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Western Mining in the Twentieth Century Series

# Samuel Shaw Arentz, Jr.

# MINING ENGINEER, CONSULTANT, AND ENTREPRENEUR IN NEVADA AND UTAH, 1934-1992

With an Introduction by
Dooley P. Wheeler, Jr.

Interviews Conducted by
Eleanor Swent
in 1988 and 1992

Samuel Shaw Arentz, Jr., 1982

Since 1954 the Regional Oral History Office has been interviewing leading participants in or well-placed witnesses to major events in the development of Northern California, the West, and the Nation. Oral history is a modern research technique involving an interviewee and an informed interviewer in spontaneous conversation. The taped record is transcribed, lightly edited for continuity and clarity, and reviewed by the interviewee. The resulting manuscript is typed in final form, indexed, bound with photographs and illustrative materials, and placed in The Bancroft Library at the University of California, Berkeley, and other research collections for scholarly use. Because it is primary material, oral history is not intended to present the final, verified, or complete narrative of events. It is a spoken account, offered by the interviewee in response to questioning, and as such it is reflective, partisan, deeply involved, and irreplaceable.

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Childhood and schooling in Nevada and Washington, D.C, as son of congressman; working in mines: Mercur, Utah; Rico Argentine, Colorado; Ima, Idaho; Pioche, Nevada; Henderson, Nevada; and Moab, Utah; developing mines in Utah and Nevada: Butterfield, Bretz, Escalante Mines; employment of Black miners furloughed from the Army during WWII; uranium boom in Moab, 1950s; advisor on mining education, University of Utah; recollections of Herbert Hoover; changes in mining methods, organization, equipment.

Introduction by Dooley P. Wheeler, Jr., director of exploration and mining, Umont Mining Inc.

Interview conducted in 1988 and 1992 by Eleanor Swent for Western Mining in the Twentieth Century Oral History Series. The Regional Oral History Office, The Bancroft Library, University of California, Berkeley.

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# PREFACE

The oral history series on Western Mining in the Twentieth Century documents the lives of leaders in mining, metallurgy, geology, education in the earth and materials sciences, mining law, and the pertinent government bodies. The field includes metal, non-metal, and industrial minerals, but not petroleum.

Mining has changed greatly in this century: in the technology and technical education; in the organization of corporations; in the perception of the national strategic importance of minerals; in the labor movement; and in consideration of health and environmental effects of mining.

The idea of an oral history series to document these developments in twentieth century mining had been on the drawing board of the Regional Oral History Office for more than twenty years. The project finally got underway on January 25, 1986, when Mrs. Willa Baum, Mr. and Mrs. Philip Bradley, Professor and Mrs. Douglas Fuerstenau, Mr. and Mrs. Clifford Heimbucher, Mrs. Donald McLaughlin, and Mr. and Mrs. Langan Swent met at the Swent home to plan the project, and Professor Fuerstenau agreed to serve as Principal Investigator.

An advisory committee was selected which included representatives from the materials science and mineral engineering faculty and a professor of history of science at the University of California at Berkeley; a professor emeritus of history from the California Institute of Technology; and executives of mining companies.

We note with much regret the death of two members of the original advisory committee, both of whom were very much interested in the project. Rodman Paul, Professor Emeritus of History, California Institute of Technology, sent a hand-written note of encouragement just a few weeks before his death from cancer. Charles Meyer, Professor Emeritus of Geology, University of California at Berkeley, was not only an advisor but was also on the list of people to be interviewed, because of the significance of his recognition of the importance of plate tectonics in the genesis of copper deposits. His death in 1987 ended both roles.

Thanks are due to other members of the advisory committee who have helped in selecting interviewees, suggesting research topics, and raising funds.

Unfortunately, by the time the project was organized several of the original list of interviewees were no longer available and others were in failing health; therefore, arrangements for interviews were begun even without established funding.

The project was presented to the San Francisco section of the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME) on "Old-timers Night," March 10, 1986, when Philip Read Bradley, Jr., was the speaker. This section and the Southern California section provided initial funding and organizational sponsorship.

The Northern and Southern California sections of the Woman's Auxiliary to the AIME (WAAIME), the California Mining Association, and the Mining and Metallurgical Society of America (MMSA) were early supporters. Several alumni of the University of California College of Engineering donated in response to a letter from Professor James Evans, the chairman of the Department of Materials Science and Mineral Engineering. Other individual and corporate donors are listed in the volumes. The project is ongoing, and funds continue to be sought.

Some members of the AIME, WAAIME, and MMSA have been particularly helpful: Ray Beebe, Katherine Bradley, Henry Colen, Ward Downey, David Huggins, John Kiely, Noel Kirshenbaum, and Cole McFarland.

The first five interviewees were all born in 1904 or earlier. Horace Albright, mining lawyer and president of United States Potash Company, was ninety-six years old when interviewed. Although brief, this interview will add another dimension to the many publications about a man known primarily as a conservationist.

James Boyd was director of the industry division of the military government of Germany after World War II, director of the U.S. Bureau of Mines, dean of the Colorado School of Mines, vice president of Kennecott Copper Corporation, president of Copper Range, and executive director of the National Commission on Materials Policy. He had reviewed the transcript of his lengthy oral history just before his death in November, 1987. In 1990, he was inducted into the National Mining Hall of Fame, Leadville, Colorado.

Philip Bradley, Jr., mining engineer, was a member of the California Mining Board for thirty-two years, most of them as chairman. He also founded the parent organization of the California Mining Association, as well as the Western Governors Mining Advisory Council. His uncle, Frederick Worthen Bradley, who figures in the oral history, was in the first group inducted into the National Mining Hall of Fame, Leadville, Colorado, in 1988.

Frank McQuiston, metallurgist, vice president of Newmont Mining Corporation, died before his oral history was complete; thirteen hours of taped interviews with him were supplemented by three hours with his friend and associate, Robert Shoemaker.

Gordon Oakeshott, geologist, was president of the National Association of Geology Teachers and chief of the California Division of Mines and Geology.

These oral histories establish the framework for the series; subsequent oral histories amplify the basic themes.

Future researchers will turn to these oral histories to learn how decisions were made which led to changes in mining engineering education, corporate structures, and technology, as well as public policy regarding minerals. In addition, the interviews stimulate the deposit, by interviewees and others, of a number of documents, photographs, memoirs, and other materials related to twentieth century mining in the West. This collection is being added to The Bancroft Library's extensive holdings.

The Regional Oral History Office is under the direction of Willa Baum, division head, and under the administrative direction of The Bancroft Library.

Interviews were conducted by Malca Chall and Eleanor Swent.

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Regional Oral History Office

Eleanor Swent, Project Director
Western Mining in the Twentieth
Century Series

October 1990
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Western Mining in the Twentieth Century Oral History Series
Interviews Completed, June 1993

Horace Albright, Mining Lawyer and Executive, U.S. Potash Company, U.S. Borax, 1933-1962, 1989

Samuel S. Arentz, Jr., Mining Engineer, Consultant, and Entrepreneur in Nevada and Utah, 1934-1992, 1993

James Boyd, Minerals and Critical Materials Management: Military and Government Administrator and Mining Executive, 1941-1987, 1988

Philip Read Bradley, Jr., A Mining Engineer in Alaska, Canada, the Western United States, Latin America, and Southeast Asia, 1988

Catherine C. Campbell, Ian and Catherine Campbell, Geologists: Teaching, Government Service, Editing, 1989

James T. Curry, Sr., Metallurgist for Empire Star Mine and Newmont Exploration, 1932-1955; Plant Manager for Calaveras Cement Company, 1956-1975, 1990

J. Ward Downey, Mining and Construction Engineer, Industrial Management Consultant, 1936 to the 1990s, 1992

Hedley S. "Pete" Fowler, Mining Engineer in the Americas, India, and Africa, 1933-1983, 1992

James Mack Gerstley, Executive, U.S. Borax & Chemical Corporation; Trustee, Pomona College; Civic Leader, San Francisco Asian Art Museum, 1991

John F. Havard, Mining Engineer and Executive, 1935-1981, 1992

George Heikes, Mining Geologist on Four Continents, 1924-1974, 1992

Helen R. Henshaw, Recollections of Life with Paul Henshaw: Latin America, Homestake Mining Company, 1988

Lewis L. Huelsdonk, Manager of Gold and Chrome Mines, Spokesman for Gold Mining, 1935-1974, 1988

Arthur I. Johnson, Mining and Metallurgical Engineer in the Black Hills: Pegmatites and Rare Minerals, 1922 to the 1990s, 1990

Evan Just, Geologist: Engineering and Mining Journal, Marshall Plan, Cyprus Mines Corporation, and Stanford University, 1922-1980, 1989

Plato Malozemoff, A Life in Mining: Siberia to Chairman of Newmont Mining Corporation, 1909-1985, 1990

James and Malcolm McPherson, Brothers in Mining, 1992

Frank Woods McQuiston, Jr., Metallurgist for Newmont Mining Corporation and U.S. Atomic Energy Commission, 1934-1982, 1989

Gordon B. Oakeshott, The California Division of Mines and Geology, 1948-1974, 1988

Vincent D. Perry, A Half Century as Mining and Exploration Geologist with the Anaconda Company, 1991

Carl Randolph, Research Manager to President, U.S. Borax & Chemical Corporation, 1957-1986, 1992

John Reed, Pioneer in Applied Rock Mechanics, Braden Mine, Chile, 1944-1950; St.Joseph Lead Company, 1955-1960; Colorado School of Mines, 1960-1972, 1993

Joseph Rosenblatt, EIMCO, Pioneer in Underground Mining Machinery and Process Equipment, 1926-1963, 1992

Eugene David Smith, Working on the Twenty-Mule Team: Laborer to Vice President, U.S. Borax & Chemical Corporation, 1941-1989, 1993

James V. Thompson, Mining and Metallurgical Engineer: the Philippine Islands; Dorr, Humphreys, Kaiser Engineers Companies; 1940-1990s, 1992

## Interviews In Process

Donald Dickey (Oriental Mine), in process

James Jensen (metallurgy), in process

Robert Kendall (U.S. Borax), in process

John Livermore (geologist), in process

Langan Swent (San Luis, Homestake, uranium mining), in process

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INTRODUCTION--by Dooley P. Wheeler, Jr.

In the early 1950's, when Salt Lake City was a major center of mineral exploration, mining, smelting, and related service industries, many of the numerous companies involved gave Christmas parties at the various social clubs or at some officials' homes. It was at such a party that the Wheelers met Sam and Mary Alice Arentz who had recently moved from Pioche, Nevada, to Salt Lake City.

From that meeting a social and professional friendship has continued to grow along with an increasing appreciation of the totality of Samuel S. Arentz as an outstanding twentieth century mining engineer in terms of heritage, responsibility, dedication, integrity, ability, experience, and versatility in basic raw materials production and in other fields of interest.

Sam Arentz, because of amazing memory, instant recall, a clear strong voice, and physical stature is an outstanding raconteur. The stories of his friend Herbert Hoover, because of their humor or historical significance, appeared to be Sam's favorites.

One story was about an Atlantic crossing where Hoover was sitting at the Captain's table and a Lady So-and-so from England asked Mr. Hoover what he did. When Hoover said he was a mining engineer, Lady So-and-so said, "Oh, I thought you were a gentleman."

Another Hoover story also started with an ocean voyage, this time from Hanoi to Australia. During Mr. Hoover's early years in Asia, he realized that there was more metal in use than known mines could account for. He surmised that the surface oxide ores had been mined to the water table and that the sulfide ores, because of water and metallurgical problems, would still be in place. Hoover was interested in finding old workings. On this voyage he became acquainted with a British railroad contractor who had been hunting tigers in northern Burma, about 250 miles northeast of Mandalay and 50 miles from the Chinese border. The contractor told Hoover of seeing extensive and overgrown mine workings and slag dumps on his hunting trip. Hoover was interested, and the contractor thought he could get a concession on the workings if Hoover would investigate the area. After coming to an agreement and getting the concession, Hoover sent in an engineer to investigate. It turned out that the slag alone contained about 500,000 tons of lead oxides and that there were many mine workings in the upper oxidized portion of what was later to become the famous Bawdwin Mine. When the underlying unoxidized sulfides were developed, they averaged 27 ounces of silver per ton, 27 percent lead and 27 percent zinc.

Sam tells of his dog, Tripper, that could sniff out gold occurrences, but it is best not to go into that for fear it might unduly excite the likes of Phil Bradley, John Livermore and Ralph Roberts. Besides, the dog died without issue some forty years ago.

When the Arentz family came to Salt Lake City from Pioche, Sam was very much in favor of protective tariffs because of the damage inflicted on domestic lead-zinc mines by imports. Since then it seems inevitable that Sam would become more of a free trader judging by his social, business and engineering conduct which follows the golden rule based upon self respect, consideration for others, and a single standard.

Foreign exchange students have been welcomed into the Arentz family and home where they have experienced the wide range of American life found in our cities, farms, and forests, including football and pheasant hunting.

Mary Alice and Sam are cheerful and generous but modest. One would not be likely to know they had financed the attractive emergency entrance structure of Holy Cross Hospital in Salt Lake City unless he or she had to use that entrance and happened to notice the metal plaque acknowledging their gift.

The first book that I recall Sam enthusiastically promoting, besides De Re Metallica, was Atlas Shrugged by Ayn Rand. Rand was a student of F. A. Hayek and undoubtedly an admirer of Thomas Sowell, for she favors laws inspiring opportunity and hope for anyone with a work ethic; favors individual and local decision-making, free enterprise, increased private property and less government intrusion into property rights, reduced bureaucratic regulations, and judicial restraint. In other words, it is evident to me that her ideas of how things should be are constrained in the sense Thomas Sowell defines those with "constrained vision."

Although Sam is very well read, his family, mining engineering training, experiences, and acquaintances from his early homestead days through a long mining career account more than books for Sam Arentz and his sense of how the world should work.

Sam and Mary Alice have reared a remarkable family who can be counted upon, now and into the next century, to make a difference in a nation struggling to hew to the constrained vision which made this nation so very great.

Dooley P. Wheeler, Jr.
Director of Exploration and Mining
Umont Mining, Inc.

October 1992
Salt Lake City, Utah

INTERVIEW HISTORY--Eleanor Swent

Samuel S. Arentz, Jr., was selected for the oral history series on Western Mining in the Twentieth Century because of his varied career as mine operator, consulting engineer, and entrepreneur, primarily in Nevada and Utah.

Like so many members of this profession, he was born into it. Among the mementos on his wall is the diploma given to his father, Samuel Arentz, Sr., when he graduated from the South Dakota School of Mines in 1904. When young Sam was born, his father was manager of the Nevada Douglas copper mine in Nevada.

Sam Arentz, Jr., began his education in Smith Valley, Nevada, as the only first-grader in a one-room school with twelve students. The next year his father began ten years of service as a congressman, and from then on, Sam alternated between Nevada and Washington, D.C., schools. He passed a Nevada proficiency test exempting him from the eighth grade, so after seventh grade, he went directly to a high school with forty-five students. After a short time there, he transferred to a Washington, D.C., high school of 3,000 students. Throughout his life he has continued to be equally at home both out in the field and in more sophisticated social settings.

He graduated from the Mackay School of Mines at the University of Nevada in 1934, just before his father died of mercury and thallium poisoning incurred while doing research on gold precipitates at Manning, Utah. This premature death forced Sam Arentz, Jr., to assume responsibility early in life for his widowed mother and four younger sisters.

He worked for a number of years with Ed and George Snyder of W. F. Snyder and Sons in several of their mining enterprises; subsequently he ventured as an independent mine developer and operator. He has worked in many well-known mines: among them Mercur, Rico Argentine, Pioche, Butterfield, Bretz, and Escalante.

He tells how he successfully developed the Escalante Mine and sold it to Ranchers Exploration and Development Corporation, which sold in turn to Hecla Mining Company; he remained on the Hecla board to direct its affairs. He recalls giving birthday parties for Herbert Hoover at the Pioche Mine, Nevada. He also discusses the situation in World War II when black soldiers were conscripted from the army to work in the mines of Nevada and Idaho.

His wife, Mary Alice Meagher Arentz, was one of Utah's first woman lawyers. In 1987, Sam Arentz, as president of the venerable and prestigious Alta Club of Salt Lake, voted to admit women members for the first time. One of the pleasures in conducting the interviews was to have luncheon in the Alta

Club dining room as the guest of Mr. and Mrs. Arentz. They are a tall and handsome couple, both of them gracious and affable, he coping well with diminished eyesight.

Samuel Arentz is a member of the Society for Mining and Exploration and the Mining and Metallurgical Society of America. He has been chairman of both the Nevada and Utah sections of the American Institute of Mining, Metallurgical, and Petroleum Engineers. He was a member of the Board of Regents of the University of Nevada from 1949 to 1953 and was an advisor to the University of Utah from 1973 to 1991. In his oral history, he comments on these activities.

Interviews with Mr. Arentz were conducted in his beautiful offices in the University Club Building, Salt Lake City, on 20 and 21 June 1988. The tapes of the first two interviews were transcribed in Berkeley and sent to Mr. Arentz for review; a long delay ensued because of health problems. A third interview was held in Salt Lake on 1 July 1992 and the tapes transcribed in his office. Thanks are due to Cathy Arentz and Gay Rokich of his office for their help in transcribing and editing.

The introduction to the volume was written by a longtime friend and contemporary, Dooley P. Wheeler, Jr., director of exploration and mining, Umont Mining, Inc.

The tapes of the interview are available for study at The Bancroft Library.

Eleanor Swent, Project Director
Western Mining in the Twentieth Century series

January 1993
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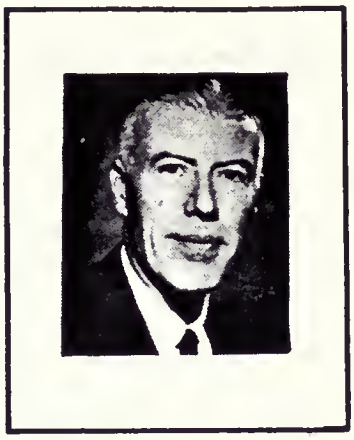

ARENTZ, JR., SAMUEL S.

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Salt Lake City, UT 84111

Home: 1800 Orchard Drive
Salt Lake City, UT 84106

Born: March 9, 1913, Los Angeles, CA

1934 BS Mining & Metallurgy, Mackay School of Mines

| | |
|---|---|
| 1954-date | Consulting Engineer and Independent Mine Operator |
| 1956-1963 | Bretz Mercury Mine, McDermitt, NV |
| 1958-date | Escalante Silver Mine, Enterprise, UT |
| 1969-date | Cinnabar Creek Mercury Mine, Aniak, AK |
| 1941-1954 | Combined Metals Reduction Co., Pioche, NV and Salt Lake City, UT, Mine Engineer, Supt., Mgr. |
| 1939-1941 | Rico Argentine Mining Co., Rico, CO, Manager |
| 1939 | Ima Tungsten Mine, Patterson, ID, Engr., Mill Supt. |
| 1938-1939 | Rico Argentine, Rico, CO, Supervising Engineer on Mine Development and Mill Construction |
| 1934-1938 | Snyder Mines, Mercur, UT, Assayer, Mill Operator, Mine Engineer, Mine Foreman, Construction Supt. |
| 1932 | Bureau of Reclamation, Hoover Dam, Survey Crew |
| 1929 | US Navy, Hawthorne, NV, Survey Crew |

Member: President, Escalante Silver Mines Co., Haday, Inc.; Director, Ranchers Exploration & Development Corp.; Chairman, Advisory Council, Utah School of Mines & Mineral Industries; AIME; Utah Mining Association; Alta Club; Registered Engineer in Utah and Nevada

9/83

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## BIOGRAPHICAL INFORMATION

(Please write clearly. Use black ink.)

Your full name Samuel Shaw Arentz, Jr

Date of birth March 9, 1913 Birthplace Los Angeles, Ca

Father's full name Samuel Shaw Arentz

Occupation Mining Engr. Congress Birthplace Oak Park, Ill.

Mother's full name Harriet Keep Arentz

Occupation _____ Birthplace Beloit, Iowa

Your spouse Mary Alice Meagher - Lawyer

Your children Mary Catherine, Susan Keep, Samuel S. III
Nicholas J., Margaret C

Where did you grow up? Smith Valley, Nev and Washington DC

Present community Salt Lake C., Ty, Ut

Education BS Mining Engr. Mackay School of Mines
University of Nevada

Occupation(s) Mining and Metallurgical Engineer and
Independent Mine Operator -

Areas of expertise Mine Exploration, Development Operation

Other interests or activities Mining / Education - Flying -
Travel -

Organizations in which you are active AIME - Utah and Nevada
Mining Associations - Athletic Club and Country Club of
Salt Lake City -

## I SON OF A MINING ENGINEER/CONGRESSMAN

[Interview 1: June 20, 1988] ##[1]

Swent: Mr. Arentz, we are in your beautiful office in the University Club Building in Salt Lake City, with a lovely view of the Utah State Capitol. I think we'll start, if you don't mind, by your telling a little bit about your family and how you happened to be born into mining, as it were.

Arentz: My father was a mining engineer, At the time I was born, in 1913, he was manager of the Nevada Douglas mine, a large copper operation in western Nevada. My mother was from Iowa originally. She had been in California and met my dad. When I was born, she had an older sister who was a doctor of medicine in Los Angeles. So she went down to Los Angeles, and that's where I was born. However, we returned to Nevada when I was quite young, and about the time I was six months old, my dad changed jobs and came over to Utah. We were in Utah until I was about four years old, and then we went back to Nevada where my mother and father had located a desert entry.

Swent: You might explain this desert entry just a bit.

Arentz: Well, you know, you've heard of homesteads. Under the federal land laws, a homestead was a rather small acreage that you could farm on and didn't necessarily have to have water. A desert entry was for the western states where you got a larger acreage; generally it was a half a section of 320 acres, but it generally required irrigation, or grazing anyway.

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[1]This symbol indicates that a tape segment has begun or ended. A guide to the tapes follows the transcript.

My father and mother had located a desert entry before I was born. Then he had a modest success in a mine in Utah in 1914 and 1915, and they had the land cleared and the home built, and we moved over there. However, he actually had another small mine out of Good Springs, Nevada, and that's where I started school as a kindergartner. We called it a ranch; it was actually a farm. When dad went into the army in the First World War, mother and my two next younger sisters were at the ranch until he got back out of the army.

Swent: They kept it going, did they?

Arentz: Oh yes, well, my mother did. We also had a foreman there.

Swent: Did you raise cattle?

Arentz: As I say, it was more a farm than a ranch; we raised hay, and we had sheep, and dairy cows, and pigs, and one thing and another.

## School in Nevada and Washington, D.C.

Swent: What about school?

Arentz: I went to school there in Smith Valley, it was Lyon County, between Yerrington and Carson City. The first school there was a small one-room school with twelve students and at least one in each grade. I was the only first grader. The school was about three miles from our home, and the foreman on the ranch would harness a horse and hitch it to a buggy, and I would drive the buggy to school.

Swent: Six years old?

Arentz: Yes. And half way there I'd pick up the teacher who boarded at the adjoining farm. Then when I got to school, one of the older boys would unhitch the horse and take the bridle out and put the horse in this little stable at the school, and when school was out, why, they'd hitch the horse up again, and I'd drive home.

Swent: So you learned independence very young then, didn't you?

Arentz: Then I started the second grade in Smith Valley, but in the meantime my father had been elected to Congress from Nevada, and he took the whole family East. I went, in the second grade, from a school that had four grades in one room to a school in

Washington, D.C., that had about forty kids in one room, and they were all in the same grade.

Swent: And they didn't ride their buggies to school.

