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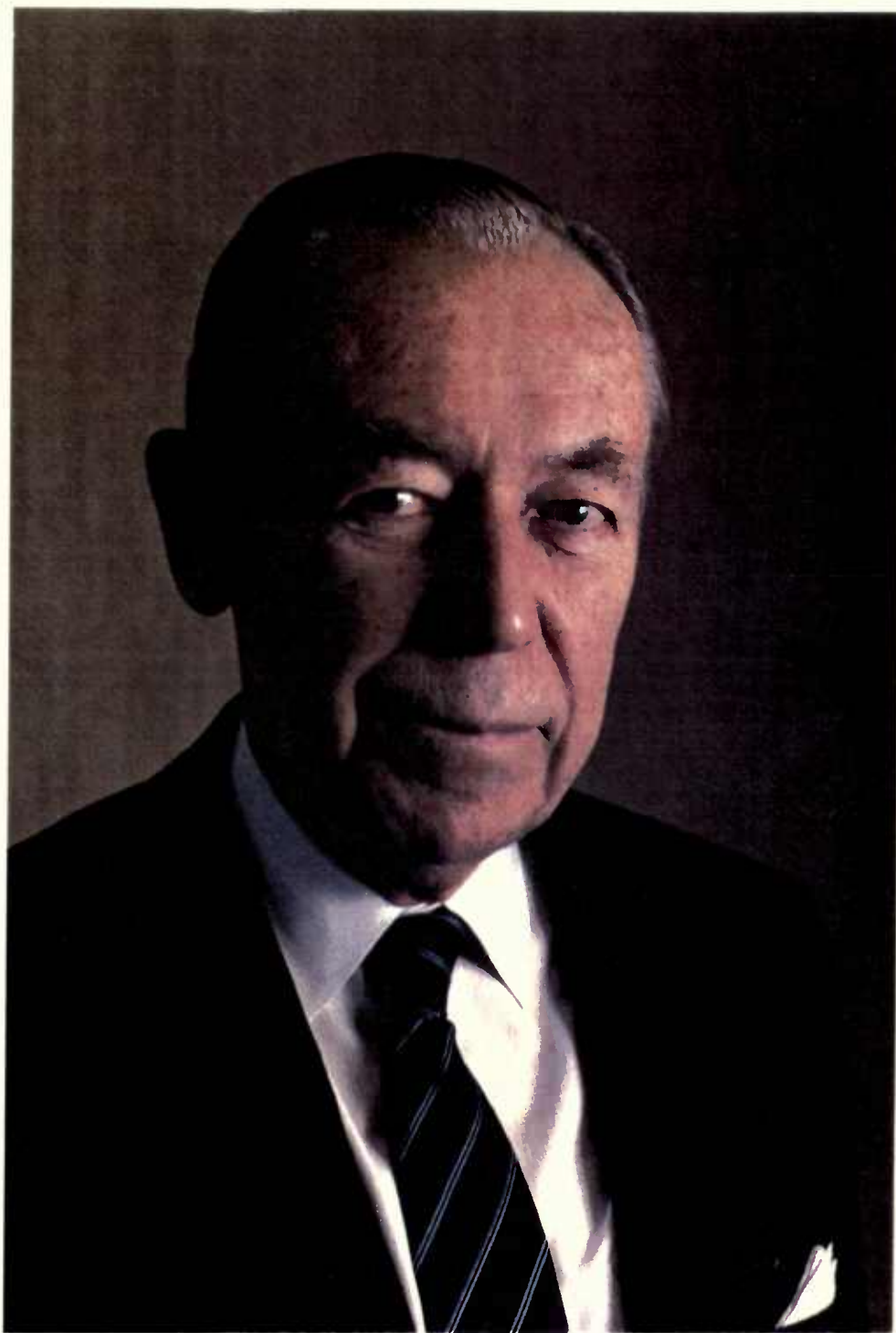
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PLATO MALOZEMOFF
1988

Cataloging Information

Malozemoff, Plato (b.1909)

Metallurgist

A Life in Mining: Siberia to Chairman of Newmont Mining Corporation, 1909-1985, 1990, xxi, 338 pp.

Childhood in Siberia, Lena Goldfields mines; escape through Manchuria to Oakland, California, 1920; education: University of California College of Mines, Montana School of Mines; metallurgist, Pan American Engineering Co., 1934-1941: introducing jigs in dredging, flotation experiments; mine manager, Argentina, Costa Rica, 1941-1943; mine analyst for Office of Price Administration, 1944-1945; staff engineer, president, chairman, Newmont Mining Corp., 1945-1985: metal and coal mining, cement and oil ventures in Africa, Australia, Indonesia, North and South America; discussion of management philosophy, theory on gold cycles, success in the mining industry, associations with Stephen Bechtel, George Shultz; musical studies, family history, Russian emigre community.

Introduction by Robert Ramsey, vice president (retired), Newmont Mining Corp.

Interviewed in 1987 and 1988 by Eleanor Swent for Western Mining in the Twentieth Century series. The Regional Oral History office, The Bancroft Library, University of California, Berkeley.

Plato Malozemoff, 87, mining industry leader

Plato Malozemoff, 87, a leader of the American mining industry, died Friday, Aug. 8, at Greenwich Hospital. He had been a resident of Greenwich for 43 years.

Irene Weigel of Lincoln, Mass., his daughter, said the cause of death was congestive heart failure.

Mr. Malozemoff was a legend in business and mining circles in New York, around the country and the world. He was president, chief executive officer and chairman of Newmont Mining Corp. in New York City from 1954 to 1986, when he became chairman emeritus and consultant. Under his leadership, Newmont grew from a modest holding company to a major international mining company with a market value of \$2.3 billion.

He joined Newmont as a mining engineer and rose to become vice president in 1952, director in 1954 and then president and chief executive officer. Through Newmont, he nurtured such United States and international copper companies as Magma Copper Co. in Arizona and O'keip and Tsumeb copper companies in South Africa. He negotiated such ventures as Palabora Mining Co. of South Africa, Southern Peru Copper Co. in Peru and Peabody Coal Co., Carlin Gold Mining Co. and Foote Mineral Co., all in the United States.

Born Aug. 26, 1909, in St. Petersburg, Russia, he was the son of the late Alexander and Elizabeth Guliaev Malozemoff. His father was an iron and steel metallurgist who was chief operating officer of the Lena Goldfields in Siberia, where Mr. Malozemoff lived as a child.

His family fled the Russian revolution in 1920 and settled in California.

Following his father's footsteps in the mining field, he graduated from the University of California at Berkeley with honors and earned a master's degree with honors from the Montana School of Mines. During the Depression years, he worked in different jobs, including five years at Pan American Engineering Co. as a metallurgist. His family said he learned to face adversity in two failed mining ventures in Argentina and Costa Rica and, after a serious illness, spent the two last years of World War II in Washington with Roosevelt's Premium Price Plan.

Among his many degrees and honors were an honorary doctor of science degree in engineering from the Colorado School of Mines, a professional ME degree and Gold Medallion Award from the Montana School of Mines, the Charles F. Rand Memorial Gold Medal of the American Institute of Metallurgical Engineers and the Gold Medal of the London Institution of Mining and Metallurgy in recognition of his outstanding service to the international mining industry.

He was a Distinguished Member of the American Institute of Mining, Metallurgical and Petroleum Engineers; and a member of the Mining and Metallurgical Society of America; and of the Institution of Mining and Metallurgy of London, England.

Mr. Malozemoff was honored with the Gold Medal Award of the Mining and Metallurgical Society of America, with the ANKH Award from the Copper Club as Copper Man of the Year, and by induction into the National Mining Hall of Fame in September 1944. In 1985, in his honor, Newmont Mining Corp. established the Plato Malozemoff Chair of Mineral Engineering at the University of California at Berkeley.

He was a benefactor of such charities as the Tolstoy Foundation, the Boys and Girls Club of America and the National History Museum in New York, where he served, respectively, as chairman, director and trustee. Additionally, he was a council member of the Wilson Center in Washington, D. C., and a member of the advisory committee of the John F. Kennedy School of Government at Harvard. Mr. Malozemoff was elected a member of the National Academy of Engineering, served on the NAE Industry Advisor Board and was a member of the James Madison Council of the Library of Congress.

An accomplished violinist, he played chamber and orchestral music all his life and at one time was a first violinist with the Greenwich Symphony. His family said he was a master of many languages and well traveled, and had a deep understanding and love of art and international culture. An avid sportsman, he played tennis and golf right through his final years.

In addition to his daughter, he is survived by his wife, Alexandra Harlamoff Malozemoff of Greenwich; a son, Alex Malozemoff of Lexington, Mass.; and one granddaughter and four grandsons.

The funeral is scheduled for 1 p.m. tomorrow at the St. Sergius Russian Orthodox Church at the Tolstoy Foundation Center in Valley Cottage, N.Y. Driving instructions may be obtained by calling 212-986-7570.

In lieu of flowers, donations may be made in his memory to The Tolstoy Foundation Inc. 104 Lake Road, Valley Cottage, N.Y. 10989 or to the Boys and Girls Club of Greenwich.



Malozemoff

New York Times
August 18, 1997

Plato Malozemoff, 88, Retired Executive

Plato Malozemoff, the former chairman and chief executive of the Newmont Mining Corporation, died Aug. 8 at Greenwich Hospital in Greenwich, Conn. He was 88 years old and lived in Greenwich.

The cause of death was congestive heart failure, his son, Alexis, said.

Mr. Malozemoff was born in St. Petersburg, Russia, while his father, Alexander, was in exile in Siberia, managing a British-owned gold mine. In the early 1920's, soon after the Russian Revolution, the family was banished from the Soviet Union and settled in California.

Mr. Malozemoff earned degrees from the University of California at Berkeley and from the Montana School of Mines, but he was unable to find full-time employment. For several years, he held jobs under the Works Progress Administration, the Government employment program set up during the Depression.

He eventually accepted a position

as a mining engineer with Newmont in 1945 and quickly rose to become vice president in 1952 and president and chief executive in 1954. He was named chairman in 1966 and held the company's most senior positions until his retirement in 1986.

Under his leadership, Newmont grew from a small holding company with a market value of about \$147 million to a large international mining corporation valued at \$2.3 billion at the time of his retirement. The company held interests in coal, gold, copper, oil and other resources in Peru, South Africa and Australia, among other places.

His many civic associations included serving as a director of the Boys and Girls Clubs of America and a trustee of the American Museum of Natural History.

Mr. Malozemoff is survived by his wife, Alexandra, and two children: Alexis of Lexington, Mass., and Irene Weigel of Lincoln, Mass.

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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.

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 James D. Hart, director of The Bancroft Library.

Interviews were conducted by Malca Chall and Eleanor Swent.

Willa K. Baum, Division Head
Regional Oral History Office

Eleanor Swent, Project Director
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Western Mining in the Twentieth Century Oral History Series
Interviews Completed or in Process, April 1990

- Horace Albright, Mining Lawyer and Executive, U.S. Potash Company, U.S. Borax, 1933-1962, 1989
- 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
- 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
- Evan Just, Geologist: Engineering and Mining Journal, Marshall Plan, Cyprus Mines Corporation, and Stanford University, 1922-1980, 1989
- Malozemoff, Plato, A Life in Mining: Siberia to Chairman of Newmont Mining Corporation, 1909-1985, 1990
- 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
- Samuel S. Arentz, Jr. (Escalante Mine), in process
- James T. Curry, Sr. (Calaveras Cement Company), in process
- Donald Dickey (Oriental Mine), in process
- James M. Gerstley (U.S. Borax), in process
- George Heikes (tungsten, zinc), in process
- A. I. Johnson (Black Hills mining), in process
- Vincent Perry (Anaconda), in process
- Carl Randolph (U.S. Borax), in process
- Langan Swent (San Luis, Homestake, uranium mining), in process

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INTRODUCTION by Robert H. Ramsey

Plato Malozemoff and I met for the first time in July of 1930, although neither of us was aware of it at the time. That summer, Plato, a student of mining engineering at the University of California in Berkeley, California, had wangled a job with the Federal Mining and Smelting Company (a subsidiary of the American Smelting and Refining Company) at the Morning Mine near Wallace, Idaho. On this morning, the mill superintendent asked Plato to conduct some visitors around the Morning mill. In his office he called Plato to the windows.

"Look at that," he said, pointing. "Did you ever see anything like it?"

What Plato saw was a group of six young men, roughly dressed, lounging on a rock fence not far away. What made this group unusual was that one of them was strumming a guitar and singing some popular song in harmony with another one of the group.

"Mining engineers!" huffed the superintendent. "That's the junior class in mining engineering from the University of Wisconsin. They're on a Western mine inspection trip, and you've got to take them through the mill and try to keep them from breaking anything or killing themselves. No great loss, I might add! What's the use? That bunch will never amount to anything!" And muttering under his breath, he sent Plato to show them the mill.

His prediction was probably aimed mainly at me, the guitar player, for which he can't be blamed, but as a soothsayer, he fell short. The man I accompanied that morning later became vice president of a big Midwestern chemical company, and I became, successively, a vice president of two large mining and smelting companies, the one from which I retired in 1976 being Newmont Mining Corporation, of which Plato Malozemoff became president in 1954 and chairman in 1966.

Plato's boss was right in one respect. None of us got a job that summer, and I had no choice but to continue back at college. That was why, in September of 1933, I actually met Plato Malozemoff in person. I had continued at the University of Wisconsin, earning a master's degree, and there being still

no jobs open, I obtained permission (it wasn't a scholarship) to study flotation metallurgy under Professor A. M. Gaudin at what was then called the Montana School of Mines at Butte, now known as Montana Tech.

Shortly after the 1933-1934 school year began, four or five of us graduate students were invited to the Gaudin residence for cake and coffee after dinner. When we arrived, I saw over in the corner a thin, unsmiling, rather foreign-looking youth who, stretched out in a chair, seemed to be there physically, but far off somewhere else in his thoughts. After we were all introduced, he did take part in the conversation, none of which I can now remember, but I do remember vividly that he said enough that night to make me aware that here was a young man who had seen and done vastly more than I had, and who knew things, worthwhile things, that I had never heard of, and that I felt a sudden strong desire to know them too.

Think of the difference in our backgrounds. I was born and educated through high school in Racine, Wisconsin, where literature was A Tale of Two Cities and Silas Marner, and classical music was the Poet and Peasant Overture, and ballet was "toe dancing," which one lovely senior girl did on every possible occasion. I thought Paul Whiteman's big jazz orchestra playing Gershwin's Rhapsody in Blue must be the greatest music I ever heard. Mozart? A picture on a cigar box cover.

By degrees I learned that Plato came from the College of Mines at the University of California in Berkeley, that he also had a master's degree, and that at that time he was holding down three jobs: one in Gaudin's laboratory; one in the state's assay laboratory upstairs; and one in the WPA, that Depression-relief program on which a good number of Butte's citizens depended during those dreadful Depression years. What I didn't learn until much later was that Plato did all this while assisting in the support of his mother and his brother.

Obviously Plato existed on very little sleep, because along with the jobs, he read a lot, books I'd never heard of, and he also maintained his skill on the violin. He was a boarder at Mrs. Tennis's rooming house, and had a room in another house owned by a lone old lady. No one else would stand for the violin practice at night.

At commencement in 1934, Plato, with an accompanist, played Praeludium and Allegro, attributed by Kreisler to an obscure composer named Pugnani, a fiction that fooled no one. Even now, just two or three bars of that piece on the radio, and I'm right back in Butte, soaking up every moment of that day.

In short, I was at once fascinated and attracted by this man. I still am, fifty-six years later. I have never known in anyone else a mind so clear in its reasoning power, so vast in the wealth of knowledge on which it can draw, so quick in its ability to grasp the essentials of a problem and begin working out solutions while others are still fumbling with details.

Without consciously setting about it, I did find myself spending as much time as I could, or as he could, talking with Plato and learning from him. Eventually, in return, I think I became a sort of interface card (as my grandsons would say) between Plato's rarefied intellectual world and my world of jazz music, light reading, and things done just for fun, not just for self-improvement.

As we became better acquainted, I learned a little of Plato's early life, beginning in St. Petersburg, Russia, and on through those almost incredible and most extraordinary events in the lives of his family that are fully described in this history. I also eventually met, through Plato, Andrew V. Corry, a Butte native who was a Harvard graduate and a Rhodes Scholar at Oxford. Here was another brilliant man, the only one whose mind I have known Plato really to admire. Seeing my earnest desire to learn more, especially of music, the two of them would sometimes devote an evening to playing records and then grilling me on what I had learned from it all.

What they saw in me, what Plato saw in me, I didn't know then and still don't know, but the fact is that in that year, there began a friendship that has lasted unshaken through all these years of accomplishment, of disappointment, of triumph, of disaster, and of success at the end. It has been a struggle, in different ways, for both of us, and how fortunate I have been to be a part of it, however small.

Obviously, with this background, I may be somewhat biased--but to me, the story of Plato Malozemoff's career is that of a titanic struggle of a man of unusual ability to overcome his early handicaps, and with single-minded determination, aided by a strong-willed and infinitely capable mother, and supported by an equally capable and charming wife, eventually to achieve his primary goal, the leadership and the phenomenal growth of Newmont Mining Corporation, as it is described in what follows.

I am proud to have been the friend of one of the great men of the world's mining industry. I am especially proud and glad to have been active with him in that industry when it was fun to be a mining engineer.

"Fun?" you ask. This memoir of Plato Malozemoff's
will answer that question.

Robert H. Ramsey

(Vice president, retired, Newmont
Mining Corporation; former vice
president, St. Joseph Lead Company;
former editor, Engineering and
Mining Journal)

April 1989
Briarcliff Manor, New York

INTRODUCTION by Plato Malozemoff

This is a history of two generations of a Russian family which during a period of some eighty years suffered four crushing blows to their fortunes and hopes, and each time not only survived but recovered with the achievement of a better life and prosperity, only to lose everything again, except for the last period of my own experience. The elements of their success in recovery were each member's optimism, their spirit of survival coupled with perhaps better than average ability and intelligence, and a bit of luck in recognizing and grasping favorable opportunities.

The first and perhaps the most devastating blow struck my father when in 1908 at the age of twenty-nine, just as he was launching his professional career, he was imprisoned for a year for political activities and exiled to Siberia for ten years. The Tsarist regime was not as cruel as that of Stalin was, and it allowed him to raise a family and build an enviable career while still in exile, culminating in becoming the head of the largest gold mining enterprise in Russia.

Just as he reached this pinnacle of success with appropriate compensation and savings, the Russian Revolution of 1917, the Civil War and the accompanying ruinous inflation, wiped out practically everything he had saved and forced the immigration of the family to the United States in 1920 to start a new life from scratch.

The next four years were a struggle, but in 1924 he grasped the opportunity offered by the New Economic Policy (NEP) of Lenin in Russia and initiated a \$30 million mining enterprise there with concessions granted on gold properties in Siberia which he had formerly managed until 1920 and new mines in the Altai and Ural mineral provinces. He rode high as he headed this venture from headquarters in London until 1929, when these profitable concessions were cancelled by the Stalin government. That was his last successful effort.

The main part of this history is mine. In 1931 I was graduated from the University of California, and with no further help from father struggled to keep busy during the great depression of the 1930s. While I acquired valuable experience and knowledge, earnings were meager. In 1938 father and I looked at some copper-gold mining prospects in Argentina and decided to develop one of

them with modest financial help from bankers in New York. This effort failed in 1942, and he and I, having formed a partnership with two other friends, took a lease on an abandoned gold mine in Costa Rica. After a marginal and difficult operation, which I managed for about one and a half years, this effort failed as well because of our inability to supply the mine with the necessary imported materials during the Second World War. However, these two failed ventures gave me a valuable lesson in the economics of mining and what could affect it.

I returned to the United States at the end of 1943 with failing health, a bone tumor in my leg requiring surgery, and virtually penniless. After a successful operation on my leg, I got a job at the OPA in Washington while still on crutches and spent the rest of the war there with my wife and son, earning barely enough to support our little family and send some money to my mother and brother in California.

I finally got the opportunity of a position in October, 1945, with Newmont Mining Corporation in New York, which led to my life's successful achievement of being the chief executive of a growing enterprise which eventually became one of the leading mining companies in America.

During my very active involvement in the mining industry from 1934 to 1985, I was a participant in a period of unprecedented growth in mining worldwide; although marred by several setbacks caused by recessions, with the long last recession presaging a decline in the role of the United States in the worldwide production of several basic metals, the period also witnessed a resurrection in gold mining.

We have recently been seeing renewed vigor, competitiveness and success on the part of some of the surviving companies, particularly Amax, Phelps Dodge, ASARCO and Cyprus Mines, which confirms my convictions about the creativity of American management. I am delighted to see this return to robust health even though I am now only an observer on the scene, since I retired in 1985. The change also bears witness to the cyclicity of the mining industry, so indispensable to the well-being of the nation.

Plato Malozemoff

(formerly president, chairman and
chief executive officer of Newmont
Mining Corporation)

April 1989
230 Park Avenue
New York, New York

INTERVIEW HISTORY

Plato Malozemoff, chairman emeritus of Newmont Mining Corporation, was one of the first suggested for the oral history series on Western Mining in the Twentieth Century because of his eminence in the mining world as well as his close connection with the University of California at Berkeley. He is an alumnus of the College of Mining, class of 1931, and the chair in Mineral Engineering bears his name. Professor Douglas Fuerstenau, principal investigator for the mining oral history series, currently holds this chair. Plato Malozemoff received the third Distinguished Service Award of the American Mining Congress; is a Distinguished Member of the Society for Mining, Metallurgy, and Exploration; is a member of the National Academy of Engineering, and has been admitted to the Arizona Mining Hall of Fame, the latest of many honors awarded to him by his profession.

This oral history is the first multigenerational one to be completed by the Regional Oral History Office, with the subjects achieving significant status in very different professions. Plato Malozemoff's mother, Elizabeth Malozemoff, who was also his first teacher, was the subject of an oral history, The Life of a Russian Teacher, an interview conducted by Alton C. Donnelly in 1961 for the Regional Oral History Office. She received the B.A., M.A., and Ph.D. degrees from the University of California at Berkeley, where she taught Russian language and culture from 1936 to 1950. Her master's thesis was written in French; her doctor's in English. Her oral history recounts her life and education in Russia and, following escape from Siberia with her sons, her subsequent role in the cultural life of the Russian emigre colony in the San Francisco Bay Area.

Mr. Malozemoff's life story is particularly dramatic. Born in St. Petersburg (Leningrad), he spent his childhood in Siberia, where his father was a political exile and mining engineer, manager of the Nadezhdinsky Mine. The family lived there, occasionally making the arduous journey to St. Petersburg or to the Ukraine to visit relatives. Following the revolution of 1917, Alexander Malozemoff was freed from exile and became managing director of all the mines of Lena Goldfields in Siberia, which his son Plato calls one of the most prestigious positions in Russian mining. Mr. Malozemoff notes the curious fact that the Goldfields corporation and Newmont have recently become associated.

After a brief period of prosperity, the family's fortunes were changed again by the Bolshevik revolution, and in 1920 they fled to China and eventually to California, where Plato attended Oakland schools. His father returned to Russia for a time in the late 1920s, under Lenin's "New Economic Plan," to manage the Lena Goldfields mines again, before they were expropriated finally in 1929.

