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24 March 1983

RECEIVED

MAR 28 1983

WM. H. CRUTCHFIELD, JR.

Santa Fe Pacific Railroad Company
4775 Indian School Road
P. O. Box 3588
Albuquerque, New Mexico 87190

Attn: William H. Crutchfield, Jr.
Director of Exploration

Dear Bill:

At the time of your last visit here, you may remember that I was working on a short biography of Seeley W. Mudd, the first president of Cyprus Mines Corporation. Since then I've finished it. I showed it to Mark, who thought you might be interested in having a copy of it.

This isn't the whole thing - just the part of it having to do with Seeley Mudd's life history. The rest of it was some "character analysis" material which I don't want to afflict you with. The interesting stuff is all here.

Hope you enjoy it!

Yours truly,

Bruce H. Burton

Bruce H. Burton
Geologist

for W.H.C., Jr.

EXECUTIVE BIOGRAPHY --
SEELEY WINTERSMITH MUDD
1861-1926

Bruce H. Burton
Strategy and Policy
MBA1-609
Professor Salveson
Tuesday Night Section
22 March 1983

INTRODUCTION:

I chose to do this Executive Biography on Seeley Wintersmith Mudd, co-founder and first President of Cyprus Mines Corporation, for a number of reasons. First, I used to work for Cyprus Mines (1975-1979) and I was aware at the time that the company had an interesting history. Second, the Mudd family is well-known, not only for its connection with the mining company, but also for its intimate connections with higher education in the mining field, and also in related fields such as business and engineering. Seeley W. Mudd was a member of the Board of Trustees of the California Institute of Technology, and the Mudd family built in his memory not only the Seeley W. Mudd Laboratory of the Geological Sciences on that campus, but also the Seeley Wintersmith Mudd Memorial Hall of Philosophy on the campus of the University of Southern California.

In addition, Seeley W. Mudd became in 1914 a trustee of Pomona College, one of the "Associated Colleges" at Claremont. Due largely to his guidance and liberal contributions, an additional campus was founded -- Claremont College -- of which he was appointed the first chairman of the board in 1925. The Mudd family also contributed to the construction of several buildings on the campus. In later years, Harvey Mudd College was added to the campus cluster at Claremont, named after Seeley Mudds's eldest son.

Therefore, Seeley Mudd represents not only a man who was very successful in his field of endeavor, as a mining engineer, but also one who was committed to helping others, particularly young persons and students. In these and many other things, he was a highly influential man in the Southern California area, and is worthy of both study and emulation.

The primary source of data concerning the life of Seeley W. Mudd for this report was a book by David Lavender, entitled The Story of Cyprus Mines Corporation, published by the Huntington Library in 1962. Additional references are cited where appropriate in the text.

EARLY ENVIRONMENT:

Seeley Wintersmith Mudd was born on August 16, 1861, in St. Louis, Missouri. His father, Henry Thomas Mudd, was a native of Kentucky and was successful in both mining and real estate in Missouri. Henry Mudd was also a member of the state legislature. Seeley Mudd's mother, Sarah Elizabeth Hodgen, was the sister of a prominent physician, which may have been the influence which caused two of Seeley's brothers to pursue medical careers. Seeley was the youngest of eight children and the only one to follow his father into the field of mining.

One factor which began early to work on Seeley's character was that it was commonly believed by strangers that the Henry Mudd family was closely related to Dr. Samuel A. Mudd, the physician who spent four years in prison for treating the injuries of John Wilkes Booth, the assassin of Abraham Lincoln. As it happens, there was a connection, but it was remote;

nonetheless, Seeley developed a quiet, reserved manner at an early age, which could be at least partly due to this influence and the desire not to be conspicuous.

FORMAL EDUCATION:

Seeley Mudd graduated with honors from St. Louis High School. Four years later, in 1883, he again graduated with honors from the mining department of the School of Engineering of Washington University, St. Louis. Not much other information is known about his formal education, other than that he generally did very well when his interests were aroused and had a determination to plow through tedious subjects.

CAREER SYNOPSIS:

His first job after graduation from Washington University was at a small copper mine and smelter located at St. Genevieve, about 70 miles south of St. Louis on the Mississippi River. His job consisted of a little of everything: he "dumped slag-pots, fired furnaces, and helped generally around the plant"[1]. After a while he moved to a new copper plant located near St. Louis, but after two years working in refineries, he became sure that his interests lay, not in refining ore, but in producing it.