Arentz: No. Then we came back to Nevada on the short session, and I went to third grade in Smith Valley. At the school out in Smith Valley, where you'd have several grades in one room, there would be a bench up at the front of the room. The class that was supposed to be reciting could come up and sit on the bench, and the teacher would talk to them and call on them, and any kid in the room could come up as long as he didn't disrupt anything. And so, I was very interested, and I would go up when the class ahead of me was reciting, and that's how I happened to skip a couple of grades.

I finished the seventh grade in Smith Valley, and I didn't go to the eighth grade. Nevada, at that time, put out a test to all eighth graders and all seventh graders. The seventh graders took the test just to orient them for the one they had to take when they were in the eighth grade. But you had to pass it in the eighth grade or take separate tests in arithmetic and English. I happened to pass it in the seventh grade well enough that they said, "You don't have to take the eighth grade."

So I started high school in Smith Valley, and the high school had forty-five students in it. I went there a month, and then we drove back East, and I started in a high school in Washington, D.C., that had about 3,000 in it. I was sort of lost for a month or two because I was starting two months late, really. Then the next year we were back in Smith Valley, and the next year back in Washington, and then I graduated in Smith Valley.

I grew rather slowly, and so, when I got out of high school at sixteen, I was only five feet two inches and rather immature otherwise.

Swent: How tall are you now?

Arentz: I was five two then, now I'm over six two.

I stayed out of school a year. But the summer I got out of high school, I worked as a surveyor's helper for the navy down at Hawthorne Naval Ammunition Depot. I'd always thought I wanted to go to Annapolis [Naval Academy] because, coming from Nevada, why, the water seemed to be something. So when we went back East, I was seeing if I could wangle an appointment to Annapolis.

There was a fellow by the name of Millard that had been put out of West Point [Military Academy] in his senior year. He was pretty much of an honor student, as I understood it, but he was put out because of some hazing incident that attracted some attention. My dad had helped him out, and he had set up a prep school for the academies. A lot of the students were residents. It was the equivalent of going to a high school boarding school. He also had one where he made arrangements for professors from leading Ivy League schools to come in, and you'd have a ten-day course in English. I mean, like twenty hours a day. That's exaggerated; they would be sixteen hours. And then the next ten days would be in math, and the next ten days would be in history, and so forth. He had copies of the previous exams from the academy going back twenty-five or so years, and his courses were oriented toward the type of questions they asked. He didn't have any questions they were asking at that particular time, but anyway, you'd have to be a dope not to be able to pass the entrance exams.

Because of my dad's helping him out at one time he invited me to take the course. When you finished it, he took everybody that was graduating up to West Point for three or four days, and each of us got a chance to spend one day with a plebe [first-year student] going to classes and being in his dormitory and one thing and another, and he pretty well sold me on changing from Annapolis to West Point.

I got the appointment, and I was due to report to West Point on, I guess it was the first of July. My dad meanwhile, had been engaged on a consulting assignment to check on some properties in the Philippines. I had been working that whole year as a page in the House of Representatives, and I had been living at home, so I was able to save my money. I got checking up and I told my dad, "If you take me with you to the Philippines, I'll put myself through Nevada. I'd rather be a mining engineer than go into the army anyway." So that's what we did.

That summer, I went over on the boat to the Philippines, and then, when I got back, I entered the University of Nevada. The family was back in Washington.

Swent: How many years was your father in the House?

Arentz: Well, he was in a total of ten years, but he was in over a twelve-year period from 1921 to 1933. He was out from 1923 to 1925 because of one election when he ran for the Senate and was defeated, and then the next election, he ran for the house again and was elected.

## University of Nevada, Mackay School of Mines, 1930-1934

Arentz: I entered the University of Nevada in 1930 and he was in Washington until March in 1933 when Roosevelt went in. But, the first summer, while the family was all back there, I worked out at our ranch, as we called it. The second summer, I got a job down at Hoover Dam in the tunnels.

Swent: Who were you working with?

Arentz: I was working for the Bureau of Reclamation as a surveyor. The third summer, I was taking advanced military ROTC to get a commission, and so the third summer I spent part of the time at Monterey on active duty, as far as the cadets were concerned, for six weeks. Then I was at Manning, south of Salt Lake, working as a laborer on the construction of a cyanide plant to retreat the tailings. Then I was back in school.

When my dad was defeated for re-election, he picked up again on checking on mining properties. The Snyders here in Salt Lake, who had operations in Pioche, and at Hailey, and at other places, had a lease on some Manning gold tailings in the Mercur District. They asked my dad to help them finance it. He got some of his friends and they were able to successfully raise enough money to build a mill at Manning. That was 1933. The mill was built, and they started in late 1933 or early 1934.

Swent: Just about the time the price went up.

Arentz: Yes. My dad wasn't actually out there doing it, he was financially interested in it in a modest way, but he wasn't out at the plant. But when they started producing gold, they couldn't make a bullion that the mint would accept. This, of course, made all the difference as to whether the thing was going to be a success or not. My dad had run a cyanide plant as a young man down in Wickenburg, Arizona, and so he went out to see what the problem was. He used assay crucibles and different fluxes until he was able to make a clean gold button. Then he and the electrician on the job melted down all the precipitate they had on hand.

Ordinarily, in melting gold precipitate, you use borax, and soda ash and silica and you don't ordinarily have any toxic fumes. You use a great big graphite crucible and diesel fuel, and it's in a circular furnace with a hood over it, and melt the gold precipitate down. What they didn't know was that gold cyanide precipitates contain a lot of mercury and thallium. It came off

as a vapor, and my dad and the electrician both got badly poisoned by it. By the time he got it all melted down and had the bar to take into Salt Lake, he was very sick.

He came into Salt Lake and was in the hospital for several days and then he came home. This would be in March of 1934. He was quite ill by the time he got home, and he went down to San Francisco and got checked. The doctor reported that the thallium and mercury had destroyed his kidneys, and he was going to have to be operated on. They thought they could do something. But, just about a month after I got out of school, actually on Father's Day, he died, as a young man.

I had a widowed mother and four younger sisters, and actually, in those days a typical member of Congress didn't take the job because it paid so much, it was a matter of public service. It had pretty well depleted my dad's capital. So I had lined up where I had a job with Anaconda on graduation, but because of my dad's interest over at Manning and Mercur, I went there. The only thing is, as a graduate mining engineer, my first job was as a laborer breaking rocks on a grizzly with a sledgehammer. In those days, of course, the mines worked seven days a week and there wasn't any overtime pay.

The interesting thing was, as a young engineer, even though I was a laborer there, I was responsible for the boarding house. If a cook went out and got drunk, I had the responsibility of seeing that the guys got fed breakfast until I could get another cook.

Swent: And you had graduated from Mackay [School of Mines] in 1934?

Arentz: Yes, then I came over to Manning at the mill. Then later, I was the assayer and then I went up to the mine at Mercur and was the engineer there, and then mine foreman. Then we built a new bigger mill up there, and I was the construction superintendent as well as mine engineer.

Swent: As well as back-up cook.

Arentz: Well, I graduated from that in the course of time, yes.

Swent: I think you might want to say a little something about your training at Mackay. What sort of training did you receive there?

Arentz: A very fine one.

Swent: Mackay is the school of mines at the University of Nevada and was it a separate college within the University?

Arentz: Yes. Clarence Mackay, the son of John Mackay who made his fortune in Virginia City, one of the Comstock Kings, was very generous in providing funds for the Mackay School of Mines, and also at a later time, for the stadium and field house at the university. About the time I started he had provided funds for the science building at the university which included math and physics and chemistry. The classes were small, I mean like ten or so. Vince Gianella was a professor of geology, and Claude Jones was the head of the geology department, Jay Carpenter was the professor of mining. Walter Palmer was the professor of metallurgy, and William Smythe handled the assaying and accounting and things of that sort: mine accounting and assaying and some parts of metallurgy.

Swent: Did you get to know your professors fairly well?

Arentz: Well, sure, with only ten students. There were only three of us graduated when I did because it was during the Depression, and most of them took five years. I had laid out a year ahead of time and earned enough to take care of the first two years. Then, by that time, I had two summers, and I had taken care of those the third year, and my dad helped me on the fourth year, so it worked out all right. But they were a remarkable group of professors.

Swent: In what way?

Arentz: Oh, just in their overall competence as teachers. Dr. Gianella particularly had a happy faculty of being able to write equally well with either hand. He also could do a very beautiful job writing and drawing diagrams on a blackboard. So he could be giving a lecture and writing while looking over one shoulder and then pick up the chalk and finish it off looking over his other shoulder. Once you got past the preliminary courses in mineralogy and one thing and another, there would be maybe ten of us in his office, and he had a table about twice the size of this desk piled up with rock specimens. While you had text books to work with, he'd pick up a random seemingly--although he probably had planned ahead of time--one of those rock specimens and give a lecture on it while they passed around the specimen.

Swent: Did you do a lot of field work and laboratory work?

Arentz: Oh yes, I took all the courses in mining and metallurgy and geology they had and also all the courses in civil engineering except, I think, sewage disposal and one other. In those days, mining engineering was more "jack of all trades and master of none" in a sense. Now there's a specialization that's quite a bit different. But one summer I had to spend--I guess it was the

first summer when I mentioned that I was out at the farm, we had been surveying out north of Reno, plane table work and triangulation and things like that. Then we also did our mine surveying at a cinnabar property towards Virginia City that was actually operating. It created some additional problems in not holding up a crew that was working there while we students were doing the surveying.

## Father's Background

Swent: It might be interesting to contrast this a little bit with the training your father had.

Arentz: Well, as I mentioned to you earlier, my father was raised in Oak Park, Illinois, a suburb of Chicago. His father had a small hardware store, and my father had four sisters and two brothers, and he was one of the younger ones. He finished at a technical high school where he actually had more mechanical drawing and things of that sort than most college students do. And he wanted to be an engineer. He applied for work with the City of Chicago engineering department. He was seventeen at the time and didn't have a beard and seemed rather young, so they said, "Well, come back when you've got a beard." In the meantime, he somehow met a mining engineer. I don't know the details, but after talking to him, he decided that's the kind of an engineer he wanted to be.

He found out that a forerunner of the International Correspondence School had a course in mining engineering, and he sent away for the books. He studied them and sent in the data, and he got a certificate saying he'd completed the course. About that time, he got a job with the City of Chicago engineering department as a surveyor or a surveyor's helper. One day, quite by coincidence, a mining engineer from Jardine, Montana, which is just north of Yellowstone Park, came into Chicago, and he stopped in the city engineering department, and said that he would like to have them design a gold mill, and he had the information on this property. In those days, a gold mill was typically a stamp mill with amalgamation. They said, "We don't design gold mills," but my father said he could design a gold mill. I think he was about nineteen at the time. The fellow said, "Well, I'll tell you what. Here's all the information. You send the plans out, and if I think you're any good, I'll send you a ticket."

My dad sent the plans out and in due course he got a ticket. As I recall, it's ten or twelve miles from Gardiner, Montana,

where the railroad is, to Jardine. Jardine's up a canyon to the east of Gardiner. After they got the mill built, my dad had a job working in the mine. The owner or manager called him in one day and said, "Now, look. Because of your age, and one thing and another, if you were to go down to Gardiner on a Saturday night, they'd just think you were going to a dance. You take the bullion bar down and deliver it to Wells Fargo and they won't suspect you're carrying the bullion; they'll think you're going down to the dance."

Well, it was snow country and my dad had to go down on skis. The fellows in the bunkhouse knew where he was going but they pretended they didn't and they'd start reminiscing about how so and so got shot getting the bullion down, or held up and one thing and another. My dad said that every time he took the trip down, he was sure that something was going to happen to him on the way down.

He left there and went back to the copper country in Michigan and worked in the mines there. Then he went to South Dakota and was working at the Homestake and enrolled in the South Dakota School of Mines. Because of his past experience and his correspondence course, he finished there in three years, both in mining and civil engineering. Then he came out west, and was in charge of a small gold mine out in Wickenburg, Arizona, and then he did leasing on a lead and silver prospect at Stockton, Utah. He was up at Silver City, Idaho, and he was in the Bingham district of Utah Apex Mine and the Highland Boy as a young engineer and shift boss.

While he was at, I think, the Utah Apex, the winter of 1905-06, they had an unusually heavy snowstorm, and the superintendent and the crew all just stayed down in town instead of going up to the mine. My dad got some food and snowshoes and went up to the mine and climbed down the shaft to keep the pumps going. The directors happened to have a meeting in Bingham, and they were very concerned as to whether the mine might be flooded, and one of the young directors went up and found my dad tending the pumps.

In due course, he was sent over to Nevada to build the Nevada Copper Belt Railroad which went from the smelter at Thompson or Wabuska around to Ludwig. Once the railroad was in, he was put in charge of the mine up in Ludwig, the Nevada Douglas mine, which at that time, in the period 1906 to 1913 was one of the larger copper properties in Nevada. In 1913, a related company had him come over here to Utah and Salt Lake and build an inter-urban railroad from Salt Lake seventy-five miles south to Payson. He finished that in 1914.

Mother's Background

Arentz: My mother was born and raised in western Iowa. Her father was an attorney and had some farmland. She had two older sisters and an older brother and one younger sister. Her father died as a young man when my mother was only like ten or so years old. Her mother brought the whole family out to California. This must have been about 1897 or thereabouts.

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Arentz: A cousin of my grandmother's was ambassador to Germany, and my oldest aunt was an accomplished musician, and the next aunt was a graduate M.D. The brother wanted to be a scientific farmer, and in those days, Germany sort of led in all three of those fields. My mother and her younger sister were high school students, so my grandmother took her whole family to Europe, and the three older ones went into graduate school, and my mother and her younger sister were in a girls' boarding school. Then in the summer they would travel around.

When they came back to the U.S. my mother had the equivalent of finishing high school because she'd been in high school before they went and a year or so of college. She taught in a girls' school in Washington, D.C. She got word from her cousins out in Iowa that the government had opened up Indian territory in western South Dakota, and anybody could get a section of land if they came out and built on it and lived there for a year. My mother was a true pioneer, and she came charging out and joined her cousins. They helped her, and three cousins and my mother built on adjacent corners of adjacent sections. They helped her build a sod house, and she became the postmistress.

Swent: Where was this?

Arentz: Out of Lemmon, South Dakota. About the time she'd finished proving up on her land, her mother and older sister came out, and they were heading out to California, and they asked her to come. They were stopping in Reno where a cousin of my mother, Jay Carpenter, was getting married. He had been at South Dakota School of Mines with my father and his older brother who were classmates, and my dad was best man for Jay, and best man's duties included taking care of the groom's family. So that's how my father happened to meet my mother.

Swent: What was your mother's maiden name?

Arentz: Keep.

Swent: Are any of them left in Lemmon, South Dakota?

Arentz: No, no. I think the rest of them are all named Carpenter because that was my grandmother's maiden name. She was born and raised in Beloit, Iowa, across the river from Canton, South Dakota.

Swent: Anybody who would homestead in Lemmon, South Dakota, is very intrepid.

Arentz: [Chuckles] It was a long way out in the hills.

Swent: And she did it! That's terrible weather, summer and winter.

Arentz: Well, she went through one tornado out there.

Swent: Oh, my. Well, then was she married there in Reno?

Arentz: No. She was living in Los Angeles at the time. But my dad, after meeting her and her sisters and mother in Reno, made a point of going down to California on occasion. Mother was equally at home either running the ranch in Smith Valley, or at the mining camp at Good Springs in a corrugated iron cabin with kerosene lights, or as a hostess in Washington.

Swent: Marvelously varied experiences.

Arentz: And she lived to be ninety-five. She was quite a remarkable person, really. My father and I were very close. He took me with him--I was the eldest of the children and the only son. I had four younger sisters. After my dad's death, I had graduated so I helped my eldest sister get through school, and then she got a job, and both of us helped the next one, and before we got through, we got everybody through college.

## II A MINING ENGINEER, 1934-1954

### Mercur, Utah, 1934-1938

Swent: So how long did you stay at Mercur?

Arentz: After my dad's death in June, it took about a month to get my mother straightened out and get things organized. Then I came over to Mercur and went to work. I worked at Mercur until the first of October in '38. I went there in July of '34.

The most memorable character, the mine superintendent, was a little guy by the name of Owen Hickey. Hickey was not a technical man. He was from Australia, a little short guy. He didn't think too much of engineers, but I was such an embryo engineer, he really didn't regard me as one, so we got along fine. I did the engineering, and he made me a shift boss and then a foreman in the mine.

But Owen's career--he ran away from home when he was about twelve and got a job as a cabin boy on a tramp freighter hauling grain and wool from Australia to Liverpool. He finally got promoted to where he was a stoker in the boiler room, and on one trip coming back there was a great big fellow who was very much a bully, and he said this bully was making life completely miserable. This one time, it got so miserable that while Hickey was pulling the clinkers off the grates--using what they called a slice-bar, which is a long bar with a hook on it that you use to get clinkers off the grate, and it was red hot--Hickey pulled it out and aimed it at this guy and ran at him. Hickey missed hitting him dead center, but he went between his arm and his chest and burned him.

They threw Hickey off the ship in Tasmania, an island off Australia. and Hickey said the only job he could get was working in a mine there. After that he worked in mines in Australia, and

then he was in South Africa during the Boer War and then in this country. He was a diamond drill contractor in Arizona, and he was a miner all over the West and went back to Australia a couple of times. Hickey had been mine foreman down at Pioche for Ed Snyder back in the late twenties and then had left.

He married a very remarkable woman, Martha. She was a widow, and ran a small hotel in Mayer, Arizona, which is just down below Prescott. The White Horse Hotel, I think it was. During the early days of the Depression, Hickey and Martha had a small ranch down there, and Hickey said after his experience during the Depression there, he felt that he could live any place where there was a flat rock and a bucket of water. [Chuckles]

He said that he needed some help on the place, and he hired this fellow to be the helper. The deal was that Hickey would pay him thirty dollars a month and his board and room. Hickey said he was able to feed him and give him a place to sleep and occasionally get him some tobacco and a pair of shoes and Levis but at the end of the year, he still owed him about $300. The fellow was going to raise hell with Hickey, and he said, "No, I'll tell you what we're going to do. I'll deed you the ranch, and you hire me on the same basis." And the fellow said, well, all right. So at the end of the second year the fellow owed Hickey $300 and Hickey got the ranch back and said, "Then I fired him!" [Laughter]

Swent: Oh, that's a good story.

Arentz: But Hickey was full of all kinds of stories. He was a rough, tough, little guy. On one occasion, here at Mercur, as I say, we worked seven days a week and I insisted on taking off a couple of days at Christmas to go and be with my widowed mother and sisters but that was about the size of it. I think the mine shut down for Labor Day and the Fourth of July but that was about it.

Swent: What were you paid, do you remember?

Arentz: Well, when I was working down at Hawthorne just out of high school and down at Hoover Dam, I got $4 a day. When I first came over to Manning to work, I got $3.19 a day.

Swent: And did they provide a bunk house?

Arentz: Yes, but you paid a nominal amount for the bunk house.

Swent: Did they provide any of your clothes?

Arentz: No. At the boarding house, the company paid the cook's salary and the power and the fuel, and provided the dishes and silverware. When I spoke of how as a young engineer I was sort of responsible for the boarding house, the deal was that we kept track of all of the purchases of supplies. At the end of the month, we divided the total of that by the number of meals served. They were hearty eating sort of people. Among other things, I'd go down and buy several head of steers from the local ranchers on the deal that they had to keep them in condition and slaughter them when we wanted them. Then we had a walk-in ice box there, and for several years, we lived pretty darn good, and meals cost thirteen cents apiece. And the breakfasts! Why, the fellows would eat ham and eggs and bacon and cereal and toast and hotcakes and so forth. They generally carried a lunch.

Swent: In a bucket?

Arentz: Well, or a paper sack. And you'd have a piece of pie and some fruit and a couple of sandwiches. It was generally that. But then dinner, why, we had our fair share of roasts and steaks but also stews and so forth. We did pretty good. The meals were only about forty cents a day, and the room, I think it was about eight or nine dollars a month. The bunkhouse was a series of galvanized iron buildings with two or three in a room. And just sort of cots, folding army cots, with a little stove out in the middle of the room and a bucket of water, a wash basin, and a place to hang a towel. But there weren't any closets or anything of that sort. You drove some nails in the wall and hung your clothes on that, and that was about the size of it.

Manning was where the original mill for Mercur was because there was water there, and then later when they developed the mines of Mercur, they put in a bigger mill up there in the old-timers' period from the 1880s to 1912. Then when we went up to Mercur, all of the old adits and shafts and the like were pretty well caved in. There weren't any maps of the underground working and the like, but I sent out notices and some ads in some of the papers, and people started bringing maps in. What happened, when they shut down, originally, they had a watchman there, and then later when nothing was going on they laid off the watchman. There were sheep grazed up there, and the office and everything was still there, and people would just help themselves to maps and things like that. There were maps in attics and around from all the way down to Nephi which was eighty miles south and up to Brigham City which was about that far north. They'd bring maps and then I'd place them together.

Also, the company set up a policy that anybody that wanted to could have a lease on a hundred-foot square, at very nominal

royalty. There was the depression, and things were not going so good--and a lot of people would come over to the mine. Somebody had told them about the ore leases, and so there'd be three or four every morning, really, wanting a lease, and I'd have to go down and survey it in and stake the corner. Sometimes there would be several about ready to start fighting over the same piece, and I'd have to sort of hold a court and decide who had the equities and divide it up fairly.

The company was running short of funds a good deal of the time, and we'd be going pretty good, and they'd have to curtail things while they got some more funds.

Swent: What was the company?

Arentz: Well, it was one of the Snyder companies, but it wasn't Combined Metals. At first it was Manning Gold Mines Company retreating tailings and that paid pretty well, but the Snyders used a good deal of those profits to put up the Triumph Mine.

Swent: In Idaho?

Arentz: Yes, and then the Lewiston Peak Mining Company was the one at Mercur. And this Hickey, as I say, was sort of a tough guy, and this one night, we were having to lay off quite a few men because we had to finish a connection in order to get transportation in an area. We had one shift boss that Hickey said he'd like to have stick around, and he said, "You can take a lease and at least take care of your expenses and then you can get the job back as soon as we get going again." Oh, he didn't want to lay off this man.

Well, under where the old railroad depot had been at Mercur, there'd been a narrow gauge railroad in there, and we had an old bulldozer of that era go in to do some bulldozing to expose the outcrop of the Mercur bed. We took some samples and they ran about two-tenths of an ounce gold, seven dollars at that time, which was about the average of the Mercur ore, and we couldn't get too excited about it. Particularly as some of the old maps showed there'd been some mining on the down dip. But Hickey took this Al Nordell down and said, "You start working here and you can at least make wages."

About that time, a couple of fellows came up from Lehi, and they had hocked their cow to get some funds. They had a place they were sure was a good one, and when I looked it over, I saw they couldn't do anything with it so I gave them a place next to this shift boss, Nordell, and one other group came up, and we had three of them along there. Each had a hundred-feet line. Hickey had to virtually force Nordell to go down and get started.

Nordell took a couple of samples, and then he went into town with his samples to the assay office because he thought we had fudged on the assays. But he came charging back because when they dug down a little bit in this rather soft easily dug stuff, it didn't go two-tenths, it went an ounce of gold. And, you know, two of these leases each paid a thousand dollars a day for ninety days which was a lot of money in those days.

Swent: How did the lease arrangement work? Was this recorded in the county?

Arentz: No, it was just, "Here's your lease and the royalty will be 7 percent and you ship it to the company mill."

Swent: This was the customary royalty, 7 percent?