Plato Malozemoff was a talented violinist who received excellent training and could have chosen a career as a musician; instead he followed in his father's footsteps. He went to Montana School of Mines for graduate studies, and then worked for Pan American Engineering Company, based in Berkeley. He traveled throughout the Western states and Alaska selling metallurgical equipment and services and observing many mines and mills. A revealing document in the appendix of this volume shows detailed notes on dredging operations which he visited during this period.

In 1939 he joined his father in some ill-fated mining ventures in Argentina and Costa Rica. When he returned to the United States in 1943, during World War II, he was married, father of an infant son, in poor health, his savings exhausted, and unemployed. He found a job with the Office of Price Administration, working for the War Production Board as financial analyst of nonferrous metal mines, making recommendations under the premium price plan. Two of the mines which he analyzed belonged to Newmont. Although he recommended denying support for the Magma Mine, executives of the company were impressed by the thoroughness of his analysis.

At the end of the war, Plato Malozemoff was employed by Newmont as their only staff engineer. He participated in the company's expansion as they acquired investments and operations in Africa, Australia, Canada, Indonesia, Latin America, and the United States which took the company to the front rank in the industry worldwide, with him as chief executive officer.

His life story is in the mold of the classic American immigrant myth, and he is justifiably proud today to be well acquainted with former Secretary of State George Shultz and to be recognized and called by his first name by President George Bush.

Both present and former employees of Mr. Malozemoff seem to hold him in great affection, almost devotion. One former executive of Newmont described their corporate organization as "heliocentric" (revolving around the sun), with Mr. Malozemoff, who was insomniac, reading every report and keeping track of details. At the same time, he took full responsibility and did not blame others if things didn't go well. He was very approachable and never raised his voice. In general if the staff got together they could keep him from doing something which they considered inadvisable, but no one could make him do anything against his will. Mr. Malozemoff speaks of this characteristic in his oral history, and defines it as positive, intelligent stubbornness.

Another associate spoke of him as patient with ignorance and very compassionate with everything but stupidity; confident of his own intellectual powers, but also willing to listen to others and not afraid of calling in outside advisors. His cultural interests affected his executive role; once on a trip to South Africa, executives of Newmont had a stopover in Paris and Mr. Malozemoff, displaying fantastic knowledge of the paintings, led them on a four-hour tour of the Louvre. When he ran the company, even the mail boys wore blazers and ties.

Plato Malozemoff is also admired for his lack of greed. Although he was assigned a company car and driver, he regularly rode a commuter train to work.

He did not take as large a salary as others might have in the same position, and when he retired he held only one third of one percent of Newmont's stock.

I had seen and casually met Mr. Malozemoff at mining conventions, but did not know him personally. Following some correspondence, Willa Baum, director of the Regional Oral History Office, and I met with him on September 15, 1987, in his suite at the Clift Hotel in San Francisco. The American Mining Congress was meeting in the city at that time. We discussed ways in which his plans to write his autobiography could be coordinated with our interest in documenting his career through an oral history.

The formal letter of invitation to participate in the series was sent to him on November 3, 1987. The first interviews took place on December 2 and 3, 1987; the second on May 4 and 5, 1988; and a third session on November 10, 1988. All interviews were at the Clift Hotel. Mr. Malozemoff was unfailingly gracious and cooperative in all the complications of conducting an oral history at transcontinental distance. One of our final meetings in February 1990 to arrange details for completion of the oral history was held in the lobby lounge at the Mayflower Hotel in Washington, D.C. The American Mining Congress was meeting there and many admirers greeted him warmly as we conferred.

Our interview sessions proceeded in straightforward fashion. He came well-prepared for each interview, with notes and documents to which he could refer. Throughout the interviewing, he was concerned about the accuracy of details. He does not fidget, and can sit for long periods of time hardly moving.

Mr. Malozemoff is slender, small in stature, and soft-spoken. His clothing is subdued but elegant. His assistant, Ms. Ruth Vanderpoel, describes him as "seventy-eight, going on thirty-nine." For our second interview, on May 4, 1988, he had left New York at 6:00 a.m. and we began interviewing at 1:30 p.m. Pacific time, continuing until 5:15 p.m. This was an unusually long interview session, and yet he gave no sign of fatigue, although by then he had been on the go for sixteen hours. On the following day, he said he had awakened at 3:00 a.m., but had been able to go back to sleep for another hour. We interviewed all day, except for a short luncheon break, and by 5:00 p.m. he appeared somewhat tired, but certainly not flagging.

When the transcript of the tapes was sent to him for review, he made copious revisions. His secretary, Ms. Sheila Walker, prepared the final typed document in his New York offices, where he could act as editor. In this process, much of the conversational quality of the transcript was altered and most of the verbal traces of Mr. Malozemoff's Russian background were removed. The end product here presented is a combination of oral history and written autobiography, revealing much about the working methods and philosophy of a man who has, as he says, overcome crushing blows and managed to rise from them to achieve success. It will be of value to scholars doing research in the history of Russia, business, and education, as well as mining.

The first introduction is by Robert Ramsey, former editor of the Engineering and Mining Journal and vice president of Newmont, and author of

Men and Mines of Newmont--A Fifty Year History, Octagon Books, a division of Farrar, Straus and Giroux, New York, 1973. Mr. Malozemoff also wrote an introduction.

The tapes of the interviews are deposited at The Bancroft Library.

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

January 1990
Regional Oral History Office
486 The Bancroft Library
University of California at Berkeley

BIOGRAPHICAL INFORMATION

(Please write clearly. Use black ink.)

Your full name PLATO MALOZEMOFF

Date of birth August 26, 1909 Birthplace St. Petersburg, Russia

Father's full name Alexander Malozemoff

Occupation Mining Engineer Birthplace Radzivill, Russia

Mother's full name Elizabeth A. Gulaieff Malozemoff

Occupation teacher Birthplace St. Petersburg, Russia

Your spouse Alexandra Harlamoff Malozemoff

Your children Dr. Alexis P. Malozemoff
Dr. Irene Katherine Malozemoff (Mrs. Lynn B. Weigel,

Where did you grow up? Oakland, California

Present community Greenwich, Connecticut

Education Oakland Technical High School
University of California, Berkeley - B.S. 1931
Montana School of Mines, Butte, Montana - M.S. 1932

Occupation(s) Mining Company Executive - 1945 to 1985 - Newmont Mining
VP - 1952; Dr. 1953; Pres. 1/1/54 - Chm. & CEO Corp.
& CEO 1966-1985

Areas of expertise
Mining, Metallurgy, Exploration, Administration, Finance

Other interests or activities Cultural - Music, Art, Theatre, Ballet,
Literature, Travel

Organizations in which you are active Boys Clubs of America, NY; American
Museum of Natural History, NY; The Bruce Museum, Greenwich, CT;
The Wilson Council of The Wilson Center, Washington, DC
Mining and Metallurgical Society of America

I THE RUSSIAN PERIOD AND EMIGRATION TO THE UNITED STATES

(Interview 1: 2 December 1987) ##

Father and His Family

Swent: Mr. Malozemoff, suppose we start with a little bit about your father, and if you want to go back to your grandparents, you can begin as far back as you like.

PM: I knew very little about my grandparents, but my father, of course, I knew well, and he was an extraordinary person.

Swent: Alexander was his name?

PM: His name was Alexander Platonovich.

Swent: So your grandfather was also Plato?

PM: Plato. That's right. The interesting thing about that is that for some generations the first born in the Malozemoff family was successively Plato or Alexander. So that's how I became Platon Alexandrovich. My father was Alexander Platonovich, and his father and my grandfather was Platon Alexandrovich. My father apparently had a very good education in St. Petersburg, and his education encompassed not only the professional interests that he pursued early in his life, as an engineer, but also a wide variety of subjects. Under the old system of education in Russia it was mandatory for anyone to enter university to be interested and to

have courses in Latin and Greek. My father studied both Latin and Greek, and because of his absolutely extraordinary memory, he could recite Ovid's poems at fifty years of age, in Latin, and the same with Greek. In the course of that education, of course, he was interested not only in those languages. He also learned French, and he learned German, and he was interested in philosophy, in economics, and music and art. He was a true renaissance man in that sense. So his education prepared him, I think, for comprehension of the world and all its complexities. Part of his success in life and attractiveness was because of this varied education which he used with comprehension, interest and enthusiasm.

He persisted in being interested in languages. For example, when in the late 1930s he and I organized a partnership to start mining business in Latin America, he started learning Spanish, which came rather easy to him because of his remarkable memory, but also because of his knowledge of French and Latin. The interesting thing about his linguistic abilities is that his pronunciation of all languages, except Russian, was terrible. On the other hand, he could write grammatically, and he spoke pretty well, quite grammatically, but it was difficult to understand him in foreign languages because his accent was so pronounced.

Swent: Russian was the language that he spoke?

PM: Right. Russian was his native language. His knowledge of French was quite comprehensive. He knew more Spanish than I did, but sometimes I had to interpret his Spanish into the Spanish that other people understood, because his pronunciation was so poor. Nevertheless, anything that he ever studied or read, he seemed to remember in detail. I could talk to him about novels that I read of Sinkiewicz, the great historical novelist of Poland, and he could recall most of the events in any one of his novels that he had read. One of the things that fascinated him was the history of China in the 1920s and earlier. In the internecine struggles of the '20's, he knew the name of every overlord and every general, and he could describe the conflicts that they had and who won the battles and who didn't. His memory was absolutely phenomenal.

Swent: Would you explain the social ranking in Russia at that time? ##

(The following section was written by Mr. Malozemoff after the interview)

Perhaps I should begin with earlier progenitors. My grandfather was a Russian military officer stationed in Warsaw, Poland. He was apparently a happy-go-lucky person, a very attractive man. He became enamored of a very beautiful daughter of a Polish officer and married her. They had six children: one son, Alexander, my father, second born; and five daughters, Natasha, Maria, Lida, Olga and Sonya, in that order of their age. The Malozemoffs had a privileged social status, "dvorianye," a social ranking just below the aristocracy. The root origin of the word "dvorianye" in Russian is "dvor," which means a yard. In other words, real estate property that was usually granted by the Tsar for special merit. The closest English translation of "dvorianye" is landed gentry. However, as far as I know, the family had no real estate property, probably having lost it in some prior dim past.

The family was prosperous enough to have all six children finish the university. As a child I met all of the sisters except the oldest, Natasha, my father's favorite sister, also greatly admired by my mother. Olga was an accomplished pianist, later to become a professor of piano in Leningrad Conservatory of Music, where before the revolution, when it was known as St. Petersburg Conservatory, my grandfather's sister Sophia also was a professor, formerly a pupil of Anton Rubinstein, a famous Russian pianist and composer.

This musical tradition in the family inspired my father to take up the study of violin, which ultimately led to his joining a class at the St. Petersburg Conservatory conducted by the greatest modern teacher of the violin, Leopold Auer, who taught pupils who became the greatest virtuosos of modern times: Mischa Elman, Jascha Heifetz, Efrem Zimbalist, Nathan Milstein, Michel Piastro and many others. After the revolution, Auer emigrated to America and taught for some years in Boston. The training that father got and also the inspiration he gained from Leopold Auer he carried all his life. I suppose that inspired him to insist that I take up the violin as well.

I'll never forget one story that he told me about Mischa Elman, who at the time was studying violin at Leopold Auer's conservatory classes. He was only ten or eleven years old. He was an extraordinarily gifted boy, and he advanced to the point where he was studying a Paganini concerto. In the first Paganini concerto there is a passage where double stops in tenths are played, and the tenths on the lower positions of the violin require a long stretch of fingers. Here was this young boy with a small hand that could barely do this. My father recalled to me one lesson at which he was present--these were group lessons--where Mischa Elman was asked to play the Paganini concerto. But apparently the pain that he suffered in playing these tenths was so intense that he could only play it and at the same time cry.

However, my father decided to choose an engineering profession and graduated from the Mining Academy in St. Petersburg with specialization in iron and steel smelting. He also attended the famous Freiberg Mining Academy in Germany to perfect his studies. There he met a student, a Baltic Russian-German, three or four years younger than he by the name of Herbert Kursell. This is significant because Herbert Kursell joined the American Smelting and Refining Company in the 1920s, and he and my father did a number of things together in America. What Herbert Kursell did for me was also of some significance in my life. Herbert Alexandrovich was Kursell's full name. His family and my father were very, very close friends in America.

On returning to Russia from Germany, father became active in the Social Democratic Party, which was opposed to the Tsarist regime. He practiced briefly at an iron and steel works in the Ural Mountains, where he courted a strikingly beautiful, tall sixteen-year-old daughter of the manager and proposed marriage. He was then twenty-five. The manager's wife, an imperious woman, opposed it because she thought her daughter was too young, and anyway she didn't think much of father because he didn't have a significant status at that time. She prevailed on the governor of the province to have my father fired and expelled from the province. Nearly twenty-five years later he divorced my mother and married his first love in the United States after bringing her out of Russia.

Shortly after his escapade in the Urals in 1907, he was arrested in St. Petersburg for distributing political propaganda against the Tsarist regime and sentenced to one year in prison and ten years of exile in Siberia.

(Return to interview transcript)

PM: It might be worth relating a curious--not necessarily very significant--but amusing attempt to reestablish the genealogy of the Malozemoff family by my then maiden aunt, father's sister Olga. Apparently before the revolution--I have this story from my mother--she reconstructed the genealogy of her forebears. How much romance and how much truth there is in this I don't know, as this is third-hand information.

At any rate, her research into genealogy particularly interested her because of her mother--that is my Polish grandmother. Apparently her family was derived from the French Huguenots who were banished from France and fled all over Europe. Some of these French Huguenots settled in Poland.

She tried to trace the French connection and concluded, or perhaps my mother invented it--I don't know--that the French family from which my grandmother descended was related to the Duc de Guise, who is a historic figure especially well known by the tourists who visit the Chateau de Blois in the Loire region. When the Huguenot rebellion broke out, he was sympathetic to the Huguenots and lived in the Blois Chateau. The chateau was invaded and he was murdered in one of the rooms. When my wife and I visited this chateau in 1948, there was a small portrait of him on the wall near where he was murdered. She never believed the story of the genealogy, but when she looked at this portrait, she said, "My God, he looks exactly like you! Maybe there is something to that story." (laughs) He lived three centuries ago so I doubt that there is anything but coincidence in the likeness. Well, whatever the truth was, Olga was very proud of that background.

Swent: You have never gone back to Russia?

PM: Never have until October, 1988. However, my wife made a trip to Russia with her brother ten years ago. My son Alex was there seven years ago, and again in 1988, both times for IBM.

(The following section was written by Mr. Malozemoff after the interview)

Mother and her Family

Both my grandmother Pelageya and grandfather Andrew were born peasants and were emancipated peasant serfs. My grandmother was illiterate but very talented and was a well-recognized designer and seamstress of ladies' clothing. She established a large shop with several seamstresses working for her in a large apartment on the second floor of 30 Mokhovaia Street in St. Petersburg. Among others, she made dresses for ladies-in-waiting at the Imperial Court, and with substantial earnings raised four sons and three daughters (Alexander, Sergei, Paul and Constantine; Mary, Vera and my mother, Elizabeth) and gave all a university education. She was a tiny woman, very energetic and strong, wise and intelligent, very human and loving to her children and grandchildren. My grandfather, a typesetter in a printing shop, died early, probably because he drank too much--a common cause of death in Russia.

Grandmother's end was a sad one. In the summertime, back in 1918, she and two of her daughters (my mother was then in Siberia) went for their vacation to an estate in the Ukraine which was managed by one of her sons, Sergei. Olga DeSelecky, who owned it, had a daughter who married my uncle Alexander, the father of my first cousin Xenia, now living in Holland. The DeSelecky family was in Europe, and they offered Sergei the opportunity to have his family come there and spend the summer vacation. They did this for a number of years.

This was during the demobilization of the Russian armies shortly after Russia concluded peace with Germany in the First World War. Actually, the armies were not demobilized, but they gradually disintegrated and soldiers roamed high and wide. Most of them were originally peasants. One night a group of renegade soldiers--not from the region--invaded the house where the female family of my mother was then vacationing and murdered all the women and killed Uncle Sergei. Three children belonging to one of the sisters were with them, and the eldest, a boy, escaped by jumping through a window and was shot at. But they missed him, and he ran away.

His twin sisters, who were only about five years old, were hidden by their mother under a sofa, just before the intrusion, and the soldiers never found them. And these poor girls stayed in the room with the dead bodies and pools of blood all night before they were rescued next morning by neighboring friendly peasants. This affected their minds so that they were somewhat unbalanced. Later on one of the twins died, and the other, with her older brother, were brought out from Russia by my mother and lived with us in Oakland, California. She was a nice girl but she never lived down that experience. She was a good tennis player and had a clerical job with Pacific Gas and Electric. She died three years ago in San Francisco. Her brother died during the Second World War from pneumonia as a result of his being an interpreter in inclement weather on the Russian ships that came to San Francisco harbor.

My mother was a very lively young girl, highly romantic, verging on sentimental, which she remained all her life, and anxious to learn everything she had time for. As was the custom in those days, she studied piano and French, which she spoke fluently. She enrolled in a German high school because it had the highest scholastic reputation and became fluent in German. After finishing high school, she enrolled in a special teachers' college established by a noted educator, Bestuzhev, where she prepared for a teaching career. While studying there she tutored the children of the Nobel family--of the famous Swedish Nobel prize.

She did not quite finish her education because she became interested in the political movements in 1906, 1907 and 1908. She met my father at that time. He was quite an active Social Democrat--that was a small party against the Tsarist regime that wanted to install a democracy. My mother, who was in effect his helper and secretary for these political activities, fell in love with my father, and they were married actually in prison just before he was sent out to exile.

(Return to the interview transcript)

Swent: Some of the things I have read indicated that teaching at that time, especially if you taught peasant children, was also considered a politically subversive activity. Was this so?

- PM: I don't believe so. There may have been some restraint on liberal teaching, but I don't think my mother was really involved in that, nor in any way affected by the political prejudices.
- Swent: She didn't look on her teaching as a political activity, then?
- PM: No. No, her later teaching in Siberia was essentially in the lower levels, in the grade school level, and then the high school level. So it didn't get into the level where people usually begin to think about political problems as they do in the universities throughout the world.

Relatives in Russia

- Swent: Perhaps this might be a time for you to mention some more about meeting your wife and her family, and also of your contacts with your Russian family. You still had an uncle, you said, who lived in France, and your father, when we last heard of him, was in France.

(This section was written by Mr. Malozemoff after the interview)

No, my uncle Paul did not live in France, but my father lived in Cote d'Azur, near Nice, for only a few years while recuperating from a serious operation. However, uncle Paul did come to France in 1927 while we were there to visit my mother for a day. He was then working in Moscow with my father for the Lena Goldfields concession.

During the 1920s and 1930s my mother kept in touch with uncle Paul by correspondence and also with my father's oldest sister, Natasha, of whom she was very fond. Father also corresponded with Natasha and his mother until the Second World War, and, of course, visited with them and some of his other sisters' families during the Lena Goldfields concession period, 1924-1929. After the war all correspondence ceased by the Soviet Government discouraging its citizens' contacts abroad. Father died in 1944, and mother was never able to reestablish any contacts with any members of the family in the Soviet Union after the war.

However, in the early twenties, we learned of the departure in 1917 from Russia of my eldest cousin Xenia (now 94 years old), daughter of my mother's eldest brother Alexander. She married at sixteen years of age a much older man, a Dutch citizen, Jan Gellen, and left Russia with him to go to Finland and later to Poland. They had four boys, and her husband died in Poland during the war. After the war, with the help of her Polish relatives, she moved to Holland, where she bought a house, and on a Dutch pension and occasional help from Polish relatives, she raised the four boys. The eldest, Alexander, is a civil engineer now retired and settled in New Zealand where he practiced his profession. The other three sons are in Holland, one of whom lives with his mother in Tilburg. Xenia, despite her age, corresponds with us regularly, her handwriting showing no deterioration due to age. We visit her when we are in Europe. She was a great beauty when young and is now vivacious and cheerful, reminding me of mother's similar qualities.

The other members of our family who settled abroad were the Smoliakovs. In 1918, the mother of that family, Maria, my mother's elder sister, was killed along with my mother's other sister Vera, and my grandmother, to which I referred earlier, but Maria's three children escaped and rejoined their father in St. Petersburg. Their father and the children had a terrible time during the civil war and the famine that ensued. Some of the stories that their father told were really horrendous. One of the girls died. I don't know how they managed to survive during the famine. Their father was a lawyer and was very impractical. He didn't know how to cook and he didn't know how to take care of children, but somehow they survived, perhaps with the help of their new stepmother, whom their father married then. My mother first brought out the two remaining children to live with us and then brought out their father and his second wife. These were our only close relatives who emigrated from Russia. All the rest of the surviving relatives stayed in Russia.

In October 1988 my wife and I were in Russia for two weeks on a tour, and our son was attending a scientific conference on superconductivity in the south of Russia. He was there on behalf of IBM (he has been working for them in their research department for nearly twenty years) and delivered a talk. A Russian scientific magazine reported on the conference and mentioned his name. A young scientist called this name to the attention of his

friend whose grandmother was a Malozemoff. This young man's sister, an actress in the Moscow Art Theatre, wrote our son Alex at IBM, identifying the names of her grandmother Natasha and her sisters, as well as their brother, who was my father. The letter said that if these names meant nothing to Alex, he need not read any further and could throw the letter away.

This first contact after forty-five years of total silence--which could have been interpreted as meaning that none of the family survived--was naturally tremendously exciting, and there followed very active correspondence by Alex and me with various members of our numerous family in Russia who were identified by the actress Natalya Orlova. A first cousin of mine, Alexander Gulyaev, the son of my uncle Paul, mother's brother, was the only one of my generation whom I remember meeting in Russia as a child. He is a year older than I and is a well known and respected ferrous metallurgical scientist. His father was a ferrous metallurgist who later (before the revolution) became manager of a steel works in the Ural Mountains at Lysva. Alexander or Shura, as he was called more familiarly, has some thirteen books and several hundred technical articles to his credit, which I learned of from his letters to me. He also confirmed the knowledge I had from a friend of my brother, who as an officer of the occupying American army in Berlin, met in 1946 Alexander Gulyaev, a lieutenant colonel in the Russian army--the only thread of information indicating that at least one of our relatives had survived. However, owing to the Soviet freeze on contacts with relatives abroad, that incident of recognition was not followed by any correspondence.

Through Natalya Orlova we identified another family, Shaskolsky, who were descendants of another of my father's sisters, Maria. The head of the family is a son of Maria and my first cousin; he is a noted historian and professor at Leningrad University, and so is his wife. His son is a specialist in American history and has been in the United States several times. Altogether, Orlova has written us that she can identify about thirty members of my father's and mother's families in Moscow and Leningrad--which is not surprising considering that my mother had six brothers and sisters and my father had five sisters, and that a fourth generation of descendants is now growing up.

In May of 1989, my wife and our daughter went to Russia for eight days, and they spent one day with Shura Gulyaev and Natalya Orlova; they found them to be charming, friendly, most interesting, and very intelligent. They did not wish to speak of perestroika, which is a sensitive subject for all intellectuals in Russia. In Leningrad they dined with the Shaskolsky family and were also received by them with open arms.

