2, no. 3, p. 323-329.

MacKevett, E.M. Jr., Robertson, E. C., and Winkler, G.R., 1974, *Geology of the Skagway B-3 and B-4 Quadrangles, Southeastern Alaska*: U.S. Geological Survey Professional Paper 832, 33 pages.

MacKevett, E.M., Gardner, M.C., Bergman, S.C., Cushing, G., and McClelland, W.D., 1986, *Geological evidence for Late-Pennsylvanian juxtaposition of Wrangellia and the Alexander terrane, Alaska*: Geological Society of America, *Abstracts with Programs*, v. 18, no. 2, p. 128.

MacKevett, E.M. Jr., Cox, D.P., Potter, R.W., and Silberman, M. L., 1997, *Kennecott-type deposits in the Wrangell Mountains, Alaska—high grade copper ores near a basalt-limestone contact*: *Economic Geology Monograph #9*, pages 66-89.

Price, J.B., Hitzman, M.W., Nelson, E.P., Humphrey, J.D., and Johnson, C.A., 2014, *Wall-rock alteration, structural control, and stable isotope systematics of the high grade copper ore bodies of the Kennecott district*: *Economic Geology Volume 109*, pages 581-620.

Roedder, E., 1963, *Studies of fluid inclusions, 2. Freezing data and their interpretation*: *Economic Geology, Volume 58*, Pages 167-211.

Sainsbury, C.L., and MacKevett, E.M. Jr., 1965, *Quicksilver deposits of Southwestern Alaska*: U.S. Geological Survey Bulletin 1187, 86 pages, numerous plates at variable scales.



W. C. Seagrave, circa 1911.

### **William H. Seagrave (1865-1929)**

William H. Seagrave was best known for his skills as an underground mine manager both in the United States and abroad. He played several important roles during the early years of the Kennecott Copper Corporation's activities in the Alaskan Territory, both in the Wrangell Mountains and in Prince William Sound.

Details of his birth and childhood have not been researched. His earliest mine-related activities were in the Mother Lode district in the foothills of the Sierra Nevada in California. He worked in California about the same time that Alaska Mining Hall of Fame inductee Thomas Mein was a well-established, large scale, hydraulic, placer gold mine operator in Grass Valley.

In 1895, William Seagrave graduated from the University of Nevada with a degree in mining engineering. After his graduation, California mine promoter and Guggenheim representative John Hays Hammond sent Seagrave, along with perhaps twenty-five

additional personnel, to the Robinson Deep Mine in South Africa, to oversee its development. Coincidentally, AMHF inductee Tom Mein had also been involved with the Robinson Deep Mine a few years earlier - mainly representing British financial interest there.

After returning from South Africa, Hammond's successor, Pope Yeatman, promoted Seagrave to several positions of authority to help the Guggenheim mining syndicate establish successful operations in newly acquired properties in North America. In 1906, Yeatman asked Seagrave to reorganize and manage the Veteran underground copper mine near Ely, Nevada. Working as Seagrave's assayer in Nevada was Alaska Mining Hall of Fame inductee Wesley Earl Dunkle, a recent graduate of Yale University.

After that task was completed in 1909, Yeatman sent Seagrave to the newly opened Beatson copper mine in Prince William Sound, one of Kennecott's important Alaska properties. Seagrave and Dunkle must have gotten along, because soon afterwards, about 1910, Seagrave asked Dunkle to join him at the Beatson operation, which he did.

In late 1911, W. H. Seagrave was promoted to general manager of all Kennecott mines in Alaska (replacing A.B. Emery), and moved to Kennecott, Alaska in the rugged Wrangell Mountains. The Copper River and Northwestern Railroad had just been completed, and shipments of copper ores began to make their way from Kennecott to Cordova.



Some professional staff stand-outs when Seagrave was managing the Kennecott mines in Alaska, circa 1911. From left to right, Frank Van Campen, Becker, Richard Watkins, William Seagrave, Stephen Birch, W. E. Dunkle, and 'Shuey' (the first names of Becker and Shuey are unknown); photo from the Helen Van Campen collection, UAF Rasmussen Library, 74-27-427N.

At the onset of production from the Bonanza mine, a number of technological issues had to be addressed. One was underground ventilation. When ventilation was lost in the Bonanza, a potentially life-threatening situation was created. Seagrave asked his by-then trusted geologist and mining engineer, Wesley Dunkle, to hike up to the mine site and repair the problem. Seagrave began to realize how important Dunkle was to the many problem-solving issues that any new industrial enterprise like the Kennecott mines faced. By 1915, Seagrave was so impressed with Dunkle that he asked the latter to assume the position of mine superintendent of the Beatson Mine on Prince William Sound, a job that Seagrave held four years earlier.

As far as Kennecott Copper Corporation was concerned, the principle purpose of the enterprise was to produce copper ores and

ship them to the Tacoma smelter as quickly and efficiently as possible. The Kennecott mines in Alaska operated like most other mining enterprises of the early 20<sup>th</sup> Century. All mine employees worked seven days a week on 12 hour shifts. Breakfast was served at 6:30 AM every day; dinner was served at 6:30 PM. The 4<sup>th</sup> of July and Christmas were holidays - every other day of the year was a work day. Seagrave's management style differed than most managers of his era. Starting in 1912, for his professional staff, Sunday afternoons were off. He later extended this to selected groups of employees like machinists and mill operators - if they caught up with routine maintenance and ore tonnage objectives. These actions resulted in a marked increase in camp morale.