Arentz: Seven or eight, yes. Or six, it varied. And then I had been studying these maps in a different area. I told the company, "There's a row of pillars down an incline, it's back in the hill here, and it's not too hard to get to. I think we ought to drive in there." Oh, no, they didn't want to do it. I said, "Then I would like a lease on it."

"Oh, no. We can't have you in the lease."

So I said, "I'll tell you what. There's a bunch of fellows here that are looking for work and I will have them be partners in the lease. And I promise I won't spend any time on it except maybe a half hour after dinner at night, and I'll line them up with what to do." I said, "I'll have to get them a tugger hoist and jackhammer." The compressed air line from the main compressor plant went past where this was and I said, "We can hook on to that compressed air line and we'll pay for the air."

And they finally agreed to it. Well, I got three miners going on it and we split the settlements four ways. I was making, well I never thought I would be this rich again. I mean, I was making about six times my salary for my share of the lease. And the miners were doing all right too. Then they sent out a new mine manager and he canceled all the leases and replaced them with new leases that took 60 percent for the company, even though we were developing ore and making it so the company was doing quite well because their milling schedule was such--

Swent: They were doing the milling in your mill?

Arentz: Yes, in the company's mill.

Swent: How did you pay them then? You sampled the ore--

Arentz: Sampled the ore and waited. They had a pay schedule, yes.

Swent: You paid them in cash?

Arentz: No, the mill paid for the ore on a schedule that included a charge for treatment. And I guess I was making--it seems like not very much now--but my salary was about two hundred and fifty a month. My share of the lease paid twelve hundred per month. Then this new manager decided this was haywire, and he wanted to set it up where the company took 60 percent and the miner got 40 percent. So I said, "The hell with that," and sold my interest for seventy-five dollars or something like that and left.

Swent: When you are taking out pillars, that's it. It ends the business, doesn't it?

Arentz: Well, you hit the cave and then you'd have to spile through the cave to the next pillar. There was a row of pillars and you'd have to do a lot of spileing and mining through caved ground to get to the next pillar.

Swent: Is this pretty dangerous?

Arentz: Oh, if you did it right, it wasn't. No.

Swent: What held it up once you took the pillars out?

Arentz: Well, you let it cave. But you'd put timber in to replace the part you went through.

Swent: Where did you get the timber?

Arentz: It came from Utah here. There are some lumber mills out in eastern Utah.

Swent: How were they doing the mining in the regular mine?

Arentz: Well, it was about the time slushers came in. And these beds were up to sixteen feet thick and dipping on about twenty-five degrees or something like that. You'd get a haulage level and then drive up with an inclined raise on the bed. Then when you got to the upper end, you'd spread out and then start stoping back.

Swent: Were these veins?

Arentz: It was bedding. Sedimentary beds.

Swent: You were just taking out everything.

Arentz: Yes.

Swent: What kind of ownership did the company have on this property? Were they leasing it from somebody?

Arentz: Well, they were originally. Then they ended up buying it from the old Consolidated Mercur which was originally the Dern family. George Dern was the governor of Utah and then he was Secretary of War under Roosevelt. The fellow that handled the metallurgy out there was Delamar--Delamar, Idaho, and Delamar, Nevada, and the like--he had it before the Derns. His mill superintendent was Jackling. Jackling ended up building the big mill out there and running it.

Swent: So they owned the land outright. Mineral rights and everything.

Arentz: Yes, they were patented claims.

Swent: And your father had helped arrange the financing?

Arentz: Not the Mercur part but the tailings part down below. W. F. Snyder and Sons was the basic company but they had about twenty-five or thirty companies. They were, by and large, very decent men. Ed, I admired tremendously. George was a flamboyant type that made several fortunes and lost several.

Swent: There are lots of those in mining.

Arentz: There was a consulting mining engineer in Salt Lake City, a very fine sort of man, by the name of C. T. Van Winkle. He had come out to Mercur on one occasion to check it out for some clients that might possibly have been interested in investing in it, I don't know. But he got acquainted with Hickey and myself. Hickey and the manager didn't see eye to eye on some things, and by Hickey quitting and getting fired at the same time, he left and Van Winkle hired him to go up and be the mine superintendent at the Ima tungsten mine in Idaho.

## Rico Argentine, Colorado, 1938-1939

Arentz: Van Winkle was president of Rico Argentine Mining Company, and he offered me the job as supervising engineer to complete the mine development and supervise the construction of a mill.

Swent: That's in Colorado?

Arentz: Yes, in Rico, Colorado.

Swent: Construction of a mill? This was an old, old place, wasn't it? Hasn't it been there a long time?

Arentz: Oh, the mines were old but there wasn't any mill. And also, we had a lot of mine development to get to new ore areas. So I was there from the first of October until the end of the year and we got the mill built in that time. That was 1938. About that time, there was a drop in metal prices, and the company decided not to get into production right then. So Van Winkle said, "Look, I'm the consultant for this Ima Mine where Hickey is, and they need a mill superintendent and mine engineer up there. Why don't you go up there and then when we get ready to start here at Rico, I'll have you come back and take over."

Ima, Idaho, 1940

Swent: What were you mining at Rico?

Arentz: At Rico, it was lead, zinc, gold, silver and copper. We'd been lucky in developing a fair tonnage for a small mine of five percent copper ore. The Ima Mine was tungsten with some lead, zinc and silver. And so, right after the first of the year, I drove up to the Ima Mine with Mr. Van Winkle. I got quite an initiation there. They were having a board of directors' meeting. The manager and president of the company had a very nice residence in the canyon, and the directors were largely from around Idaho. The room that I was assigned was a small room in the office where I had a cot. I had to sweep it out and get things arranged and do some unpacking.

I got there, and meanwhile, the directors were having quite a party. Finally, I found that my friend and real boss, Van Winkle, had gone back over to the president's home where he had a room, but the other four directors were all passed out on the floor of the office. It got awfully cold there, I mean it was way below freezing. I saw in this warehouse room that adjoined my office that there were half a dozen of these stretchers and a lot of blankets for first aid. So I got one of these stretchers that was raised off the floor level and put blankets on it and then rolled one of the directors on it and wrapped him up, then I got another cot and blankets and did the same with the others, and I got them all wrapped up.

Swent: Things they don't teach you in college.

Arentz: [Laughs] I was so glad to see Hickey again, and he gave me a big welcome when I arrived. There was one director who was a big Swede. Hickey was very proud of being an Irishman. He and this director, who had been overdrinking, got into a very rough argument. Just as I was about to go to bed, my boss, Van Winkle, came in and signaled to me to come out. I got out and he said, "Get Hickey to go home." I said, "I'll see what I can do."

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Arentz: Anyway, I got Hickey to agree to go home. Just as he was out on the porch of this office building, why, this one director, the Swede, makes some kind of disparaging remark about the Irish, and Hickey comes charging back in. They're engaged in slugging, and I managed to get a hold of Hickey and pull him back. And about that time, I got a hit on the side that just jarred me, and I turned around and here's my boss, Van Winkle. He said, "Let him fight, and let's you and me fight." [Laughs] I thought that was the funniest thing. I started laughing.

Swent: So that was your introduction.

Arentz: I was there until October of '39 and then they were ready to go at Rico, so I went back and was resident manager there. When I came in from Rico originally to go up to the Ima Mine, Allen Reiser, who had been the engineer with me out at Mercur and a life-time personal friend who later became one of the senior men with National Lead, we used to get together for the annual New Year's Eve dance at the University Club here in Salt Lake. So I Wrote Allen from Rico saying, "Let's see if we can't get together for New Year's Eve at the University Club." And I said, "If you can, would you see about getting me a date?"

Allen was from Salt Lake and he knew a lot of girls here and I didn't know too many. He said, "Fine."

When I got into Salt Lake after having been over in Nevada for Christmas, he was going with a girl who was a lawyer. His girl twisted her partner's arm to take a blind date with this friend of hers and so that's how I met my wife, Mary Alice Meagher.

Swent: She was already in law practice?

Arentz: Yes, she'd practiced for several years before that. So I had to do most of the courting by long distance, but I managed to get down to Salt Lake occasionally and we were married in February of '40, and I took her up to Rico. Then in December, when our eldest daughter was born, Mary Alice was quite ill. It was a cesarean

[section] birth and she got pneumonia and was in the hospital for several months. They said she could not go back to that high altitude right off. So I looked for a different job. The first of February I left Rico and went to Pioche.

Swent: I must say, your family has an awful lot of remarkably liberated women in it, as well as some very accomplished men.

Arentz: Well, you know, my sisters are the ones who are really remarkable.

My youngest sister, Kit, wasn't born until I was through high school. She was about six years old when our dad died. When she grew up we all helped so that she got through college. Kit decided that she was going to teach herself around the world. She got a job teaching in Lima, Peru, at a state department school for the equivalent of high school seniors and first year of college students from all over South America. Her first summer there, she and another girl went from the headwaters of the Amazon River down about half way towards the Atlantic in a boat and then flew back to Lima.

The next summer, when she had finished her assignment, her former students asked her to come visit them. So she made quite an extended tour all over South America. When she got to the mouth of the Amazon and some of her Brazilian students, she said she wanted to go up the river as far as she'd come down it. They took her out buffalo hunting and a few things like that but they said, "We'll get you the right boat."

She said, "No. I can't wait around. Let's go down to the docks." And there was a boat. It had no cabins or anything of that sort, just hammocks slung above the deck. There were two Englishmen who were looking for a long lost brother and a Brazilian native priest who were taking the trip up river.

Kit said she wanted to go on this boat and the captain said no, he didn't take any women passengers. She was very insistent and finally he reached down to a basket that was on the deck and pulled out about a six foot snake and threw it at her. She caught it and it wound around her arm. She unwound it and threw it back and he said, "Okay. You can come."

Later she taught for two years in Japan, then two years in West Germany, then Spain. When she was teaching in Spain, she met a very fine young man from San Francisco who was in naval intelligence stationed in Morocco. They ended up getting married, and we saw to it that mother got over to attend the wedding since none of the rest of us could get there.

Swent: They were married in Morocco?

Arentz: They were married in Rota, Spain, where she was teaching. They were stationed in Morocco, where she also taught and then in Monterey, California, and they put in a hitch in the Philippines. They did a lot of traveling. Then he was in New York City and then stationed at the Pentagon for quite awhile. They both retired and they built a home on an island off the North Carolina shore. Kit died this last fall. We are going to Nevada because her husband and daughters are having a memorial service for her out in Smith Valley. We are going to be there Saturday.

## Pioche, Nevada, 1941-1952 ##

Arentz: I went to Pioche on February 1, 1941. When I went down there I was the chief mine engineer.

Swent: What company?

Arentz: It was Combined Metals Reduction Company. At that time, Combined Metals Reduction Company was, in effect, owned by National Lead although Ed Snyder's company, Combined Metals, Inc., owned 10 percent. They were just starting to build a mill at Caselton. Prior to that, the ore mined at Pioche had been shipped to the company's mill at Bauer, Utah, just out of Tooele, west of Salt Lake. The Bauer mill was one of the first selective flotation plants in the U. S., or possibly anywhere. The selective flotation process had been independently developed by Ed Snyder and his metallurgist, John Greene.

Swent: What metals were you mining?

Arentz: Lead, zinc, and silver with a little gold. The zinc concentrates were shipped to Great Falls and Anaconda, Montana, and the lead concentrates were shipped to Tooele, Utah. The company marketed its own zinc. The concentrates were smelted on toll and it shipped and sold several grades of zinc.

Swent: Smelted on toll?

Arentz: They were smelted on toll, that is, they just paid so much a ton to have the metals returned to them. They bought a great deal of custom ores from different mines that didn't have mills and milled the ores on a custom basis.

Swent: This was just before the war. Were you conscious at all of the imminence of the war?

Arentz: An interesting thing. There was an American Mining Congress meeting in Salt Lake in 1939. They had quite a party in Salt Lake. I was dating Mary Alice, my wife, and I asked her to go to the parties with me and we became engaged during the Congress at a party at the Salt Lake Country Club. The final night banquet they did an unusual thing, and as far as I know, the only time its been done, they had the dinner in the lobby of the Hotel Utah with the speaker's podium facing towards the street from in front of the elevators. Then they had tables in the lobby and all the way around the mezzanine. The speaker of the evening was Senator Key Pittman of Nevada who was the Chairman of the Senate Foreign Relations Committee. His talk was on the imminence of war in Europe.

Swent: That was in 1939?

Arentz: Yes, in September. He was quite an accomplished orator, and he built up to a climax where he said, "I can almost hear the guns going off in Europe." With that, a truck going down South Temple Street outside the hotel started backfiring and everybody jumped as though they heard the guns. The next morning was when Hitler moved into Poland. So we were familiar with the fact that there was a potential for war.

Swent: Were you thinking of critical materials?

Arentz: Not at that time. I had received a second lieutenant's commission in the Army Reserve when I graduated from college. I had done some of the correspondence work and gone to camp so that I had a first lieutenant's commission and was due for a captain's commission about the time Pearl Harbor was attacked. When we got word of Pearl Harbor, within the week I was ordered to active duty. I moved the family to Salt Lake and got the missing parts to my uniform because when I finished college, an infantry officer wore English riding boots, spurs, bloomer sort of trousers, a Sam Browne belt and a long blouse. By this time it had changed considerably.

I got a ticket to go to Camp Roberts, California. Just before I was to leave, I received notice that there had been a change, and I was to hold everything and that the final orders would come through that I was to go to Aberdeen, Maryland, to the proving ground, which would have been a very fine assignment. Apparently, the company had written somewhat overstating my qualifications in getting strategic metals out. So I held up and just before I was to go to Fort Aberdeen, I got word to report to

the commanding general here in Salt Lake for the third military area. When I went in, he greeted me by saying, "Are you related to the Secretary of War?"

I said, "No, sir."

"Are you related to the president?"

I said, "No, sir. Why?"

"Well," he said, "This hasn't happened before, but orders have come transferring you to the officers' reserve pool, and you're to go back to that mine in Pioche."

And I said, "Well, general, I have the highest regard for the office of the president of the United States. But if the present incumbent knew how I felt about him personally, I'd probably go to prison." [Laughs]

I went back to Pioche. We were doing a lot of exploratory drilling and were successful in drilling out a rather substantial tonnage of good-grade ore in a new area, but it was a highly faulted area where it was a real problem hitting the blocks of ore between the faults. For some time, the company lost money as often as it made money. Ed Snyder and National Lead didn't see eye to eye and finally he went back East and told them either to buy him out, his 10 percent, or give him an option to buy their 90 percent. It was during the period when white lead was the big paint pigment in Dutch Boy Paint, but they were switching over to titanium dioxide as a white pigment for paint and getting out of the lead business. And so they said, "We'll give you an option to buy us."

Ed went into New York and he'd been a long time admirer of Herbert Hoover. He went in to see Mr. Hoover and explained how he had these ore reserves, and he had this option to buy out National Lead, and did Mr. Hoover know of anybody who might put up the money to buy out National Lead. Hoover thought awhile and said, "Yes." He set up an appointment for lunch for Ed Snyder with Jeremiah Milbank, a leading financier in New York. As I understood it, Mr. Milbank's grandfather had been the one that backed Borden on the development of evaporated milk and established a very major fortune. At the time that this conversation with Ed Snyder occurred, he was a leading person in buying an interest in companies where he'd put in new management if it seemed that would help. Among them were Allis-Chalmers, at one time and, as I understood it, Southern Railroad and a bearing company and others.

Anyway, during the lunch, Ed outlined things and Milbank said, "Well, the thing is, I don't like to own 90 percent of a company where the fellow who's going to run it owns 10 percent. Subject to Mr. Hoover having some engineers go down and check what you say about your ore reserves and the potential and so forth, I would exercise the option to buy the National Lead interest, and I would take bonds for the amount I have to pay National Lead. We would leave 10 percent of the company in preferred stock for the original people of Combined Metals, Inc., and the voting shares of Combined Metals Reduction Company we'll split 50/50. You have half and I'll have half, and we each give 5 percent to Mr. Hoover for bringing us together." Ed thought that was wonderful, so Mr. Hoover arranged to have several geologists and engineers come out, and he came out himself.

Swent: So he was still active in the mining world at that time?

Arentz: Yes. Although his expertise was actually in organization more than it was as a geologist or a production man. But he had a tremendous amount of experience. So when he came out, I had all these plans of where we had the drill holes in the ore reserves.

Swent: What was your title at this point?

Arentz: I was the mine engineer and geologist at that point. I noticed he was not paying too much attention to what I was saying. At least, I thought that. And he said, "My, you were lucky to hit those blocks between the faults."

That challenged me, and I had, I thought, done a very good job, in that I'd made prisms, and I'd worked on the sections until everything matched. So I got those out and started again, giving a lecture on it, and I noticed he was looking out the window. I stopped, and there was silence for a few minutes.

Finally he turned and said, "I withdraw the use of the word 'luck' and substitute 'good management'."

Subsequently, because of the reports that his people had turned in, as well as his own, Milbank proceeded to buy out National Lead and I was made mine superintendent. At the time I went to Pioche, they were quite behind in mechanization.

Swent: Expand on that just a bit, if you don't mind. What was the status of equipment at that time?

Arentz: They used column-and-arm supports for hand crank liner machines. They'd gone to rubber-tired wheelbarrows from metal-wheeled wheelbarrows and they'd hand shovel the ore and tram it in a

rubber-tired wheelbarrow to a chute. That was about the extent of the mechanization. The company had been losing a very substantial amount of money for months.

Swent: What about safety?

Arentz: They didn't have too bad a safety record. In fact, rather good really. But you still wore the ore out getting it out of the mine.

Swent: What sort of exploration drilling?

Arentz: That was with churn drills primarily, although we did a lot of diamond drilling underground. The drilling for blasting, as I say, was done with column-and-arm mounted drifter machines, hand cranked drifter machines. Previously, I'd gotten some slusher hoists down there.

Swent: They were new?

Arentz: Relatively, yes. And we got some automatic drifters. They didn't have jackleg machines at that time, but we used jackhammers with what they called a "Mexican set-up", which was where you had sort of an S-shaped hook and you'd put one end of the hook in the side bolt of the jackhammer and the other end in the top of a piece of drill steel. It sort of acted like a jackleg, although you had to keep different lengths of drill steel to put the hook in to get a different height.

Swent: Did you do anything about dust abatement?

Arentz: You used water and you had ventilation fans and things of that sort. It was sort of standard procedure at that period of time.

Swent: How deep was it?

Arentz: Well, they had a shaft in the Pioche end that was twelve hundred feet deep and then three miles west of there, they had a shaft at Caselton that was fourteen hundred feet deep and they were connected underground with a raise that was about three hundred feet high that connected the twelve hundred level of the number one shaft with the fourteen hundred level of the Caselton shaft. The mill was going regularly, and by this time, the war of course was on. This was '43.

Swent: So you had your own mill down there?

Arentz: Yes. We brought in ore from other mines, as well as what we produced at the Caselton mines.

Swent: Did you provide housing for your miners?

Arentz: At the start, no. But during the war, the government came in and built a lot of temporary housing that was better than the usual housing at the mining camps in that era. They built about a hundred apartments at Pioche and about sixty or so at Caselton. And also a big bunk house.

## World War II; Furloughed Black Miners

Swent: Which branch of the government did this, I wonder.

Arentz: Well, I forget. It was under the defense plant business, I think. And they had been drafting our miners. Then they came out with a policy that they would furlough miners out of the army who were already in the army. And the order came out from Washington to unit commanders, if they had a miner in their unit, why, he was to be released as a reservist and go to the mine. Well, the unit commanders did what you or I would do. If they had a troublemaker, they said, "You're a miner, aren't you." And we got, I guess we got three hundred, mostly from back East, Pennsylvania, West Virginia and Ohio. Some of them had been coal miners but the number of metal miners from out West we had were negligible.

Then Eleanor Roosevelt got into it and said that they weren't furloughing blacks. So the order went out that they were to furlough black miners. Well, the unions out West, while they always insisted that there should be no discrimination on account of race, creed or color or so forth, they came and notified their various employers that the first black that showed up, they were striking.

Swent: Which union did you have?

Arentz: I think at the time it was probably Mine, Mill and Smelter Workers which later became quite communistic, and ours was the first union local to break away from that at Pioche. They joined first, of all things, out in the middle of the desert, the Marine Workers Union, and then later, they switched over to the Steel Workers Union, which is what most of the Western miners are in now.

But the deal was that when black miners were sent out, faced with the threat of a strike that would disrupt getting the ore out, the various mining companies came up with what they thought was a temporary solution, but it wasn't the right solution. They

decided to make some of their mines totally black. In the case of Combined Metals, they made the Triumph Mine at Hailey, Idaho, totally black, except for the supervisors and engineers. In the case of Anaconda, they made the Victoria Mine outside of Wendover, Nevada, a totally black mine.

Neil Snyder, Ed's younger brother, was the manager up at Hailey. When they sent out these black miners, they came to Fort Douglas here in Salt Lake. The various company representatives drew numbers, sort of like the national football draft, where they got first choice and then second round and so forth. Neil Snyder got the first choice and he picked a big black sergeant who seemed to be pretty heads-up. Neil said to the sergeant, "Now, you pick the rest in our draft." Meanwhile, the white miners at Hailey and the white miners at Victoria and, I'm sure, at other mines, had been reassigned to Butte or Pioche or wherever.

After Neil had his full crew picked for Hailey by the sergeant, he called the sergeant to one side and said, "Now, Hailey hasn't seen any blacks, as far as I know. And we don't want any incidents up there that's going to disturb the people. And the company has the boarding and bunkhouse so you don't have to get tangled up with the town and we're perfectly willing to hire a couple of black waitresses for the boardinghouse."

And the sergeant got a big smile on his face; that was just wonderful, he had a girl friend that would love to come out there.

And Neil said, "Well, that wasn't exactly what I had in mind."

And the sergeant said, "Well, I know what you have in mind. My girlfriend isn't a prostitute but she is broad minded."

Al Wundershek, a friend of mine I'd known out at Mercur, was a superintendent for Anaconda at the Victoria Mine. He had a fully black crew.

Swent: Were any of these people experienced miners?

Arentz: Some of them were coal miners, yes. But you still had to run a school for the type of mining we had.

Victoria Mine is about halfway between Wendover and Ely. And over on the highway, about maybe twenty miles from the mine is the Ferguson's Hot Springs. And they had a swimming hole there, I wouldn't call it a swimming pool, but a swimming hole and a bar and the like. Once a week Al Wundershek would take the whole crew over to Ferguson's Hot Springs. He would take over being the

bartender and they could each have two drinks, no more, and when they had their two drinks that was it. Then they could go swimming in the hot springs and then head back to camp.

Down at Pioche the funny thing was, as far as union men went, if a black said he was a Cuban or a Filipino or something else, it was all right. But if he said he was from Alabama, that was no good. And we had, as I said, about three hundred enlisted reservists to staff the mine along with the others we had. Then to keep our labor priorities, which were high, we had to keep a recruiter in Oakland and Portland and Reno and Salt Lake. And we took almost anybody that the U. S. Employment Service Office referred to us.

Swent: This recruiter was on your payroll?

Arentz: Yes. Then we'd have to get a bus ticket for them and transport them, and, if they had a family, transport their family, to Pioche. Some of them would jump the bus in Ely or somewhere along the line. They would arrive--you can't believe it--they would arrive without anything. I mean, they might have a baby but no change of diapers for the baby and no blankets, no dishes, no household goods at all. We'd have to equip them with that. A lot of them were the men that Kaiser had brought out to the shipyards in the Oakland or San Francisco area. They would have payroll stubs, check stubs, that indicated that between the husband and wife both working they were making more than the miners were. I don't know what they did with their money.