After these visits, Shura Gulyaev and Natalya Orlova expressed great interest in visiting us in the United States--never having been outside the Iron Curtain--and seeing something of this country. I am now making arrangements to make this possible.

The Harlamoff Family

My wife came to America about three years after we did. She came from Harbin, Manchuria, with her brother, mother and father.

Their original abode was near the Volga River in a little town called Urzhum, near Kazan, in central Russia. Her father came from a wealthy family that owned vast timber lands--which they eventually lost. He became a self-made man and prospered as the owner of a department store. He did not believe the revolution would disrupt the way he and his family lived or everything that Russia had lived by.

At any rate, when the purge of the more prosperous owners of businesses began in 1918, he and a number of others decided to hide out of town for a while in the hope that the situation would blow over. It didn't, and eventually they had to flee to Siberia. Because the Trans-Siberian Railroad was blocked by civil war between the Red and White Armies, he made his way by foot from European Russia, arriving eventually in the Manchurian town of Harbin. It took him something over a year to do this. Most of his walking was done during the night to avoid the warring troops. He spent some nights in peasants' cottages and some out in the open. He walked south of the railroad, which is located in central Siberia. The winters are very severe there, and how he survived during the winter is hard to understand.

His wife and two children stayed on in Urzhum, where she worked and the children attended school. For over a year they did not know if the father was dead or alive. Finally they got a letter from friends from Irkutsk with one word in the father's handwriting. In Harbin he found work and finally communicated with the family, asking them to come and join him there. By this time the Trans-Siberian Railroad was open, and they travelled by train to Harbin, but the trip took over a month because of interruptions in service and frequent stops for searching of the passengers and their baggage.

In Harbin, where the family settled for a while, the children went to Russian schools. By agreement with the Chinese made in a previous century, Harbin was the headquarters for the Trans-Siberian Railroad and had a large Russian population. Within a year, and before the communists took over Harbin, the whole family emigrated to the United States in July, 1923, and settled in San Francisco.

My first acquaintance with my future wife had a curious origin. I knew her brother, Anatol Harlamoff, and my brother knew him even better; we were then attending the University of California, and he and my brother often sang informally at parties.

(Return to interview transcript)

Swent: And your brother's name?

PM: Andrew. We had a very good friend who was a doctor, a woman named Lordkipanidze--a wonderful woman and a good doctor. She knew many people in the Russian colony, and knew my wife's family well. On one Sunday she was having lunch with us at our home, and both my brother and I were there. We were talking about this and that, and eventually the conversation turned to girls.

Both my brother and I contended that Russian girls were sloppy and unattractive. They didn't know how to do their hair, they didn't know how to dress; generally, we felt that American girls were better groomed--and so many were pretty.

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PM: We started naming a few Russian girls we knew--and then she said, "Well, I'll make a bet that I can introduce you to a Russian girl who has absolutely the opposite image from the one you are describing." We took up that challenge.

She arranged, together with my mother, for a party at our house and invited Alexandra Harlamoff and her brother to it. The brother came, but Alexandra did not; she disapproved of the whole idea of being invited by some boys so they could look her over. So we had the party without her.

Her mother apparently knew something about our family without ever meeting us, however, and she suggested to her daughter that it would be all right if these boys were invited to her party--when she gave one. Some months later we got an invitation, and both my brother and I went. I may say here that my brother was a very good-looking boy and well liked by girls. He had an easy manner with girls and was popular with them, whereas I was more reticent, and not as good-looking either. At any rate, Alexandra and her mother--her father, by the way, had died earlier--were living in an apartment in San Francisco, on the second floor. As we came up the stairs to their apartment, Alexandra came out to the upper landing and looked down at the Malozemoff boys. For some reason she decided she favored me, and that's how our acquaintance started.

She was very intelligent and attractive, a marvelous ballroom dancer, and very popular in the Russian colony. She had several beaux. Our courtship lasted for a long, long time because I felt it would be unfair to her to marry until I had an income of at least \$500 a month. At that time I was getting a very low income as an employee of Pan American Engineering Company--starting at \$120 a month and later increased to about \$250 a month.

(The following section was written by Mr. Malozemoff after the interview)

Political Exile in Siberia

Mother rejoined my father in Siberia in 1908 at his place of exile in Barguzin, a small, remote town in a region just east of Lake Baikal. She went back to St. Petersburg in 1909, where I was born, and when I was six weeks old she took me back to Barguzin. Part of this journey involved several days on horseback in the winter snow while carrying me in a sling around her neck. My brother Andrew was born in Barguzin a year and three months after me. She took us back to St. Petersburg about every two years for a visit of a month or so with her mother up to the last time in 1917, just after the February revolution, when the Tsar abdicated. These trips were very arduous and took two to three weeks, and in the earlier years required travelling for several days on horseback to reach the remote Siberian town where we lived in very primitive circumstances in a log cabin.

My mother taught privately and in effect supported father--because as an exile, he was out of a job. Those years in Barguzin were extremely difficult years for the family, but somehow they made it. There were no resources from the Malozemoff family to help my father because they were not that affluent. He had to make his way the best he could. They lived on the very small earnings that my mother had and somehow managed all right.

The interesting thing about that period--and this comes from my mother's remembrance--was that there were many other political exiles in Barguzin with whom they made acquaintance. Most of them were very intelligent and highly educated people of the class we used to call in Russia 'intelligentsia.' What amazed them, and I think is even more amazing to us today, is that they had freedom of movement, freedom of thought--they could think about anything and talk about anything; they could read anything they wished, bring in any books they wanted, whatever their political nature. There was scarcely any restriction, except, of course, they had to remain in Barguzin.

(Return to interview transcript)

PM: We have a photograph that I remember, and it's somewhere in my files, a picture of my father and mother and several of their friends on the top of a mountain, where they had a picnic. The title they gave to this picture is "How wonderful is the world, and how free we can be as exiles under the Tsarist regime." ##

Swent: You say your mother did not mention this freedom in her memoirs?

PM: No, nor these people, nor this particular photograph, of which she was very proud. She used to show it to me, and the title I cited was written on the photograph in her hand.

Swent: Were there also people who were actually fettered in chains while in exile?

PM: No. No, I think that's a mistaken notion. They were fettered in chains while they were in prison, but as soon as they reached the assigned place of exile, they were free of chains, and they were free to roam, take jobs--and there was no restriction as to what jobs they took, if there were any jobs to have.

Father's Career as a Mine Manager

PM: Well, sometime in the third year, my father, being a mining man, learned of the gold activity that was going on and of the mines that were operating in that general area. One particular mine, which was quite successful, was owned by a man named Jacob Friezer, whom I believe my father may have known in St. Petersburg before exile. At any rate, somehow he made the contact with him, and Friezer invited him to manage this mine. He had no problem in getting permission to accept the post of mine manager, and the government authorities allowed him to move from Barguzin to Korolon, some two or three hundred miles north of Barguzin. Mother describes the life they had there, which was in, again, very limited circumstances. Their living place was very modest and they had to do everything themselves. She was actually the treasurer of the company, because they had very few employees. At any rate, it was a successful operation and father managed it very well, apparently, producing both gold and profits. Despite modest earnings, we had a teenaged

PM: Yakut girl as a servant, Marisha by name. She was uneducated and very naive, and she enjoyed playing with my brother and me despite the discrepancy in our ages. We liked her a lot.

Swent: Who were the miners? Were they prisoners?

PM: No, the miners were mostly free people belonging to the local Asian tribes. The local tribes there were Yakuts; they were of Mongolian origin, something like Eskimos. They made good miners; they were good workers but they were completely uneducated so that whoever ran the mines had to teach them everything.

These mines, by the way, were drift mines. A drift mine is an underground mine that exploits gold from placer deposits. Placer deposits are those deposits that are formed usually in old river beds as a result of the erosion of rocks containing goldbearing veins. Gravels and gold from this gradual erosion finally finds its way into the streams, and by the action of the water the gold gets concentrated in the bottom of the streams. Consequently the richest part of these placer deposits is usually just above bedrock and overlaid by fifty, sixty, sometimes up to two or three hundred feet of gravel. Thus a drift mine is actually an underground mine that recovers the high-grade streak of gold occurring at the bedrock level. It's a hazardous type of operation because gravel is loose--it's not consolidated. In Siberia, there is sometimes permafrost, and therefore the gravel can be solid--but at any rate there's always the presence of water that has to be pumped, except where rivers took new courses, leaving the old river beds dry. But that's a fortuitous occurrence, and in any event it's a complicated operation. In those years it did not require any sophisticated equipment because local timber was used to support the loose gravel. In permafrost, once it was thawed, it could actually be mined by picks and shovels. They didn't use explosives underground or any other mechanical equipment. It was all hand work.

Swent: Did they have shafts and hoists?

PM: Yes, they had to have shafts to get access to the bedrock, and they had hoists which were mechanized by steam engines or electric motors. The Korolon mine which my father managed was a simpler type of mine; it was entered by a tunnel and it required no shafts or hoists.

Swent: And the men, as I understand it, were paid according to how much gold they actually mined?

PM: That varied. In some instances they were paid on contract for so much gravel mined, and at other places it was just straight wages. But the contract system gradually spread throughout Siberia and was fairly universally used. This was the case with placer mines in the Yukon and in California also. A lot of the gold was stolen and never got to the company's coffers, so the security that had to be imposed was one of the important elements in making an enterprise successful.

Father stayed on as manager of the mine in Korolon for some three years. The fact is, the mine was successful partly due to his technical and organizational skills and partly due to his ability to control the stealing of gold! Anyway, his reputation began to be widely known in that particular area, and he received an offer to come to the biggest gold mining camp in the whole of Russia, near Bodaibo and the Vitim River. It belonged to Lena Goldfields Company and was controlled by a British company named Selection Trust. He accepted the offer to manage one of the mines in 1914, and moved his family to the Lena Goldfields camp.

Lena Goldfields

PM: The first mine he managed, Prorok-Ilyinski, was probably the poorest one.

(The following section was written by Mr. Malozemoff after the interview)

It would seem appropriate at this juncture to describe the operations of Lena Goldfields. In 1981 I was given from the archives of Consolidated Gold Fields PLC in London a four-volume report written in February, 1914, by C. W. Purington, their consulting engineer, on the basis of which they were to decide whether or not to keep their 25 percent investment in Lena Goldfields. (They eventually sold it.) Purington was known to my father, and he had great respect for him. I suspect father had this report and implemented some of the recommendations contained in it. I may mention that Lena Goldfields broke into world

news in 1912, when a general strike was suppressed by an army contingent and about 200 workmen were killed by rifle fire during a demonstration.

To get back to Purington's report, he recorded that at the time of his visit to Siberia, June 28 to September 13, 1913, he devoted fifty days to the examination of the Lena Goldfields operation and twenty-five days to another property owned by another company.

Gold was first discovered in the region north of Lake Baikal in the Homolko River in 1843. From the time of meaningful production, 1863 to 1911, the total gold produced from Olekma district was about 17,600,000 ounces, and about one third of this was produced by Lena Goldfields.

In 1913, when Purington made the trip to the mines, he travelled by horse-drawn carriage for six days to cover 275 miles by road from Irkutsk, the capital of Siberia, to a Lena River port, Zhigalovo; thence, from Zhigalovo downstream by boat to Ust-Kut for 220 miles; down the Lena from there on a side-wheeler steamboat to Vitimsk at the confluence of the Vitim River flowing from the east to the Lena River, a further 480 miles; and from Vitimsk to Bodaibo up the Vitim River for 154 miles. Rivers were open to navigation between June 1 and September 28. The boat trip required four days, and the total trip of 1,130 miles took ten days. From Bodaibo to the mines there was a narrow gauge railroad of some thirty to forty miles.

The climate at the mines was not too severe. The average temperature in April was 30°F., in May 50°F., in June and July 65°, in August 52°, September 35°, October 10°, November minus 22°, December minus 28°, January minus 15° to minus 38°, February minus 10°, and in March minus 8° to plus 5°F.

Most of the placer mines worked were drift mines, that is, underground mines in which the rich bedrock streak, about five feet ten inches to seven feet thick and some 100 to 120 feet below the surface, was mined and ground supported by timbering. In most mines the deep river gravel beds were frozen by permafrost; they were thawed initially by charcoal fires and later by the Alaskan technique of steam injection points. The width of the pay streak was 140 to 200 feet, and the gravel was mined in twenty-eight by twenty-eight-foot panels. There were a few mines shallow enough for surface mining.

During Purington's visit, eight mines were operated. Owing to the use of wheelbarrows for underground haulage, individual mines had multiple shafts to reduce the distance to a maximum of 600 feet between the working face and the hoist that lifted the gravel to the surface. At the surface the gravel was transported to the washing plants on a rail track by horsedrawn cars and by four small electric (30-62hp) and four steam locomotives (15-40hp). A total of some 1600 horses were used, 540 of these in washing plants, hauling tailings away.

Much of the gold was coarse and contained numerous nuggets. Some nuggets had unusual shapes; father gave mother a pin made from a nugget about three-quarters of an inch long shaped like a miniature bunch of grapes. She also had a bracelet of gold nuggets, each about one-quarter inch in size. These are heirlooms I still have. The biggest nugget found in the mines weighed five pounds.

A modern electricity generating plant using wood for fuel permitted electrification of the townsites and lighting underground, as well as power for centrifugal pumps to remove water from the mines, for hoists, and for the washing plants.

The individual mines had a relatively limited life of three to eight years, but placer gold deposits in old river channels abounded and new mines were continuously being developed to replace those depleted. The average grade of the gravels mined for some fifty years was about 0.20 oz. per cubic yard, which yielded \$12.20 per ounce net or \$2.94 per cubic yard. I don't quite understand this low figure, as the gold price at the time was \$20.67 per ounce, but it may have been net of royalties and taxes imposed by the Russian government. Some of the mines were higher grade than this average. One area on Nakatami Creek averaged \$15.50 per cubic yard from 1868 to 1878 and produced 1,068,000 ounces during that period.

The total payroll was 8,000 men, many with families. Surface labor worked ten hours a day, underground labor eight hours a day, but reduced to six hours a day for especially arduous work. Days of rest were four per month. Overtime was paid at one and a half days' pay. While there were no labor unions, labor was hired under a well-defined contract expressing the obligations of labor and employer for all foreseeable and even unforeseeable circumstances. Hence labor was free and not indentured nor the kind of prison labor that was employed in vast numbers during Stalin's regime. Living quarters for

single as well as family men were free, as well as medical care. The underground mine pay was for so many cubic yards of gravel excavated by pick and shovel, but if a set minimum was not achieved, the minimum day's wage was 1.68 rubles per shift at an exchange of 1.89 rubles per U. S. dollar.

Some comparisons with comparable American gold placer drift mining practices in 1913 are of interest:

	<u>Lena Goldfields</u>	<u>Fairbanks Alaska</u>	<u>Nome</u>
Cost/cu.yd.	\$6.30	\$4.50	
Cost of labor/shift	0.90	7.50	
Productivity, cu.yds./shift	0.75	5.90	1.3 to 4.0

Some of the costs were extremely high, notably the freight costs, which, because of the remote location, were from 180 to 2,000 rubles per ton. The highest portion of the cost was the wagon transport cost from Irkutsk to Zhigalovo, the port on the Lena River, a distance of some 275 miles. An especially high cost was the transport of heavy pieces weighing ten to twenty tons, which cost 1,000 to 1,800 rubles per ton--nearly prohibitive.

Gravels were washed on the surface in seven trommel plants and nine sluice plants, which washed about 5,000 cubic yards per day at a cost of 0.45 rubles per cubic yard. The washing season was only 160 days, but the mines were worked all year; consequently winter production was stockpiled in dumps of up to 90,000 cubic yards each. They froze during the winter and had to be thawed in the spring with steam points before being hauled to the washing plants. There were five miles of track installed for the principal mine and washing plant at Nadezhdinsky. The washing plants required 1,700 men per day. The cost of digging the dumps, transporting and washing was 1.02 rubles per cubic yard, which according to Purington's recommendation could be cut to 0.55 rubles per cubic yard by storing the dumps at the washing plant and hydraulicking them directly into sluices. This advice was implemented the next year.

Life was relatively pleasant in the Lena Goldfields settlement. Despite being cut off from civilization and transport for nearly eight months a year, the community was well supplied with good food and all essential supplies by careful forward planning. There were large parks, a library, and a primary and secondary school adequate for all the children in the community. My mother was in charge of the higher grades and was largely instrumental in expanding the higher grade school. There were concerts, lectures and amateur theatricals, and a very busy social life among the higher paid employees numbering well over 1,000.

By way of summarizing the Lena Goldfields enterprise, some of the operations were primitive even by 1913 standards, but there were moves made to modernize and reduce the costs which were high in spite of the very low wage level. There must have been much progress made in the next few years in mechanizing and modernizing, because the operation prospered and became increasingly profitable, producing greater amounts of gold. While my recollection as a child is vague, the impression I had from the conversations I heard and the things I saw was that the progress made during my father's tenure as general manager was continuous and rapid.

At the time of Purington's report, Leon A. Perret was the general manager, having assumed that position about six months before. He was a Russian with previous mining experience and he wrote a very good report, which I have read, to top management on the status of the mines and made many recommendations for modernization and improvement. Two or three years later, Zhurin replaced him as general manager. I remember him as a very handsome man with aristocratic impeccable manners. I would guess that he was not the best of managers, or perhaps he left in anticipation of trouble in Russia, for we saw him in America later. Anyway, my father replaced him within about two years.

One practice that Purington noted as unique in his experience was a technique invented and practiced by the Russians in Siberia to keep water flowing in ditches all winter despite the extreme freezing weather. At the start of winter, the ditch would be progressively sheathed with ice, allowing air space to form under the top ice cover and thus permitting the water to flow all winter.

(Return to interview transcript)

Swent: How old were you when you moved to Lena Goldfields?

PM: I was five years old at the time, and obviously too young to know much about it.

As I said, the first mine my father managed was Prorok-Ilyinski. After a short time there, he proved his skills and was moved to a better mine called Prokopievsky, and then to Feodossievsky, the largest mine in the area. There he did very well, and within another couple of years he was named manager of the richest--and considered the best mine of all, Nadezhdinsky.

By 1917 he was freed of the exile of ten years, but that coincided also with the start of the revolution in Russia and the abdication of the Tsar, which took place in April, 1917. As soon as he was freed from the exile, he was named the general manager and managing director of all the mines of Lena Goldfields in Siberia, which was then probably one of the most prestigious positions in mining in Russia. His salary, my mother reports, was 60,000 golden rubles a year, which was a remarkable achievement within about nine years of his exile--when the previous family income was probably on the order of 150 or 200 rubles a year!

Swent: Were you at that time at all aware of the First World War or the Great War, as we call it?

PM: Oh yes, because what I have omitted in this account, of course, is the rather interesting way in which mother raised the family. Because of her very close association with her own mother, and also with my father's family who were all in St. Petersburg, she wanted to maintain that contact and continue to be close to both families. Although my father could not travel because of his exile, my mother made a trip back to St. Petersburg about once every two years. And she took us, the children, with her.

Swent: This was a two-week trip?

PM: Yes, about that for the entire trip. She described it in great detail in her memoirs, and I won't go into that, but it was an adventure in itself. She would go to St. Petersburg and we would live with her mother, usually for a period of one or two months, and then go back to

Siberia. It was during one of those trips--I remember now that I was about six years old--that I became aware that Russia was involved in the Great War, and my awareness of that was the wonder that I experienced in hearing and seeing for the first time an airplane flying over St. Petersburg. I ran out to take a look at the flying machine--which was something I had never heard about before. At that time Russia had a few reconnaissance planes of that sort, while Germany had a whole fleet of planes then.

As a child, of course, I was not aware of what was going on at the front. I learned about it later on because I was interested in it. That's a story in itself which has been told many, many times in many books. One of the most impressive accounts of the early part of the war, I think, was Solzhenitsin's recent book, called August 1914, wherein he describes the first few months of the war and the disadvantages that the Russian Army had compared to the German Army, both in communication and in general strategy, and also in the ability to know where the opposing forces were. The Germans had a fleet of reconnaissance planes, whereas Russia had only a very few and they would not venture out often for fear of being shot down. The rigid structure of the Russian Army organization resulted in a situation where the forces at the front could do nothing without explicit orders from headquarters--who were way behind the front and really didn't even know the disposition of the opposing forces or even of their own forces. Sometimes they ordered attacks when there were no Germans there. Such an unopposed attack exposed their flanks to German counterattack. At other times they would order an attack against a well-fortified position, and it would be a disaster for the Russians. At any rate, that account is one of the most interesting and dramatic that I've ever read about the First World War on the Russian front.

Swent: I was wondering, was there much awareness in Siberia?

PM: Oh yes. There was definite awareness of what was happening. In the circle of people among whom we lived, some were exiles, some people that came in--engineers, doctors, accountants and other professionals, and they were highly educated and very interested in what was going on. They got their newspapers with some tardiness, but on the other hand, we had telegraphic knowledge of what was going on day by day.

Swent: The Czechs seized the railroad at one point. Wasn't there a group of Czechoslovaks who controlled the railroad?

PM: You mean the Trans-Siberian Railroad?

Swent: Yes.

PM: That was after the World War, during the civil war. There's only the one railroad that went all the way out to Vladivostok. Irkutsk was the capital of Siberia. It's located on the western shore of Lake Baikal, perhaps 100 or 120 miles north of the southern tip of the lake, which is a huge lake, the general orientation of which is north-south. In order to avoid the much longer distance of going south of Lake Baikal and then north again in order to continue eastward, in the wintertime they would lay temporary tracks across the frozen lake and take a shortcut across the ice. This was done for years and years.

Swent: So you were hundreds of miles north of there.

PM: That's right.

Swent: How did all your supplies come in?

PM: All supplies came by Trans-Siberian Railroad, were unloaded at Irkutsk, and then taken by horse-drawn wagons to the headwaters of the Lena River. I related this access route earlier when I described Purington's trip to the mines from Irkutsk. It was a long, tortuous route from Irkutsk, but it worked for both freight and passenger traffic.

By the way, during the time we lived in the Lena Goldfields area, I started going to school, to kindergarten. It was organized by my mother; then I went to grade school, which was also organized by her. And I think it was essentially through her influence that my development and curiosity were stimulated to be interested in everything. It was at that time that I became aware that there was such a thing as an encyclopaedia, a book which encompassed all the knowledge that man had ever had. I was fascinated with the idea; I think I must have been about seven or eight years old. I decided that I would begin to learn something about the world by reading the whole encyclopaedia. I never accomplished this task, of course, but I did borrow the first or second volume and read it very assiduously. (laughs)

Swent: There's nothing wrong with that as a goal!

PM: I remember that I became interested in technical subjects during that time. Electricity fascinated me, and I got some notions of what it was all about--somewhat imperfect notions. For example, I thought I learned that electric shock is something that's very good for you--it burns out any and all disease that you may have. (laughs) Where I got that idea I don't know, but it sounded like a wonderful thing to eliminate your ills and diseases with one electric shock. I suffered some electric shocks, and I thought I'd stay healthy. (laughs)

Swent: What about electricity?

PM: The whole camp was well electrified. There were several automobiles that were used as passenger cars, and the houses, especially the better houses, were well equipped with all the same modern conveniences that you would find in St. Petersburg at that time.