In 1885, Seeley obtained an opportunity to become an ore sampler at the Small Hopes Mine, at Leadville, in the Colorado Rockies. He quickly took advantage of it, and arrived in Leadville in December. How he got there in December is a mystery. Located at an altitude of approximately 10,000 feet, Leadville weather consisted (and still does consist) of "11

months of winter and 1 month of bad weather" as the residents say.

It was during his years in Leadville that Seeley began to mature at a great pace, running up against problems, both technical and managerial, which were complex and required the development of judgemental skills.

He was hired at the age of 24 as a "mine sampler", a position which at the time encompassed not only sampling per se but also most of the duties which are today performed by mining geologists. He was responsible for accurate sampling, surveying, and drawing of exact maps; geologic mapping and planning of the sampling and general geochemical work was included. Very importantly, a sampler had to be rigidly accurate, careful, and honest, in order to guard against either accidental or deliberate tampering with the samples, which would invalidate the assays.

In his first year at the mine, Seeley was able to significantly tighten up the sampling proceedures prevalent at the mine, no easy task for a "greenhorn" just 24 years of age and fresh from the Midwest. The entrenched old-timers at Leadville were not easy to convince. Also, Seeley was able to discover and jail certain thieves who had been robbing the mine of its high-grade ore.

Due to his reliability, and to the high rate of turnover in the Leadville camp, Seeley was appointed assistant mine manager by the end of his first year, and became the manager in January 1888, just two years after his arrival. As the new manager, Seeley was faced with problems on several fronts: The sudden

decline of the richness of the ore in the Small Hopes Mine; the prospective cessation of U.S. Treasury silver purchases; and labor problems. In addition, Seeley had gotten married to Della Mulock, and was understandably somewhat preoccupied.

The first major problem faced by Seeley was the sudden decline in the ore values of the mine. A common problem in bonanza-type ore deposits, it is the deathknell for most mines of this type. Seeley was able to overcome this with a combination of techniques, including exploration for new ore, innovations in technical proceedure, and the non-payment of dividends, which up to this time had been tremendous. He was able to re-work old ground in this manner while waiting for the new exploration to pay off. While the mine was never again as profitable as in its rich bonanza days, it did manage to turn a consistent profit.

The cessation of silver purchases by the U.S. government in 1893 was a complete disaster for the Leadville silver camp. Silver prices fell by 30% and most mines closed, never to re-open; only the most rigidly controlled, such as the Small Hopes Mine, continued to operate.

Acting in combination with the other two problems was a recurring problem with labor. The miners were paid a wage which was sufficient to purchase the neccessities of life, but not much more, especially if the miner was married. The miners went on strike shortly after the price of silver went tumbling due to the loss of government purchases, and the mine owners in Leadville put up a united front and refused to grant any concessions. The strike was long and bloody, and Seeley Mudd gained a reputation

for being a "tough" negotiator, who was willing to close down mines rather than give in to the miners demands at the expense of all profitability. In the end, the strikers were beaten, due partially to the united front presented by the mine owners, and partly to the miners' lack of judgement in calling the strike at a time when mine owners really could not operate their mines with increased labor costs.

During his years in Leadville, Seeley Mudd did not waste time in getting his own mining projects started (apparently people were not as concerned about "conflicts of interest" as they are now!). As time went on, he developed many interests in new or expanding mines in the Leadville area. In 1892 a directory of mines in Colorado shows him operating two silver mines in collaboration with close friends. Other ventures were also undertaken, but economically, the middle to latter period of the 1890's was not an auspicious time to mine silver. Most of these ventures failed, although without great financial consequences to Seeley.

In 1899 he became manager of the Ibex Mining Company, which owned the richest mine in the Leadville area, while still holding his other positions. By Leadville standards, Seeley was rapidly becoming a wealthy man.

In 1902, he began doing consulting for mines outside the Leadville area, and was looking for new worlds to conquer. He was 41 years old and still ambitious. In addition, personal reasons were causing him to re-consider living in Leadville. The climate was rigorous in the extreme, and his children were not doing well physically. So, for a mixture of reasons, both

business and personal, in 1903 the Mudd family left Leadville and came to Los Angeles.