As I said, the government had built these apartment houses, and they were nice. They were better than most mining camps had at that period although they were dry-wall construction, and they weren't built to last for fifty years. They had electric stoves and refrigerators and running water, nice baths and the like. And some of these people from back in Oklahoma would just go in and destroy them. I mean, we'd outfit them with kitchen ware and blankets and the like, and they would draw circles on the wall and start using it for a darts game with butcher knives and cut a hole right through the wall. It convinced me, and I subsequently found that some of this went on in big housing projects constructed at great cost to the taxpayers in New York and other places, that all this crying about housing, while there are many, many deserving people, there are enough of them that destroy things as fast as you can make them, that if we were to supply adequate housing for everybody in the United States, it would take most of the rest of us building the houses to replace the ones they destroy.

Anyway, within a couple of months, instead of having losses, because of some changes that were made, we started showing very

good profits. That continued for quite a period of time, ten years. We enjoyed it. We were somewhat isolated. The mines, to start with, worked seven days a week and then later went six days a week.

Swent: You moved your family back down there?

Arentz: Oh, yes. Mary Alice and our eldest daughter, who was then about six months old, came down in August of '41. At first we rented a little old house in Pioche that had been a stop on the stagecoach going through fifty years before, and it was in shambles. But later the company built me a home over at Caselton near the mill and the mine. We ended up with quite an enclave of staff houses there, as well as these government houses. There were about sixty or so. Then we had a nice bunkhouse and the like.

The thing that surprised me about these enlisted reservists from back East was that in the bunkhouse we had games and a library. The WAAIMES [Woman's Auxiliary of the American Institute of Mining, Metallurgical, and Petroleum Engineers] sent books until heck wouldn't have it, and things like that. But these fellows from back in the coal fields weren't interested in games, they weren't interested in reading, and the fact that there was only one change of shows at the one show house [movie theater] in Pioche once a week was a tremendous pain to them. So I had to organize various things like softball teams. They were great for spectator things, but they didn't care much to participate.

The first year that we had a bunch of them there, Mary Alice and the wife of our plant engineer decided that on Thanksgiving they should have some of these enlisted reservists over for a Thanksgiving dinner. She asked me and the plant engineer to select about eight or nine. They used up a whale of a bunch of their ration stamps to put on a traditional Thanksgiving dinner. The boys came over, and in general their reaction was, "No, thanks. I don't go for that." Our wives had supplied the candied sweet potatoes, pie, turkey, cranberry sauce, mashed potatoes and gravy, carrot and celery sticks, olives, pickles, and other things. It was a disaster as far as the ladies were concerned because they'd worked like hell. I don't know what the problem was.

## Ed Snyder Acquires the Henderson, Nevada, Magnesium Plant

Swent: That must have been very disappointing.

Arentz: Yes, it was. But the scope of the operations were extended and one of the principal things accomplished there at Pioche was the government had spent a huge amount of money building the Henderson magnesium plant, Basic Magnesium for war purposes and the town of Henderson, Nevada, which was at that time, I guess, about the fourth largest town in Nevada. It included a tremendous amount of power from Hoover Dam and water from Lake Mead. Then they decided to dispose of the defense plant facility. The Colorado River Commission of the State of Nevada wanted to acquire it for the state and the governor arranged to acquire the plant.

Ed Snyder was the chief negotiator, in effect, for the state and I was his assistant. The deal was, we were dealing with the defense plant corporation which was General Services, and Jess Larson was the General Services Administrator. He was one of the truly fine government bureaucrats, if you want to call him that. He was just a top-notch man. And we ended up being able to buy the whole thing: the town, the water, the power and the plant for 23 million dollars--one dollar down. Meanwhile we'd arranged to have Titanium Metals come in and take some of the units for producing titanium metal. Stouffer Chemical took over the chlorine plant and a lime company took over the lime plant, or preparation plant. We got the whole town of Henderson. Then the state started selling the homes to individuals, and the fire department and the water system and the power system were also sold. Combined Metals took on two of the units that had formerly been the pot line for making magnesium and refinery. The company had a lot of zinc carbonate ores.

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Arentz: We had a lot of zinc carbonate ores and Ed Snyder's ambition was to get an electrolytic zinc plant for processing these ores. New Jersey Zinc and Phelps Dodge, as I remember, had indicated an interest in joining in on it. With this very substantial power contract at low-cost power, the power from Hoover Dam was delivered to Henderson for less than a third of a cent per kilowatt hour.

Swent: Had this already been negotiated? You simply took over this contract for power?

Arentz: Yes, it was the government's power and it was Nevada's share of Hoover Dam.

Swent: Right. But you didn't have anything to do with that arrangement except to just take it over?

Arentz: Yes. And about that time, between the Marshall Plan and just before the Korean War, the price of zinc went down. Both New Jersey and Phelps Dodge decided they didn't want to participate in the zinc plant. There's a lot of manganese at Pioche and the price of manganese was up. Ed Snyder had an idea that he could use these facilities and the cheap power for producing ferromanganese. He had long had an idea of developing reagents that would do for oxide minerals what xanthates and other reagents did for sulfide minerals. His son had just graduated from Michigan Tech, where Ed Snyder had finished, as a chemical engineer, and he put his son to work along with a couple of other research men on following up on his ideas for developing these reagents, particularly for producing a manganese concentrate because the ores in Pioche only ran 8 or 9 percent manganese. To get a feed for a ferromanganese plant, you had to have 40 percent or at least approaching 40 percent manganese.

They went to work and came up with their reports that they could do it. If it had been somebody else, I think Ed would have insisted on a pilot plant, but he had this beautiful power contract and the facilities at Henderson and plenty of reserves, so he went full scale on it. He and Milbank set up Pioche Manganese Company and started putting in electric furnaces at Henderson.

Swent: How far is Henderson from Pioche?

Arentz: About two hundred miles.

Swent: That's quite a haul.

Arentz: Well, it's on the railroad. They built a big extension onto the mill at Pioche, put in a big kiln for nodulizing the manganese concentrate, and started sending concentrates down to Henderson. I never worked so hard in my life to make something work, but the thing is that if you made a good grade concentrate, you didn't get much recovery. If you got good recovery, the grade of the concentrate wasn't very good. It didn't work out and the company lost a lot of money on it.

About that time, Mr. Snyder asked me to come up to Salt Lake, this was in late '52. In January of '53 I moved the family to Salt Lake and I was still looking after Pioche, but I also had extended responsibilities in other things. That's when I got involved in uranium.

Ed Snyder's son-in-law, Mitch Melich--when he got out of law school in the early part of the Depression, the standard thing for a young lawyer graduate was to go to work as a clerk in a law firm

where he was lucky to get enough money for lunch, to say nothing of a salary. Mitch came in to see his prospective father-in-law one day before he and Dorrie were married and he said, "I have a real problem."

And Ed said, "What's the problem?"

"Well," he said, "I have a chance to go to Moab where I can get the job of county attorney which pays a salary, and also I can have a private practice."

"Well," Ed said, "what's your problem?"

Mitch said, "Your wife, Dorrie's mother, said that she's going to stop the wedding if I take Dorrie down to Moab."

And Ed said, "I'll tell you what we'll do. I'll make it easy for you. I'll stop it if you don't take her down there." [Chuckles] So Mitch went to Moab. He was a rural attorney in a small town but then the uranium boom came.

## Moab, Utah, Uranium Boom, 1952-1954

Swent: When was the uranium strike there?

Arentz: About '51 or '52. Mitch was the leading attorney down there, and he was also into politics. When Charlie Steen really hit it, Mitch was his attorney.

Swent: Charlie Steen was the one who found the uranium bonanza at Moab?

Arentz: Yes. And he was written up in Time and Life and various other magazines and he had an idea. He got in a lawsuit with his mother because he insisted that he wanted to have his own mill. He had no experience in metallurgy or milling. He had actually been an oil geologist down in Venezuela as a young man when he first got out of El Paso, and then had come back. He was broke and he had a wife and, I think, three sons. He decided that with the government guarantee program, the best chance of getting a fortune was to get into uranium. He came up to Utah, and he and his wife got a small--it was really a shack in the real sense of a shack--tar-paper shack in Cisco, Utah. And he had a jeep, and the family subsisted on the bare minimum of things. His mother helped him a little and he went out prospecting.

Out in the Lisbon Valley, at the base of a cliff on the west side of the valley down near the floor, there were some claims located on a show of carnotite dipping down into the west. Charlie went up above on top of the cliff, and there was a canyon sloping down in the same direction as the beds were. Beyond the original claims, which only went in fifteen hundred feet, he located a series of claims going on down dip.

With the help of some local people, he acquired a diamond drill and started drilling a hole to explore for the down dip extension of the mineralization showing at the foot of the cliff. I understand that the estimated depth of his target was 300 feet. It appears that he lost the hole at about 200 feet. In examining the core, some dark mineral was observed at about 60 feet down the hole. The uranium ore on the Colorado Plateau to this point was the yellow mineral carnotite. It was found that the dark mineral in the core was a high grade uranium mineral and Charlie had discovered a bonanza at a shallow depth.

The AEC [Atomic Energy Commission] had established a buying station in Moab where they would weigh and sample each delivery of ore. As Charlie Steen developed and started producing ore from the ore body discovered by his drill hole, and substantial reserves of similar ore were blocked out, it became evident that a mill for treating ore from the Moab area was required. Several large companies indicated an interest in constructing a mill if Charlie would make his ore available to it. But Charlie wanted a mill of his own. Since he was a geologist and had no milling experience the AEC was reluctant to enter into a milling contract with him and Charlie reportedly did not wish to deal with the larger companies.

At this point his attorney, Mitch Melich, pointed out that his father-in-law, Ed Snyder, operated mills in Utah and Nevada treating lead-zinc-silver ores. Mitch suggested that Charlie might like to meet Ed. Ed was invited to Moab and he and Charlie seemed to like each other. Ed asked me to go to Moab to check on the indicated ore reserves. After checking the reserves at Charlie Steen's property, Ed suggested that I might check for other ore reserves that Snyder's company might acquire. We had a prospector on the payroll at Pioche who was one of the keenest observers that I've run into. And I said, "Have Owen Walker come over, and I'll send him out prospecting."

I had a bunch of these photogeologic maps and when Owen got to Moab, I'd send him out here and out there. He came back and said, "Too late, it's staked as far as the eye can see."

At that time there was only one phone line out of Moab, and there were all these people using the phone system. They had a little office about 10 feet by 10 feet. It was a case of first come, first served, but you might have to wait six hours before your call went through and when it did go through, there wasn't a phone booth, there was just a phone on the wall. Everybody could hear your end of the conversation. If you didn't wait and were out when your turn came, that was tough. You had to come back and start over again.

One day I was in there and there was a whole bunch of men waiting, and it looked as though it could be as much as an hour or two hours wait, when a fellow came in with a two weeks growth of beard and tears streaming down his face. He went over to the operator at the desk and said he just got word that his brother died and he had to call his mother. Well, she looked around and everybody, by common consent, said to give him priority. So his call went right through, and then he got to the phone and started selling uranium claims. [Laughs]

There was one mining engineer from over in Colorado that I had known, and he was doing exploration work at the south end of the Lisbon Valley. There was only one restaurant in Moab at that time, and we'd each get in just before it closed at nine o'clock at night. Since we were the only customers there, we'd sit down and visit. He had some drilling program going down on this property that he had under lease, and this one evening he said, "Say, when do you stop exploration?"

I said, "Well, that's a good question. As far as I know, there's only two times. One is when you've found an ore body and the other is when you've run out of money."

He said, "Well, we're about to stop exploration and we haven't found an ore body." [Chuckles]

Finally, this one time I sent this Owen Walker out to another spot. He came back the next day and said, "This looks like we might have something." Owen said, "I need a trailer house and a bulldozer and a crew to do staking."

I said, "Okay, we'll have those. But how do you know it won't be staked by the time you get back there?"

"Well," he said, "I had to go down this long canyon to the end of where a new road had just been put in, and then I turned off that and got over to where the outcrops of the beds were."

I said, "How about when you got back. Weren't your tracks going right out there?" "Well, yes they were but," he said, "I wiped them out with sagebrush and sprinkled dust on them so that I don't think they could be seen. They'll think I turned around right there."

So I got the stuff he wanted and the crew. They went out and were busy staking. They no sooner got there than other people came down and starting to stake off on different sides. The first day, Owen had to go back into town and get some supplies. This one outfit that had been staking off to one side from him took off and headed for town ahead of him. The canyon that came down went through an area owned by cattle ranchers, and they had these wire gates, what we call Mormon gates--and the car ahead of him didn't even slow up for these gates, it just tore through them and took them out. They thought, "My gosh, that guy must have hit something so hot that he was just rushing to get it recorded in town."

After they got back, it turned out the next day, he's back there. They went over to see what the hell he's doing. And he has a case of beer and is opening the cans and pouring the beer out on the ground. They said, "What are you doing that for?"

"Well," he said, "yesterday I was locating and I was drinking the beer. But I was locating faster than I could handle the beer and I got drunker than a lord. That's what happened when I drove in last night, so today, I'm dumping the beer on the ground because I need these empty cans to put the location notices in." [Laughs]

Subsequently the Uranium Reduction Company was organized. Howard Young of American Zinc was a close friend and ally of Ed Snyder and Charlie Steen. That was all in '53 and '54. But toward the end of '54, the price of lead and zinc had dropped off, and I was having to shut down mines. That's a difficult thing because you're laying off a bunch of your friends and one thing and another.

Swent: Excuse me, the claims that Owen Walker staked were good claims then? You found ore?

Arentz: I think maybe one of them had some ore but there were a lot of them that just showed a little ore.

Swent: But you did go ahead with the mill?

Arentz: Well, we had Charlie Steen's mine, the Mi Vida ore, and others. Part of the deal with the government was that they would give you

a contract but you had to allocate a portion of the capacity of the mill for custom milling from other places.

Swent: All right. So you were having to close down some of the lead-zinc mines?

Arentz: Yes, in Utah and Nevada. Ed Snyder was very much a patriarch, and during the Depression years, to the detriment of the company's financial position, he kept staff on, and as many workmen as he could working part-time. I noticed that some of the men who had lived through those days where they had been on a part-time tending basis never really got back on the ball. I mean, a couple who'd either quit or had been let go, were prepared. Whereas the others who had been sort of milk-fed during that period never really got back to where they developed their full potential.

So one day I went in to see Ed and I said, "Now Ed, to save the company money, here's a list of about forty people that you're going to have to let go, even though you regard many of them as your key personnel or longtime associates." And I said, "I can give you this list because my name leads all the rest." He didn't want to do that. Well, I said, "Ed I'll tell you what, I'm going to resign at the end of the year." This was along about October. "And I still think that you should let the others on this list go. I think, in the long run, you will do them a favor as well as yourself and the company."

And I said, "Not only that, but you have several mining properties that I think I could do something with. One of them is the Butterfield Mine." The company had it for twenty odd years, and they'd mined ore and shipped it over to the Bauer mill. They had one shaft that needed a lot of maintenance.

About that time Buck Grant, who had been the general superintendent for U.S. Smelting out at Bingham, had resigned. I told Ed, "Buck has been out there for twenty years. He's been a geologist and superintendent of an adjoining mine that owns property on both sides of the Butterfield Mine, and I would hire him as a consultant."

Ed said no, he didn't want to do that because Combined Metals was buying ore in competition with U.S. Smelting at Midvale and Ed figures he had an edge on the metallurgy. He said, "If I hire one of their guys, they'll start talking to our metallurgist."

I said, "Ed, Buck resigned and he's not working for them."

"Well, no, but I'm sure he's still tied in some way."

So with that I said, "I would like to get a lease and option on the Butterfield Mine. I'm leaving anyway at the end of the year."


Samuel S. Arentz, Jr. with zinc slabs from Caselton Mine and Mill, Metals Reduction Company, Pioche, Nevada, circa 1943.

## III ENTREPRENEUR AND CONSULTANT AFTER 1954

### Leasing the Butterfield Mine, 1954

Arentz: Ed Snyder didn't like to let properties go any more than he liked to let people go, but finally he told me that I could negotiate with the company's attorney and with Otto Herries who was the vice president, and see what I came up with. In the meantime, I went to see Buck Grant and said, "Buck, I'd like to have you answer three questions for me. You've been out at Bingham for twenty years and you know the Butterfield Mine and adjoining property; are you at liberty to tell me about it? And would you do it for a piece of a lease, and option? I think I've got a lease and option on it."

And he said yes to all questions but he said, "For heaven's sake, don't let anybody know you're negotiating because I've been recommending to U. S. that they deal with Combined Metals on acquiring that property for the last ten years."

Ed was a close personal friend as well as my boss--and I went in to see him on New Years Eve, '54. By that time, I had the lease and option agreement drawn up and about six o'clock while we were visiting he said, "Well, what are you waiting for?"

I said, "I'm waiting for you to sign this damn thing."

"Oh, all right," he said.

And that evening I took Mary Alice and we went to the University Club's New Year's Eve dance. Buck Grant was there along with a lot of the other mining people that used to belong there, and I told Buck, "Well, we've got it all signed up."

He said, "We'll get to work on it right away then."

On the second of January, Ed Snyder called me and said that U.S. Smelting wanted to come in and talk about the Butterfield.

And he said, "Sam, we need the cash. If they make a reasonable proposition, would you relinquish the lease and option?"

I said, "Hell, Ed, if it will help you, sure."

Well, he called me the next day and said they came in. He said, "They must have ice water instead of blood. We just put a new compressor out there for sixty thousand and that's what they offered to buy the whole thing." So he said, "Your agreement still stands."

Well, I'd previously talked to a group of rather well-to-do people in Nevada and told them I was going to need some financing to do the development that I'm talking about. I'd known them for a long time, and they knew me down at Pioche, and they said, "Sure."

Being rather naive at the time, I told them, "Don't put up anything until we get the report put together--Buck Grant is working with me on it--and we'll know just how much we need and what we propose to do with it and what we hope to accomplish. Then you can size up whether you want to proceed."

So Buck and I worked a couple of months and meanwhile both of us were doing other consulting work. We finally got everything put together, and we went back to see them. It turned out that they had some inside information that an embargo on Mexican cattle was going to be lifted because of hoof and mouth disease, and they put a bunch of their money down there, and they couldn't do anything about the Butterfield.

Meanwhile, I had expenses to maintain things out there, and I was close to going broke. Then Buck came in, and he had just been offered the job of assistant general manager for Kennecott in Chile. He said it was too good a job not to accept. So he said, "Just deal me out and you don't have any obligations to me."

I said, "You've helped me a lot to this point." Well, I'd located some claims down in the Moab area and I was able to sell them at a price that would have gotten me out of hock so I could go look for another job and relinquish the lease and option. But I thought, "No, by God, it's worth a final try." So I took eight copies of my report and I went to New York.

In two days, I saw the presidents of eight of the leading mining companies in the United States. I didn't know New York too well at that time, so it turned out by coincidence I had an appointment at eight o'clock uptown and an appointment at ten o'clock downtown and then an appointment at two uptown and an

appointment at four downtown. I was having to take the express subway.

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Arentz: It became readily apparent that these presidents had given me a courtesy fifteen minutes or so. But before the fifteen minutes was up, they'd say, "Just a minute," and they'd call in their chief geologist or head of exploration or somebody like that and say, "Start over."

I told them that I was seeing others, where I was staying, and that the first one that indicated an interest in following up on this, I'd call everybody else up so they didn't waste any time looking into it further. By the end of the second day, I got a call from Jim Boyd,[1] and he said Kennecott would be interested.

Swent: Was this a copper mine?

Arentz: No, it was lead, zinc, and silver, but it had some copper too. But it doubled the acreage that Kennecott owned in Bingham. It was over three thousand acres of patented land. I went in, and Boyd and Frank Milliken said they wanted to buy it. "Well," I said, "I was actually interested in the lease end of it. The thing is that actually, I misled you a little." I didn't have the option to sell right then--I got that option a little later--but I did have the lease option.

Swent: Now just for clarification, this is the Butterfield that you're talking about and it was owned by Combined Metals, but they for some reason didn't operate it.

Arentz: Well, they'd shut it down. And I had urged them to do some work on it which at the time they didn't want to undertake, and it was costing them a fair amount just to hold it on stand-by.

Swent: But they were willing to lease it?

Arentz: Yes. And then later I got an option to buy it. But I had to pay them a very substantial sum of money. So in talking to Boyd and Milliken, I said, "I can take a long-term capital gain if I sell you the lease but the option would be shorter; the short-term and the taxes will be considerably different. Not only that, but

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[1]James Boyd, Minerals and Critical Materials Management: Military and Government Administrator and Mining Executive, 1941-1987, Western Mining in the Twentieth Century series, Regional Oral History Office, University of California, Berkeley, 1988.

since I don't think you're interested in the lease on the lead, zinc, silver, I 'd like to have it back in a reasonable period of time after we've completed this deal." I said, "We can't have that in writing or it will nullify the sale end, but I'd like a gentlemen's understanding that in the course of time, I can get the lease back."

They said, "Fine."

Now they said, "We'll arrange to have our geologist come out. In the meantime you go back to Salt Lake and give all the title data to Charlie Parsons, our attorney, and have him review the title. Then we'll have Bill Burgin come over from Denver and check on the geology."

So I got back to Salt Lake, and I went out to the airport to meet Bill Burgin after giving Charlie Parsons the title data. Bill was on the United Airlines plane from Denver coming over that had many of members of the Mormon Tabernacle Choir, among the others. The plane hit the top of the Medicine Bow Peak and everybody was killed.

My option was running out, and I said, "We've got to hurry on this." So finally they had another geologist come, and Parsons approved the title, and they gave the checks. I gave a substantial amount to Combined Metals which paid off some notes they had, but I got enough so that it was equivalent to about ten years salary or thereabouts. It put me in business.

Swent: I'm interested in how you reached the decision to do this: to resign your job at Combined Metals and take this leap for yourself.

Arentz: Well, I could see that the way things were going, I was shutting down mines, and the company was going to be in bad straits if something wasn't done. And I had a good deal of confidence particularly after talking to Buck Grant because the U.S. Mine next door to Combined Metals' Butterfield Mine had mined down twelve hundred feet below the lowest level of the Butterfield Mine.

Swent: So it was the particular property that gave you the confidence.

Arentz: Yes.

Swent: It's a very big step though. Did you talk it over with Mary Alice?

Swent: Oh yes. And we recognized that it was going to be very serious business, but it worked out well.

Swent: Yes, indeed.

## Appraising Uranium Properties

Arentz: Meanwhile, I was doing quite a bit of consulting work but the thing was that when I first went into business for myself, I thought, "Well, I'm pretty well known in the mining industry, and I should be able to get clients." As it turned out, initially the only clients I had were these mini-stock outfits that were promoting uranium properties. I was rather naive and didn't demand a down payment, and I'd go out and come back and report truthfully that they didn't have a damn thing. They'd get mad and say they wouldn't pay me because I wrecked their chances of floating their stock.

The only satisfaction I got was that a year later about five of them came in and paid their bill. And they said, "You know, when we were trying to get our stocks sold, you pretty near wrecked us with your report, but we got some other people to write a favorable report, and we raised the money. But you were right, it wasn't worth a damn, and now we're talking about buying some properties and we'd really like to know what they're worth." [Laughter]

Swent: So honesty does pay sometimes.

Arentz: Yes it does. There was a promotional outfit from New York that had acquired leases on some claims out in McDermitt, Nevada, on the Bretz Mine which back in the thirties had been operated by the Bradleys.[1] Jay Carpenter of the Mackay School of Mines, who had retired but was doing consulting work and had been retained to supervise some exploration drilling, found that there was some ore there. He told me, "I don't think this outfit is going to do anything, they're just a bunch of highbinders. Why don't you see if you can make an agreement with them?"