Swent: And you, as the son of the general manager, must have felt very special.

PM: Only for a very short time, because he was made general manager in 1917, and he left there in 1919. So it was only a two-year period. Before that he was superintendent of some of the mines, a lesser position.

Swent: But still this must have given you quite a feeling of importance and security.

PM: Oh yes; however, it was a very democratic place. I know that in school, first kindergarten and then grade school, I was taught like any other child. I had some very good friends at school, I remember, sons of workmen, so that my upbringing was not considered that of a privileged person. The school was for the whole community and was shared by the workmen's children as well as the office workers' children.

My musical education began there too. My father insisted that I should have some beginnings of musical education. I first started on the piano; he was hoping I would go on to the violin, and finally he bought me a small violin. There was a violin teacher in town who gave me lessons--my father never had time for that. I remember very well, however, that now and again, maybe once every month or two, he would say, "Well, now you

PM: play and I'll see what you have learned." He would criticize my playing severely because he wanted me to play the way he was playing. I remember his particular annoyance was that I couldn't change from going up bow to down bow without interrupting the sound. So he said, "You must work on that, because the most important thing in playing the violin is to have a continuous tone that you can make even when you reverse the direction of the bow." This stayed in my memory as being something to achieve, and, of course, at that time I wasn't able to do so. So I remember him as a very exacting critic, but he really didn't help me very much in my study. (laughs) I don't think the teacher I had was very good, either.

Swent: It's surprising that there was one there at all, perhaps.

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Swent: We had just been talking about your early education in Siberia. Did you have teachers other than your mother?

PM: Oh yes. It was a big enough school and they had several teachers. Actually, I never had my mother as a teacher. She taught, but not in the classes which I attended; she was more in the administrative area.

Swent: It seems to me you must have felt extraordinarily privileged to go to a school which your mother ran.

PM: No, I wasn't conscious of that. I was just going to a school. I never felt special. I think those early years were very happy years. Through the school I met a lot of children that I liked, and we played together. And of course, my brother was only a year and three months younger than I was, and that provided ready companionship.

Swent: What did you play? What sort of games did little Russian boys play?

PM: Very primitive games. There was one game we used to play that involved using pigs' knuckles; one was filled with lead and so was heavier than the others. You threw this against an array of other pigs' knuckles that were set up to see how many you could knock down. It developed your ability to throw, to throw accurately. We played that when we were very young--four or five years old.

Swent: Did it have a name?

PM: It had the name Babki.

Swent: Sort of like nine pins or ten pins?

PM: Yes, but we actually threw it--actually threw the knuckle ten feet away or something like that. Anyway I became pretty skilled at it. I remember one instance when we finally moved into the general manager's house, a beautiful mansion type of house. We had five servants, and my mother tried to keep the place clean--but in Russia you can't keep anything completely clean. Anyway, we had mice. My brother and I shared a beautiful large room with window exposures in two walls. One time when we came in and turned on the lights, we saw a mouse! So I grabbed one of these babkis filled with lead and threw it, and by God, I hit the mouse and killed it! I was so proud of myself! (laughs)

Revolution, 1917

PM: Well, those happy days eventually became threatened, of course, by the revolution.

(The following section was written by Mr. Malozemoff after the interview)

My first experience with the revolution was while we were visiting my uncle Paul in Lysva in 1917 in the Ural Mountains, where he was the general manager of the iron and steel works. He was married to my father's sister Lydia. My father's mother--my grandmother, was visiting them together with all the other sisters of my father except Natasha. This was between the February revolution of 1917 which led to the provisional government that Kerensky headed, and the October revolution when the Bolshevik communist party finally took control. We were there in the summer of 1917 between these two political events.

It was a very trying time for the grown-ups because they wondered which way Russian politics would go. The provisional government was a moderate government that they hoped would succeed, but it did not appear very stable or energetic. Lenin was trying to manipulate the various factions in order to get a majority and take control, but he didn't immediately succeed.

(Return to interview transcript)

PM: In Lysva, a little provincial mining town, there were Bolsheviks who temporarily gained control by force of arms. We stayed in the general manager's mansion, which was always an object of envy for the Bolshevik revolutionaries. Quite often, when the soldiers were drunk, they would get together in a little square in front of the mansion and take potshots at the house. I remember this, although my mother does not mention it. The children--my brother and I and two cousins, were instructed not to walk around in the hallways where there were windows, but to crawl under the windows so we would not be seen from the outside and be shot at. It seemed to us fun--an adventure. It's just one of the things you had to do.

Sometimes the soldiers would shoot anyway. For some reason they liked to shoot at the sloping roof, and the bullets made a hissing noise as they skidded up the roof. However, they never invaded the house, so the family was not endangered. Yet I recall that these very trying times were borne with remarkable resiliency. My mother and my father's family led as gay a life as they could; they had concerts, they had dramatic performances, and my mother participated in all of this. I remember that my father's youngest sister, Sonya, was the only one who was comely--all the rest of his sisters were quite ugly. (laughs) When Sonya was made up for a part in the theatrical performance, she looked so beautiful. I remember how I admired her. In spite of the danger and the unsettled times, somehow people--in our class, at least, tried to keep their lives more or less normal and tried to enjoy life to the extent that they could.

We stayed there for two or three months, I guess. I became very fond of my two cousins. The boy was about a year and a half older than I; his name was Alexander and we called him Shura. His sister was considerably younger than he was, perhaps about two or three years old. We thought of her as a baby and we were very fond of her; as her older cousin, I used to try to entertain her. We'd play games together. It was a time that I remember as being very pleasurable despite all those outside events that were tragic for many. Mother mentions this, but she doesn't go into the detail that I have gone into about the kind of life we had there.

PM: Eventually we went back to Siberia, to Lena Goldfields, and this was when my father became the general manager. We had the most luxurious trip we ever had to the mines. Instead of having horse-drawn carriages, we had a car to take us. And one of the things I remember for some reason--but my mother paid no attention to it--was that there were hills on the way. We were travelling in Model T Fords that were heavily loaded with baggage. I remember that some of the hills were too steep for the cars, so they turned around and climbed the hills in reverse. (laughs) Later on, in America, I learned that this was a peculiarity of the Model T Fords--they had more power in reverse because they were geared lower than in the first forward speed.

Swent: What were the roads that they were driving on? Were they surfaced at all?

PM: Oh no, no, no. They were all dirt roads, just dirt roads. And, of course, during the inclement times they were just mud, deep mud, and difficult to traverse. Actually, I doubt that you could move in cars in the time of inclement weather, either during the melting of the snows or when rains came. That's why the horse-drawn carriage was the usual means of transportation. ##

In Siberia we were isolated from the worst consequences of the revolution--the civil war, the mass executions and the subsequent famine. During the time we were there, we suffered several changes of regime. The struggle, as it has been explained in history books, was between the more moderate revolutionaries that unseated the Tsar and caused him to abdicate, and the Bolsheviks, who were Marxists and more radical. They were the minority party. Eventually they could not get along with each other and their relationship ended in a civil war with armies on each side. The Red army was controlled by the Bolsheviks, and the White army by several of the more moderate opposing parties.

By and large, most of the officers of the Imperial army that fought the Germans joined the White army, although there were some members of the Imperial army that went with the Reds and actually became the officers and leaders of the Red army.

At any rate, in the early part of the revolution there were local regional parties in our mining area that became active. One of the earliest ones was the Bolshevik

PM: faction in our mining camp, and they took control of the camp shortly after the October Revolution. We became, all of a sudden, sovietized, and the Bolsheviks were conscious of the fact that much of the population, especially the management, was against them. They were concerned about a possible rebellion against them, and took measures to try to entrench themselves politically and militarily.

One of the first principles they learned in the beginning of the civil war was that the only way to keep control was to make sure that none of the civilian population had any firearms. This was essentially the reason for the post-midnight searches that took place at the most unexpected times. They would search the house for firearms and if they found any, they usually took the people out and imprisoned them. Sometimes they even shot them--shot the men--it depended on the feelings and the kind of people who executed the raids.

My father was at the mines at that time. Being the general manager, he had the final authority over the workmen. Somehow he managed to establish a working relationship with the controlling Bolsheviks, with whom he was not in sympathy, and to preserve some kind of atmosphere of peace and reduce violence to the minimum. I think my mother records that during that takeover he managed to keep any punitive measures down to practically nothing except in the very beginning when two people were shot and killed during some kind of a confrontation. Those two were the only casualties in that early takeover.

Swent: I need some information for my understanding: the lands where the gold and minerals were--they had belonged to the Crown, had they not?

PM: Yes, and the English-controlled Russian company had a lease on the properties.

Swent: A lease, I see. But your father would have to go to London for higher direction?

PM: No, they had headquarters in St. Petersburg.

Swent: And did they have a board of directors?

PM: Oh yes. That's right, Lena Goldfields had a board in St. Petersburg.

Swent: But then in 1917 what happened to this board?

PM: It still continued to exist.

Swent: And the lease was still honored?

PM: Yes. In 1920 it was finally expropriated, but not until then. Father continued as general manager, and continued to be the head of the enterprise. I think he was very astute and diplomatic; he understood the revolutionary movement well enough to deal with the Bolsheviks, and they respected him as well. At any rate, things were more or less under control, although he couldn't control the night searches. We were searched usually after midnight, and my brother and I would be awakened because the armed soldiers would want to see if anything was hidden in the children's rooms--under the mattresses or elsewhere. This was an unpleasant time, but due to my father's efforts, they never really abused the people they searched.

Swent: It must have been very unnerving for the family.

PM: For a child, especially, it was very frightening. Then the civil war began in 1918. Kolchak, who was an admiral in the Imperial navy, happened to be in Siberia, and organized armed resistance to the Bolsheviks. There were several forces organized in European Russia, and the White army began to take shape by mobilization. Kolchak was the leader of the movement in Siberia. In terms of population, Siberia was only a small part of the total of Russia, but on the other hand, it was a vast territory to try to control; what he did was to concentrate on certain areas where he knew the Bolsheviks were in control by sending in small military forces to unseat them. Generally speaking, the Bolsheviks in Siberia were small groups of non-military local people who armed themselves in order to take control.

When Kolchak started this movement, he sent a small punitive expedition to Lena Goldfields. My mother describes this event in her memoirs. Because they came with superior forces--I don't know how many people they had, but I doubt there were more than 100 or 120 men--they easily took over the entire townsite with little or no resistance. The first thing they did was to incarcerate all the Bolsheviks previously in control. When my father made contact with the White army leaders, he learned that the imprisoned Bolsheviks were going to be shot.

PM: It took my father considerable effort and some time to dissuade them from doing this, but he tried because he recognized that who knows?--six months or a year later the Bolsheviks might be back in power, and if that happened, there would be reprisals. He finally talked the White army officers out of shooting these people. They kept them in prison, but they killed no one.

Swent: It must have taken a great deal of courage on your father's part.

PM: It was really a terribly important step, because later on when Kolchak was defeated, the camp was taken over again by the Bolsheviks, and they knew that the local management and staff were all in favor of the White army takeover. The reprisals might have been horrendous if any Bolsheviks had been shot during that takeover. As it was, when the Reds took control again, they did not engage in reprisals. There were no executions, no one was killed. The second takeover was a more critical one, because the Reds sent more soldiers in order to defeat the well-organized White army punitive expedition.

Swent: Do you know who the leader of that expedition was?

PM: No, in her memoirs my mother names no one whom I can recognize. It might be interesting to mention here an event that I can recollect, although my mother doesn't mention it in her memoirs. When it became evident that Kolchak was being defeated and it was clear that the Bolsheviks would eventually again take over the Lena Goldfields townsite, the local population felt that maybe they should mount some resistance. Consequently, in addition to the small White army contingent, the staff members and the management people mobilized themselves in order to be able to help the White army.

In the course of doing this, there was a man whom our family liked very much by the name of Ozoline, who was the head of the electrical department. I remember him very well. He was very tall, about six foot four, a big powerful man. He was determined that he was going to resist the Bolshevik takeover and was training himself in the use of firearms. He was very fond of me and used to take me out with him to practice throwing hand grenades. He would give me dummy hand grenades, which he had for practice, and we'd go out to a clearing in the woods to throw them as far and as accurately as possible.

PM: He told me how to pull the pin to assure an effective explosion. I remember we had several practice sessions which I enjoyed very much. I was about eight years old then.

My mother relates another incident. After the Reds took over she recognized that the first thing they would do would be to search for firearms. My father was gone to America by this time, and we did have a pistol or two in the house and she realized she'd have to hide them. It was during wintertime, and she didn't want to arouse any suspicion by hiding them herself somewhere outside the house, so she asked me to do it. Pretending I was playing outside in the garden, I buried these two pistols in a metal box in the deep snow under a tree. I did this successfully without arousing any suspicion, but of course I knew that when spring came, the box would soon be in evidence. The problem was what to do next.

We had a cook--a remarkable person, whom my mother mentions. He was a friend not only of my mother's but also of us children. He loved us. Mother says she doesn't know where he came from, but he was obviously of peasant origin, and an extremely intelligent person. Apparently he read a lot. At any rate, he offered to hide the box with the pistols in it along with some jewels and gold that my mother had.

I recall that we recovered this box from the melting snow one night, and my mother put the jewels in it with the guns. The cook was going to bury it somewhere in the woods. She recounts that she accompanied him, but I remember very well that she didn't--because I went with him. It was like a game for me, so interesting. He was drawing a map showing where we went and where we changed direction. Anyway, about a mile away, somewhere close to a creek, we buried the box in the ground. He gave me the map to keep, after making a copy for himself. The interesting thing about this is that when father went back to Russia in 1924, five years later, and got back the concessions which had been expropriated earlier, the cook was still alive. He wrote father, "Don't you want to recover what I have buried? I have the map, and I can recover it for you."

Swent: And did he?

PM: No, he didn't, because my father was too busy; he was in European Russia and the box was buried way out in Siberia. Nothing was done about it.

Swent: It may still be there.

PM: It probably is, and we still have a copy somewhere of that little map we drew together. Those were the outstanding remembrances that I have of that period.

It was of course a much more critical period than I realized. During the time of White army successes against the Reds--and these successes were quite spectacular--Kolchak had a growing army. A lot of people joined, in addition to those originally mobilized. He started with a small army, and by the time he reached European Russia going westward, it was quite a large army. One of the problems I think he had was to supply that army; the larger it got, the more difficult it was to procure guns, ammunition and provisions. Some supplies did come through by way of Vladivostok from the Americans, but that help wasn't sufficient for that size army.

At any rate, his early successes while fighting his way towards European Russia were so spectacular that my father was greatly encouraged that the White forces would prevail and the Bolsheviks would be defeated, and a more moderate regime would be installed in Russia. He felt at that time, reading the political orientation of both the army and its supporters, that the regime would not be purely socialistic but something in between, essentially a democratic regime with a president, and that free enterprise would be honored. He advised the English management of the company that it appeared that a better political climate was in the offing for the investment to modernize the mines and bring in modern machinery and equipment. By this time he could see that the end of the drift mining was approaching. Prospecting indicated that above the rich bedrock gold streak, the gravels were still gold-bearing--but of a lower grade. A bucket line dredge could be used to recover the gold, and he recommended this change. Mining would be on the surface. The dredges are great big machines: the digging part is a continuous bucket line that collects the gravel, while the dredge floats in an artificial moving pond. As it digs, the pond advances with the dredge. The gravel thus excavated is dumped into a hopper and then into a trommel screen with water jets to disintegrate the gravel; the screened product then flows over riffles which are charged with mercury, resulting in concentration and amalgamation of the gold. The gold-free tailings come out on a conveyor at the other end of the dredge and are dumped in the same pond. The dredge keeps on advancing, digging ahead and

PM: getting rid of the waste in the back. Dredges have been successfully used for gold as well as tin recovery for many years, long before 1917.

Swent: They were actually developed here in California, weren't they?

PM: Yes, I believe they were developed in California, and used in Australia and in the tin areas in Malaya. At any rate, the great advantage of dredges was that excavation was done very cheaply, and the total operating cost of these large machines was only three to five cents per cubic yard of gravel. Therefore low grade gravels could be profitably mined. Gravel that would run ten or twelve cents a cubic yard could be very profitable. The Lena Goldfields deposits were considered to be richer than that, hence my father envisioned a very profitable enterprise.

The London management agreed to his recommendation. He was authorized to come to America to order a dredge and other special equipment. He had to beef up the power plant, for example, because the dredge was electrified and required much more power than was needed in the drift mines.

Swent: One more interruption: what was the source of power?

PM: Thermal plants burning wood.

Swent: Local wood?

PM: Yes. Well, after he came to the United States, he spent some time drawing up specifications, bargaining, and preparing orders in Milwaukee.

Swent: What company would he have been talking with?

PM: Bucyrus Erie. He ordered the biggest dredge manufactured at that time. Each bucket had a capacity of eighteen cubic feet and there would be a whole chain of these buckets continuously moving.

While he was doing this, Kolchak advanced and finally suffered a disastrous defeat in the Omsk region close to the Ural Mountains and had to retreat. My father could see that his predictions about the supremacy of the White army were not going to come true, and Russia would turn communistic after the Red victory. So he abandoned the

PM: idea of coming back to Russia because he was suspicious, and, indeed, some of his friends told him not to come back because they were not sure how the Bolsheviks would treat him as the general manager of Lena Goldfields. But he sent word to my mother that he had decided the family should emigrate and come to the United States.

Emigration from Russia, 1920

PM: My father estimated the amount of time he thought it might take us to get to the Mongolian border, and he went to China, where he bought an automobile in Peking and drove out to the border town in Mongolia where he expected to meet us. When he got there, he found that we were not there. Later he learned that we had been detained indefinitely in a town named Verkhne-Udinsk, so he returned to Peking, sold the automobile, and waited for us there. Verkhne-Udinsk is a town on the railroad east of Irkutsk, on the eastern side of Lake Baikal.

One of the characteristics that my mother exhibited all her life was the desire to preserve all her possessions: when she got word from my father to leave, she was determined to bring out of Russia everything that she owned--not only what she owned in the way of material goods, but all the correspondence that she had written her mother and her brothers and sisters, and anything relating to her life at home. So when we finally left, we had an enormous amount of baggage--which was an undertaking in itself--and this was a time of revolution. It was a time which was unsettled by a civil war. Everything was controlled by the Bolsheviks, who were not sympathetic to a manager's wife and to the privileged class. She knew all of this. She knew it would seem like a very foolhardy thing to undertake this journey with her two children and all the baggage, knowing all the difficulties she might encounter. There was the possibility that the baggage would be confiscated, and in any case transport would be very difficult by the route that I described before. However, she did it. And the amazing thing is that she was able to preserve almost all of the baggage through all the tribulations of our trip through Siberia and Mongolia. When she died, I found to my amazement that all those things we used to have in Russia, and the whole pile of correspondence, were still intact.

PM: There was an incident that I recall which differs somewhat from the way my mother describes it in her memoirs. The last leg of the journey to Irkutsk was by horse-drawn wagons on land. As I described before, we left first on a steamboat; when the steamer ran out of deep water, the next stage was on a barge drawn up the river by horses on the shore.

Swent: That's the Lena River?

PM: That's the Lena River. This part of the trip took several days. And then where the Lena River is too shallow for barges, you travel by road for 275 miles in horse-drawn wagons. The trip that she describes in her memoirs was an earlier one, before the revolution, when we travelled by automobile on the road from Irkutsk to the headwaters of the Lena. This time, in escaping, we had wagons, so-called tarantases. A tarantas is a horse-drawn freight wagon which can be adapted to passengers.

At any rate, our possessions occupied I think something like four wagons--tarantases. And according to her account, there was another couple with us. I don't remember that. I do know that during one section of the trip, before we got to one of the stations along the road where you could rest and change horses, we were travelling by night. The coachmen and the people who were looking after the horses were not particularly sympathetic to us. Mother did not trust them. At any rate, somehow the very last carriage was detached from the wagon train and was stolen. Apparently what was stolen was essentially clothing that didn't amount to very much, but she was indignant when she learned of this--even though she couldn't do anything about it and there was no use in even looking for it. But from there on, she insisted, when nighttime came she would walk behind the wagon train. She says in her memoirs that she walked ahead of the train, because the coachmen lost their way one time. But I remember that she walked behind the train all by herself. Despite the possibility of marauders, she had courage enough to walk behind in order to preserve our baggage.

Swent: Those documents, though--if her correspondence is all preserved, it really is a priceless treasure, isn't it?

PM: I haven't gone through it all, but it's mountains of letters that she received from friends, from her relatives, and from my father when we were separated from him while he lived in New York. I just haven't had time to look at

- PM: it, and probably there is a lot of very interesting material in it--if I ever get around to it. But there are boxes of it, several boxes of correspondence, that I have in my attic in Greenwich.
- Swent: How did mail go from America to Lena Goldfields at that time? Did it come across the Pacific?
- PM: Oh yes. And then by railroad, and they had regular mail service to get to the mines. But actually, when father advised us to leave, he did not send this message by mail, because the mail was opened and censored. He wanted to keep his advice confidential. He sent the message through friends of his who lived on the way to Siberia, and somehow the message got to us on a personal basis without any written record of it.

At any rate, we got to Irkutsk, where one of my father's sisters had an apartment; we joined her and lived there for a number of days while deciding what next to do. Father had originally anticipated coming back, and he had made massive purchases in the United States to send as gifts to his wife and children. They were all received in care of his sister in Irkutsk. We had trunkloads that we brought out from the Goldfields campsite, and more trunkloads of things he sent from the United States for us--and among the things he sent for the boys were rifles for hunting. One of the most memorable things he sent was a small Kodak camera with a large quantity of film--I don't remember how many rolls of film there were, but there must have been thirty or forty rolls for this small camera. There were also instructions in English on how to operate the camera and how to develop and print the pictures. I didn't know any English then but my mother did, so she interpreted it for me. At any rate, I finally figured out how to use it and I learned to take pictures. The remaining part of the trip, especially through Mongolia, is recorded by my taking pictures with this little Kodak. That and a fur piece for mother were the only things we took out of all the gifts he sent; there was too much to transport--and of course, firearms you couldn't take anyway, so we just left the gifts behind.

Finally, mother determined that she could not get through to Vladivostok on the Trans-Siberian Railroad, which would have been the easiest way, because the way was blocked by fighting between Reds and the remnants of the White army. It was indicated by my father's message

PM: to his friends whom we met, that if fighting continued to block the railroad, the only route open would be by way of Mongolia and then join him in China.

So we moved on to Verkhne-Udinsk, which is, as I said, east of Irkutsk. It was still civil war time, and the train was chock-full of soldiers in third class, the only class available then. There was no place to sit or sleep, and the car was dirty. The soldiers were a rough bunch with firearms, and they looked very suspiciously at my mother because, obviously, her dress betrayed her to be a member of a privileged class.

It was a very unpleasant trip; she records some of it and I remember it also. I remember how frightened I was. Children couldn't sleep or even have a seat. I think the trip was about a day long. Anyway, we got off at Verkhne-Udinsk and went to a hotel and tried to arrange the next stage of the journey. Somehow the authorities had traced her, apparently, because at the hotel she was told "We're not going to allow you to leave here. You are now under house arrest." Fortunately, there was no soldier posted near the room or at the hotel. In those times it was very difficult to move anyway, and they would have traced any attempt to flee--for example, by railroad, because they had control of whoever moved back and forth on the railroad as well as on alternative transportation services.