From 1903 on, Seeley Mudd operated either as a paid consultant or in his own interest. His first major association was with the Guggenheim Exploration Company (GEC), where he was instrumental in bringing several major mines to fruition. He asked to be paid by the project, rather than on a retainer, feeling more free to operate in that manner.

Mudd's last and most significant project for Guggenheim (in 1905) was a geologic, engineering, and economic appraisal of a property in Bingham Canyon, Utah. In 1899, a mining engineer by the name of Daniel Jackling had proposed the mining of certain large deposits by means of a massive open-pit excavation method. At the time, this was revolutionary. Seeley Mudd saw in the Bingham Canyon deposit the potential for this type of project. On the basis of his investigations and report, the Guggenheims invested substantially in what has since become the world's first and largest mine of this type, the Bingham open-pit porphyry copper mine.

According to Louis S. Cates, chairman of the board of Phelps Dodge Corp., a negative report by Seeley Mudd in 1905 "would have delayed the development of the porphyry coppers indefinitely, and today [1958] we are getting 85% of our copper from such sources".[2]

After completing work on the Bingham deposit for GEC, Seeley Mudd was anxious to strike out on his own for similar deposits. Collaboration with Philip Wiseman and others brought home several

successes, notably the Ray, Arizona deposit, and the Chino mine at Santa Rita, New Mexico. There were failures of insight, too, but on the whole, Mudd was highly successful at the art of "smelling" potentially economic ore deposits, and combined with this his vast store of engineering experience to bring these projects to life.

By 1909, Seeley was associated with Bernard Baruch of the J.P. Morgan group of New York City in an attempt to locate sulfer deposits which could be amenable to the then newly-developed "Frasch" process. As Mudd's reputation and accomplishments grew, (not to mention his personal wealth) he was inundated by people with ideas and projects to be evaluated and financed. One day, in the summer of 1909, he entered into a grubstake agreement with Charles Godfrey Gunther.

Gunther was a mining engineer and prospector who was driven by an urge to explore. He had spent his life traveling literally all over the world looking for mines. In his agreement with Seeley Mudd, it was Gunther's intention to seek out deposits in Mexico. By 1911, nothing of interest had been discovered and the agreement was withdrawn. Gunther spent the next several months alternately wandering throughout the United States and doing library research.

One day, he discovered an old book that referred to the ancient copper mines of the Middle East. This fired his imagination, and he began intensive research on the subject. He got in touch again with the Mudd-Wiseman group, and in September 1912, obtained another grubstake contract to operate in the Middle East-Mediterranean Sea area.

The island of Cyprus was not originally on Gunther's itinerary, but further research in English and French libraries caused him to include the island. The very name of the island reflects the ancient copper mines present there. "Cyprus" derives from chalkos kuprios, changed by the Romans to aes cuprum, meaning "the metal of Cyprus". The chemical symbol "Cu" and the English word "copper" come from cuprum.

To condense a very long story, Gunther located viable prospects on the island. Unfortunately, due to many factors, the investment in the mines proved to be a very long gamble. Located in 1912-1913, the mines of Cyprus did not turn a reasonable profit until the 1930's, but then they turned very profitable indeed, as they challenged the effective monopoly in sulfer-related industrial products of the Spanish Rio Tinto group.

Based on Gunthers's reccomendations and preliminary work, Mudd, Wiseman, Gunther, and various smaller investors formed the Cyprus Mines Corporation on March 10, 1916, with Seeley Mudd as president. Things got off to a very slow start due to World War I, which not only rendered the island of Cyprus insecure as a base of operations, but also marked a new phase in Seeley Mudd's career, taking him away from mining for the first time.

Seeley spent the war years first as a major in the Engineer Officer's Reserve Corps, and then with the War Industries Board, assisting Daniel Jackling in building an explosives plant in West Virginia.

After the war, Seeley returned to his mining interests, but by this time (he being 60 years old and in failing health) his

oldest son Harvey was doing most of the leg work, and was preparing to take over his fathers' interests.

Seeley Mudd remained active in the affairs of Cyprus Mines until shortly before his death, but on May 24, 1926, he died following a long illness.