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[1]Philip Read Bradley, Jr., A Mining Engineer in Alaska, Canada, the Western United States, Latin America, and Southeast Asia, Western Mining in the Twentieth Century series, Regional Oral History Office, University of California, Berkeley, 1988.

## The Bretz Mine Development, 1955

Arentz: I took his advice and went back to New York and saw them. They were a bunch of highbinders; I think some of them finally went to jail. But anyway, I made a deal on the Bretz Mine, I did some more drilling, and then I put in what subsequently became the first successful flotation plant on the low-grade cinnabar ore. We built a mill and it operated on and off, depending on what the price of mercury was, for nearly ten years. That was 1955.

I was looking at a lot of other properties all the time, and we didn't know about the tie-in between mercury and gold. So at one time, because I was operating a mercury mine, a lot of mercury prospects were brought to may attention. At one time, I was checking on Paradise Peak, which turned out to be a fantastic gold property, also the McCoy Mine and the Ivanhoe. I investigated about five of what are now tremendous gold properties in Nevada, but of course at that time, the price of gold was such they wouldn't have been worth a damn anyway.

Swent: The technology just hadn't been developed?

Arentz: Oh, the technology is pretty much the same. But the price is what made the difference. You win some and you lose some, you know. One day in early February '58, a fellow that I'd helped out who was an independent lessee--he was out at Tempiute, Nevada, at the tungsten property where Wah Chang later had an operation--I had helped him out a time or two. He came in and gave me a somewhat wild story about how he had a verbal option from a ward of the LDS [Latter Day Saints] church on some patented claims down out of Enterprise, Utah.

## The Escalante Mine Development, 1958-1990

Swent: A verbal option is rather risky isn't it?

Arentz: Yes, well, he said he knew that sometime in the past, twenty or thirty years before, some diamond drill holes had been put down below the water table and hit high-grade silver ore. I said, "Do you have any drill logs or engineers' reports or core or anything?" Oh, no. He didn't have that. Well, I said, "Everybody that comes in the office has a deal like that. Every old shaft in the country, if you just take out four feet of water--".

Anyway, he was most insistent that he knew what had happened, even though he had nothing to back it up. So finally I said, "Okay, I'll come down."

And in February of '58, I met him down at the property. It was just on the edge of the valley, in an ideal spot as far as being accessible goes. It was just off two hundred feet from the main county road and two and a half miles off the main highway, on a very low little foothill. The day I got there, there was a blizzard going on and if you faced into the wind, you were covered with snow from head to foot.

But there was a very strong outcrop that was quite noticeable and stood up a little that went for fifteen hundred feet or so. At various places along the outcrop, I took some chip samples, and at one end there was a pit maybe ten feet deep and twenty feet long. Near the hanging wall of the vein, the vein was ten or twelve feet wide; there was a small place with a lot of copper stain. I wouldn't call it a sample, but I took a specimen of it. The samples I took along the outcrop generally were quite low--two or three ounces of silver at the maximum. But the specimen down in the pit went seventy-five ounces of silver, and that was a little interesting. I kept looking at rejects from the others and decided that I could see where there had been some leaching and possibly there was silver in the rejects too.

Swent: Who did the drilling work?

Arentz: Oh, a local guy. He happened to have a drill available. I'll be darned, the first hole, which was a vertical churn drill hole, at about a hundred and fifty feet went through ten feet of true width vein assaying twenty-five-ounce ore. To back up a bit, by the time I was manager down at Pioche and superintendent, the fellows were all getting vacations. Sometimes a fellow can get a mistaken impression that the operation won't run without him so I wasn't taking vacation except maybe we'd go on a Sunday over to Zion Park or Bryce Canyon. Mary Alice and I would get to Mining Congress meetings.

But the children and Mary Alice all put the bite on, "When are we going to take a vacation?"

At that time, our eldest daughter was thirteen and our youngest was three, and I said, "Now if everybody will just keep calm, when Mary Kay, our eldest, gets through high school at seventeen and Peggy, our youngest, is seven, I promise I'll quit whatever I'm doing and we'll take a real vacation." Well, that seemed like forever to me. That was in 1953.

In 1957, they said, "Next year."

So I said, "Maybe we had better have a practice run." We took off and drove up through Butte and Yellowstone and Glacier National Park and Banff and up to Jasper Park and put the car on the train and went across to Prince Rupert, then on the boat and came back down the Inland Passage. Everything worked fine so I said, "All right. Next year."

Quite by coincidence, the next year, I had an opportunity to check on a mine in Norway. I invited my widowed mother and the children and Mary Alice to fly over to Norway. Mary Alice and I would go to the mine, and my mother and eldest daughter would sort of look after the rest. Then we would take three months, and I arranged to get a Volkswagen mini-bus, and we'd drive around Europe. Well, this was due to start in June and I had just finished the first drill hole at Escalante.

## Searching for Partners

Arentz: At about that time, a friend of mine, Cecil Fitch of Chief Consolidated Mining Company, heard about it, and he asked if I would like a partner. Well, I said, "I've got enough for this trip or for doing some more drilling and exercising the option, but I don't have enough funds for both. And so if you'd care to join me, I'll retain the management of it and we'll go fifty-fifty on expenses and see what we can do."

So I lined up a series of diamond drill holes, and I had Roy Hickman, the superintendent I had in charge at the Bretz, come over. Roy was also a pilot. I turned my plane over to him and said, "Now, you go down and look after things."

Swent: By this time you were flying?

Arentz: Oh yes, I started flying in '57.

Swent: Was Cecil Fitch a brother of Manny and Albert Fitch?

Arentz: No, he's a brother of Jim Quigley and Harry Spencer's wives.

We drilled and when I got back, I went over all the drill core and eight of the ten holes that had been put down had hit damn good ore. Some of them had hit very good ore. So I went ahead and exercised the option to buy it.

Meanwhile a fellow had been sending me letters in the leading towns wherever we were going to be, in Paris or Rome or wherever. "We've hit another good hole."

So when I got back I thought, "Boy, we've got Comstock Lode or something." Well, we exercised the option and bought the property and then started looking to see what we could do.

Harry Spencer's brother, Frank Spencer, was a leading man with Cerro de Pasco. Cec contacted him, and "Well, they said they might be interested." So we went back and worked out a deal with Cerro de Pasco where they would promise to do the additional exploration and development and put the property into production and we'd go fifty-fifty on it. They came out, and they drilled seven more holes. That meant that we had eleven holes, and they had seven. Actually they were between ours to more or less confirm what we had, rather than additional ore reserves.

We also re-timbered a hundred-and-thirty-foot shaft that was on the property and got set up to sink further. Later we sunk it down to a hundred and eighty feet, and by that time, we hit the water table. The valley right adjacent to us was irrigated. There were twenty-odd thousand acres with pump wells and there was a lot of water. About that time Cerro de Pasco needed to spend some more money down in Peru, and they had an interest in a cement plant in New York, so they thanked us very much and dropped out.

Swent: In an arrangement like that did you have to pay them at all?

Arentz: No, no. That was their contribution. Meanwhile, we were spending money too, looking after the property.

Swent: If they had stayed in, they would have had a share of it?

Arentz: Oh, they would have had half and control of it. The next company we contacted was Placer-Amer, Placer Development Corporation.

Ed Schultz was their lead man, and they decided they had better check on the water. So they put up the funds for drilling a well and bringing in a diesel pump and bringing in a hydrologist. They brought in Halpenny out of Tucson and put down a well and put a pump on it and pumped for about three months. Halpenny came up with a report that we'd have to pump fifteen thousand gallons a minute for an extended period of time to de-water the ore body. With that Placer decided no, thanks.

So I did some more work down there, and meanwhile I was selling my mercury from McDermitt to Englehard Minerals, Phillip Brothers. They got excited about silver, and they wanted to know

if I had a silver property anywhere. I told them about Escalante, but I said, "We've got this water thing."

Well, they said, "If we can have another hydrologist check out the water and reconfirm what the first one said, why, yes. We can go with that."

I checked, and we found Bill Guyton, a hydrologist out of Austin, Texas, who was favorably recommended. We had him come in, and he had an assistant come in and check all the wells in the valley as to whether they were going up or down. Meanwhile, I made arrangements with Placer to lease the pump that they'd bought. And we started the pump to check it out. After we'd pumped for a period of time, I talked to Guyton, and over the phone he informed me that while he didn't agree with Halpenny's methods of computation, he generally agreed with the result, and he thought that would be confirmed.

I thought, we're in business because Englehard said that if another hydrologist confirmed Halpenny's results, they would go. But when Guyton wrote his finished report, he put in a caveat that if the geology was as I had stated, fourteen or fifteen thousand gallons a minute would take care of it, but if it was different and there were a bunch of breaks or fractures going out into the valley, it could be eighty thousand gallons a minute. Of course that would be completely uneconomical. That just shot holes in the whole thing.

Meanwhile Englehard read about the use of the Defense Exploration Project where the government would put up a certain part of the funds for doing exploration for gold and silver and other metals. And they thought we should apply for some government funds.

Swent: Was there any possibility of selling the water or doing anything with it?

Arentz: You could give it to the farmers out in the valley, but that was only for a portion of the year, and you had to keep the mine dry all year.

So we put in for an exploration project, and we drilled some more holes in the south and the results were mixed. We didn't appreciably improve the total ore reserve. Englehard wanted to know how we could prove whether it was the eighty thousand or the fourteen thousand gallons of water.

And I said, "Well, the only way I know is to drive a drift along the vein just above the water table and see what breaks

there are coming in from the valley. Also, we could establish whether the ore between the drill holes is continuous or if we just happened to hit some high spots." So the deal was that if I put up half, they'd put up half, and we'd drive this drift. We drove over two thousand feet of drift. And it appeared that we probably had some ore above the water table.

We didn't have enough to warrant a mill, but Kennecott had taken over the ASARCO smelter at Garfield. ASARCO used to buy siliceous ore for flux for their copper concentrate. I checked with them as to whether they would buy ore from Escalante for use as flux at their smelter. They said, "We don't have any sampling facilities at Garfield. We took out the ones that ASARCO had there, and the flux must meet certain specific standards."

They finally gave me a purchase order for twenty thousand tons or so on the basis that it had to be no more than 7 percent lime and over 70 percent silica, and it had to average eleven ounces of silver. If it went below 11 ounces of silver, I took a penalty, and if it went above that, they took it themselves. There would be no umpire assays or anything like that, and we'd have to set up a facility for crushing and sampling the ore at the mine. They would send a man down to do the sampling, and we had to pay his salary.

It was a very onerous sort of thing. It was a flat price per ton as long as it averaged at least eleven ounces. If it went over eleven ounces, why, we still got the flat price. If it went under eleven ounces, why they deducted from the flat price. Then the 7 percent lime--I told them all the time it went 10 percent lime. So that blew that out of the water. But I went down, and crushed some of it and screened it, and I found that the calcite in the ore, which was lime, was more friable than the quartz. By crushing and screening it, I could take out the lime to a certain extent and I didn't reduce the grade because the silver was actually associated with the quartz.

So I said, "Okay, I'll take that." And I moved in a portable crushing plant and arranged for them to send down their fellow. We shipped about sixteen or eighteen thousand tons to the Kennecott smelter. But we weren't making any money on it. I ended up with a loss.

We stopped the mining operation and Englehard said, "Let's see if we can get somebody to lease the property." They had acquired, by virtue of what they had put in, which was not that much, a half interest in it.

I had 25 percent interest and Chief [Consolidated Mining company] had a 25 percent interest. So I said, "Well, we'll see what we can do."

It turned out that John Hall of Callahan Mining Company indicated an interest. So I went back and met with the Englehard people, Phillip Brothers actually, which was part of Englehard. They said, "Now, we want you to do the negotiating."

And I said, "What will you agree to?"

"Well, it's got to be a 10 percent royalty and certain other things."

"Well," I said, "That's high, but we'll do the best we can." So we went in, and they had two of their men go with me, and we met with Callahan's people.

When we said 10 percent royalty, they said, "No, we don't go that high."

"Well, that's all I'm authorized to talk about."

"Well," they said, "our directors are here, and we'll have a meeting. Meanwhile you fellows go to lunch and come back after lunch." When they came back after lunch, why, he said, "Reluctantly, we'll go ahead. We'll accept that."

So the understanding was that I was going to be coming back to Salt Lake; this was on a Friday. Englehard's people and their attorney would meet with Callahan's attorney on Monday and complete an agreement.

On Monday about noon, I got a call from New York from John Hall, so mad he could hardly talk. He said, "They came in and wanted to change the deal, and I literally picked them up and threw them out of my office. And I won't have anything to do with you until they're separated from you."

About five minutes later, I get a call from the Englehard people saying they've never been so insulted in their life.

I said, "Well, you changed the deal."

"Well, that's right. But after you got that 10 percent, we figured we could get more."

"Well," I said, "that's a dirty damn thing."

"Well," they said, "it's all right, we'll find somebody else."

In due course, they called and said Anglo-American Corporation of South Africa would be interested but I would have to sell them on it. So their chief geologist and a couple of assistants came out, and they ended up saying okay, they would take a lease on it. But the thing was that Englehard, who owned half the property, would be half owner of the lease and Anglo-American would be the other half owner of the lease. So that Englehard was on both sides, both as a half owner and a half lessee.

The Anglo-American group sent over a very keen young engineer from South Africa and a very good geologist. They drilled five big wells and put on big pumps, and fourteen miles of canal to carry the water. They brought in a bigger power line and did a bunch more drilling that showed that they could un-water. Then they took a bunch of ore back to South Africa for metallurgical testing, and they sent men over here and had an engineering group here design a mill and things like this. Then at the last minute they decided there weren't enough ore reserves. So they backed out.

By this time Englehard, who had a half interest in it, said, "Well, we'll just dump the thing and sell it for whatever we can get."

I said, "No, don't do that because you're going to end up being responsible for back filling the canal, and you won't be able to get much for the pumps. There's a number of environmental constraints and things like that. If you'll give me an option on the interest of both your stock and your bonds and an option to buy the pumps, I will assume all the responsibilities for it."

Meanwhile there had been a proxy battle, and Cec Fitch had been thrown out of Chief and some highbinders in New York had taken over Chief. So I asked Cec if his fellows want to put up their half of the cost of maintaining the property. And they said, no, they didn't.

So I said, "All right, give me an option on your interest too," which they did.

I ran a regular ferry service which I had already been doing to a certain extent, flying people down and landing on the road right adjacent to the mine and taking them over to look at the property. I had twenty of the mining companies of the United

States, their geologists and exploration people go down and look at it.

##

Arentz: The first one that took a real interest in it was Midwest Oil Company, which was controlled by Amoco Oil Company, and Jeff Snow, who later became head of exploration for Noranda, and their chief geologist. They decided they'd like to take a crack at it.

Swent: This is when the oil companies were beginning to want to get into mining?

Arentz: To a certain extent. But this Midwest Oil was sort of in the mining end anyway. So I worked out an agreement with them, and they came down and did some more drilling. They deepened some of our holes and added substantially to our ore reserves. There had been a flat fault that had shifted the vein, and we thought that originally there were two veins, but they proved that they were the same vein, just offset. They also got a bunch of metallurgical test work done and a mill design over in Denver. They were all ready to go. It was a basis where I would buy out Englehard and Chief, and we'd be in business, when Amoco decided to absorb Midwest Oil. The Amoco directors didn't want to be in the mining business. So that shot that out of the water.

## Ranchers Exploration and Development Corporation

Arentz: Then Maxie Anderson [of Ranchers Exploration and Development Corporation] who I was doing some other things with, got interested, and he worked out an agreement with me.

Swent: What other things were you doing with him?

Arentz: Well, I was on a geothermal project that we were fooling around with for geothermal steam power. And also I had been doing some consulting work. Then he decided no, he didn't want to continue with Escalante. Finally ASARCO, who I'd already had dealings with, came back to me and said they'd like to work out a deal for Escalante. And so I worked out a lease arrangement with ASARCO. They're another company that did mill design and all this--in fact the place was so over engineered in metallurgical test work and the like (this was in '71)--and they were about ready to go when they got sued for disturbing the water table down in Tucson at one of the mines down there. Charles Barber, who was the chairman of ASARCO, immediately got concerned (he was an attorney), that they

would be sued for disturbing the water table in the valley with all these farmers out there. So they decided they didn't want to go forward with Escalante.

About that time, oh, it was two or three years later, Maxie Anderson came back and asked if it was still available. I said, "Well, I'm sure we could work out a deal to take over ASARCO's interest in it." So we did, and we worked out a deal with Maxie.

**Vertical Crater Retreat Mining and End Stoping**

Arentz: I had been arguing all the time that it was ideally designed for trackless mining and diesel equipment, and all of them wanted to go back to cars and track and battery locomotives and stoper drills and shrinkage stoping or whatever. Finally I got Mark Welch, who was the mining engineer for Ranchers, and the fellow that they had designated to be the superintendent up at Escalante. We went up in Canada where this vertical crater retreat system was being used, and decided that it would work at Escalante. That we would drive a decline and use trucks and so forth. So that was the way the mine was developed. It was a new development in Canada, and then later Ranchers improved on it.

Initially this vertical crater retreat was a system under which you had drifts on the ore the full width of the vein at 150- and 200-foot vertical intervals. You also, at those intervals, would have a footwall drift for haulage and getting ore out and supplies and equipment in. You would drill six-inch-diameter holes for 150 to 200 feet on the vein, where the vein was twenty feet wide, which was about the average at Escalante. You'd have three holes: one near the hanging wall, one in the center, and one on the footwall. And you'd drill these six-inch holes down until they holed through to the drift down below, then you'd hang a wooden block in the holes, say, three feet above the back of the drift down below, and leave the broken ore piled up there.

From the footwall drift that you had for haulage at about every forty feet, you'd drive a short crosscut into the stope, and you'd have a front-end loader that would load just this broken ore into trucks for hauling to the surface. The only thing was that you had to keep repeating this all the way up until you got up to the upper drift. The repetitive blasting in the hole would sometimes wreck the holes so that you'd have to redrill and also the Escalante ore was tight enough that we weren't getting the breakage on the powder--we used more powder than we planned.

One of the fellows down there came up with the idea of getting a channel cut up through from one level to the other, and then loading these holes the whole height of the hole with stemming or sand in between charges, and then you shot it. They called it end stoping--just laying out the whole thing and breaking a couple thousand tons with each row of holes. They'd have rows of holes along the strike of the vein about ten feet apart. It became a very cheap way of getting the ore out.

Maxie and Marvin Kaiser were very clever on selling their products--both uranium, and at Escalante, the silver. They would deal in the futures. Before they ever started at Escalante, but when they knew they were going to start, this was during that price rise when the Hunts were fooling around, Maxie started selling silver forward with the idea that he would deliver it when the mine was in production. Under the terms of our agreement, I could take my royalty under the same forward selling plan. When the crash came, Maxie was able to offset his forward sales, and I think Ranchers came up with six or seven million dollars to apply on putting the mine into production that they made out of their future sales on silver. I came out pretty well too on the small part I was playing in it.

Anyway, he also was able to finance it to a large extent with borrowed silver from some of the banks and commodity exchanges, which he could sell and then repay with silver from production. They ended up spending a total of about thirty-seven million dollars to put Escalante into production. After it was going pretty well, Maxie and I reached an agreement--well, it was after Maxie's death, I guess--I had an agreement with Maxie that I could take the royalty in silver if I wanted to. (I took some that way.) We'd been talking about the business of taxes on my part where I would turn the property over to him for stock in Ranchers. Afterwards, I worked out the same arrangement with Lee Erdahl. So I ended up becoming a major stockholder of Ranchers.

First, when I made the deal with ASARCO, I got enough down payment from them to buy both Englehard and Chief's interests so by that time, I owned it all. Over the years it has proved to be a very worthwhile thing.

Swent: It certainly has. You may be interested in a couple of documents that I ran across yesterday.

Here's a letter from Samuel Arentz to the Industrial Commission of Utah on May 12, 1964.

"Gentlemen: This letter is to advise you of our starting mine development at our Escalante Mine situated in Iron County, Utah."

Then here's a report from Colonel All Gronning, Chairman of the Industrial Commission of Utah Safety Division, from an inspection that was made in 1966 and some recommendations. And it says, "The management and employees are commended for the good housekeeping being practiced."

Arentz: Oh, fine.

Swent: So there were a couple of little things that they found that should be improved but they commended you for "good housekeeping."

## Labor Relations

Arentz: One thing that I somewhat pride myself on, over fifty years of mining, no operation that I've been connected with has had a strike, and we haven't given the show away either. We've retained the management and yet we've dealt fairly with the employees, and they've generally been happy.

Swent: Was Escalante unionized?

Arentz: No, but they were unionized toward the end out at Bretz, and Pioche was unionized. In fact, one of the things that they took a great deal of pride in at Pioche--we were the first of the hardrock mining companies that were under the United Steelworkers union. They went into this job evaluation study and classification that was common in the steel industry but was completely foreign to the mining industry out West. It became a sort of model that most of the others ended up following, but it was quite an experience negotiating with these characters out of Pittsburgh who represented the Steelworkers union. They were used to a very adversarial way of dealing with people.

We didn't have any trouble putting together a lot of the data on these classifications, but it ended up that there were five or six classifications where we were very substantially opposed in our views. The fellows from back East, who were doing the negotiations but with our local officers attending, started getting very abusive and acting the way they did back East. Finally our local officers just stopped them and said, "Now look, you guys shut up. We don't deal that way here. We're going to take over and do our own dealing with Sam, and we'll come up with an answer. But we don't want to hear another word out of you fellows."

## IV OTHER ACTIVITIES

### Political Activities

Arentz: I didn't mention that in 1951 when Mr. Hoover was out, he asked who I was interested in for president in the Republican nomination in '52. I said Bob Taft.

Well, he said he was too. And he said, "I'll tell you what, If you can get to be a delegate to the convention, try to get on the credentials committee: that's where all the fighting's going to be."

And I said, "Well, I'll see what I can do."

The only way I could be sure of being a delegate was to be chairman of the state convention that selected the delegates. So I did some finagling, and I became the chairman of the state convention. Nevada was entitled to twelve delegates, and I was able to get eleven Taft delegates. The lady that was the vice chairman of the State Central Committee was entitled to be a delegate if she wanted to be, and she was for Ike [Eisenhower]. I got back there early, and I attended the hearings of the contested delegations. One of the ploys that Dewey and Ike's backers used was to have rival delegations from a whole bunch of states that were selected by their group, where the regular state organization had selected Taft delegates. These conflicts were heard by the National Committee first. I listened to those hearings.

My wife's sister, Kay, had married a mining engineer, and they were up at Iron River, Michigan. I had taken Mary Alice and the children back, and they'd gone up to visit her sister while I was in Chicago. Once these hearings were completed, I got on a train and went up to join them before the convention started. I was only there a day when I got a call saying, "Hurry back. There's a lot of problems."

I said, "I can't get back today; the trains don't run that early."

They said, "We'll have a small plane pick you up and get you back here." I got back, and it turned out that there was a proposal to change the rules so that none of the contested delegations could vote on anything about seating them. Previously, Governor Dewey had the rules set up that any delegation that was seated by the National Committee could vote on any contest except their own. And they were doing away with that and saying that no contested delegation could vote on anything. They had deliberately set it up that way. So the first business of the convention was a debate on changing the rules.

The manager for Taft got hold of me and said, "Each side has twenty minutes and we'd like to have you take five minutes of our side."

And I said, "The place is full of politicians and attorneys."

He said, "We'd still like to have you take five minutes of our side." He said, "I'll signal for you to come up to the rostrum when we are that far along."