Swent: You needed to have some sort of travel pass, I suppose.

PM: Oh yes. She had all kinds of certificates that she originally got from the authorities at Lena Goldfields, where the people in charge were more or less sympathetic to my father and the family because his intervention with the punitive White army contingent saved their lives and the lives of their compatriots who controlled the settlement.

This was a very trying time, and mother had no idea when she would be released, although she pleaded for it, of course. So we moved from the hotel to a room to conserve our funds, and mother was asked to go to the Cheka headquarters--Cheka was the secret police--once a day and be subjected to interrogation. They tried to break her down for information about my father, because somehow suspicion was aroused that he had either taken out a lot of gold illegally or was perhaps causing us to bring it out. We experienced numerous searches while we lived in this room, always in the middle of the night.

PM: They didn't get anywhere and after a number of days of interrogation, she decided it looked kind of hopeless, and she thought she would have to use some kind of ruse in order to get out of the situation. Interestingly enough, one of the interrogators was a young man, a Red army officer who was a student in the high school at Lena Goldfields that she organized. He knew my mother, knew her favorably because she had organized the school for all the workmen's families. He was quite sympathetic to her, and in time he finally prevailed on the other members of the Cheka, saying, "Really, this woman is innocent. Let's not go on with this--this is fruitless." And she began telling them things like, you know, I like what you're doing, and I was a revolutionary too, and I worked for a change in government, so I really would like to (work for you) and I'll forget about my husband; I have professional experience in establishing schools and teaching, so why can't I be useful to what you're doing here? Well, little by little, after some days or weeks, she convinced these people that she was sincere. Of course, she had the help of her former student--without him, I think she probably could not have succeeded.

Things were so unsettled at that time, and such efforts as were made to reconstruct the country were carried out by people who didn't know how--they were amateurs at it. They would grab at any opportunity that looked to them as if it were constructive, and they finally decided that maybe it would be a good idea to use my mother as she suggested. They immediately named her superintendent of schools, stopped interrogating her, and gave her quite a large district to supervise.

She started out to show her good faith, and for a number of weeks she inspected the schools in the district; she was careful to avoid the bordertown so as not to cause suspicion. After she felt that they had confidence in her, she told the authorities that the one town she had not yet visited was Kiakhta, which was on the border of Mongolia, and beyond the border was a Mongolian town called Maimatchin. She was given permission to make this visit, and she then contacted an exile whom my father had known back in Barguzin, a Jewish man who had an export-import business between the Russians and the Mongolians. He crossed the border almost daily, moving goods back and forth. She told him we would be coming and asked, could he help us? Unbeknownst to the authorities, who were not watching us, we moved all our baggage to Kiakhta in advance, and the very day we came there in a horse-drawn

PM: carriage, we found that the trader had organized a train of tarantases to accommodate all our baggage. He then told the border patrol that our baggage was all goods he was exporting, and that he had more than usual this time. He was asked, "Who are these two kids you're bringing?" "Oh," he said, "they are my children; they are accompanying me this time." Of course, it was my brother and I.

So he got us across this way, along with all our baggage. My mother and his wife--the wife of this man, decided it was too risky for them to cross the border with us because they didn't have the necessary permits. They walked some miles outside of the town and tried to cross the border at a place they thought was unattended. All of a sudden, a Russian soldier appeared and stopped them; he asked them where they were going. They said, "Well, we're just walking around. We like to walk here." The soldier wouldn't let them go, and my mother decided to bribe him. She had some American money in her pocket which my father had sent her. She offered him a fifty-cent piece, I think, and he still said no. So then she offered several dollars. He took them and warned, "You better move very quickly. Get out of my sight as fast as you can across the border." So they ran, my mother and the wife of the merchant. After they were out of sight, they walked back to Maimatchin to join us. That's how we got across the border.

Swent: Your mother was a very brave woman, I can see.

PM: From there began the real trial of getting to Peking, where she knew my father was. He was then still employed by the English company, and he wired money to us in Maimatchin so my mother would be able to finance our trip to Peking. The merchant who had helped us across knew about the money, and when we got to Maimatchin, he and my mother went to the bank to get the funds to embark on the next phase of the trip.

She had to organize everything from scratch. There was no public transportation, but she found she could hire horses and several carriages to carry all the baggage. Our first destination was Urga, now called Ulan Bator, the capital of Mongolia. This was a trip of about three hundred miles and took several days. There were stations along the way where you could sleep and change horses.

PM: At this time, I understand, there was some animosity between Mongolia and China; China had an army there and was trying to control Mongolia--but it wasn't a very efficient army. The Mongolians also mobilized some kind of an army. The area that we had to cross was the war zone. We crossed these so-called battle lines several times, and every time we crossed them, we'd encounter either the Chinese or the Mongolians, who unloaded our transports and inspected all our baggage. It's an absolute miracle that they did not steal anything, probably because my mother supervised the inspections--one woman and two children, with all these armed soldiers around them. It was amazing that she was so determined and had the courage to confront these people. They allowed her to proceed without any harm being done.

I think the "war" was kind of a comic war. I don't know of any battle that took place. The opposing armies tried to avoid each other so as to avoid battle.

Swent: There was a terrible massacre. There were massacres in some of those places, though.

PM: That may have happened later, which I will mention. Anyway, finally we got to Urga and stopped at a little hotel. Now, we thought, what are we going to do? The longest part of the trip was still ahead of us--from Urga to Peking.

But actually, I remember that time as a very merry time for us kids. I have pictures that I took with the little Kodak of our getting on camels, and my mother getting on a camel and enjoying the fair, and walking around the public squares. Apparently it wasn't dangerous for the Europeans to do that at the time.

Swent: What were you eating on the road? Do you remember eating?

PM: I don't remember, but I think that there was something to eat at every station where we stayed, and we also took something along to eat during the day.

Swent: What time of year was this?

PM: This was in the summertime, probably around June or July, and it was warm.

PM: It took mother some time, maybe a week or so, before she oriented herself as to what the possibilities were of getting on with our journey to Peking. She made contact with the American Embassy, because America was our final destination, and asked them whether there was any way they could help. They mentioned to her that they knew of a small import-export business run by two young Americans; because of the war and the unsettled conditions, the business was not doing very well and the owners were going to pull up stakes and leave. "They're going toward Peking, and they have two cars. Why don't you see if there is an opportunity for you there?" So she went to see them and in her rather elementary English she made herself understood: she was there with two sons and wanted to rejoin her husband in Peking, and wanted to know if it was true that they were leaving. They said they were. She said, "Would you take me along? I'll be glad to pay." They said, "Sure, why not?"

At any rate, she got a commitment from them that we could cross the entire Gobi Desert with them in automobiles--which sounded marvelous and luxurious. She didn't realize all the problems of logistics that were required to be solved to get across the Gobi Desert. There were no service stations, no garages, no one to service the automobiles. I guess the route must be seven or eight hundred miles long--something like that.

Swent: Isn't this the time of the dust storms too, in the summer?

PM: I don't recall that. I don't recall any dust storms. No, the weather seemed to be pretty good.

They made a commitment that they would take us, but they were rather indefinite as to when exactly they would leave. One day mother woke up with a feeling that she had to leave that very day--not wait until some other time. So she went to the Americans' place and said to them, "You know, I think we should leave today. We should absolutely leave today." They said, "Oh, no. What difference does it make? We will take you. Don't worry about it." She insisted, but they did not seem to want to do it. My mother had been an amateur actress back in Siberia, and she just made believe that she was going into hysterics. They couldn't stop her, and they said "That crazy woman--what can we do with her? I guess we have to say yes, we will leave." (laughs)

PM: Anyway, they agreed to leave immediately, and apparently they were prepared enough, so that evening we left. There were two cars: one was a Model T Ford that they drove, and the other was a 1919 Dodge that was driven by a Chinese chauffeur who didn't speak anything but Chinese--no Russian, no English--and he was not a very good driver. It was this second car that transported mother and the children. My mother sat next to the Chinese chauffeur and we sat in the back. This car, being the bigger one, carried most of the things that were needed during the trip, and our baggage, of course--a lot of baggage. We also had to bring with us all the gasoline that would be needed for the seven or eight hundred mile trip. I remember that my brother and I sat on top of these five-gallon gasoline cans, high up as if we were in a touring car. ##

The threat that we avoided as a result of mother's premonition was a siege of Urga by Baron von Ungern, who had a force of some 700 cavalry and one automobile. He was an Imperial Russian officer in World War One, later a White Russian officer in the Civil War, and when the White armies were defeated, he retreated with a force through Siberia and eventually became quite independent of any other command. This independent troop roamed back and forth; they fought the Whites and they fought the Reds, and they even fought the Mongolians. And when the going got too tough on the Trans-Siberian Railroad, where they operated mostly, they retreated back into Mongolia. Then von Ungern conceived the idea that the Mongolian government was weak and their so-called army was practically non-existent, so why couldn't he conquer the whole of Mongolia? He was a little mad, or perhaps very mad. This is historical, and I know it to be true because of a confirmation that I will mention later.

At any rate, at one point--to satisfy his ambitions--he decided to lay siege to Urga. He apparently did this shortly after we left there. Whether or not he laid siege the next day after we left, the way mother used to tell the story, I don't know. I've never been able to check that. But he surely laid siege to it. He took Urga--there was very little resistance, and he deposed the Dalai Lama of Mongolia, the nominal head of Mongolia, who was there, and declared himself emperor of Mongolia. All of this is historical. It's in the record.

There was a family by the name of Khitun at Lena Goldfields in Siberia. The father was an engineer, and there were two boys. They were teenagers at the time,

PM: and my father knew them quite well, and my mother did too. I don't know what happened to the father, whether he perished during the Civil War, but the two boys joined the White army forces; when the White forces were defeated, the younger brother emigrated to France. We met him in Paris in 1926. The other brother was with the von Ungern band. Later he emigrated to the United States and settled in Seattle. In the 1970s I got a letter from him; he was by this time in his seventies. Somehow he had learned of my existence and he remembered the family; he wrote, "You know, I had an extraordinary experience in the early days with Baron von Ungern, and I've written it up. I tried to publish it, but I couldn't find anybody who was interested in it. I have a manuscript of my experiences written in Russian, and I'd like to send it to you if you're interested." I said of course I would be.

In a small pamphlet of maybe fifty pages, he described his experience with von Ungern. He had mechanical skills, and von Ungern nominated him as chauffeur of the one car that he had, and also as mechanic to maintain this car and keep it going in Mongolia where there are no service stations, no garages. Somehow he managed to keep the car going by "hay-wiring," as we say in America. He details his entire stay of some months with this army that marauded here and there in Mongolia, describes the siege and how Urga was taken, and his experiences in it.

He confirmed that von Ungern was truly a madman, because for some reason or other he would get mad at people. The people that especially made him mad were the Russians, the White Russians. He was going on horseback one day in one of the Urga streets when he was stopped by a former general of the Russian Imperial army, a well-known man in his sixties who enjoyed a tremendous respect among the Russians in Urga. I don't remember his name, but he's identified in this little pamphlet I speak about, which I have in Greenwich. When he stopped von Ungern, he told him of the sorry plight of the Russian refugees in Urga and asked if von Ungern could do anything about it. For some reason, von Ungern became enraged; I think he hit the man over the face with his whip and ordered that he be shot. He was that crazy, and he mistreated a number of exiles including women and children--as long as they were white and not Mongolian. Since he was the emperor of Mongolia, whites were an undesirable lot in his opinion. On one occasion, Khitun did something that von Ungern didn't like, and he was subjected to one of von Ungern's favorite punishments: being put up on the tin roof of a building

PM: and kept there until von Ungern allowed him to leave. No food was permitted. The penitent had to stay there through the night regardless of the temperature, and the temperature would drop down to the forties at night. Khitun suffered this punishment for something like ten days. Fortunately, he had friends in the army who somehow sneaked some food up to him.

At any rate, this little diversion is to tell you that I have a historical document which I believe is absolutely genuine, confirming the fact that von Ungern was there, that he did declare himself emperor. He did lay siege to Urga and he perpetrated terrible atrocities towards the white population there--of which we might have been the victims.

Swent: Did you know of any of this when you were there?

PM: No, because we didn't even know of his existence. Mother found out about this later, thus providing a reason for her premonition that we had to leave that day.

Swent: So you were happily riding along on the gasoline cans?

PM: Mother describes some part of the trip in her memoirs. My recollection of it is somewhat different from hers; I think my recollection might be more accurate, because this is what I observed myself, and furthermore, I recorded it in the photographs. There was one incident which she does not even mention--probably because she was not mechanically inclined. At any rate, the Chinese chauffeur was not very well trained; the 1919 Dodge he was driving was a hand shift car, but it had a very odd shifting arrangement--not a conventional one. While this chauffeur knew how to shift from the low to the second gear, he didn't know how to get into the third, into the touring gear. So we made the first part of the trip entirely in the second gear. Well, cars in those days were not meant to be driven hundreds of miles in the second gear. Our usual method of travelling was for the two Americans to go ahead to identify where the road was--because sometimes it was not marked. We would follow them, usually some distance behind the cloud of dust created by the Model T Ford they were driving.

Swent: Do you remember the names of the Americans?

PM: No, unfortunately not. Mother doesn't remember this and doesn't mention it in her memoirs, but at one point, the transmission of our car broke down and the car stalled.

Swent: In the middle of the Gobi Desert!

PM: Right in the middle of the Gobi Desert--however, it was in the daytime. The Americans had a practice of looking back now and again to see whether there was a cloud of dust behind them. At one point they looked back and there was no cloud of dust, so they came back, and the Chinese chauffeur indicated to them that the car wouldn't go. They tried it out and immediately diagnosed the trouble: the transmission was burnt out. But the really remarkable thing was--how lucky can you be--they had a spare transmission with them! So they proceeded to change the transmission, and I have a picture showing one of them under the car changing the transmission, the other one helping him. That is how I know this recollection is authentic. (laughs)

Another incident she describes, I remember differently. We were going along and the sun had set and it was getting dark. The chauffeur couldn't see the cloud of dust ahead of us, yet he kept on going and lost his way. Suddenly we were surrounded by Mongolian riders on horseback. As mother remembers it, and I do too, they were for some reason always dressed in red, in flowing red robes. They were very threatening; they surrounded us and became a sort of escort. Mother didn't understand, of course, what their intentions were, but she feared that either they were going to murder us or rob us. Anyway, there was nothing we could do--they were armed--so she ordered the Chinese driver to follow them. We drove into a typical Mongolian nomad encampment composed of tents. Instead of either murdering us or robbing us, they befriended us. It was mealtime in the evening, and they led us into the main tent, where we partook of a meal together with the chiefs of this little encampment. I remember that, because it's the first time I had a meal when I had to dip into a common bowl with my fingers. They had some kind of a lamb stew.

At any rate, we were well fed, well looked after, and we spent the night there in this tent. In the morning, since the Americans lost us at night, they retraced our tire marks. They finally followed the tracks to the tent where we were. We continued on our trip. We found the Mongolians were friendly throughout--not antagonistic.

One thing that I do remember--many of the women in this encampment had never seen Europeans before, so they were curious about these white people. They gathered

PM: around us and felt the clothes we were wearing. The men were more sophisticated, though. They'd seen white people before.

Those were two incidents that I remember--the outstanding ones that presented some kind of danger, but we came out of them all right. The rest of the trip was uneventful, and we finally reached Kalgan, which was the terminus of the railroad from Peking. My father met us in Kalgan, and so the family was reunited. We had a most luxurious trip to Peking; we rode in the first class and were well cared for, with a restaurant car attached to the train. We passed the Great Wall of China on the way, and I have pictures of it that I took out of the window in passing.

Swent: You knew what it was? You were aware?

PM: Oh yes, my father explained it to us. That's the way we finally got to Peking.

Swent: That must have been a tremendously formative experience, I would say.

PM: The amazing thing is how my mother was able to engineer the whole thing--because she was completely on her own. The only help she had from my father was the money he sent, but otherwise all the arrangements, and facing all the dangers, depended on her decisions. For example, while we were in Verkhne-Udinsk, and she was under house arrest, she made friends with a number of people. I remember that my brother and I used to play in the street during the day while she'd go to the Cheka headquarters for interrogation. Before she left us, she would tell us "If I don't return by a certain hour, you go to so-and-so"--people she knew. However, she always returned.

At any rate, I remember very well that in spite of all the unsettled conditions and the dangers implicit in our situation, she made friends with whom we spent evenings together where they sang and played the guitar, either in their houses or in our room. One time my mother arranged for an evening party in our room. There was one woman who was especially fond of the children. I remember sitting through this evening, which was a happy evening, huddled next to this woman who was so very gentle and nice to us.

PM: There is another incident that I recall--or maybe it was a story that my mother told me later. She became acquainted with a very handsome White army officer, a Georgian, who commanded an armored train. A lot of the warfare at the time of the Civil War was conducted with armored trains in European Russia as well as in Siberia. Because of the vast distances, they actually moved armies by rail with or behind armored trains.

The Georgian officer was attracted by my mother. He asked her, "Why don't you and your children come with me in the armored train, because we're going to retreat back to Vladivostok, and I'll take you to Vladivostok." I think she suspected he might have had other ideas, and so she refused him. It was probably wise to refuse him, but it was a very tempting offer, because it would have saved us the uncertainties of going through Mongolia.

Swent: You and your brother must have developed a lot of independence and self-reliance through this, I imagine.

PM: When we got to Peking it was a great relief, because we were back in civilization. In those days the luxury hotel was the Hôtel du Pekin--Peking Hotel, run I guess either by the French or by the Swiss. It still exists, I understand. At any rate, it was very well appointed--a beautiful hotel. We had wonderful rooms, wonderful meals.

The aim of our family was to get visas to go to our next destination. First of all we had to get visas to Japan. Then from there we had to get visas to the United States. The United States limited the number of immigrants they would accept; every nationality had a certain quota, and we had to qualify for that quota. There was a time factor involved, and numbers rather than kind of people were the determining factor.

Swent: Excuse me, what languages did you speak at this point? Did you speak any other language besides Russian?

PM: Yes. We were taught German and French in the grammar school in Russia. So I knew a smattering of French--I think I had only a year or half a year of it. At the time, because of all our problems, mother neglected to teach us English. So neither my brother nor I knew English--except for a few words.

Swent: Like how to operate the camera.

PM: Operate the camera! (laughs) And communicate with the servants in Peking, which you could do in French or in English or in German.

Swent: Did you pick up any Chinese?

PM: No. A few words, that's all. But the one thing I remember very clearly--and it's amazing to me today--is that Peking was really quite a civilized place. My parents were both absolutely confident that nothing would happen to us children if we went off on an excursion of our own. And I remember well that armed with a few words of instruction as to where we wanted to go and some money, my brother and I would take a rickshaw and go off--just the two of us--a ten-year-old and a nine-year-old boy. We'd go to wherever it was that we wanted to see for an hour or so, and then we'd get a rickshaw and come back. It seems incredible that one could do that kind of thing back in 1920, but we did, and with complete safety.

I recall another incident: we had some very good friends in Tientsin, which is a port not too far from Peking. I think that my brother was invited, or my mother suggested it--anyway he went on a train trip to visit our friends. This train trip took about three or four hours. He went all by himself at nine years of age. He was the more adventurous of the two--he was a daredevil compared to me.

It demonstrates that even back in 1920, life in China was orderly and well policed. The only problem we had was when we paid for the rickshaws: the instant money was seen, we would be surrounded by a group of maybe twenty, thirty--even forty, kids begging for more money. There was much poverty, but they were never belligerent. Even though we were unprotected, just two small boys, we were never assaulted for this money.

We must have stayed in Peking for several months. One of the things my father did--which was a great revelation to us boys--was to take us to the movies. It was the first time we'd ever been to the movies. They were all American movies. One of the ones we went to see was with Jack Dempsey, some sort of an adventure series. (laughs) We were so interested in this series and wanted to go again and again for successive episodes.

Swent: He was a prize-fighter.

PM: Yes, he was a prize-fighter, but he was an actor in this adventure movie.

Swent: Also a movie actor?

PM: He was in this movie. I never saw him again in other movies.

Eventually we got the visa to Japan, and we moved on to Shanghai and then crossed over to Japan by steamer. For some reason, maybe because father knew it was a more pleasant place to stay, we stopped in Kobe. We stayed in a beautiful hotel with gardens around it. We never went to Tokyo or any other place in Japan. We stayed in Kobe until we got the American visas. Our sojourn there was one of the most pleasurable experiences I remember, because my brother and I played cops and robbers in those beautiful gardens, hiding ourselves behind bushes. Anyway, it was a great fun time for us as children. (laughs)

Swent: And of course your parents must have been very happy at that time too.

PM: That's right. We had to stay there several weeks before we got clearance under the quota and obtained the visas to America.

Swent: Now was your father still employed?

PM: He was still employed by Lena Goldfields. When that employment ceased, I'm not quite sure.

Swent: That wouldn't entitle him to an American visa, though, would it?

PM: No, because Lena Goldfields was a Russian company, controlled by the English. It had nothing to do with America. But at some point his employment was terminated. Whether it was 1920 or 1921, I don't know.

We crossed the ocean. We stopped in Honolulu, but I don't remember anything about that. I do remember our arrival in San Francisco. I think it was December 30, 1920, during a foggy day. At that time--and I guess even today, on a foggy day a foghorn would sound. It sounded so mournful and threatening. Never having heard anything like it before, mother was especially affected by this sound. She thought the foghorn warned of an immediate collision; she felt we wouldn't make it to port

PM: and the ship would sink in the San Francisco Bay. So this time it wasn't acting when she went into hysterics: in the face of all the dangers she had overcome in getting herself and her sons out of Russia, to sink in San Francisco Bay was an unfair and tragic turn of fate.

California, 1920

We finally docked safely after a considerable delay. My father had to leave within a week for New York, probably because he was still employed by the company. So before he left, because he knew that his employment would not last, he decided that California was a good place to settle--and why not the Bay Area, it had a beautiful climate. Within that week he bought a house in Oakland, furnished it, and bought a Steinway grand piano. He wanted the best, and he bought it in Sherman Clay, in the same store where Sherman Clay is located in San Francisco today. It was a parlor grand, a beautiful piano--even Steinway doesn't make them that way any more, and we still have it in the family. My son has it in his house; mother gave it to him because he is an accomplished pianist.

Swent: Was there a Russian community that you made connections with?

PM: Oh yes, there was a very active Russian community in San Francisco. In the years that we spent there my mother became a very active member of that community. There was another group of Russians who emigrated to the United States in the late 1800s and most of them were religious sectarians. They settled in the Russian Hill area of San Francisco. They were not well educated people. By the time we came to San Francisco, there were some 10,000 Russian refugees of various origins there.

Swent: This was not why your father had chosen to be here, though.

PM: No. We came as the first wave of the post-revolutionary Russian immigration. Some preceded us and some succeeded us, but I venture to say that the second wave of immigration after the revolution probably was more numerous than the one in the previous century. It was a completely different group, of course, because it was essentially



Plato Malozemoff with his mother, Elizabeth Malozemoff (seated, right), and a friend. Paris, 1927.