Seagrave got involved with limiting gambling in the remote camp. Poker was

the camp's most popular game. He set financial limits for poker winnings for his professional staff, but left them wide-open for the miners. There was no way to police gambling infractions in the remote bunkhouses of the mines, and Seagrave didn't try. His chief concern was trying to limit gambling debt, which could turn into a serious problem for crews in remote locations. Surprisingly, his miners did not object to this intervention.

One important strategic decision that Seagrave wanted to make was acquisition of the Mother Lode deposit, which was developed separately as the Mother Lode Coalition Mining Company - over the hill from the Bonanza deposit. Beginning in 1913, W. E. Dunkle worked with both Stephen Birch and Seagrave to initiate a compilation of geologic and engineering criteria needed to make a decision on the acquisition of the Mother Lode. Action on this important acquisition would await recommendations from a young Yale Graduate and mining consultant, Alan Bateman - an old colleague of Dunkle's from Yale (see the Bateman biography in this *Paystreak*). Changes in management necessitated another look at the potential acquisition. Bateman's 1916 recommendations mirrored many of those made by Dunkle more than two years previously. The Mother lode would ultimately add another 10 years of life to the Kennecott mines.

William Seagrave left Kennecott in 1916. His exodus was due to the arrival and ascendancy in management of E. T.

Stannard, a smart mining engineer who would help the company solve its milling problems. By 1915, the easy-to-mine, massive chalcocite deposits that powered so much of the Kennecott mines in their early years were being depleted, which necessitated the need to improve recovery in lower grade ores - especially the carbonate ores in the Chitistone Limestone. Stannard had gained a reputation in the years before his arrival at Kennecott for successfully solving mill problems - first at the Federal Smelting mine in Nevada and later the Braden (El Teniente) copper mine in Chile. He first upgraded the gravity circuits, which improved recovery. His most important contribution was to develop an ammonia leach process to recover copper from copper carbonate ores - a technology that would have applications in other mines worldwide. Stannard definitely proved his worth to the young company.

Kennecott President Birch and Stannard became close. They shared a fondness for paper backup of nearly everything that was going on at the mines, including detailed, daily-to-weekly planning outlines an exhaustive mine map archive and engineering drawings. In contrast, Seagrave knew the location of nearly every item on the mine site, and every man in his organization, but it was all in his head. Seagrave detested paper work.

Stannard made his move in 1916. At the beginning of 1916, Seagrave was general manager at the Bonanza and Jumbo Mines at Kennecott and the Beatson Mine on Latouche Island. Earl Dunkle was

Seagrave's superintendent at the Beatson. Stannard was general manager of the mills at both Kennecott and the Beatson. In the summer of 1916, Stephen Birch made Stannard general manager of both mines and mills, and William Seagrave was out. Dunkle resigned his position as manager of the Beatson Mine, and was replaced. Dave Irwin, who was a classmate of both Dunkle and Bateman, stayed on for a few months, but joined Phelps Dodge Corporation in 1917. A near complete turnover in management had taken place.

William Seagrave left Kennecott Copper Corporation in the fall of 1916, but did not yet abandon Alaska. During the early 1920s, Seagrave would begin work on the Nevada-Bellevue copper-silver mine at Contact, Nevada, and later, along with investor W.R. Rust, acquired and equipped the Chichagoff gold mine in southeast Alaska. As before, Seagrave brought in W. E. Dunkle to help solve many mine-related issues on both projects. Details of Seagrave's involvement at Chichagoff are not known, but the Nevada-Bellevue mine in Nevada proved to be, for a time, a high grade copper-silver operation. From 1925 through 1930, nearly 2 million pounds of copper and by-product silver would be won from the Nevada-Bellevue before it closed down due to the crash in copper prices starting in 1929.

W. C. Seagrave would not see the mine shutdown. On February 4, 1929, Seagrave would die of unknown causes at Long Beach, California.

Although Seagrave's successor at Kennecott, E. T. Stannard, would grab the limelight and eventually replace Stephen Birch as CEO of Kennecott Copper Corporation, Seagrave himself left his own mark on the company. He managed the Alaskan mine's operations during its crucial first six years, and insured that payback for the expensive and risky mine development was made to company investors. Seagrave exhibited a great persona with his employees, which resulted in high morale of nearly all personnel at the mines. In this enlightened environment, many technical challenges were solved, and the camps prospered. The Alaska Mining Hall of Fame honors William C. Seagrave for his important managerial skills during an early era of Alaska's hard rock mining industry.

*Editor's Note: This biography was created largely from the published biography of Wesley Earl Dunkle, by Charles C. Hawley in 2003 and 2006 - see below.*

### **Bibliography**

**Hawley, Charles C., 2006, *Wesley Earl Dunkle—Alaska's Flying Miner*—2<sup>nd</sup> Edition: University of Alaska Press, 273 pages.**

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