So I sat down and started trying to figure out what I would say, and I had some notes scratched out. Finally, I saw the signal, and went up.

He said, "Now, former governor John Bricker, who was also the vice-presidential candidate with Dewey, is going to be our leading speaker, and you listen to what he has to say because we all want to be arguing along the same lines." So I had to tear up the notes on what I was going to say.

You're finally introduced to go out on this long walk like a Miss America kind of thing to a podium. It's in the stockyards, and there's maybe twenty thousand people there. Anyway, we lost on that. California was the deciding vote. Ike got nominated. But an interesting thing was: the Minnesota delegation was seated right in front of the Nevada delegation, and Warren Burger, who later became chief justice of the Supreme Court, was seated right in front of me. He was, at the time, the attorney general for Minnesota. They were all pushing for Harold Stassen but when they came in on the day the votes were taken they still had all these Stassen banners, but under their arm, they had all these Ike things. I said, "Well, you hypocritical bunch of so and so's." [Chuckles]

Hoover was coming out to Pioche and on the way back on the train he said, "Does Nevada have a Republican candidate for congress?"

I said, "I don't know. I'll have to check." It turned out it was a friend of mine from Las Vegas who was an accountant.

Mr. Hoover asked, "What are his chances of getting elected?"

I said, "I don't think they're very good."

The next day, Mr. Hoover and Ed Snyder came in and said, "We can't do anything in the way of financial help, but we can give you a leave of absence if you care to run for the nomination and election to congress. If you're not successful then you've got your job back."

I said, "Well, I'll see what I can do." So I checked with the state, and nobody else had filed. The fellow who had planned on filing said that he would do everything he could to support me and he wouldn't file.

So it turned out it was the last day so I had to arrange for a plane to come down from Ely and pick up the application forms. I called the governor in Carson City and said that these would be in, and he said fine, he'd take care of them. It turned out that some friends of mine in Reno, who I couldn't get hold of, had convinced a young attorney up there, who had been three or four years behind me in school but was a fraternity brother, to file before my papers got there. That meant there was a primary campaign. He called and said he would withdraw. I said, "No, he shouldn't do that."

Because of the controversy I had stirred up in Reno over firing the president of the university--and Reno's the Republican stronghold in Nevada--I lost the vote in Reno. I won the other counties, but I still lost by about eight hundred state-wide. Which was just as well.

## A Family Trip Around the World, 1975 ##

Swent: Tell me about the trip in 1975, please. That's too good not to hear.

Arentz: Well, I was just mentioning that back in 1975, I planned ahead of time, and wrote letters to my children and grandchildren and nieces and nephews--

Swent: You have five children: I don't think we've mentioned that yet.

Arentz: --and two sisters and brothers-in-law and the like. I said, "Let's have an adventure. See if you can arrange to stop whatever you're doing for three months this summer and we'll get together in Los Angeles on the Fourth of July and head out." I'd arranged the trip with a travel agent. Originally, he said he would like to be the escort. When he saw that we were having teenagers and even young ones, he said that he had two children that he would take at his cost. So actually when we arrived in Los Angeles there were forty-three of us. We took off and headed to Tahiti, and they sort of got their feet on the ground there. Then to North and South Islands of New Zealand. I saw some mines and geothermal operations.

Swent: One of your sons is also a mining engineer.

Arentz: Oh, both of them are really.

Then we went over to Australia to Melbourne and Sidney. My wife and I and a couple of others went out to Ballarat, the old gold mining area. My two sons went with me up to Mount Isa, and we spent a couple of days there. Then we went on to Japan and spent some time there, then down to Taiwan and to Hong Kong and to Singapore; then over to Bangkok and had a delightful time there, and on to New Delhi and down to Agra.

Swent: Were you visiting any mines at any of these other places?

Arentz: Not after Australia so much until we got to Johannesburg and Brazil. After we left New Delhi, we went to Teheran; the shah was still there. Then we went on to Beirut, and one of my daughters-in-law was concerned because she read in the newspaper that they were shooting people on Main Street in Beirut. She said, "What are we going to do about that?"

I said, "We'll just stay off of Main Street for one thing." We had a delightful time there. It was one of the most interesting places in the whole trip. The Bekaa Valley and that area--the ruins there are every bit as interesting as anything in Greece in my opinion.

We went to Istanbul and finally over to Athens and then to Cairo. Then we flew down to Nairobi and went out on an animal safari, picture taking at Ngoro-Ngoro crater. Then we went on

down to Johannesburg, and I did get a chance to visit some mines there, and then across to Rio. A longtime friend of mine had a placer diamond operation at Diamantina, north of Belo Horizonte. I went up and spent some time with him on his diamond operation. Then we flew on over to Lima, Peru, and up to Bogota, and then home. I had become well acquainted with the people from Anglo-American when they had interest in the Escalante Mine so when we were in South Africa, I was able to renew some of those acquaintances.

We had one of these foreign exchange students some years before from Bogota whose family we'd had contact with before, and we had a very delightful visit there with the former foreign exchange student and his family.

Then in Hong Kong, with Mrs. Wah, the little Chinese lady that had the boarding house at Pioche, she had an adopted son in Hong Kong, and he had married and had two sons and two daughters. I looked up the family and arranged for the sixteen-year-old daughter to come over on a student visa to the United States to live with her grandmother down at Pioche and go to high school. When her granddaughter finished high school, we arranged for a scholarship for her at Westminster College here in Salt Lake, and she came up and lived with us for a year.

On one of her trips with her grandmother, they went from Pioche to San Francisco and she met a very fine young Chinese man who was a graduate of Berkeley. His family had some stores in Chinatown, and they had apparently kept in contact and decided to get married. I tried to get the parents over on a tourist visa to attend their daughter's wedding, but the American consul in Hong Kong was the most arbitrary s.o.b. I've run into in a long time. He wouldn't let them come on the grounds that they didn't have enough possessions in Hong Kong to assure their return. I said, "I'll post a bond; they'll be back," and I sent the tickets over for them but no, they couldn't come.

So I went down to Pioche to assume the role of father of the bride and gave the bride away when she got married. She now lives in San Francisco. Her name was Wah Ling, her husband's name is Stanley Chow, and they have two children. The eldest has a typical Chinese name, Angelique Chow. [Chuckles]

Swent: So you've kept in touch with them?

Arentz: Oh yes, and tomorrow night, we're going down to southern Nevada. Mrs. Wah died, just a day or so ago, at ninety-five, so we're going down for the services.

Swent: So you visited them in Hong Kong too.

## Other Travels

Arentz: Oh, yes. And then on repeated visits when we've gone to Indonesia, we generally go by way of Hong Kong and we have another visit with them. Then another time, some of the family went with Mary Alice and me, and we went over to Scotland and traveled on the Royal Scotsman's train. That's a real experience. This spring we went over to France and went on the barge trip on the canals over there. That was a delightful experience. Then a few years ago, Mary Alice and I went with People-to-People on Vernon Scheid's trip to South Africa. We spent several weeks and visited some fourteen mines. Mary Alice went with me when we went down the Western Deeps to the 11,500 foot level.

Swent: So these were all mining people that went?

Arentz: Yes, geologists and mining engineers and metallurgists. It was a delightful experience. We travelled pretty well all around South Africa and visited, as I say, some fourteen mines. Then we were down in Capetown, and you can't help but be tremendously impressed with the mineral reserves and resources of South Africa. Mary Alice has also traveled with me on the trips to Indonesia.

Swent: Yes, tell a little more about those, won't you?

Arentz: Well we were asked to come over and advise them on a couple of properties on Java and another one on the island of Suliwese which is over east of Borneo. We found them the most delightful people. I made two trips down there, and they've been over here.

Swent: What kind of mines were they?

Arentz: Both of them were complex base metal: gold, silver, copper, lead and zinc mines. They'd done a good job on exploration and partial development.

Swent: It's a very rich country, isn't it? Has great resources.

Arentz: I think so, yes. Now, of course, there's big gold properties, and copper and nickel and the like. But we found that extremely interesting.

## Regent, University of Nevada, 1949-1953

Swent: You haven't yet mentioned your activities with the universities.

Arentz: I graduated from the Mackay School of Mines at the University of Nevada, and along about 1948, the then-president of the University of Nevada got off on a tangent where he thought mining engineering was sort of like a trade school thing, and to heck with it, it cost too much per student and one thing and another. He was going to do away with the School of Mines. And also, he was spending a great deal of the school's budget on trying to make Nevada a football power on a par with Notre Dame or Fordham or some place like that.

Swent: Where were you living?

Arentz: At Pioche.

And at that time, under the state constitution of Nevada, the university was run by a board of five regents selected at large from the whole state. They were generally filled with retired professional people or business people from Reno, which was the metropolitan area of Nevada up until about that time. There wasn't too much competition. But I got so provoked by this situation that I got permission from the company and ran for regent on the platform that if elected I would fire the president and do away with their football program as it was then constituted. I'll be darned if I didn't get elected.

We had a little Irishman who was safety inspector at the mine, and when he saw me out campaigning and working to be elected regent he said, "What does that job pay?"

I said, "Dewey, it doesn't pay anything."

He said, "Hell, anybody can get a job like that." [Chuckles]

Well, I managed to convince three of the other four regents that we should follow through on my promise regarding the football program. I was successful, and we got a very fine fellow to come in as president after a year. Unfortunately, the one hold-out on the board of regents that didn't go along with us was the chairman of the board, and he was quite an influential fellow in Reno. He was doing his damnedest to make life difficult. The president that we got in was offered a top job as president of the University of California at San Diego, which he accepted. It was a real loss to Nevada. But we did save the School of Mines and we brought in Vernon Scheid as dean, and it's worked out very nicely.

In the early forties or before World War II, as I recall, there were some forty-four schools of mines in the United States. By the late sixties, it was down to seventeen. The demise of most of the schools was due to the fact that a mistaken policy was initiated by many universities or schools to combine mining engineering with civil engineering. The result was that the scientists who are part of a school of mines, the geologists and the geophysicists and the mineralogists and people like that, don't regard themselves as engineers; they regard themselves as scientists. And while they are perfectly content, at least the bulk of them are, to be part of a school of mines, as soon as you say you're part of an engineering college in civil engineering, they say, "The hell with this, we're going to transfer to a college of science. We belong with the mathematicians and the physicists and the chemists and the like." And as soon as that happens, you no longer have a school of mines.

## Advisor, University of Utah, 1973-1991

Swent: Then you moved to Utah.

Arentz: Yes, I was on the advisory council for the School of Mines here and we went to see the president of the university at that time and the board of regents here at Utah. They have a system here where they have a state board of higher education over all of the state universities. We also went to see the governor, and we got nowhere with him. They said, "No, this is the way we're going to do it." They kept saying that to educate a mining engineer was too costly.

We pointed out that it wasn't nearly as costly as a doctor or a lawyer as far as what they were doing.

"Well," they said, "the federal government finances those, but we have to do that out of state money."

At one of the meetings where we'd gotten nowhere, I happened to mention, "Well, we'll have to go to the legislature."

And I didn't think anything more about it, but when I came back from a Christmas vacation, somebody called and asked, "Have you got the bill written for the legislature on the School of Mines?"

And I said, "No, I hadn't even thought of doing it."

"Well, you're the one who mentioned it."

So I said, "Well, I'll see what I can do." So I got hold of my attorney and asked if he would look up the legislation. It turned out--in common with the other Western states--when Utah became a state, certain school sections were set aside by the federal government for the state for use to fund a school of mines or mineral industries. One of the first laws passed by the Utah legislature was to set up a school of mines and dedicate these school sections to that purpose. So I got my attorney and suggested that he just make an addition to that: that it would be a separate college with its own dean. And then I got hold of--well, there were plenty of other fellows working on this situation. It wasn't just me--but we got hold of all the mining companies, all of the equipment and supply houses that furnished things to the mining industry, and the law offices that had mining companies as clients and the like and were successful in getting members of the senate and house in the state legislature to sponsor the bill. When it was apparent that it was going through, the then governor said he would approve a joint concurrent resolution of the two houses of the legislature and the governor, which would have the same effect, but asked that we hold up making it a law. Apparently he was under a great deal of pressure from the education lobby.

After we'd arrived at what was agreeable wording of this resolution, I talked to the sponsors of the bill in the two houses and said would they table it for the time being and see how this resolution went. We were up against the fact that the governor presumably could veto the bill if it went as a bill. So we got the resolution passed, and about that time, the legislature was adjourning. When it got up to the governor's desk, he refused to sign it. He just deliberately lied, in my opinion.

Well, anyway, we got so much support that the then-president of the university, a fellow named Emery, and his vice-president, named Anderson, who were actually from the law school, both resigned and went back to teaching in the law school. The state board of higher education and the regents decided that there was so much support for a separate school of mines that they were going to have a meeting. I got Vernon Scheid to come over and we got a whole bunch of other people here to get up at this hearing. They decided that yes, they would maintain the School of Mines, and we got Larry Lattman to come in as dean. And he is just a whiz; it's just too bad that New Mexico hired him away to be president of the New Mexico School of Mines at Socoro.

Educating About the Importance of Mining

Arentz: The thing is, the minerals industry has been sort of remiss in educating people about the importance of mining. A lot of teachers are sold on this environmental thing, and they teach students how terrible mining is, it's polluting, and it's degrading everything and destroying the earth. And so I found in recruiting students, the university up here would have some instructor, not one of their senior professors, go and meet with the career counselors at some of the Wasatch Front high schools to see about recruiting students. Thanks to the Browning Foundation, the Utah School of Mines has a very liberal scholarship fund.

I said, "I think you're doing it the wrong way. One of your senior faculty members should go and take along somebody from industry and maybe a student or a recently graduated student." I said, "The industry could do it, but they don't have access to high schools, whereas a professor from the university does." And I said, "Don't ask to see the career counselor. Get to the principal or somebody like that and ask if you can't have a meeting with all the fast-track students, those who are taking science and physics and chemistry and math, and then put on a presentation."

And I said, "As a matter of fact, I think some of the rural high schools from other areas in the state might be more receptive than students living here in the Salt Lake valley. Because you're more apt to find students who are outdoorsmen and the like." And I said, "What's more, I'll fly you if you'll make the schedule so we can see, say, three a day. And we'll fly out and meet with them. And if the professor will outline what the curricula are, and if a student can talk about what it was like and somebody from industry can talk about the various fields ranging from laboratories to management to geophysics and exploration and so forth, I think you can find some interest."

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Arentz: So we started doing that. We'd fly out to, say Vernal and then down to Moab and on down to Blanding in one day. Then another day we'd make another tour. The thing that was most impressive: we finally got to where teachers would come to attend these, and I would point out to the teachers that in the school districts in the state where there was a minerals industry--whether it was oil fields out in the eastern Utah or Bingham here in Salt Lake or whatever--the taxes that were paid made it so those school districts could pay teachers' salaries and buy school buildings and things of that sort. They were overlooking that when they

were trying to run down all those facilities and close them up because that was what was paying a large portion of their salary. I think it did some good.

Swent: Did you get more students then?

Arentz: Oh yes, we got first rate students. Before that, because they had these scholarship funds, there were a lot of students from the Wasatch Front here who would sign up for the scholarships, and they'd get a nice scholarship fund for the first couple of years and then they'd switch courses but they'd have the first couple of years paid for. So among other things, we made it so the first couple of years, the scholarships were on a graduated scale. Not too much the first and second year but the third and fourth year, they got a real fancy scholarship if they stayed in the field and were doing well. And that worked fine.

Swent: What is the enrollment?

Arentz: Well, it's down in all of them now, of course.

Swent: But it's still a separate school with its own dean?

Arentz: Oh, yes, And different schools have different fields within the college. Here at Utah, they have mining engineering, geology, geological engineering, geophysics, fuels engineering, extractive metallurgy, and of all things, meteorology. In Nevada, they don't have meteorology, but they have geography and chemical engineering as part of the School of Mines.

Swent: Are you still in touch with the Mackay School?

Arentz: Oh, yes.

The Utah Mining Association put together a movie that I think is one of the better films for high school students to interest them in a career in the minerals field. We take that along and show it too. Then they have a business here in Utah where they have people from different fields in the industry make presentations to kids down to about the third grade. I participated in quite a few of these presentations where you go and meet with a whole bunch of students and their teachers anywhere from the third grade through the eighth grade.

Swent: Those are really very effective, I suppose, aren't they?

Arentz: Well, they find some interest in it, yes.

Swent: Are you still involved in that? Are you still on the advisory council?

Arentz: The present dean shifted the advisory council to where the mining engineers have one division and the metallurgists another, which I think is a mistake but I'm on the mining engineering one.

In Nevada, they've done a lot better job. Dean Kerr is on the Nevada advisory council from his experiences when he was out in Ely. There the council is appointed by the board of regents and the president of the university, and they report to the president. They have a very interested group, not necessarily all from Nevada. They have been quite successful in furthering the interests of the School of Mines of Nevada. First they got a large appropriation from the state for new building facilities. Then Senator Laxalt was able to get an appropriation of, I think, fifteen million dollars for adding to the building and setting up Mackay School of Mines as the center of excellence for strategic minerals and things like this. The old Mackay building, which was the School of Mines when I went there, was getting in pretty bad shape, so they're saving the facade and the historical part of it but they're completely redoing the building.

Swent: That's a lovely old building.

What about the environmentalists? Are they bothering in Utah?

Arentz: Well, for a while, up until the second or third year of Reagan's term, the general feeling I got from the field officials of the BLM and the forest service was that the public lands were their personal property and private individuals who wanted to encroach on them were trespassing, and they were going to make it tough on them.

In more recent years, I've found that there's a considerable change in attitude where they're interested in saying, "Well, sure we want to follow the law and preserve things, but on the other hand, we realize you have rights too," and we found them quite a bit more cooperative. Here in Utah, they were quite provoked because when the oil and gas industry was going like crazy up to a few years ago, and the mining industry was active, the Utah Oil, Gas, and Mining Board had only about eight employees. They processed applications for mining permits and things like that.

Now with everything pretty near dead, or up until a short time ago it was with Kennecott down and oil and gas down, they've increased the division to where they have eighty people. They spend all their time writing regulations which are sometimes very

onerous, and completely stupid. They spend a lot of money. Where one person could go out in the field and check on where somebody's applied for an application, they send a station wagon or two with six or eight people to do something that one person could do very nicely.

That's one of the things I hold against our present governor. He brags about having curtailed the employment in the state agencies, but that one has just exploded with a factor of about ten. Some of them are very difficult to deal with; others are responsible people who are trying to do the job. I've always tried to leave a place as good as I found it. Not the same way, I mean it's stupid to fill in a mine shaft or blast in a portal of a tunnel or an adit.

## "A Mine Has a Lot of Lives;" Historical Value of Old Sites

Swent: I thought what you mentioned to me yesterday on the tape was very interesting about the historical value of old mining properties.

Arentz: Well, you know, except for a very few of these gold properties in Nevada where it's very low grade, and the big open pit operations, and the uranium properties during the uranium boom, practically all the mines brought into production in the past seventy years in the United States have been indirectly the result of some prospector having done some work a hundred years or less ago, and where, by virtue of that little work he did near the surface, he exposed some structure or he exposed alteration, or mineralization. With modern exploration and our advanced technology, people have gone in and at least been able to say, "Well, maybe there's a chance for something here."

Now, the ultimate environmentalists want you to cover all that with top soil and try to grow something on it. And they also want you to make a headframe and a shaft look like a juniper tree or something of that sort. If you abandon a mine or shut it down, they talk about wanting you to fill in the shaft and cave in the portal so nobody can get hurt. I'm in favor of bulkheading the thing and locking it so that the casual person can't get themselves killed falling in the shaft or doing something of that sort, and I think the main requirement should be that they do adequately bulkhead them and lock them. The keys and an up-to-date map should be given to the state Bureau of Mines or the state geologic survey, and anybody with a legitimate interest can get a copy of the key and a copy of the map and go and examine it to find out whether there's something that can be done.

As Hoover said, "A mine has a lot of lives." What isn't practical for this generation because of metal prices or refractory metallurgy or they've hit a fault or something of that sort; the next generation will find that they've got a new metallurgical process or they've nailed a new technique for finding the continuation of the ore body or metal prices are up or something of that sort, and the mine starts all over again. I think, if you started from scratch, to replace the results of early prospecting and operations of this country would cost many billions of dollars.

The other thing is that in spite of all these hardened environmentalists that say, "Oh, you're destroying everything," there's an equal number of people that get a whale of a kick out of going to explore ghost towns and things of that sort. It seems to me that the signs of former people who put their energies and their money and their time and their effort into trying to make a mine somewhere and had the faith that maybe they could, is an encouraging thing. I mean, I welcome it very much.

Swent: I've always thought that headframes are really very dramatic and beautiful.

Arentz: Yes, you go on that road, the so-called Million Dollar Highway, from Ouray to Silverton, and those gigantic big timber headframes up there on Red Mountain and the like are really something to see, I think.

## V CHANGES OBSERVED IN THE MINING INDUSTRY

[Interview 2: July 1, 1992] ##

### Living Conditions and Wage Benefits

Swent: Mr. Arentz, we haven't talked for quite a while now and there were several things that you had said that you would like to expand on.

Arentz: Let's start with the change in mine labor in the Western mines.

Swent: Change in mine labor, all right.

Arentz: Prior to the Depression, at least in the smaller Western mines, hardrock mines, the typical miner was a single bachelor or on single status at the mine, lived in the bunk house and ate at the boarding house and was an itinerant. He would go from Arizona to Montana in the summertime and back down to Arizona in the winter time. He was a skilled artisan because he knew everything you did in a mine from drilling and blasting to moving the material, to sorting to make sure he kept the ore and waste separate and to a very real extent timbering and safety things, but as I said, no family visible, at least at the mine. His chief recreation was the bars that were generally associated with mining camps.

Swent: Were these generally members of unions?

Arentz: No, not necessarily. In fact, it would depend on what area you were talking about. There were some very unionized mining districts and there were some that didn't have unions at all. For example, I worked for C. T. Van Winkle, a consulting engineer, for a number of years at Rico and at the Ima Mine. One of the stories he told about is when he was mill superintendent at Silver Lake above Silverton, Colorado, as a young man. The whole crew would be snowed in for several months during the winter, and the miners

and mill men would let their checks accumulate in the time office. They could get credit for tobacco and clothes in the company store. There was one man who was particularly responsible and capable, so Van Winkle told the time keeper, "When he comes in the spring to get his checks to go out, I want you to send the checks into my office; I want to talk to him."

So in due course, the fellow came in to get his checks and went into Mr. Van Winkle's office. Van Winkle told him "We have appreciated the fine job you have done. We would like to have you back after you go on your spree. What are you going to do now that you have a nice check and some free time?"

The fellow scratched his head and said, "I'm going to town to get drunk and gosh, how I dread it."

Swent: He felt he had to do this?

Arentz: Yes, that's right. But at the same time there was a great deal of loyalty among them. If one of them got hurt they all contributed funds for helping.

Swent: You mentioned they were skilled men in drilling and blasting and sorting and timbering, and you did mention safety.

Arentz: I said they were safe but at the same time there were a lot more injuries than there are today.

Swent: Where was the responsibility put for safety? Did the employer feel responsible and how did they transmit this to the workers?

Arentz: Oh sure, you know if you aren't safety conscious to start with if you are in charge of any kind of operation, construction, or a mine or whatever and you have a fellow seriously injured or killed on the job, you become safety conscious right then. Because the problem of explaining to any relatives or friends, or fellow workers regardless of what you do, you are almost invariably blamed for it if you are running the job. There is nothing makes a fellow more safety conscious. Following up on what we were talking about, the change in the type of laborer that worked in the mines, most of these I was talking about were either immigrants or first generation of immigrant parents.