Plato Malozemoff, Oakland Technical High School, 1925.



Elizabeth and Plato Malozemoff, Oakland, California, 1928.

PM: composed of intelligentsia, officers of the White army and the Imperial army, and the many professional people who left Russia because they were threatened.

The community was very diverse but clung together pretty much. The young who came here were educated in the American schools, and I knew many of them. But the older generation created a small cultural center of their own. They had music, they had schools, they had churches of course, and they had dramatic performances. There was a very active social life.

My mother was right in the midst of it. She loved this kind of thing. She was a remarkable organizer and she would organize anything and everything she could think of in order to get some new enterprise going. For example, she organized a so-called Literary Arts Circle, the purpose of which was to read and encourage the writing of books, to discuss philosophy and to discuss the literary merits of both classical literature and new literature. There was also much interest in the subject of Russian art as it was developing abroad compared to native Russian art. She organized a number of different groups, and there were many contributors to this effort.

At the same time, she enrolled in the University of California to complete her university education. She fulfilled the requirements for the bachelor's degree, and later on decided to go on to get the master's degree. She was required to write a thesis for the master's degree, and of all things, she decided to write her thesis on Boislève, a French philosopher. She wrote it in French, for the French department, and it was accepted. I still have that thesis of hers. She received her master's degree--but not right away, maybe eight or ten years after we settled in California.

She decided to proceed and get a doctorate as well. That took another ten years or so, and she got her doctor's degree at the age of sixty-two or something like that. I'd been long gone from California by then, so I only heard about it. This time it was in Russian literature. Her doctor's thesis was on Ivan Bunin, who'd just received a Nobel prize in literature.

As you can see, my mother's activities were very varied. As for my father, after he was separated from the Lena Goldfields organization, he was obviously looking for something to do. A man whom my father had known back in

PM: St. Petersburg, in Russia, named Benenson--who was also a minority shareholder of Lena Goldfields, had moved to New York some time before. He had left Russia early enough so that he was able to keep his fortune intact, and he had large means when he settled in New York. When my father went to New York, it was partly to wind up the affairs of Lena Goldfields and partly to renew his acquaintance with Benenson. Well, Benenson offered my father a job in his office assisting him in the appraisal of various kinds of investments he was making at that time. It was a well-paying job, and my father did not think he could duplicate it in California. He changed his plans to rejoin the family in California, stayed in New York and accepted the job. He visited us two or three times a year and stayed for a couple of weeks each time. That's all I saw of my father. He was pretty much alone in New York, and I think that led eventually to the separation and the divorce.

During that time, in the early 1920s, when he was working for Benenson, he followed closely what was happening in Russia, and so did Benenson, being a Russian also. They were watching the progress of the revolution, and Lenin's regime, and they could see--as Lenin himself saw--that his policy led to the virtual destruction of the country. Lenin finally reached the conclusion that he could not reconstruct the country without outside help, since he lacked capital. Because it was a communist regime, nobody wanted to help or make an investment in Russia.

He then announced to the world his New Economic Policy (NEP), and offered very good terms to foreign capital. They couldn't own anything, but they could lease and develop, and invest money, and they could bring out export goods to pay for the investment. The Russian ruble at that time was worthless because of the inflation during the war.

Father's Return to Russia, 1924-1929

Benenson and my father became interested in NEP, and my father went back to Russia to see whether he could negotiate a concession agreement to repossess all the Lena Goldfields properties that had been expropriated in the early part of the communist regime in 1920. He succeeded in negotiating an agreement in 1925, and under the contract

PM: he was able to regain control of the mines with full authority to manage them in any way he wanted. He could bring in foreign managers or he could bring in Russians. There were no restrictions. Also, the concession could be owned 100% by foreigners. The Russian government did not retain any interest in it. I suppose the concession had to pay royalties and taxes, but I don't know what they amounted to; they were certainly not prohibitive, because the concession terms were considered to be attractive.

In addition to this, because he knew the general mining activity in Russia, he also negotiated some rather promising developing properties in the Altai Mountains, and some in the Ural Mountains. The concession encompassed more than Lena Goldfields ever had before. (The Lena Goldfields concession was the largest granted by the Soviet government during the NEP period. It was also the most successful in increasing production and making profits. The concession is described in greater detail on pages 92-100 of "Western Technology and Soviet Economic Development, 1917-1930," by Antony C. Sutton, 1968, the Hoover Institution Press, Stanford University, Stanford, California.)

The next step was to raise money for the enterprise. He evaluated what it would take to rehabilitate the properties that were not operated for a number of years, and those to be developed. He came up with a figure of about thirty million dollars. In those days--1924--thirty million dollars was a very large sum, but it doesn't sound very big in today's terms. Today it would be equivalent to maybe 150 million or 200 million dollars.

He and Benenson proceeded to see if they could raise this money. Benenson pledged some of his personal money for a minority interest, but most of the money came from England and Germany. Having obtained the financing, the very first thing he did was to ship the equipment that he bought in 1920 in Milwaukee, where it had been stored for Lena Goldfields. Also, new equipment was required for the newly developing mines in Altai.

The head office and the board of directors were in London. My father was named head of the enterprise--managing director. He recruited mostly Russians, although there were some Americans and some Germans, for the operations in Russia. Among those employed was my mother's brother, Paul, who was also a mining engineer, and used to be, before the revolution, the head of an iron and steel works in the Ural Mountains at a place called Lysva.

(Interview 2: 3 December 1987) ##

Swent: We have just gotten you somewhat established in Oakland, and your father was negotiating the return to Lena Goldfields. Would you like to say a little more about your father's concession in Russia?

PM: Yes. I think I mentioned he was named the managing director of the enterprise, and the head office was in London. However, he had another office in Moscow, so that he commuted back and forth between Moscow and London. He very quickly put together an organization that would be in charge of rehabilitation of the Lena Goldfields mines and the development of the mines in the Altai Mountains. As I mentioned, the dredge that he bought in 1920 in Milwaukee and stored there was finally shipped to Siberia in 1925. The enterprise prospered. The rehabilitation plans were realized and production started sometime probably in 1925. The first gold was shipped in 1925, and it became apparent, I think, to everybody outside and the shareholders that this was a successful enterprise and would continue to be successful, as it produced about 35 percent of all the gold produced in Russia.

At this time, Stalin was the head of Soviet Russia, and he was never in favor of the NEP. He finally came to the conclusion that it should be scrapped. So in 1930, he nationalized the interests in Lena Goldfields--cancelled the concession rights, not only of Lena Goldfields, but of other enterprises that were started under the NEP. One of the most prominent mining ventures was that headed by Harriman, who had a concession on the very large manganese mines in the southern Urals. They had a similar history of investment of foreign funds in mines that were shut down during the revolution and Civil War and eventually expropriated by Stalin. Harriman's concession was an economic failure, as were most of the approximately one hundred concessions granted under the NEP at that time.

Swent: Was this Averell Harriman?

PM: His father. So Stalin had to have some kind of an excuse for the expropriation, because under the concession terms the Soviet government could not expropriate on economic grounds. The excuse given was that the staff, headed by my father, was engaged in counter-revolutionary activities

PM: and therefore were subject to indictment and court trial on that issue alone. Under the concession terms, any disputes should have been tried in a neutral court in Sweden, but the Russian government--the Stalin government, contended that it was not a matter of disputing the terms of the concession but was political treason against the state by both my father and the nationals, and that the case should be tried in Russia. The British shareholders never accepted that, so in effect a trial in absentia was held in Russia. My father was at that time in London. In a short time the court reached the conclusion that my father and some of his staff members and managers were guilty of counter-revolutionary activities, and they issued the verdict that they should all be shot.

I don't know how many of those whom my father hired actually suffered that penalty, but I do know that a number of them were exiled in Siberia. One of the persons involved--who was my father's right hand man, was my mother's brother, Paul. He survived, as I have mentioned earlier, and I don't think he even suffered exile.

Swent: How aware were you at the time of this situation?

PM: Well, we were in California.

Swent: Were you aware that this was happening?

(The following section was written by Mr. Malozemoff after the interview)

The only thing that we knew was that father was safe and was in London. We knew that the property had been expropriated, but we didn't know the details. I learned the details later from my father and from some information that Consolidated Goldfields of London sent me in 1981.

Under the terms of the agreement, if either side repudiated its terms, the company's properties should be valued by an arbitration court. After repeated fruitless appeals to the Russian government, the company submitted its case to an arbitration court in Berlin. The Russian government did not participate as a defendant. My father was a witness, and the court finally awarded the satisfactory sum of £12,965,000, which was close to what had been originally invested.

The soviet government, of course, refused to recognize that award. After five years of the company's efforts to have the award accepted by the Russians, with no success, the matter was taken up by the British Foreign Office. At length the Russians agreed to settle for £3,000,000--£50,000 in cash and the balance over twenty years in non-interest bearing notes. In trying to sell the notes at a discount, the best offer received was £182,000 on a face value of £2,950,000. The shareholders were divided on acceptance of this figure; the company finally sold some notes and handed the balance of the Russian notes to those who wished to hold out.

(Return to the interview transcript)

PM: The Lena Goldfields company remained as an entity in London and became just an investment company. It's interesting that later on when I came to New York to work for Newmont in 1945, the president and secretary of Lena Goldfields--the only person looking after their portfolio of investments at that time--whom I had met casually in the 1920s when we were in Europe, got in touch with me. My father had died by this time. Anyway, this man discussed Lena Goldfields' investments with me and asked me if I could suggest something in the United States to invest in for the portfolio. I did so, and my suggestion turned out to be very profitable. This man was very grateful, and we kept in touch for some years after that.

Swent: Would you care to tell what your suggestion was?

PM: Tennessee Gas Transmission Company, which was then just being formed, so they got right in on the ground floor, so to speak. The stock appreciated and they made four or five times their original investment.

Swent: Was this at the time of the TVA?

PM: No, there was no connection with the TVA. Tennessee Gas Transmission Company built one of the early trans-continental gas pipelines. It's a highly diversified company now. I think I made some other suggestions at the time and they turned out positively also. I don't remember what they were.

Swent: Was the Harriman investment involved in this same case?

PM: No, it was separate. And I don't know how that came out. I was later told by some of the stockholders--actually Benenson--that it was due to my father's skillful negotiations in establishing the arbitration procedure that led to Russian payment, as niggardly as it was. The implication was that perhaps no other concession was as well drawn up. My father had anticipated the possibility of expropriation by the communist government, and he negotiated the concession agreement with that possibility in mind.

I regard the rather brief success of the concession as somewhat analogous to the return of Napoleon after his first exile in an attempt to regain power and finally losing out to the English at Waterloo. Father started the concession in 1925, and it was expropriated in 1930, so it lasted only five years. It promised to be a brilliant success, but it ended in failure. It really broke my father. He became quite ill after that and had an operation that laid him low. He went into retirement in the south of France for a number of years to try to regain his health. That was the last really promising venture he was involved in.

Swent: It must have been a terrible financial blow as well....

PM: Yes, he recovered very little out of it, although the company, when it finally closed its operations and stopped making payments to its officers, recognized that my father, as managing director, deserved a settlement. It wasn't very large, as I recall--I believe he got something like \$60,000 or \$70,000.

II EARLY CAREER

Education

(The following section was written by Mr. Malozemoff after the interview)

I started my education in the United States at the age of ten in the second semester of the fifth grade at the Lakeview Grammar School in Oakland, California. This school was famous for its principal, Muller, who was the father of the all-American football player of the University of California, Brick Muller. While my English was limited, I apparently learned fast and was advanced to graduate from the eighth grade in two years. I finished the four-year course of study at Oakland Technical High School in three years, with the highest honors, and I apparently drove myself to the point where my mother and the doctors were alarmed for my health. My mother resolved to take me and my brother Andrew to Paris for a year, where Andrew enrolled in the American High School and I studied art and music (the violin) and travelled extensively in France, Germany, Italy, and Great Britain.

When we were in Siberia, I decided that I would study mining engineering some day, and I never wavered from that resolve. I enrolled at the University of California in 1927 and pursued the metallurgical engineering option at the Hearst Mining Building. I was graduated magna cum laude in 1931 with a bachelor of science degree, one of thirteen graduates earning the degree at the mining school.

University of California College of Mining

While at Cal I had the warmest personal relationship with Dean Frank Probert and several of the professors, particularly the professor of metallurgy, Ernest A. Hersam, with whom I discussed other subjects such as the philosophy of William James, as Hersam originally came from the Boston area. Professor Hersam taught me to respect the stamp mill as, in his view, it was the most efficient invention for crushing ores and recovering gold by amalgamation. Later, in my graduate studies, Professor Gaudin arrived at the same opinion through more sophisticated calculations based on "work index." Still later, Fred Searls, my predecessor as president of Newmont, showed a preference for stamp mills at a time when they were no longer manufactured, and he had to move that equipment from an abandoned mine to a new mine that Newmont was developing. I did not share that enthusiasm, first because stamp mills were so abominably noisy (I ascribe my partial impairment of hearing to being around stamp mills a good deal), and later because I realized they were not applicable to large operations because of their very limited capacity.

I remember my classmates at Cal, particularly F. W. McQuiston, Jr., who became chief metallurgist at Newmont and was later promoted by me to be a vice president of Newmont Mining Corporation, and Tom McClelland, who later became CEO of Placer Development Company in Vancouver. As I remember him, Tom was the most studious member of our group at that time.

In supplementing the account of my education, I would like to mention that among the classmates who graduated with me in 1931 from the University of California was a fellow named Warren. He was several years older than any of us and he kept pretty much to himself. We really had very little contact with him--he was so much more mature than we were. At any rate, he finished with us and subsequently became involved in tin dredging in Malaya and eventually became president of one of the larger companies there that had American as well as British stockholding. He was very highly regarded--a very successful executive.

While I was absorbed by everything I studied at Cal, I pursued other interests at the same time--and it was not chasing girls, which I left for more prosperous years

when I could contemplate marriage. Chess always fascinated me as a game of intellectual challenge, and having gained membership on the chess team of UC in my freshman year, I pursued the game with such absorption that my grades--especially in physics--suffered to the point of possible failure in that subject. Awakened to this danger, I dropped physics and chess and concentrated on the other subjects in order to revive my grades. I took up physics again in the summer and passed the course. My other pursuit was music; I joined the university symphony orchestra, and played in the first violin section all four years I was at Cal. I continued to take lessons from Michel Piastro, the first violinist and concertmaster of the San Francisco Symphony Orchestra. (Piastro was a pupil of Leopold Auer, the world-famous violin teacher in St. Petersburg, in whose class my father participated.)

While studying at UC, my outstanding experience was Chemistry I, which was taught by Joel Hildebrand. I remember being spellbound by his very popular lectures held in a huge auditorium in the Chemistry Department building that seemed to accommodate perhaps five hundred students (probably an exaggerated recollection). Ever since then chemistry has been the foundation of my technical understanding of most everything I learned in metallurgy thereafter, and I never forgot the "First Principles of Chemistry" so lucidly presented in book form by Joel Hildebrand. I have been surprised through the years at how well I could understand the chemical explanations of my associates concerning new advancements and their efforts to control the multivariable phenomena of leaching and other more occult processes.

(Return to interview transcript)

Swent: About your studies at Cal--try to go back to think about what you felt then--what is your feeling about the value of that in later life. Was it technological?

PM: Actually, looking back on it, the mining school professors were competent and very nice, friendly, understanding people--but they were somewhat behind the times. I don't believe that the academic instruction I received at the mining school was actually of very high caliber.

Swent: Were there any industry connections while you were a student in the mining college? Were you getting technical information from actual mining operations?

PM: No, I wasn't. I did get advice from my father which set me on the specialization I chose to pursue. He wrote to me about a promising and newly-developing practice in ore processing called flotation, and he suggested it as a field of specialization that I might choose. At any rate, the mining professors at Cal, especially Dean Probert, were quite aware of what was going on in the industry. Probert advised, for example, that between their junior and senior years, the students should take a summer job somewhere. I arranged my own summer job through my father's connection with American Smelting and Refining Company; Herbert Kursell, an employee of ASARCO in New York, had spent some time at the company's operations in Idaho, and he arranged for me to have a summer job in Idaho at the Morning Mine.

This was in the summer of 1930; it was my first exposure to real mining operation, and it was very useful to me. I found the people who were then managing the enterprise to be extremely nice and helpful. I made my first contact with the general manager, Washburn, and because my major was metallurgy, I was assigned to the mill. The superintendent of the mill, Price, was perfectly willing for me to learn as much as I could.

At first he assigned me to the assay office, which is normal and the proper thing to do because assayers always appreciate additional help. I was a pretty good assayer at the mining school in Berkeley. I learned the routine very rapidly and became quite proficient. The man who ran the assay laboratory was probably in his sixties, and he had been an assayer all his life. After a while we became very friendly, and he told me, "Plato, you're a very good assayer, but the danger of being a good assayer is that you may never get to be anything else but an assayer. You better get out of here and do something else." (laughs) I took his advice, went back to Price and asked, "What else can I do?" Price then exposed me to all the details of mill operations and explained them to me. He also responded to my wishes for experience in some of the operating procedures. After I learned most phases of the milling operations, I asked Price if it would be possible for me to work in the mine, and he advised me to see the manager.

Swent: What kind of mine was it?

PM: It was a lead-zinc mine, a rather deep underground mine. So I went back to Washburn and told him "I think I have learned all I can learn in a short time in the mill. Could I have something to do in the mine or outside?" He assigned me to what is usually called in mining practice the "bull gang." It is essentially a repair and construction group. Many of the workmen in this group were of Scandinavian origin--big burly fellows. Being small and not all that strong, it was really a chore for me to be on that gang because they had to do a lot of things that required very heavy lifting. Once they asked me to climb up on the rafters and attach the block and tackle that they would use in order to lift the heavy parts of a jaw crusher. I found it to be a very, very tough job physically. Once when they were moving some lumber, I was at one end of a long piece and a burly Swede was at the other end. Somehow he pushed this piece of lumber and hit me in the shin. I nearly fainted from the terrible, painful blow. I suspect it was probably the cause of a bone tumor that I developed some years later.

At any rate, I did my job, and apparently I did it satisfactorily enough. Then I asked to go down in the mine underground. I was assigned to be an assistant to the chief engineer, a young fellow; I helped him survey the underground workings, and got some acquaintance with mine practices. I had a pretty wide experience in those three months, partly due to my own initiative in trying to move from one job to another--to which the management acceded very graciously.

Swent: You had no summer jobs before this one?

PM: No, this was the first summer job I had.

Swent: What had you done those other summers?

PM: Well, the summer before that, I spent most of the time surveying. This was a required part of the course I was taking in civil engineering. Incidentally, during that summer job at the Morning Mine in Idaho, I had brought my violin along. I practiced assiduously after work every day. Then I found that there was a dance band that could employ a violinist. So I joined the dance band and was paid union rates without joining the union. I played at a number of the dances they scheduled practically every Saturday.

PM: As a result, my reputation as a violinist expanded and a lot of people, the miners and those that I met in the mill, became interested in hearing me play. They said, "We understand you're a serious violinist. Can we come up and listen to you play?" I was for some reason very annoyed by this. Finally four or five of them came, and I thought, well, I really don't want to play them the tunes they want to hear; I'll play something they probably won't like and they'll leave sooner. So I played a chaconne of Bach, a very complicated composition which they didn't understand, and they were glad to leave. I don't think that was very gracious of me. (laughs)

Swent: Did they pick on you at all because of being a Russian?

PM: No, never. I never had an inkling of any prejudice on account of being a foreigner. The only time there was any annoyance on this account was while I was in the ROTC at the University of California. The sergeant who was training the ROTC students couldn't pronounce my name. He was very annoyed at that. (laughs)

Swent: In 1927, you spent nearly a year in France and England.

PM: Yes. Actually it was from mid-1926 to mid-1927, before I went to the University of California.

Swent: That was after you graduated from high school?

PM: After I graduated from high school, right.

Montana School of Mines, Graduate Study

(The following section was written by Mr. Malozemoff after the interview)

Nineteen thirty-one was not a good year in which to graduate from the standpoint of seeking employment. Because of my good academic record at Cal (I was a member of Phi Beta Kappa and Tau Beta Pi and Sigma Xi honor societies) and some research I had done in flotation and chemical analysis, Dean Probert advised me to seek a fellowship at the Montana School of Mines in Butte, Montana, for attaining a master's degree under the young and brilliant Professor Antoine M. Gaudin. My research and later master's thesis was on the subject of recovering fine particles in flotation, which were

known to cause principal losses in the flotation process. Gaudin also subjected his graduate students to microscopic examination of polished sections of sulfide minerals, which were extensively studied at the University of Utah where Gaudin had his first professional assignment. This study, including quantitative assessment of the degree of locking of minerals to be separated, served to give me a fundamental understanding of the necessary metallurgical processes, grinding, flotation and leaching, which was of great value to me throughout my professional life.

I graduated magna cum laude with a master's degree in 1932, and much as I tried, I was unable to find a job in the industry. Discouraged, I even thought of pursuing a musical career when I heard of an opening at the Seattle Symphony Orchestra that paid \$250 a month. After some reflection, I chose to stay on for another year in a job with the Montana Bureau of Mines (for \$50 a month) and continue my research with Gaudin. Those were the worst times of the depression, and Roosevelt and Hopkins conceived the WPA effort, which I joined to work on from 4:00 p.m. to midnight after the day shift with the Bureau of Mines and my work with Gaudin--a total of sixteen hours of work in a day. It supplemented my income by \$150 a month!

Gaudin took on consulting work during the summer for which he was paid. He got me to do the part which required experimental work, but did not pay me. However, it was extremely interesting, and I was glad to do it to learn more about the application of experimental techniques in the laboratory to difficult treatment problems requiring practical solutions for industry use.

(Return to interview transcript)

PM: One of the outstanding things that I remember doing for Gaudin was testing ore from a budding enterprise called Falconbridge Mining Company. This company was being developed by a remarkable entrepreneur and very fine geologist named Thayer Lindsay. Gaudin apparently offered his services to work out the metallurgy of the nickel ores of the property Lindsay had secured in the Sudbury Basin in Ontario, Canada. This later became the second most important mine in the Sudbury Basin after International Nickel's mine. I think probably the work I did was the first metallurgical work done on Falconbridge ore. I spent most of the summer working on it.

PM: Gaudin was absent on his other consulting activities during all that time. Apparently he had sufficient confidence in my ability to do the work that he didn't supervise. He just told me what the problem was and asked me to do my best. But he wrote the report on the basis of my work. I gathered this was his practice.

(The following section was written by Mr. Malozemoff after the interview)

Those two years with Gaudin were extraordinarily productive in my education. Gaudin would not tolerate sloppy thinking, writing or research, and his exacting demands made me realize how important it is to be strictly logical and clearminded and to follow faithfully the scientific method of analysis so as not to be led astray in one's conclusions. These were principles that guided my professional life and saved me from gross errors in judgment.

A milestone for me was Gaudin's criticism of the first draft of my master's thesis. After having read it, he called me in to his office and said that he was astonished at how sloppily the thesis was written, since it indicated a lack of clear thinking, and he had thought better of me. He proceeded to illustrate his critique by tearing apart the sentences betraying lack of precision, poor construction and indefinite conclusions. His comments were like a thunderclap that suddenly cleared my mind. I saw and accepted his criticism to be just and proceeded to rewrite the thesis several times before I was satisfied that it was terse and clear. This experience served as a guidepost for the rest of my life to be critical of everything I thought, wrote and did. It truly transformed my whole process of thinking.

The other formative experience in Butte that influenced my later life came about through my acquaintance and later life-long friendship with Andrew V. Corry, an instructor in geology at the Montana School of Mines. Born in Montana, his father being a mining engineer, Andrew had his university education in geology and liberal arts at Harvard, was a Rhodes Scholar at Oxford for two years, and then got stuck in Butte in 1931 because he was unable to find a better job elsewhere. Andrew Corry was a true intellectual with encyclopedic erudition about everything, it seemed; he had a keen appreciation of



Plato Malozemoff as the King of England in a George Bernard Shaw play, Butte, Montana, 1932.



Plato Malozemoff and Walter Wilkinson, awarded Master of Science degrees, Montana School of Mines, 1932.



Front row, left to right: H.T. Bunker, A.M. Gaudin, Walter E. Duncan, William P. Given. Back row, left to right: Oscar Tangel, Robert Ramsey, Plato Malozemoff. Butte, Montana, 1934.

music, was a singer, and had a searching, original mind that caused him to study all his life. These attributes, combined with a warm and intense interest in people around him, made him an ideal teacher, sponsor and friend to whom I could confide my innermost thoughts. My association with him immeasurably deepened my understanding of literature, philosophy and music, and encouraged me to have a practical and positive outlook on life and its foibles. He was a true renaissance man, and I became his disciple. If I have any wisdom, I owe its beginnings to him. I am flattered that he thought as well of me as I did of him.

While at Butte I also made life-long friendships with Robert H. Ramsey and Oscar F. Tangel, both graduate students there and later metallurgical engineers whom I eventually hired for Newmont. I also made friends with two German exchange students, Gerhard Grassmück and Herbert Sommerlatte, both of whom had productive international careers in mining and with whom I still correspond.

An undergraduate named Roger Pierce took violin lessons from me for a while (a welcome increase in my income at five dollars an hour), but I advised him to drop the violin in favor of more practice on the football field. Roger later became a well-known entrepreneur and the president of AIME (American Institute of Mining and Metallurgical Engineers). I had very friendly associations with many more students too numerous to mention, some of whom went on to have good careers in the mining industry.

(Return to interview transcript) ##

Swent: What sort of work did you do for the Montana State Bureau of Mines?

PM: It was essentially test work on various ores--nothing very significant; samples would come in to the Bureau of Mines with a request for investigation of optimum metallurgical treatment. I did the tests for them. At the same time, I was continuing to work on the research project which was the subject of my master's thesis, trying to elaborate it further with the idea that perhaps it might lead to a doctor's degree later on--but it did not.

PM: I decided that the work I had done and the thesis I had written might be worthy of publication, so I discussed it with Gaudin. He seemed not to be very enthusiastic about the idea, but suggested "All right, why don't you inquire of the editorial board of the AIME Transactions." I submitted my paper to them, and for a long time I had no answer, even after I left Montana School of Mines. Finally I got a response; my paper was turned down. I was surprised because I thought my paper was as good as some of the other papers that were accepted by them.

Somewhere I had made the acquaintance of the head of the metallurgical department of the Massachusetts Institute of Technology, Professor Charles E. Locke, and it was he who told me that my paper had been turned down; he was on the editorial board of the AIME. However, he wrote me that he thought the paper was an interesting one and perhaps he could help me place it in another journal. Later on I went to Cambridge, Massachusetts, to talk with him. I learned from him then that Gaudin, who was also on the editorial board, had recommended against my paper--while all the rest of the editorial staff had accepted it. Professor Locke helped me place the paper in the Journal of Physical Chemistry, a more prestigious publication.

I think the possible reason for Gaudin's action was his annoyance with me--because towards the end of my tenure with him I became a little critical of him and some of his practices. I probably expressed my criticism somewhat undiplomatically, and he resented it. I suspected that the incident would be the end of my relationship with Gaudin, but it turned out not to be; our relationship resumed on a friendly basis later on when I became successful. (laughs)

Another element of my education--and I'm getting ahead of my story a little bit, but it really related to my study with Gaudin--is that eventually I did get a job in California, of which I will speak later. However, that job lasted only nine or ten months and I couldn't get another job, so I decided to apply for a scholarship.

Swent: Excuse me, but the job that only lasted nine months was the Montana Bureau of Mines job?

PM: No, no. That lasted a whole year. No, this other job I will speak of later was in California. I applied for

PM: and got a scholarship covering work towards a doctor's degree at Columbia University in New York. The professor under whom I was to work was Arthur F. Taggart. The significance of this episode is that Taggart was Gaudin's professor when he attended Columbia University. Gaudin was his most brilliant student--no question about it--he was probably more brilliant than Professor Taggart, although Taggart was very well known and very highly respected.

The story I reconstructed later was that Gaudin, after he finished and got his degree at Columbia University, had a very brief job in Mexico--something like a year or a year and a half. Then he got an academic post as an instructor of metallurgy at the University of Utah. He stayed there for some four or five years before he was invited to the Montana School of Mines as a full professor. During that time he did remarkable research, very innovative research, essentially on the process of flotation. He was interested in the fundamental, scientific phenomenon of the flotation of minerals. Using fundamental principles of chemistry, he formulated a theory that the flotation process was essentially dependent on the surface chemistry of certain reagents attaching themselves to sulfide particles which then attached themselves to air bubbles.

At any rate, he wrote many scientific papers on this subject and established a new school of thought and interpretation of flotation which was both original and contrary to the ideas taught by Arthur Taggart. For some time Gaudin and he engaged in polemics in the scientific press and in the mining press, and it became clear that Arthur Taggart was quite annoyed with his former pupil for going off on a tangent and disputing his theories. Under these circumstances of latent antagonism between Gaudin and Taggart, here was I--by Gaudin's own admission the best student he ever had--suddenly applying for a doctor's degree with Taggart!

When I first came to him, we discussed what subjects I might research. I offered several topics that I thought would be interesting, and he turned them all down. Somehow he made it very difficult to decide what the choice should be. Then he offered the following idea: "Why don't you research the possible flotation of garbage, which is an interesting subject." Well, I turned that down. Finally he said, "I don't like any of the subjects you've suggested and you have refused my suggestion, so

PM: I think the only course acceptable to me would be for you to do research that would prove my theories on flotation to be correct."

Taggart's theories were absolutely contrary to the theories taught me by Gaudin, which I espoused. When I realized that I had no choice but to accept what he had offered, I decided to take a stab at it. Maybe Gaudin is wrong, I thought, and maybe Taggart is right. Then Taggart went off on a trip somewhere, probably a consulting trip, so he didn't know what I was actually doing, and I decided to research the literature to find out whether any previous research had been done that might throw more light on the subject. I was looking for an independent opinion on which view was right. Because I had been trained by Gaudin, I tended to assume his theory was right, but I knew I had to make a critical examination of his theories--because of Taggart's opposing views.

It was purely a chemical subject. I spent the next three or four weeks researching the subject in the library, and I chanced upon a very scholarly work by a German professor named Freundlich on surface chemistry. I read this book through very carefully; surface chemistry is different from the kind of chemistry that deals with compounds and their formation in aqueous solutions. Entirely different forces and chemical mechanisms are involved; surface chemistry was a new branch of science.

As a result of Freundlich's book and some other papers I read, I became convinced that Gaudin was right and Taggart was wrong. Then I had to reflect on the likelihood of my getting a doctor's degree in a subject that essentially dealt with chemistry rather than metallurgy. The professors who would make the final judgment on the acceptability of my thesis would clearly be from the department of chemistry; I knew some of them and was quite sure they were perfectly well acquainted with Freundlich's basic work on surface chemistry. It seemed to me that if I followed a line of research that attempted to support Taggart's theory, the chemistry professors would find it unacceptable, whereas if my research ended up supporting Gaudin's views, it would be unacceptable to Taggart. I suspected that Taggart knew this; he chose that subject because he wanted me to fail. At least, that was my interpretation: he would be getting even with Gaudin by failing his most outstanding student. But maybe Taggart had no such motivation. I will never know whether I was right or wrong.

PM: At any rate, it was perfectly obvious to me then that my attempt at getting a doctor's degree would be fruitless, and I had better do something else. So I started corresponding with the people I had worked for briefly during the interim between leaving Montana and coming to Columbia. I finally did get an offer of a job in California, and that was the final sequel to my scholarship attempt.

By the way, the scholarship was quite generous. It was \$150 a month, and they had deposited the entire amount of \$1,500 in my account in New York. When I went to the admissions officer and told him I was going to resign my fellowship, I said I felt I owed it to the university to return the full sum. He was quite surprised, but he said "I understand your motives--because you have a job." Of course, I didn't speak of the controversy with Taggart. The admissions officer said, "You don't have to return what you've already spent." I'd been there for about a month and a half and had already spent maybe \$200 of this money. I said, "No, I insist on returning everything because this scholarship was given to me for a Ph.D. degree and I'm giving it up and the university is not getting anything. I think I owe it to the university to return the entire sum." He was amazed but finally accepted my offer, and his parting words were, "Any time you want to have another scholarship, just let me know. I'll be glad to grant you one." That was the final phase of my formal education. I then returned to California and took up the new job.

Swent: You were never tempted to be a teacher yourself?

PM: I wasn't tempted, no, although I had opportunities to do so later on.

Pan American Engineering Company, 1934-1939

PM: I shall now go back to the period following my leaving the Montana School of Mines. I returned to our home in Oakland. While studying at the University of California I had made the acquaintance of Dimitri Vedensky, who had studied at the university earlier. I met him through the chess club when I was a member of the chess team in my freshman year. Vedensky was a prominent chess player, and a very good one too.

PM: After graduating from the University of California, he joined a small firm called Pan American Engineering Company in Berkeley; this company did metallurgical consulting work and also manufactured certain equipment for mills. When I was looking for a job after leaving Montana, I contacted him to ask if he had any idea where I might find a job. Shortly after that he told me, "I think I can get you at least a temporary assignment with the Bradley organization." (The Bradleys are a well-known mining family in California.) Vedensky introduced me to a gentleman by the name of Hall who was, I believe, a vice president of the Bradley organization in San Francisco. They had a number of metallurgical problems they wanted to examine. Vedensky consented to my doing work for Alaska Juneau, one of the Bradley companies that was active at that time, and he offered the use of the laboratory at Pan American Engineering Company to me.

For five or six months, I did metallurgical work, making tests on various ores from properties that the Bradleys had in California and Nevada, and also from Alaska Juneau. Hall asked me to go up to the Alaska Juneau mine and see whether the tests I made could be applied there in order to improve their operations. I spent perhaps two months at Alaska Juneau mill; having installed Pan American Engineering flotation cells, and also a jig for recovering free gold, I was monitoring that equipment and at the same time observing other conditions in the mill.

It took me a very short time to discover that the milling practices employed at Alaska Juneau were not very efficient nor very modern. For a long time Alaska Juneau reported losses (1903-1927) except for one year, 1924, in which \$90,000 income was earned. They started making modest profits from 1928 to 1933, which is the last year I have records for that company. Their ore grade was low, just under 0.05 ounces per ton. Their operating costs were very low; in 1933 only fifty-four cents per ton while recovery from production was eighty-one cents per ton, which led to operating profits that year of \$1,081,425. The first dividend ever paid was \$584,000 in 1931, followed by \$720,000 and \$1,101,700 in the next two years.

Swent: Were they still using stamps?

PM: No, they were not using stamps. They were using ball mills, but the surprising thing to me was that these ball mills were obviously misused. The then current practice was to install ball mills on a closed circuit with a classifier, which resulted in a circulating load of sands to be reground in the mill. However, the ball mills at Alaska Juneau were in open circuit without a classifier. This was the first installation of that sort I had seen. They were trying out the idea that they could get more tonnage through the mills by injecting a strong stream of water into the mills to wash out the ore more rapidly. They did not achieve the proper grind, so they did not get the tonnage they desired. The grinding operation was inefficient. I criticized this but I didn't get anywhere. I thought the whole operation was poorly run.

Swent: Who was running it at that time?

PM: L. H. Metzgar was the general superintendent.

Swent: Was Phil Bradley still there?

PM: Yes, he was the president at that time. That brief period of employment at Alaska Juneau gave me an inkling of practical mining operations, an additional experience to what I had gained in my junior year at the Morning Mine.

I don't believe that my efforts to sell Alaska Juneau on the flotation machines and jigs were successful. The mine shut down shortly thereafter, and while I knew something about mining, I didn't know too much about it. I think I came to understand some of the problems that Fred Bradley (Phil's uncle) had in mining Juneau ore. I met some of the Russian refugees--actually White Russian officers--who were working for Alaska Juneau. Because they were military men, they were brave, perhaps even foolhardy: they were the ones who were willing to man the draw points in the mine. ##

The ore in Alaska Juneau was highly silicified--essentially quartz ore, which, while it was fractured broke into very coarse pieces. The draw points were continuously choked by very large lumps of ore that could not pass through the size of the openings provided. The chore of those attending the draw points was to climb up these draw points, place dynamite charges in so-called mud packs, and blast them from below. This

PM: was a very dangerous job, because you could never know exactly when the blocked ore might move and suddenly come down. There were accidents--some fatal, I believe.

As I mentioned previously, the ore was very low grade. It is understandable that in seeking to minimize costs, the idea of mass mining on a very large scale would come to mind. They instituted a very large mill so as to get as much tonnage as possible, but the methods they used were misapplied, in my opinion, and so the Bradley enterprise ended up a failure. I arrived at this conclusion later after I had gained more experience in mining.

Swent: Did you have any opportunity to observe other mines in that area?

PM: Alaska Treadwell was on the island opposite Juneau and it extended into the channel; in mining there they got too close to the sea bottom, and the back finally broke through and the mine was flooded. That mine is still there, flooded with seawater. It was a higher grade mine than Alaska Juneau.

Swent: But that happened twenty years before you were there.

PM: Yes. At any rate, I stayed there for only a short period but the visit was of great value to me in learning something about practical mining and about the problems that can arise in a mine and mill.

Swent: Did you have any experience at that time with any of the Newmont properties?

PM: No, not at that time. Well, after that I came back to California and couldn't find another job, and then I applied for the scholarship to earn a doctoral degree at Columbia as previously related.

Swent: And then back to California again?

PM: Yes, back to California and Pan American Engineering Company. This time Vedensky offered me a permanent job. It took some negotiation before it was settled. He was offering \$120 a month, I tried to hold out for \$150 a month, and he won out. I went to work for him for \$120 a month--but it was a permanent job, so I felt satisfied.

Swent: This would have been in 1934?

PM: Yes, in 1934.

Swent: So \$120 then was worth more than it is now.

PM: Oh yes, it was. It was a very interesting job, too, in that--despite my youth--"Dee" Vedensky practically turned over to me most of the test work that came in from the companies for which Pan American Engineering worked as consultants. I worked for them for nearly five years, and I must have tested many hundreds of samples from many, many mines in California, Nevada, Oregon, Arizona, Idaho, Colorado and Montana--nearly the whole western area. The main reason for all this activity, and the reason I got the job, is that in 1934 President Roosevelt changed the price of gold from \$20.67 an ounce to \$35.00 an ounce. This increase stimulated the search for gold ores, and production from old mines was resumed. Western mining came alive again, especially gold enterprises. We were there just at the right time.

Testing and Selling Jigs

PM: Pan American Engineering Company manufactured three basic pieces of equipment. One was the Kraut flotation machine invented by a German metallurgist named Max Kraut. He also improved the Crangle jig. Jigs are gravity concentration devices that had been used for many, many years essentially for lead ores. The standard jig used for that practice was called the Hartz jig.

Kraut recognized that the Hartz jig would not be altogether satisfactory for gold ores. The characteristic of the Hartz jig is that the pulsations of water through the bed were very slow--forty or fifty pulsations per minute; at this rate the downstroke which closed and tightened the bed would not concentrate gold efficiently. However, using very fast pulsations, the bed could be kept in suspension permitting the gold gradually to settle and concentrate in the hutch (lower compartment) while rejecting the gangue over the end of the jig.

(The following section was written by Mr. Malozemoff after the interview)

What Kraut did was to improve a special pulsating valve attached on the side of the Crangle jig so that it would pulsate three to five hundred times per minute, activated by water pressure. It was a rubber valve, and the rate of pulsation depended on the quantity and pressure of the water passing through it. It worked quite well.

The pulsation rate was important; the recovery of gold by the jig was affected by the kind of ore--whether coarse or fine--and its specific gravity. We didn't have an instrument that could measure the pulsation rate of this valve, but I could judge fairly closely by ear alone what the pulsation rate was because of my musical training; I was used to playing at a fast tempo many notes to a given beat, and was thus able to count a beat for every five or six pulsations.

(Return to interview transcript)

PM: This ability helped me to adjust the pulse rate to the optimum. Vedensky used to laugh at me and claim that I was only imagining that I was counting accurately. He was musical also, but somehow he never applied that ability to this problem.

I may mention in passing that Vedensky was quite a good pianist. During my work for Pan American Engineering, he and I frequently got together to play sonatas and other pieces for violin and piano. Our mutual interest in music cemented our friendship.

Swent: I knew him too, but I didn't realize he was a musician also.

PM: He was a good pianist. When he first came to this country and went to college, he didn't have any outside financial support. He earned his way by playing the piano during showings of silent films. He improvised as he went along and became quite professional at it.

In addition to my friendship with "Dee" Vedensky, I had a rather warm and friendly relationship with Vic Bramming who was chief engineer for Placer Development Company. They had an office in the Russ Building in San Francisco. Their fame was based mainly on their very bold and successful efforts at developing and

PM: operating the Bulolo gold fields in New Guinea. They developed a placer gold field there in a most inaccessible area, and brought in by air dredge parts for erection in the field. They designed the Placer jig and pioneered its use for gold recovery. Through Vedensky's friendship with Vic Bramming, Placer Development Company awarded the license to manufacture these jigs to Pan American Engineering Company. So Pan American had three products to sell: the Kraut flotation machine, the Crangle jig, and the Placer jig, all specially designed for the recovery of gold.

One of my responsibilities--besides doing metallurgical testing on a consulting basis, was selling some of this equipment for use in the operations for which I worked out a successful metallurgical solution. I was thus a consulting engineer and a salesman at the same time for some five years, and I travelled very widely throughout the West. I have notes of some of these trips and names of the people and companies that I served. Some of them I made repeated visits to, and to some I succeeded in selling the equipment, and to some I didn't. I spent probably 60 or 70 percent of my time travelling, and about 30 or 40 percent of my time at home base doing metallurgical consulting work.

Swent: How did you travel?

PM: By car--company car. I travelled tens of thousands of miles every year all over the West.

Swent: Did you ever get to New Guinea? To Bulolo?

PM: No, my activity was in the western United States. The only diversion from that was in connection with Placer Development's stockholding in a gold dredging enterprise in Colombia. I was asked by them to test Placer jigs on dredges they operated there. I spent a good part of some two or three months doing that.

Swent: Where in Colombia was that?

PM: They had one dredge at Asnazu, which was close to Cali, and several at Pato, on the Pato River, a tributary of the Magdalena River in the jungle in northern Colombia. There were four dredges at Pato, served by a large mining camp. My demonstration of the jig was successful and they eventually installed jigs on all their dredges.

PM: I also visited a successful dredging operation in Alaska, near Fairbanks, owned by United States Smelting and Refining Company. There again, I spent two months in demonstrating the superior performance of the Placer jigs compared to the riffles that were installed on their dredges. There was a very comical incident in connection with that work.

The general manager of that operation was a man named Hopkins who had once been an employee of a security company, and he also had a military background. He was not very well liked, because he was a martinet and had very rigid notions of how to treat people. He mistrusted everyone he did not know very well. When I arrived and began my testing, I found to my amazement that the gold I recovered in the testing procedure was taken away from me--I wasn't allowed to weigh it to appraise the merit of the jigs. The company weighed it and the results were kept secret from me. Hence I was working blind for the two months, not knowing whether the jigs were successful or not. At the end of my demonstration period, I surmised that I had been successful, because while I didn't weigh the product, I saw the product, and saw that gold was being recovered. Judging from previous experience, I felt sure the jigs were doing a better job than the riffles.

I went to Hopkins and told him that I would like to have the results of the gold recovery in order to write a report and my recommendations. He told me that I couldn't have that information, that it was secret, and they were going to make their own recommendations.

I said, "This is unheard of. I'm a consulting engineer and I have a reputation for honesty. I'm not going to misuse the information. You can examine my conclusions, and there's going to be no possible suspicion of any doctoring of the results in the way I work."

"No, you cannot have them."

"Well," I said, "in that case, I guess my service to you is ended right here," and I stalked out. I was supposed to complete my report before I left, but as soon as I got back to Fairbanks, I called up the airline and booked a passage for the next morning. I was terribly angry and put out over Hopkins' lack of confidence in me.

PM: Strangely enough, very early the next morning--probably about six o'clock as my flight left at eight, Mr. Hopkins telephoned me to ask what I was doing. I told him I was leaving at eight o'clock, and he said, "Well, don't leave, because I want to see you." So I cancelled my flight and went out to see him; he said to me, "Here are the results so you can write your report." As I had expected, the results were positive. I wrote the report in a few days, and I recommended putting in the jigs. I then took the report to Hopkins and he read it while I was there. He complimented me, saying, "It's a very good report and I think we will probably follow your recommendations."

Just before I got up to leave, he said, "I want to talk to you about something else. You know this is a seasonal operation, don't you? We operate only in the warm weather, and in the wintertime we shut down. Of course, we have to keep some personnel on hand to guard the equipment. I leave during the wintertime; would you like to have a job to replace me during the winter?" (laughs)

Swent: Quite a turnaround!

PM: Quite a turnaround. It didn't take me very long to say no to that, because what was the point of my being a caretaker during the winter when there was nothing going on? I thanked him for the confidence, but I turned him down. (laughs)

Swent: So he did trust you after all.

PM: After all. Let me say one more thing relating to that period. The application of jigging was a pioneering effort. Nobody had ever applied jigs to gold operations in the United States; Placer Development put jigs on their dredges at Bulolo, but no one had applied them for the hard rock mines in California and other Western states.

Many of these hard rock ores were not necessarily free-milling gold ores; many of them--particularly in underground hard rock mines--had sulfides in them, usually auriferous pyrite. The practice most often used was to float the pyrite and then ship the flotation concentrate to a smelter for recovery of the gold combined with the pyrite. Some mills ground the ore very fine and cyanided it to recover the gold. We found that in most ores, some part of the gold was free from pyrite, and

PM: depending on the degree of grinding, it could be recovered efficiently by gravity in a jig installed in the grinding circuit. Before, a partial recovery of free gold was usually achieved with hydraulic traps in the ball mill discharge before the material got to the classifier. These ball mill traps also concentrated the fine steel particles formed as a result of abrasion of the liners and the steel balls in the ball mill. However, the recovery of gold in a trap was lower than that in a jig.