Swent: Did they already come with mining experience?

Arentz: Some of them did, but some of them went to work as laborers in mines and built up expertise. Later mining became more settled

and family people became involved. There was housing in the mining area. There was substantial change.

Swent: What countries had these people come from?

Arentz: The Scandinavian countries and from Italy, and the typical American miner 100 years ago was a Cornishman from Cornwall, a 'cousin jack'.

Swent: You were still getting 'cousin jacks'?

Arentz: Yes, I'd say so. The miners I was particularly familiar with were some Scandinavians who worked for my dad for a long time.

Swent: And had they been miners in Scandinavia?

Arentz: Not to my knowledge. They could have been but I don't know.

Swent: Were they Finlanders?

Arentz: I think Swedes. But Pete Nielsen and John Langburg were their names. Pete was a great big husky guy and John was a little short, and not that husky, but John is the one that took the lead in doing things and was extremely loyal and faithful while working for my dad, as was his partner Pete.

Swent: Which mine was this?

Arentz: Different mines. My dad had some prospects where they would have to go and to start with, use handsteel and rather primitive tools, but they would make out very well. And then, as I say, following the Depression there were family men and there was housing made available and it was very much different. There was a tendency to cut out the patronizing the saloons and the sporting houses and things like that.

Swent: Did the company still provide the housing?

Arentz: Sometime and sometime not. But generally they had to do something about co-operating to make housing available. During the war years at Pioche the government built a bunch of housing that was better than most of the housing available in isolated mining areas at that time. They were dry-wall construction but they were two- and three-bedroom apartments. They had refrigerators and electric ranges and full bathrooms. It was quite a different thing.

Swent: Do you think it was the war that made the change?

Arentz: Not necessarily; they were already starting to change before the war. It was during the period when I was out at Mercur from 1934 to 1938. While we didn't have any families living there the first couple of years, a good number of the crew were married and their families lived in Grantsville or Tooele and places like that, and it was only from the period from 1936 on that some housing was made available or they made housing available for themselves and brought their families up to the mine.

Swent: So that was perhaps a change because the Depression was easing up?

Arentz: Yes. But even then, at Mercur the boarding house was an old brick house that had been a substation for power before 1912 when the mine was operating. About once a month during the summer months particularly, the men would all get together and chip in a few dollars apiece and get an orchestra to come out. They would clear all the furniture out of the main dining room at the boarding house and spread some stuff on the floor to make it a little slippery. At 7:00 p.m. there would not be a female within twenty miles of the place, and by 8:00 it would be filled up and they would have a real dance until 1:00 in the morning.

Swent: And the men did this on their own. The company didn't sponsor it?

Arentz: That's right. The superintendent was there and all the staff worked at it too. But it was something that was pretty well spontaneous.

Swent: Had a good time?

Arentz: Yes. And then we organized softball or baseball. We had a baseball team, and we would have games scheduled with Ophir and Tooele and Cedar Fort and Fairfield and the like, and generally when we would play at one of their places they would have a dance after the game. When they came up to our place, the same thing applied.

Swent: What about drinking? Did you allow liquor in the boarding house?

Arentz: No, we tried to restrict it.

Swent: How effective were you in doing this?

Arentz: I think as far as the boarding house we were quite effective.

Swent: This was after Prohibition, wasn't it?

Arentz: Yes. The thing is, some of the men drank but you saw to it that anyone that had been drinking and came to go on shift, didn't go to work.

Swent: And you were able simply to make a judgment on this?

Arentz: Pretty much. You would have to make a judgment on it.

At Pioche we really worked on safety. But you ran on to some unusual things. We had a couple of fellows, this one year, who died of heart attacks. One man had a heart attack on the job at the boiler plant where we heated our mill solutions. The superintendent that preceded me was down visiting. He had gone through the mine during the day with me and was staying at our staff house when he had a heart attack and died in his bedroom. Not long after that, I was working late at the mine office which was only a couple of hundred feet from the collar of the shaft. Our top man came and rapped on our window at about 8:00 or 9:00 at night and I went to answer the door and asked what was the matter. He said, "Bill is sick." Bill was one of our best miners. He was considerably overweight but was just a top-notch miner. I went out and talked to Bill and he told me he had a pain in his chest. I told the top man to take him into the change room right then and start getting his clothes changed and I would call a doctor.

Our doctor was over in town which was about eight miles away by highway. I said, "Doctor, I think I have a man with a heart attack and I'd like to know if you will come out here or if I should bring him in there. I've got him in the change house with the top man helping him get his boots off."

He said, "You'd better bring him in so I can do something with him."

About that time the top man came in and said, "Bill's passed out."

I said, "Doctor, come on over just as fast as you can."

I went in and did artificial respiration, but Bill was dead. By the time we called the coroner about an hour had passed and it was getting to be about 10:30.

So I said, "Doctor, we are going to have to stop over and see the family and I would like to have you come with me." He came with me to town where Bill lived and the family were all asleep. We knocked on the door and the wife came and Doc and I explained to her that her husband had died of a heart attack. They had two

teenage children. The widow was understandably very upset but she was still quite a strong woman.

About that time, however, a woman came out of one of the other bedrooms. She was obviously expecting a baby. She went into hysterics--she was Bill's sister--and she wasn't married and Bill and his wife had told her to come down and have the baby and they would adopt the baby and the parents weren't to know. As it turned out the parents came down to their son's funeral and their daughter was in the hospital delivering an illegitimate baby which even fifty years ago was a sad thing for a family--today it seems sort of standard.

Swent: Not quite. But it was devastating at that time.

Arentz: It's situations like that that really made it tough.

Swent: What sort of arrangements did you have with the doctor? Was he on some sort of retainer?

Arentz: Yes, he gave all of the pre-employment physical examinations, and then we set up a health insurance program in effect at Pioche, where the company would charge a small fee, but they would put up most of the money to the local hospitals. We helped the doctor and he originally set up a hospital that was made of lumber. It was actually a conversion of a bunch of CCC camp buildings. They were destroyed by fire. We saved the bulk of the equipment and nobody got hurt. Then we went to work and had our construction crew build a concrete, fireproof hospital.

Dr. Fortier, who was a very capable sort, was from back East. He wasn't married and he worked all hours. Sometimes he would show up at 2:00 in the morning and things like this. And in his back yard he might have horses or a cow, along with having the place filled with patients in the hospital.

One time when Ed Snyder was down the Union fellows said they wanted to talk to him about the health plan. He was afraid they were going to tell him he wasn't providing the services required. Instead they came in and said so-and-so was in the hospital and the doctor diagnosed he needed his appendix out and the fellow wouldn't have it. A couple of pay days later he got in a fight in a bar and got pretty well beat up. The fellows had to take him down to the hospital to get some stitches and while he was there the doctor took out his appendix. So if anything the doctor was doing too much. That was in the days before they had malpractice.

Swent: A little overzealous.

Arentz: On one occasion our daughter Cathy, the one who works here, had a bad cold--a real high fever--and I called the doctor and asked him to come over at his convenience. Cathy was sleeping with Mary Alice and I was on a couch in the living room, waiting for the doctor to come, but I had gone to sleep. I woke up about 2:00 and the doctor was just about to give me a shot of penicillin. I said, "No, it's for Cathy." He was quite a remarkable person.

Swent: Did he have a hospital or did you have to send people into a city?

Arentz: He had a hospital and he did all kinds of things. We built this hospital after the fire destroyed the first one.

Swent: It was more than just a first aid station?

Arentz: Yes, it was a hospital. He did all kinds of things. When I first went to Pioche, there was a Doctor Hastings and a Doctor Hutchings there. Dr. Hastings had an infirmary in his house, where he had an x-ray machine and an examination room and beds for maybe two patients. The rest was his residence for his wife and himself. And he had this assistant doctor, Dr. Hutchings. Early in the war, Dr. Hutchings was drafted and Dr. Hastings decided he wanted to retire. So I had to look for a doctor, and we managed to get Dr. Fortier to come in. He was a bachelor and very energetic. He had the whole house filled with patients. Since he didn't have a family and the house was full, I one time caught him sleeping in the utility room on top of the washer-dryer.

Swent: They doubled as a bed also?

Arentz: When we built this new hospital, he said he wanted to have a cornerstone. He said he would talk to the Episcopal bishop of Nevada and ask him to come down and lay the cornerstone for the building. He asked if I would arrange to have a notch in the concrete wall to put the box in. Then he said he would like to have a plaque to cover the hole and he would like to have a box in there that people could put things in that could be opened at some future date.

I arranged to have the high school band up for that occasion and a bunch of chairs and there was an old switchboard in one of the offices and I had them cut a piece out of it and we had one fellow that was pretty clever. He carved the cornerstone data into the limestone-marble switchboard and then we got a box made and ready.

We notified all the people that wanted to come for the cornerstone laying and the bishop showed up and he said could he

come over and join us for lunch. Our program was set for 2:30. I said I hoped he knew about cornerstone laying because I was not familiar with that kind of thing. Dr. Fortier assured me the bishop was familiar with it.

So the bishop came over and I took him to lunch at the boarding house and I said, "What do you want to do?"

He said, "I haven't laid any cornerstones either but we can surely write up something for a cornerstone laying." So we went through and wrote up a ritual for it. When the time came we went over and had the band play. We said how wonderful it was to have a hospital in town and invited the various organizations, if they wanted, to put something in the box. There were the Elks, the Masons, and the County Commissioners, and newspaper who all wanted to put something in the box and make some comments. Then it got to the actual laying of the cornerstone. The metal box with all these things was put in the notch in the wall and then the marble face piece was cemented in place.

Our construction superintendent had been brought in ahead for a meeting. After we had the ritual worked out with the bishop we gave him his instructions. He came to the hospital equipped with all the proper tools. One was a level, and the bishop would say, "Is it level?" and he would put it down and say, "Yes, it's level."

"Is it plumb?"

He'd get a plumb bob and size it up, "Yes, it's plumb."

"Is it square?"

He'd put a square on the corner and say, "Yes it's square." So under those circumstances the bishop blessed it, and that was the cornerstone laying.

Later, I was on the State Planning Board in Nevada which was responsible for any state office buildings, and they built a big state office building down in Las Vegas. As has been traditional, going back to George Washington's time, the Grand Lodge of the Masons laid a cornerstone for that building and after reviewing that, I thought ours was the more effective cornerstone laying.

Swent: I think that sounds very appropriate to do it your way. Has that ever been opened?

Arentz: I believe the box could still be there.

Swent: That's very interesting.

Arentz: You run into unusual things.

Swent: Yes, indeed. You sort of need to improvise when you're out there.

Arentz: Being in charge of a mining operation in the West is like being the commandant of a military post. You're responsible for a lot of different things. Pioche was about 50 percent Mormon, LDS, and they are good people but they tend to organize and set their own programs for entertainment and one thing and another. Another 25 percent of the mine crew were itinerant miners, of the kind I was talking about and they weren't interested much except in the gambling joints and saloons. And so it left the other 25 percent who had to work for the whole community on recreation and any other kind of events.

Swent: How large was the community in Pioche in those days?

Arentz: Oh, about 2,000--something like that.

Swent: So you had your own post office?

Arentz: Oh yes, we had our own post office, bank, and everything of that sort. It was a town that had gone back about 1870, something like that. At one time there were more mines in Pioche paying dividends on the San Francisco stock exchange than there were at the Comstock lode. More numbers of mines. They didn't pay that much in dividends, but particularly during the war years when we had those enlisted reservists that were furloughed out of the Army, we had to organize something to amuse them. As I think I mentioned earlier we had a game room where they could shoot pool and play cards and the WAAIMES sent us books all the time so we had a pretty good library, but they weren't interested in that. They were mainly from back in Ohio and Pennsylvania and West Virginia. The movie house only had one film that would come in and play every night for a week and that was the end of it. So they didn't get a new movie more than four times a month. We would organize softball teams and they were great spectators but they didn't particularly want to play. So it was a continual business of trying to keep them happy.

Swent: You had a lot of responsibilities beyond just mining.

Arentz: You had the business sometimes of family counseling and I had to conduct several funeral services for those who were not LDS and weren't affiliated with any particular church there.

Swent: I didn't realize that was part of your job too.

Arentz: It can be. And we carried life insurance, a modest policy on each employee. One time a fellow was killed in an industrial accident. He had a wife there, so it was a case of seeing she received any industrial compensation and life insurance, and when that was done we also got her a job. About that time another woman came in and she was the real wife.

Swent: So you had to sort that one out?

Arentz: Yes.

Swent: How much were you paying workers?

Arentz: We had most of the things on the mine end anyway on an incentive bonus system but where they could earn up to two or three times their wages if they were able to do a first rate job.

Swent: Is this similar to contracting?

Arentz: Yes, bonus contract.

Swent: Was this based on the grade of the ore?

Arentz: No, it was based on the quantity or cubic feet of excavation, or advance in a drift, or things like that. I forget what the exact wages were. They weren't that high actually. When I got out of school a newly graduated engineer typically earned $120 per month or something like that and it moved up of course. I would say our shift bosses were getting about $300 per month and the miners weren't that far behind them.

Swent: This was in the middle 1930s.

Arentz: No, this was more in the 1940s.

Swent: You were competing with other local mines for laborers?

Arentz: To a certain extent, although a lot of our better miners were qualified to do many things like carpentry and welding, so we were also in competition with Henderson.

Swent: That was when they started building the magnesium plant at Henderson, Nevada. This was during the war, wasn't it?

Arentz: They were paying really fancy wages there; not only that, they were paying time and one-half and double time for a lot of things.

We were paying time and one-half for time over forty hours, but a lot of our better miners went to Henderson because a good miner could serve as a carpenter, pipe-fitter, or things like this. They got a bunch of our miners down there and one of them went to Sears Roebuck and got a set of carpenter tools and picked up a box like they generally carry to put their tools in and hired out as a carpenter, but nobody assigned him to a specific job. It was a huge plant down there that went for a mile or two and he would walk around not doing anything but carrying this box of tools, and then he noticed there was a fellow following him. After about the second day of being followed, he stopped and went up to the fellow and said, "I surrender, I haven't been doing anything." The fellow turned to him and said, "Keep your mouth shut. I've been assigned as your helper and I haven't been doing anything either." You ran into a lot of unusual things during those times.

## Organization of Work

Arentz: The business of organization--typically in underground mines at the time prior to the mid-1930s or even prior to the 1940s, a crew of two men or three men would be assigned to a particular heading, a drift or raise, or stope. The first thing when they went on shift, there would be the muck pile from the previous shift that would have to be loaded out and then there would be scaling down and getting any loose rocks knocked down and the timber in, if it required timber. Then, if there was a matter of laying track or pipe, they had to do that, and drill the holes for the next round, loading the holes and blasting. And the same two or three men would do all of that until they made the muck pile for the next shift.

The first time I ran into a change in that sequence was at the Grand View Mine near Spokane, Washington. Howard Young of American Zinc was a very close friend of Ed Snyder's and I had been invited to visit the mine on a couple of occasions. The first time I went up they were using slushers and tripod or column-and-arm mounted drills and doing the same sort of sequence. And they had, as I recall, 128 men working six days a week, divided between two shifts to get out a certain tonnage.

Dale Hayes and John Currey went to work and came up with what they originally called the Gizmo; later a modification of it became load-haul-dump, LHD units, which are in common use today. But their Gizmo was mounted on a small Allis Chalmers tractor and then they had a jumbo for drilling and machines that could drill a

10- or 11-foot hole without changing the seal. The ground was such that they could use a long jumbo, one of these pneumatic ones like they later came out with for everything.

They divided the crew up so a couple of men would be on the jumbo drilling the entire day; they didn't do anything else. Another fellow would be on the Gizmo which would load and haul the ore to the closest disposal point, to be loaded into the chute and then into mine cars. Another crew would do the scaling down and getting the area safe. They didn't have to timber since it was a hard rock mine in competent rock. They would load the holes in the afternoon and do the blasting so that everybody was a specialist: a couple in drilling, a couple in loading the holes and scaling down the loose rock, and another man on the Gizmo.

They had it so the shift boss could see virtually everybody at the same time, the way the stopes were. He would fill in at lunch time. They took turns taking lunch so the operation kept going.

They also made a modification of the haulage level. They had a long adit going in from the mill and then they had an incline shaft going down and the skip hauled the ore up the incline shaft and dumped into big bins at the collar of the underground shaft. Then it was loaded into mine cars to go out to the mill.

Originally they had a couple of men on the train hauling the cars out and it took a while to dump it while they were out there. Then they shifted to bottom-dump, automatic discharge cars. They had trolley locomotives and they put a controller for moving the locomotives right near where the chute loaded into the cars. They had one motorman and when he came in they would take the trolley off the main line and put it in a short stub line that fed into controller. He would set the brake a little on the locomotive and then he would go back to where there was an air-operated chute gate. He would sit there with one hand on the controller and the other hand on the operation of the gate and he could move the train just by turning the controller. He could load the whole train and then he would go back and change the trolley onto the main line and go shooting out to the mill and the cars would automatically discharge into the mill bin and he'd be back in. So one man handled that.

The last time I was out there when they were operating in this manner, they had, as I recall, twenty-eight men working five days per week, all on one shift, instead of 128 men, and were getting out the same tonnage as they had before.

Swent: And this change happened within just twenty years?

Arentz: Oh, less than that. They developed that in a matter of three or four years. I didn't visit while they were operating in Telluride, Colorado, but I read quite a bit about it. The Idarado operation in Telluride had shrinkage stopes on relatively narrow veins like five to six feet and traditionally a two-man or three-man crew would have to pull enough broken ore from the previous blast to make room to work on top of the fill and then they would have to get the stoper drill out of the raise. They had a raise at each end of the block, say 300 feet apart; they would have to get the drill and get the hoses strung out and that took a lot of time and then drill a round which would break maybe twenty-five to thirty tons, and then they had to get the thing torn down and get the drill and the hoses back into the raise. Then they would load the holes and blast. What they ended up doing, as I understood it, is they would have a crew do nothing but drill the whole 300 feet. Then the drilling crew would be moved to another block and the loading crew would come in and load the holes and shoot them. The service crew would draw down the chutes to where they had open clearance for the miners to come back in and they would change it from where it was a two-man crew getting twenty or thirty tons per shift out, where as I understood it, the actual mining crew would get fifty tons per man shift out. It convinced me that the organization of the work was as important as anything else you could get. The equipment was important but there wasn't any particular change in equipment at Idarado, it was just the organization. For a long time there was very little improvement in underground equipment after they got to where they had a liner drill and a jackhammer where previously it had been single and double jacks.

## Mining Equipment, Especially the EIMCO Loader

Swent: When did that come about?

Arentz: In the days of the Comstock lode, they had piston drills which were like a liner drill. They were a forerunner of the liner drill back in the 1800s but I'd say that the liner drills and the jackhammers were in regular use before 1920 or before World War I. There wasn't much addition to it and it was still a case of hand loading the ore with a shovel into a mine car or a wheelbarrow. Then they developed a slusher hoist which scraped the ore into a chute using a little air or electric double drum hoist.

Swent: Did they usually just make the slusher?

Arentz: They made the scraper. But the machinery houses--Joy and Ingersoll Rand--made the hoist.

Swent: But the scraper itself, they usually just fabricated on the spot.

Arentz: Yes. At the mine, although later they made cast steel scrapers which in many respects were a little more efficient and withstood the wear and tear better because they were made with abrasion resistant steels.

Swent: And those you had to buy?

Arentz: Yes, and you would buy plates that went down to where they scraped against the rocks and you could replace those and that way the things lasted a lot longer. There at Pioche we made the smaller ones but we bought the bigger ones for the bigger hoist.

Swent: Where did you buy them from?

Arentz: Well, there were different houses that made them. I forget who they are. And then they made the automatic liner machines where you didn't hand crank them. They fed in with the air that ran the machine. But you still had to change your seal every two and one-half feet.

Then finally came the air leg for the jackhammers and the jumbo for the liner machines.

Swent: What innovation did the jumbo bring?

Arentz: It brought a hydraulically controlled leg that would raise up and down and go this way and that way and you could put a ten- to eleven-foot shell on top of it so that the machine could drill a ten- to twelve-foot hole without changing. You could control the thing from some distance back of the drill and the hydraulically controlled legs were mounted on rubber tired carriages so you could drive them in and have two or three on one jumbo. One man could operate all the drills, or at least two men could, because one could change the steel while the other one was operating the drills.

Swent: What kind of steel were you using then?

Arentz: Drill steel? Most of those liners took round drill steel with lugs on it and then the change of bits. You first got detachable bits and then they screwed on instead of having to forge a bit on

each piece of steel. The steel had threads on the end and you could screw on a bit that you could buy, and then they started making tungsten-carbide inserts in the drill bits that would last a lot longer. They were making throw-away bits that were so cheap that once you had ground them up and sharpened them two to three times on a grinding wheel they were used up so you would just toss them away.

Swent: Before that you were doing your own sharpening? Did you forge them?

Arentz: Yes, and that made a hell of a difference.

Swent: You didn't have to have that kind of shop backup then.

Arentz: The EIMCO loader[1] was one of the first things that really made a difference. That was designed by a fellow down at Tintic district, a foreman down there. He took it to EIMCO and they made the loader. It became standard all over the world.

Swent: Was it a Mr. Royal or a Mr. Finley?

Arentz: Mr. Finley.

Swent: Did you ever know him?

Arentz: No, but his son worked at Mercur. I knew his son.

Swent: Did you have an idea at the time how revolutionary this machine would be?

Arentz: We got one. Since I was foreman at the time and the engineer, I had the job of practicing to run it until I got proficient enough that I could educate the miners.

Swent: When was this?

Arentz: Oh, about 1936 I guess; 1937 maybe.

Swent: What did you think of it?

Arentz: Oh, it was a big help, I'll tell you.

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[1]Joseph Rosenblatt, EIMCO: Pioneer in Underground Mining Machinery and Process Equipment, 1926-1963, Western Mining in the Twentieth Century series, Regional Oral History Office, University of California, Berkeley, 1992.

Swent: This was at Mercur?

Arentz: That's where we had the first Finley I saw, or EIMCO.

Swent: You had mentioned Manning.

Arentz: Manning was where the first mill was, but it was for treating Mercur ore. It was actually retreating the tailings from the old Mercur mill that was at Manning because that's where the water was. And then we moved the mill and built a bigger one up at Mercur.

Swent: So that was your first experience with the EIMCO equipment?

Arentz: Yes, it was just recently out at that time.

Swent: How much did they cost, do you remember?

Arentz: I would think it was in the order of $3,000--something like that.

Swent: That was a tremendous investment when you're paying your shift bosses $300 a month.

Arentz: A young engineer got $120 a month.

Swent: So your miners were making less than that?

Arentz: They were making $4 - $5 a day at that time.

Swent: So to invest $3,000 in a machine was a major decision?

Arentz: That's right. They got up to where they were costing a lot more than that before they were through, but in 1914, when my dad had the mine on Promontory Point, I think his capital investment was $1,500, and that was for a couple of tents, two miners for two months, each getting $120 a month, and some explosives and hand tools, a single jack and a double jack and some boxes of powder and some grub and he went out and camped there. He was superintendent, the lead miner, the cook and whatever. Today, of course you couldn't register to get a mining permit for ten times that.

Swent: No.

Arentz: The capital cost investment for a regular mine in those days in hoists, compressors and mine cars and things like that was--I don't recall exactly the figures, but I would assume it would be in the order of $5,000 to $7,000 per employee. Today it's more

like $50,000. When they started getting the trucks down in Escalante and the front-end loader and the drill for drilling the down hole for the VCR and things of that sort, you're talking each item of equipment was well over $100,000--the jumbo drill and things.

Swent: VCR?

Arentz: Vertical crater retreat mining.

Swent: You had mentioned when we were talking earlier about your connection with the EIMCO loader that it was introduced at the West Dip.

Arentz: No, not the loader. What it was, EIMCO was working over some of the equipment they got from some salvage operations from abandoned or shutdown mines, and they were refurbishing the equipment and selling it as used milling or mining equipment. Then they got into the business of contracting to build a mill. That was what they were doing for Mark Requa at West Dip, building a mill.

Swent: What was your connection with that?

Arentz: The construction superintendent that was on the job building the mill got sick and his boss also worked for the Snyders and was general manager of the operations at Mercur, where I worked.

Swent: This is Bill Franklin?

Arentz: Yes, Bill Franklin. So when his brother-in-law Dan Coakley got sick on the job there at West Dip, Franklin had me go over and finish the job which had just gotten a good start at the time. So I stayed until the job was finished. Later EIMCO built a mill down out of Lordsburg, New Mexico on the same basis, and one up north of Dell, Utah, and another at Lead, South Dakota. The story with the mill located at Lordsburg was that Bill Franklin was a very fast driver and a pusher type, and this one time he was going from Lordsburg to Silver City and there was a Chinese merchant who he did business with. The Chinese merchant wanted to go the same way Bill was going, and they headed out and Bill missed a turn and the car rolled and threw them out. When they got out and were dusting themselves off, Bill asked the Chinese if he was all right. His answer was, "If I'd known you were in such a hurry, we could have left yesterday."

Swent: That story must have gone the rounds. You said they built another mill at Dell.

Arentz: North of Dell, Utah.

Swent: Did you have any connection with that?

Arentz: Yes, I went out and made a topographic survey of the mine site and mill site so they could do the design of the mill and the foundations. It was in the winter and there was snow all over the place, it was sort of miserable working there, and the thing is that part of the way going out you had to go over an area covered with water in the summertime and in the wintertime it was frozen. As long as you went out in the early morning or late at night the ice would hold a car and it was all right. But the last time I came out it was in the afternoon and the ice had softened up and my car went through the ice. The water wasn't very deep, only about three to four inches but it turned everything under the ice to mud and I had one hell of a time getting back to the highway. But, that's the only thing I had to do with EIMCO at the time.

Swent: But it did make a big difference in mining methods, didn't it?

Arentz: Yes, it did. They had developed mechanical equipment for the big stopes back in the Tri-State area where the rock was very competent and they didn't have to timber. They would have stopes that would be 100 feet high and very large, and they did get the equivalent of power shovels in there. In these Western mines you were mining veins and narrow widths and the EIMCO loader made all the difference, because you couldn't get the other equipment in. Now where it's so cheap to move broken rock with LHD's and trucks and diesel equipped underground loaders, you can afford to make the size of openings that you can run that equipment in, where before when it was all hand shoveled, it was impossible. I think that covers what we were talking about.

Swent: Did you have anything to say about the Getchell?

Arentz: No, I just mentioned that the ore at West Dip was like the carbonaceous ore at Getchell and Mercur.

Swent: It was very difficult ore, wasn't it?

Arentz: It was refractory ore. A lot of these Nevada mines are getting into what they call a sulfide ore which is full of carbon and they have their problems milling it.

## Recollections of President Herbert Hoover, Mining Engineer

Swent: Did you want to say anything more about your contact with Herbert Hoover?

Arentz: Just that when he first came out, I was the mine engineer at Pioche and I had been lucky in developing or locating a bunch of very good ore in fault blocks. It was difficult to make sure that you didn't go through a gap in the faults instead of through the ore. Mr. Hoover sent Lawrence Requa and several others out to check up on the project we had started for Mr. Milbank. Then Mr. Hoover came out himself and I showed him our plans and sections and the like, and his observation that we were lucky to miss the fault gaps and hit the blocks was quite correct. This sort of stunned me because I thought I had done a very fancy job. I'd made a bunch of cardboard prisms about a foot high and where each corner of a triangular prism was a drill hole and then I'd put the section where the faults were on each side of these. I'd have to do it experimentally until adjoining prisms would all match up and fit and I got these out and was giving a very impassioned talk about how this was done. All of a sudden I noticed he was just looking out the window and I was somewhat embarrassed so I stopped talking and he didn't say anything for what seemed like quite a while but actually was a few seconds. Then he turned and said, "I withdraw the use of the word luck and substitute good management."

Swent: What a compliment. When was this?

Arentz: That was in 1943. As I said, he came every year and sometimes his sons and their wives and on at least one occasion, some of the grandchildren, and Jeremiah Milbank and his wife and sometimes Milbank's son and daughter would come with Mr. Hoover.

Swent: You entertained them when they came?

Arentz: Yes, and it was generally around Mr. Hoover's birthday so we would have a birthday party for him. He would be on his way from the East to the Bohemian Grove in California.

Swent: What was his birthday?

Arentz: August 10, I believe. And the thing that was interesting, we started out with just some of our staff at a barbecue. One of the evenings he was there, we were out in the hills and where the mine water was discharged, it was good water. In fact we had one area where we collected mine water free from contamination and put it into the culinary water system for Pioche and Caselton and Prince.

We planted trees along the ditch and then I had some dams put in the ravines to make ponds and we would stock the ponds with fish and when anybody went fishing in the mountains above Cedar City, they would gather up a bucket full of the stream flora and insects and things and bring it back to put in the stream or ponds. I gave the Boy Scouts the brick and steel work so they could make barbecues and we made tables for picnics. It was available to anyone in the county or anywhere to come and have an outdoor picnic and barbecue. Then we built a big one that could take care of 200 to 300 people. Mrs. Wah, who operated the boarding house, and her Chinese help would come down to put on a real barbecue when Hoover was there. I guess it was about the last time, or after he had been coming for some years anyway, that we had this really big barbecue. Every time we had a dinner for Hoover I'd give each person who came a piece of paper about the size of a calling card or business card and they could write a question on it. While we were eating, Mr. Hoover would sort the questions into related subjects and then he would talk for up to an hour and one-half on the subjects raised by these questions.

Swent: How generous of him.

Arentz: He was better informed, I think, on most of the things going on than most of the people in Washington, because he had correspondence in virtually every country in Europe on both sides of the political fence.

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Arentz: He had five secretaries that he kept fairly busy. On one occasion, the University of Nevada contacted me and said that there was a gentleman that was a very staunch fan of Mr. Hoover and they knew about our barbecues and parties and the like and asked if this gentlemen could be invited to come down and meet Mr. Hoover. He had indicated that he would be willing to donate the money for a Student Union building at the Nevada-Reno campus.

So I asked Mr. Hoover if that would be agreeable and he said, "Fine, that would be just swell." So on the appointed day a number of officers from the university and this perspective donor came to Pioche. Mr. Hoover treated him royally and had him sit with him. The man was the son of the founder of Greyhound Bus lines, which was originally founded in Austin, Nevada. He ended up giving the money for the University of Nevada's student union building.

Swent: Wonderful, and what was his name?

Arentz: Jot Travis, I believe.

Swent: So that was a good ending to that.

Arentz: Yes, we did so enjoy these meetings.

Swent: Did Mr. Hoover limit the areas of discussion?

Arentz: Not too much.

Swent: There weren't questions that he refused to talk about?

Arentz: He wouldn't give away any military or security secrets. But anything else he would discuss. He told us about his trip with Hugh Gibson to Europe in 1938 when he was very interested in what the European governments were doing in the way of public housing. He said that when he was in Berlin the U.S. ambassador got in touch with him and said that Hitler wanted to see him. Hoover said that he really didn't want to see Mr. Hitler. The American ambassador said, "I wish you would accept the invitation because I would have a chance to see him and I haven't seen anybody above the foreign secretary." So Hoover said that under those circumstances he would meet with Hitler.

They went and he said he was quite surprised because, in common with many people in America, he regarded Hitler as just a front piece for an establishment that was actually running things, and the general assumption was that Hitler was not too well educated. He said Hitler spoke with remarkable information on what they were doing in public housing and on various other things. The only thing is, certain key words would come up and Hitler would just go wild, like "Jew" and they would have to quiet Hitler down, and then the word "Communists" and he went wild again, and then "democracy" and Hoover each time had to sort of quiet him down a little. But on other things they were interested in he was well informed.

Then later, Hoover said they had an invitation to attend an informal luncheon at Herman Goering's hunting lodge on the outskirts of Berlin. Hoover said he and Gibson went there and he said it was like a Wagnerian opera. The building was a U-shaped building with several hundred feet on each leg of the U. As the car drove in to this U-shaped area a group of very tall men dressed in medieval costumes with great horns came out and played a trumpet as a welcoming. Mr. Hoover said that when he went in, although he was not an expert in art, there obviously were several million dollars worth of sculpture and paintings in the lodge.

He was seated at Goering's right and he found out Goering was interested in getting some idea what the mineral resources of Russia were because they were planning on doing some exploration. They knew Hoover had worked in Russia for years. Hoover said the centerpiece right in front of him on the table was a life-size head and bust of a woman and it appeared to be gold. Goering saw him looking at it and told him that it was a bust of his first wife and that it was solid gold. Probably even at that time with the low price of gold it was worth at least a million dollars. Hoover said he encouraged them very much to go toward Russia. He saw they were going some direction and he thought it would be better to go that direction than to go west.

Swent: They spoke through interpreters I suppose. Did Hoover speak German?

Arentz: No, but he was able to understand the language pretty well. He had been administering relief and at times he would be in Belgium and then in Berlin dealing with the Germans and next he would be in London dealing with the English. They all had enough confidence in him that he wasn't spilling the beans to either side.

He told how after the war, he went over for Truman. Roosevelt wouldn't let him participate in any way even though he was the acknowledged expert in those fields. As soon as Roosevelt died, Truman, by executive order, changed the name of the dam on the Colorado from Boulder Canyon back to Hoover Dam, which is how it was when it was originally legislated. Truman asked Hoover to go over and make an assessment of the food requirements of Western Europe.

And Hoover found there was more required than we could supply from Canada or the U.S. and the ships and the distance and time required from New Zealand or Australia were such that they weren't really going to be in time. The best chance of getting food for Europe was from Brazil and Argentina. Hoover decided the best way of getting their cooperation was to go to Rome and talk to the pope and get him to use his influence on the cardinals in those countries and see what could be done. He arranged to fly to Rome and had an appointment with the pope.

A couple of the young military people that were the crew on the plane said they were Catholic and asked Hoover if, when he was through his discussions with the pope, would it be possible for them to be introduced. Hoover said he would see what he could do. So after he had his meeting with the pope, he mentioned that there were these young military personnel who would treasure the

opportunity of being presented, and the pope said fine, where are they? Hoover said he thought they were just outside. So the pope sent someone outside and it turned out these two young fellows--Rome was full of U.S. military personnel, and they had bragged about what was coming off and when the representative from the pope went out to get them, there were forty instead of the two and they were all brought in. They would give their name to Hoover and he would present them to the pope and the pope would give them a blessing.

He noticed this one fellow who kept dropping back in this long line until he was at the end of the line, and finally he was introduced and he blurted out, "I'm a Baptist." The pope said, "Any young man can use an old man's blessing." Hoover had a lot of stories like that.

Swent: That must have been a wonderful experience to be his host.

Arentz: Yes, it was. And he liked to play bridge on occasion, and so we would have games of bridge in the evening. Ed Snyder liked to play bridge too.

Swent: You were telling me Hoover offered his apartment to you.

Arentz: Yes, while we attended the AIME annual meeting in New York. The only thing is they shifted the meeting to San Francisco so we didn't get the opportunity to use his apartment.

Swent: But he had offered to let you stay at their place at the Waldorf?

Arentz: Yes, because he was going to be in Florida and there wouldn't be anyone there and we were welcome to use it.

Swent: How disappointing that you couldn't.

Arentz: Yes, it was.

Swent: And you were state president of the AIME in Nevada?

Arentz: Yes, and later of the AIME in Utah.

Swent: So you have been president of two sections of the AIME?

Arentz: Yes. We have had a lot of fun, and those experiences with Hoover were quite remarkable. Then one of the other things of interest is when I started up at the Bretz Mine producing mercury, I started checking around to find out where we could sell mercury.

Swent: When was this?

Arentz: In 1956. I found Phillip Brothers were brokers for ores and concentrates and metals all over the world. Mary Alice and I had gone East to attend her brother's wedding in Boston and after the wedding we stopped back to New York and I called Phillip Brothers and said I would like to talk to them about selling the mercury. They referred me to a young fellow named Mark Rich. I talked to him and asked if he would be available that afternoon.

He said no, but he would be available first thing in the morning. I told him we had tickets for an 8:30 a.m. flight out in the morning and I might not have a chance to see him. He said if I would come by about 7:00 a.m., he'd see me. Their offices were down in the Wall Street area. Mark said, "You can get a cab right there and we can get the thing done in a hurry." So I went down and in a matter of a few minutes we worked out an agreement where they would buy my mercury, and the basis on which they would buy it. Then we came on home.

That summer he came out and spent the Fourth of July with us and then went over to the mine with me. Our relationship was on a very friendly basis. In 1958, when I was taking the family to Europe on a vacation, I mentioned it to him and he said he would like our itinerary.

I gave him a copy of it and when we got to New York, he said, "I've notified all our offices over in Europe and they would be happy to extend any courtesies to you," and he said, "I notice you are coming back on the Queen Elizabeth." I said yes.

He said he would like to hear our impressions of Europe and asked me to give him a telephone call from the Queen Elizabeth the day before we were scheduled to dock, so he could meet us. I said, "Fine." Some of the personnel in their offices in Europe were extremely helpful on a number of occasions. I called him the day before we were scheduled to dock and he met us.

He said, "Your phone call yesterday raised hell in our office."

I said, "What happened?" I knew that almost everyone in their office spoke six or seven languages because the phone calls were coming in from Spain or France or Italy or someplace else all the time.

He said, "When your call came through, we had a new girl on the switchboard and she just dropped everything and went running

through the office saying, "Guess who's calling Mark Rich--Queen Elizabeth."

Swent: She thought the queen herself was calling.

Arentz: I think Mark's father was German and his mother was French and they were Jewish as almost everybody in Phillip Brothers was and they got out of Germany about the time Hitler first got control and went to Belgium. They got out of Belgium before he started moving there and got to the U.S.

Mark was really a brilliant fellow and he was well on his way to becoming a top man there. Then during the 1970s he was made the man in charge of their Madrid office and until then they hadn't dealt with oil. They had dealt with all kinds of minerals but not oil. During that oil scare he started dealing in oil and in no time at all he had built up his commissions for that year as I understood it, of course a lot of this is hearsay, that amounted to a million dollars. And they said, "We don't pay anybody a million dollars a year."

So he quit, and took about three of their men with him and set up Mark Rich and Associates. Unfortunately people can become greedy at a certain point. He was extremely successful with Mark Rich and Associates, but charges were filed against him. I don't know if it has been proven or not, but the charges were that when the government went through several years of oil price levies, for new oil, it was a fancy price, for old oil it was way down to pretty near nothing, and in between it was something else. He had the oil production from countries like Nigeria and the like pretty well tied up and he started selling old oil for new oil. Since then he left the U.S.A. and now is in Switzerland and has his headquarters there but, his fines in this country got up to where they were $50 million or more.

Phillip Brothers became Englehard, and then they split up and the Phillip Brothers division became a half owner in Solomon Brothers brokerage. The fellow that was the president of Phillip Brothers, which is what Mark Rich would have been had he stayed with them, became a co-chairman of Solomon and then Solomon got in all this trouble. It wasn't a happy situation.

Swent: When you sold your mercury to these people, did they take delivery out here at the mine?

Arentz: I would deliver it to a bonded warehouse in Winnemucca.

Swent: The concentrates from your mill?

Arentz: No, the metal. It was pure virgin quicksilver.

Swent: You had it all refined at the mine?

Arentz: Yes, at the mine.

Swent: And then delivered it to Winnemucca? How were you paid?

Arentz: All I had to do was tell them I had so many flasks in a bonded warehouse in Winnemucca and they would send me a check.

Swent: A flask was the unit you sold?

Arentz: A flask of mercury is seventy-six pounds of mercury and it's in a flask of steel that weighs about eight pounds, so that they weigh about eighty-four pounds counting the mercury and the flask weight. I would tell them that I had just delivered twenty or thirty flasks down to Winnemucca and they would send me a check.

Swent: Did the price vary?

Arentz: Yes, whatever the market price was. It varied from a low of $175 a flask to high of $300 or $400. At one point, for a short time it reached $700 a flask.

Swent: How did you determine the market price?

Arentz: Well, it's published in the Wall Street Journal as of the day of delivery. Then we had a mercury operation up on Cinnabar Creek in Alaska.

Swent: I didn't realize you had done mining in Alaska too. Where is that?

Arentz: Cinnabar Creek is out about 250 miles west of Anchorage, about seventy miles from the Kuskokwim River.

Swent: Everything in Alaska is pretty big, isn't it?

Arentz: Nome is about 1,000 miles from Anchorage. More recently, we had a heap leaching operation on some tailings down at Sonora, Mexico.

Swent: For mercury?

Arentz: No, this was for gold.

Swent: Where?

Arentz: The state of Sonora, about forty-five miles south of the border.

Swent: What was the name of the place?

Arentz: It's just a place. There had been a mill there because we were retreating old tailings. More recently, we have been working on tar sand out in Vernal, Utah.

Swent: What is the tar sand used for?

Arentz: Asphalt paving.

Swent: So you're dealing with construction people there?

Arentz: Well, it's mainly for roads and parking lots. The Forest Service gets some from us, the counties, and the people that have driveways or things like that. We ship it as far east as Steamboat Springs in Colorado and as far west as Heber, Utah. The freight is the big problem.

Swent: Yes, that determines your cost, doesn't it?

Arentz: Yes.

Swent: Do you have to do much in the way of processing?

Arentz: It all depends. A lot of it we crush with stone so that you have an aggregate and to others we sell just the tar sand the way it comes out of the ground.

Swent: Do you get into many problems with permitting?

Arentz: Yes, that's a pain in the neck. Surface water, wet lands, you name it.

Swent: Are you active in politics any more?

Arentz: No; my daughter Cathy is very active. She is on the central committee and the executive board of the central committee here in Utah for the Republicans and does a great deal to helping organize the county conventions and recently the state convention, making out the identification badges, providing security for the credentials and things of that sort. She spent a lot of time organizing this.

Swent: So you passed the torch to her?

Arentz: Well, she has picked it up at any rate. I believe that sort of covers it.

Swent: This has been very, very good. I'm glad we could get further information.

Arentz: I just had Mary Alice reread the first volume of Hoover's memoirs that he prepared for his children, called The Years of Adventure Starting with his birth, it goes through the peace conference in Versailles during the First World War, and his organization that was providing food for 15,000,000 children in Europe between the armistice and the peace conference which went from November 11 until mid-July the next year.

Swent: Fifteen million children.

Arentz: A lot of his stories in that book are extremely interesting. It's well worth reading. A lot of the countries wanted to load him up with various kinds of honors and it turned out the only honors he would accept was maybe an honorary degree from a university or something along that line. He didn't care for legions of honor and all those kinds of ribbons.

Swent: And I believe he would not take pay for any of this.

Arentz: No, he didn't.

Swent: Nor when he was president or secretary of commerce. He turned back all of his pay.

Arentz: I think when he was secretary of commerce, in order to get good men, he added what would have been his salary to the rather meager salaries the government allowed so that he could pay his appointees enough to have them sacrifice their time for what they were doing. But on all these other things he used his own money, even to fix up the White House. He told us stories about mining in Russia and then Burma, and Australia and things like that. He would amplify what was in his memoirs on our visits. At one time he was managing director of mines all around the world, mines that employed close to a million men--over 150,000 in Russia--over 80,000 in Burma, things like that.

Swent: Remarkable man.

Arentz: Yes he was. His IQ was over 200. And he did it all at such a young age. When he went over to China he was only about twenty-six, and at a salary of $20,000 per year, which in those

days was fantastic. It would be like half a million dollars today.

Swent: He also had a remarkable wife.

Arentz: Yes. When we were in Washington during one of the periods we were just a block down the street from where his home was when he was secretary of commerce and his wife was head of the National Girl Scouts. They frequently had groups of scouts visit her and they would have picnics in their back yard and such.

Swent: I think we must stop now. I'm certainly grateful to you for sharing your many interesting experiences.

Transcribed by Anne Sutton and Gay Rokich
Final Typed by Shannon Page

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MINING
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SURVEYING

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MINE PLANNING
EXPLORATION
OPERATION

# SAMUEL SHAW ARENTZ, JR.

BORN: March 9, 1913
Los Angeles, California

EDUCATION: B.S. Mining and Metallurgy, 1934
Mackay School of Mines, University of Nevada

Professional Mining and Metallurgical Engineer, Land Surveyor, Nevada - #332, Since 1945

Professional Mining Engineer, Utah - #2029, Since 1952

EXPERIENCE:

| | |
|---|---|
| 1/1/55 - Present | Consulting Mining and Metallurgical Engineer and independent mine operator. Consulting assignments, in all parts of the United States, Central America, Canada, Indonesia and South Africa. Mining operations in Utah, Oregon, Alaska, Nevada and Mexico. Office in Salt Lake City, Utah |
| 2/1/41 - 1/1/55 | Mining Engineer, Geologist, Superintendent and Manager, Combined Metals Reduction Company, Pioche, Nevada and Salt Lake City, Utah |
| 10/1/39 - 2/1/41 | Manager, Rico Argentine Company, Rico, Colorado |
| 1/1/39 - 10/1/39 | Mill Superintendent and Mine Engineer, Ima Mines, May, Idaho |
| 9/1/38 - 1/1/39 | Supervising Engineer, Mill Construction and Mine Development, Rico Argentine Company, Rico, Colorado |
| 7/1/34 - 9/1/38 | Assayer, Mill Operator, Mine Engineer, Mine Foreman, Construction Superintendent, Snyder Mines, Mercur, Utah |

| | |
|---|---|
| Summer, 1933 | Mill Construction - Manning, Utah |
| Summer, 1932 | Surveyor, USBR, Hoover Dam |
| 1929 - 1930 | Page, U. S. House of Representatives, Washington, D.C. |
| Summer, 1929 | Surveyor, USN, Naval Ammunitions Depot, Hawthorne, Nevada |

AFFILIATIONS:

Society of Mining Engineers - AIME
Chairman, Nevada Section - 1947
Chairman, Utah Section - 1982

Mining and Metallurgical Society of America

Utah Mining Association

Board of Regents of the University of Nevada
1948-1952

Nevada State Planning Board
1952-1956

Advisory Council, College of Mines and Minerals Industries, University of Utah (1967 - 1987)
Chairman, (1975 - 1987)

Alta Club, Salt Lake City, Utah
President, 1987

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Eleanor Herz Swent

Born in Lead, South Dakota, where her father became chief metallurgist for the Homestake Mining Company. Her mother was a high school geology teacher before marriage.

Attended schools in Lead, South Dakota, Dana Hall School, and Wellesley College, Massachusetts. Phi Beta Kappa. M.A. in English, University of Denver. Assistant to the President, Elmira College, New York. Married to Langan Waterman Swent, mining engineer.

Since marriage has lived in Tayoltita, Durango, Mexico; Lead, South Dakota; Grants, New Mexico; Piedmont, California.

Teacher of English as a Second Language to adults in the Oakland, California public schools. Author of an independent oral history project, Newcomers to the East Bay, interviews with Asian refugees and immigrants. Oral historian for the Oakland Neighborhood History Project.

Interviewer, Regional Oral History Office since 1985, specializing in mining history.