In order to assess what recovery could be made of free gold relative to the degree of fineness of grinding, I developed a laboratory technique which I called 'simulated jigging.' It was very simple: I used an ordinary gold miner's pan to concentrate the gold. ##

(The following section was written by Mr. Malozemoff after the interview)

I directed a jet stream of water into the sample of ground ore while shaking the pan, thus keeping the ore in suspension; this allowed the gold particles to settle to the bottom of the pan and caused the rest of the ore to flow over the rim of the pan. This action produced results very similar to actual jigging. I found I could predict the recovery very closely--within five to ten percent of actual commercial recovery. After reading my report, mill operators would usually ask me what kind of experimental jig I used, and I would reply, "It was not a jig. I simulated jigging action in a miner's pan." They would say, "That's impossible. We don't believe it." But when they compared my test results to the actual results achieved when the jig was installed, then they accepted my test as a reliable tool.

Of course, it did require a certain skill to do simulated jigging! The technique helped me a great deal in my sales efforts when I went out to install jigs for customers whose ores I had tested in the laboratory.

(Return to interview transcript)

The Deep Cell Pilot Test at Morenci, Arizona

PM: Another phase that I think is of some interest was our involvement in the testing of a new flotation machine which came to the attention of Vedensky. The inventor's name was Drake, and he called his flotation machine a Drake deep cell. At that time most flotation machines were two to four feet deep, but Drake's deep cell was something like fifteen feet deep. The theory was that it would have a higher capacity because of its greater volume. Air was introduced through the revolving impeller near the bottom of the machine where the hydraulic pressure was greatest; the compressed air bubbles would consequently be very small to begin with, but they would gradually increase in size as they rose to the top because of the diminishing hydrostatic pressure, thus collecting the sulfide minerals into the froth more efficiently. That was the general theory, and Vedensky thought well enough of it to embark on its development.

We knew of a large pilot plant being planned by Phelps Dodge for the Morenci orebody in Arizona. This orebody was huge, and Lou Cates, then the head of Phelps Dodge, decided to build the most modern mill he could, using the best equipment that existed in the world at that time. They decided on a pilot mill with a 10,000-ton-per-day capacity, in which seven different flotation machines would be tested. In addition, a number of different makes of full-sized ball mills, classifiers, filters, and thickeners were to be tested--a very expensive effort in all.

Pan American Engineering decided to enter this competition with the new Drake deep cell, which was unique, and I was charged with the responsibility of trying to prove out this cell against others in the pilot mill. This campaign of piloting various equipment lasted about two years--and for two years I commuted from Berkeley, California, to Morenci, Arizona, which usually took two days each way. I made four or five trips a year, and stay each time for about two weeks. There were some junior metallurgists who assisted me, but I was the one responsible.

Swent: Were there other people doing the same thing?

PM: All the companies. I was competing against six other companies--and Pan American Engineering was one of the smallest. We were competing against Dorr Oliver, American Cyanamid, Western Knapp, General Engineering, and others. The results of our effort are recorded in a paper that I wrote for the Engineering and Mining Journal together with Bob Ramsey, who was then working for me.

I will just mention the surprising discovery I made during that effort. I began to suspect that the deep cell concept as it was explained to us by Drake was not working well in practice. I was not able to get any greater capacity in the deep cell than in other cells of the same areal dimensions but much shallower. So I became convinced that the depth of the cell served no purpose at all. I recommended a radical change, which Vedensky allowed me to carry out: I said, "I think we can demonstrate that the depth idea is of no use, and I propose to sand up the cell so that, in effect, I'll have a shallow cell."

I did this, and of course Drake was outraged because his whole theory would be proved wrong. Nevertheless, I succeeded in proving that I was right and depth had nothing to do with either efficiency or capacity. And certain other changes that I made demonstrated that a simple "hog trough" with impellers was all one needed for an efficient flotation machine. The metallurgical results were good, perhaps even better than those achieved with more sophisticated concepts such as controlled flows to reduce short-circuiting, for example, as was incorporated in the Fagergren cells produced by American Cyanamid.

I was not privy to the actual results of all the competing cells, only to those of our own, but I was able to get some information from time to time because I was friendly with all the competitors and they would occasionally disclose their results to me. I'm satisfied that the hog trough idea worked and that we had the simplest cell--and it was cheap to build. So I was quite disappointed that the final choice of the flotation cells for the mill was the Fagergren cells. I suppose they were chosen because American Cyanamid was the largest company and had contacts with top executives of Phelps Dodge in New York. At any rate, they finally accepted a cell that I felt was actually not the best cell at all. We failed in our attempt there, but it was an extremely interesting experience and I learned a lot.

PM: I think this ends the summary of my experience with Pan American Engineering Company. While I was involved essentially in the metallurgical aspects of every operation that I had anything to do with, inevitably I observed the mining aspects as well. For example, I learned quite a bit about dredging--what makes a good dredge master, what makes for good and bad dredging operations, and what sort of problems are encountered. I learned a great deal about placer mining and the reliability of prospecting with churn drills. Most of the hard rock mines that I visited were small, but I also visited Newmont's underground vein mines in Grass Valley, California, in those days the largest mining operation. I tried to sell them jigs; Frank McQuiston was metallurgical engineer at the Grass Valley operation, so I renewed my acquaintance with him. We did install some jigs there.

At any rate, those five years served not only to enlarge my experience and gain confidence in my ability to solve metallurgical problems, but I also learned--by association, you might say--a great deal about mining and about evaluating mining properties. I learned how mines were operated, what makes for an efficient operation, what kind of organization is required, and the management style of one company as compared to another.

Swent: You probably met a lot of people that you later got to know well.

PM: Yes, I did.

Swent: All right, well, this is a good time to stop.

##

Swent: Would you like to expand just a little bit on one statement that you made in one of your writings about "management innovations?" I believe you said there were people who were technological innovators and management innovators, and I thought you might want to speak in more detail about innovations in management that you observed.

PM: Yes, I think it was in a recent speech in Phoenix that I referred to that rather exciting period after the price of gold had been raised to \$35 an ounce, and many of the

PM: old mines became economic again at the new price when they were not before. The price rise also spurred interest in finding new mines. The emphasis--at least in California--seemed to be on finding new placer mines. Placer mining had been practiced there for a long time, ever since 1849, and yet many of the placers in the more remote areas, especially in the Trinity Alps, for example, were largely overlooked; there had been some small mining efforts made there by prospectors in early times, though.

Dragline Dredges

PM: One of the things that made these small mines and some of the lower-grade placers economic was the dragline dredge idea that was developed--I believe--in California. The methodology of mining these placers resulted from the conclusion that the placer was too small to afford the luxury of having a large, expensive bucketline dredge; you had to have something different that would cost considerably less. The technology involved in these dragline dredges limited their use to shallow placers, and as I recall, up to around thirty feet in depth was typical of the smaller placer deposits.

The new method was conceptually very simple, only nobody had tried it before. It consisted of using a small dragline on shore--on solid ground, that is, which because of the length of the boom and the way it operates, could drop its bucket into a pond, dig into the bank, and then dump the bucket into the hopper of a floating dredge. Because the method used only a single bucket, it was not very productive and could not dig as much gravel as the bucketline dredges. But it was cheap, and the floating dredge was actually only a concentrating plant equipped with a perforated trommel in which the gravel was washed and screened; the undersize would flow over the riffles with mercury where gold was caught and amalgamated, and the oversize would stay in the trommel and be dumped onto a conveyor which discharged the gravel into the pond. The principle of a moving pond with the recovery plant is the same as in the bucketline dredging practice, but the digging is different.

Swent: Did you need the same number of employees?

PM: No, many fewer employees, and much less power was required so the operation could be mounted on a shoestring. When I speak of innovations, I mean this kind of technological innovation which used existing equipment in a new way.

All these operations were relatively small and most of them had no more than one dragline dredge. Of course, larger operations had several bucketline dredges, such as Yuba Consolidated Dredging, and Natomas Dredging near Marysville. (For a tabulation of the dragline dredges operating in California, see the appendix.)

Obviously these small enterprises had to be very economically run, and I observed that the operators were usually not just professional managers, but owners as well. They had the entrepreneurial instinct. They kept expenses to the minimum, even in prospecting. They did not drill out the streambed on a regular pattern; all they wanted to find was an indication that there was gold, and then they would take a chance that the gold occurrence would continue. Of course, some of them failed because the gold did not continue or the deposit turned out to be too small. But some of them with better judgment would drill with long intervals between holes to assess the approximate length and continuity of the placer without getting a precise measure of the total yardage available. In other words, they drilled only as much as would give them a probability of success but not assurance. In operating, they in effect prospected with the dredge and the dragline as to how far they should go from one side to another to determine the width of the placer to be mined.

It took a lot of very close supervision as the gold was being recovered, because in effect they were doing sampling and recovering at the same time. The people in charge had that sort of sixth sense about what they were doing. To keep costs low, the managers did their own accounting and payrolls and purchasing of supplies. As I recall, some of these dragline dredge operations were run by perhaps only five or six people.

Because of the concentration on smaller objectives, which the very large companies shunned, there was a multiplicity of these small operations. In a sense, they were like the Forty-niners--they started out with an idea, very small means, and a great deal of enthusiasm and entrepreneurial spirit. Of course, those who were able and knew something about technology prospered and

PM: succeeded better than others who didn't. In trying to sell jigs, a new technology, I visited mostly the more successful operations. I didn't see many failing operations, because they could not afford innovative practices for recovering gold. When I visited these operations, I used to offer to demonstrate the advantages of jigs by testing one that I would install on their dredge. Most were very reluctant to spend any more money, but I found them enterprising enough to listen and to be interested in the story that I told them. Sometimes I would show up without any prior notice. I did make some sales, but not many.

Swent: Did you play any role as a bringer of information? Did you bring information from one operation to another? Did they question you about what other people were doing?

PM: Yes, I did that. As I gained experience and learned more about jigs and their application, I could recommend a more efficient use to the new customers.

By the way, you asked me earlier about the labor situation. Most of these operations were non-union. However, the larger operations had unions. Unions at that time were not very aggressive because there was very little activity in mining before then, and the renascence of activity was welcomed by labor; they didn't want to disrupt the more successful operations and the rising employment. At the same time, the longshoremen in the San Francisco area were very militant, and they created a union attitude and union strife all along the coast that hurt the San Francisco port very badly.

Swent: The general strike was early in the thirties, wasn't it?

PM: That's right.

Swent: Did that affect you at all?

PM: No, it did not seem to. At least I was not aware of the fact at any of the mining operations that I visited. But I do know that the larger operations, such as those of Newmont in Grass Valley, did have problems with the union--especially in the later thirties and in the early forties before they were shut down.

Swent: Shut down by government order, we should say.

PM: By government order L-208.

Swent: What about the coming of the war? Were you aware of this?

PM: I was very much aware. I kept up with the international developments from newspapers and radio, and I felt we were moving inexorably toward a war. I believed that Hitler's intentions were to perpetrate a war, and his delaying tactics were a camouflage to gain time for building up military strength.

I remember very well that at that time I met the girl who was to be my future wife, and we discussed this subject quite often. I was fearful of the future. If war did come--and I felt it would, I knew it would change our way of living, and that of the whole world, radically.

Managing Mines

PM: The second phase of my professional activities followed soon after the work I did for Pan American Engineering Company in trying to promote its flotation machine in Morenci. My father, who by that time was established in New York, was trying to find other things to do. He didn't think much of my job; he thought that selling equipment was something beneath the dignity of a budding mining engineer. "All you're doing is peddling machines, and what kind of an occupation is that? You should quit that. You should get into production rather than just be a peddler." But I didn't have an opportunity to get another job.

Finally, through his connections in New York he heard of possible mining prospects in Argentina owned by a Cuban named Acosta. He made a deal with Acosta for the right to examine the properties, and he asked me to join him. I took leave from Pan American Engineering, and he and I, together with Arthur Corry, a mining engineer and the father of Andrew Corry, whom I mentioned earlier, went to Argentina by ship in 1938. There was no air travel then. We examined a tungsten prospect in the Cordoba province and a gold-copper prospect in the Andean foothills near the town of Chilecito.

El Oro Mine, Argentina, 1941-1942

PM: We turned down the tungsten mine, but the copper-gold prospect seemed interesting. Father made a deal to develop it subject to his raising financing in New York. I went back to Pan American Engineering while father was arranging financing, which he succeeded in doing with Brown Brothers Harriman, a well-known investment banking firm in New York.

Based on our initial examination, father decided that there was enough ore showing in the adit driven on the vein at the gold-copper prospect to justify building a mill. He suggested that perhaps Pan American Engineering might design the mill; he also asked if I would arrange it so that Pan American would both specify and actually buy the equipment. Pan American agreed to do the job for a fee, and I then engaged Allan James.

The design of the mill was undertaken by an engineer at Pan American named Frank Collins, a first-class mechanical engineer. He had extensive experience with Cerro de Pasco Corporation in Peru and had been at Pan American for a number of years. He and I were very good friends. He also helped me choose the proper equipment, including a diesel-driven power plant, which was required because there was no public power available. Allan James was sent down to Argentina to construct this mill from the designs that we had prepared at Pan American Engineering in Berkeley.

Swent: Was there a mine there already?

PM: No, it was a prospect in which there was an adit on the vein. We had to develop it to prepare it for production. The commitment was made to build a mill before the mine was developed.

Initially the development was entrusted to a young man named Len Norton who was a son-in-law of Les Bechaud, a partner and the manufacturing superintendent at Pan American Engineering. Development was turning out favorably, so that by the time the mill was constructed, we did have a mine that could start producing.

Swent: That always helps, doesn't it?

PM: (Laughs) The only problem was that Len Norton, who had actually worked for one of the Newmont mines in the Grass Valley district, instituted the shrinkage method of

PM: mining at El Oro, mainly because he knew this method from his experience with Newmont. The shrinkage stoping method consists of mining the ore and letting the broken ore accumulate in the space created by mining. It was drawn out only to allow space for the miners to drill and blast the back, while standing on previously mined broken ore. In effect, only part of the ore mined was drawn out until mining of the ore block was finished. However, Norton did not prepare enough stopes to feed the mill capacity and the enterprise faltered. In this crisis, my father asked me to be the manager of the mine. He had visited the mine and had seen what was wrong. So I quit my job at Pan American and went to Argentina. The company offered me \$500 a month--the magic figure I had established for marriage. (laughs) However, it was too early to commit myself to marriage. I wanted to see how the mine was going first and whether it would be successful.

At any rate, I went down, and I named Allan James assistant manager. (He had been in charge of constructing the mill before that.) He was a very good engineer, and we proceeded to correct the situation by doing enough development to mine the ore and by changing the mining method to open stoping. The mine soon began to produce at the rate that the mill needed feed. This was my first management job, and my background for management had been only what I had observed at other mines. I tried to organize the operation on a sensible and most economical basis.

It became perfectly obvious to me that I needed additional staff, and I finally got a chief mechanic, an engineer, an accountant, and an assistant accountant. These were all staff people that I got together in Argentina.

Swent: How was your Spanish?

PM: I mentioned that I had been previously sent by Pan American Engineering to Colombia, and I tried to pick up Spanish at that time. When I got to Pato, where I stayed for about a month and a half, I became friendly with a French mechanic employed there who was a mechanic on a French submarine during the First World War. Since I spoke French fluently, I spent more time with him than with anyone else and my learning of Spanish lagged. During my second trip to Argentina by airplane, which took six days (we stopped overnight), I did nothing but study

PM: Spanish. By the time I got to Argentina, I already knew enough Spanish to be able to understand and do a little speaking. From there on I tried to increase my vocabulary and perfect my fluency by reading newspapers in Spanish, reading books in Spanish--even English books that were translated into Spanish. I did finally learn enough to dictate letters in Spanish and conduct negotiations with the authorities. Later, when I went to Costa Rica, I became quite fluent in Spanish; I spoke it well and wrote it well.

The duration of our operations at El Oro was not long; the attack on Pearl Harbor took place while we were there. We just couldn't believe that most of the Pacific fleet--which we had thought to be invincible--could have been destroyed in one day by Japanese bombers.

Swent: How did you get this news?

PM: Got it by telegraph. But later on it was confirmed in detail in the newspapers. It was a tragic event and we all wondered what it would lead to. Would it lead to an invasion of California by the Japanese, or what?

Swent: Were you in contact with any of the Germans?

PM: No, this was before the Germans were interned in Buenos Aires as a result of the naval battle that Germany lost.

Swent: You had no German employees or staff?

PM: Yes, we did have a German employee, actually a German who had emigrated long before the war by the name of Lilienthal. He was our agent in Buenos Aires. He was a loyal employee. Incidentally, in the very early days of developing the mine and before I came to Argentina, I recommended to my father that Andrew Corry be sent to look after the business side in Buenos Aires. I also recommended a mining engineer whom I knew at the Montana School of Mines by the name of Grassmück as a suitable person to run the mine.

Grassmück was there for a while in charge of development, but my father didn't like him and finally fired him. Andrew Corry became convinced that we were doing the wrong thing in building the mill without adequate development of the mine. However, my father insisted on proceeding, so Andrew resigned.

(The following section was written by Mr. Malozemoff after the interview.)

The war went on, and it became more and more difficult to continue operating and to secure supplies. At one point my father came down to look at the mine to decide what we were going to do next and to see if these difficulties could be overcome somehow.

In returning to Buenos Aires to discuss the situation, we thought we would save money for the company by bringing a gold shipment ourselves instead of having Lilienthal do so, as was the custom. The New York financing parties had become quite disturbed because the profits from the mine were meager. They had an English representative in Buenos Aires; when he learned that the gold was not going to be transported by Lilienthal, he considered it highly irregular despite the fact that we delivered it to Mr. Lilienthal in Buenos Aires to be sold by him. Whether it was communication about this to New York, or the general dissatisfaction there that caused the action, I don't know, but we were advised that the Malozemoffs were no longer needed and a substitute manager was on the way. The substitute, a mining engineer from Colorado, didn't do any better--or did perhaps worse, because the mine was shut down very shortly thereafter anyway. My father's reaction to the debacle in Argentina was typical of him. Instead of being depressed by it, he took it all as a joke and could hardly stop laughing at the turn of events. (laughs) It just didn't seem to bother him at all.

I should mention the mill superintendent I personally chose for the job. I got to know him in California when he did a job for Pan American Engineering. Wing Lew was a Chinese-American engineer, a graduate of the University of California Mining School. I was quite impressed by his intellect, his ability, and his experience in milling. He was a little younger than I but he had some three or four years' experience as a mill operator and was willing to come to Argentina. He married Clara shortly before that, a charming Chinese girl born in San Francisco, as he was.

I sent him to Argentina before I became manager there, and he was engaged in the construction of the mill together with Allan James. He was a most careful, very meticulous engineer--practical and sound. He immediately

saw that the mill's lifeline was going to be the power plant, a low-speed Fairbanks Morse diesel Engine. For the mine we had bought a Swedish spark diesel engine.

(Return to interview transcript)

Swent: And where did you get your diesels from?

PM: United States and Sweden.

Swent: Came down by ship?

PM: Oh yes.

Swent: On the East Coast, the Atlantic Ocean?

PM: Yes, by way of the Atlantic Ocean.

Swent: So there were problems?

PM: This was just before the war. The equipment for the mine was shipped before the U-boats started operating in the Atlantic Ocean.

(The following section was written by Mr. Malozemoff after the interview.)

Wing Lew suggested that his responsibilities should extend to the Fairbanks Morse diesel, as well as the mill, to which we all consented. He searched high and low for an Argentine diesel man, and he found a well-experienced one in Chilecito. Together they established preventive maintenance procedures and the diesel engine never failed. For the Swedish spark diesel, I hired in Buenos Aires the diesel mechanic who worked with the inventor of this engine in Sweden and was his agent in Argentina. Unfortunately, he was an alcoholic, which caused us a lot of trouble. But he maintained the engine well and was always alert to any sign of trouble with the engine, even when he was drunk.

Wing Lew was absolutely a first-class operator as well as a first-class engineer. The better I knew him, the more respect I had for him. He turned out to be brilliant in anything connected with mechanical problems,

and, surprisingly, also with investment or other financial decisions. His judgment seemed always right. He was an excellent bridge player, too--better than anyone else in the camp, and he turned out later in his career to be an excellent over-all manager.

(Return to interview transcript)

PM: After the El Oro Mine shut down, he stayed in Argentina and joined St. Joseph Lead Company, and in a very short time moved into management. He did a fine job with the Aguilar Mine, first as mine superintendent and then as mine manager. Later he became the managing director of the company in Buenos Aires. He became well acquainted with the banks and the leading industrialists in Argentina and was highly respected, despite the very difficult time after the war during Peron's incumbency, and ruinous inflation. By understanding how to deal with inflation, he invested the company's funds during the period when they were not permitted to expatriate them for dividend purposes, and in effect he maintained the value of these funds in spite of the inflation through judicious investments--which he made all on his own. He was really quite a remarkable person, and he remains a good friend of mine.

Swent: Is he back here now?

PM: Yes, he is. He is now retired, but before retirement he had advanced to become an executive vice president of St. Joseph Lead Company here in the United States. ##

Abangarez, Costa Rica, 1942-1943

PM: Prior to his coming back down to Argentina, my father was working on another project together with Herbert Kursell, who was then employed as a vice president of American Smelting and Refining Company in New York. They heard about a gold mine that United Fruit Company had in Costa Rica, and they approached the United Fruit people to try to get a lease. The company had left the mine in the hands of some former members of local management and others as leasers, and the mine was being operated by them on a small scale. Father and Kursell

PM: argued that they could do a better job than the local leasers, and they succeeded in getting a lease which would be owned by a partnership consisting of my father, myself, Mr. Kursell, and Mr. Montejo, a Costa Rican businessman.

Before the lease was signed, father and I went down to Costa Rica to inspect the mine. I did most of the investigation and collected ore dump samples which were assayed in the local assay laboratory. I examined the underground workings and took samples there. My father was not too well then, and he delegated most of the effort to me.

I recommended to my father that we not take the lease. I said that yes, we could probably get some profit out of the mine, but at best, it would not be very large because the remaining ore was essentially in the pillars that were left by previous operations. We'd be scratching for ore all the time, and it would be very difficult to mount a reliably continuous operation since we did not know how much ore had been left behind in this old mine. I felt it needed some investment for modernization, but there was no assurance that one could get back all the capital invested.

My father disagreed; I think this was sort of a move of desperation on his part, and perhaps he sensed it might be the last venture in his life. He was already in his sixties. We argued and he became quite heated about it. Finally I said, "No, I don't think we should do it. I don't want to be involved in this." He replied, "Well, all right, you're free to go. I'll manage it." I thought, "Oh, my God, my father is sixty-two years old, and apparently not very well--and now to manage this mine--he can't do it physically." I knew he meant it, though, he was so determined: he was going to do it no matter what.

I was afraid it was going to be a failure, and I thought it would be terrible for my father to end his working life with a failure. So I decided, well, maybe we ought to take a chance, and I said, "All right, I will stay and be the manager of this enterprise, although I don't believe in it." To myself I said that it would be better for me to go through the experience of failure than to subject my father to it.

PM: So, anyway, the lease was signed and we proceeded. All my recommendations for modernization of the facilities, especially the cyanide plant and the flotation plant, were accepted. We raised some money, and I put my only savings--about \$10,000--into the partnership in order to provide the capital for this venture along with the other partners.

Swent: Did you also borrow money from a bank?

PM: No, initially we tried not to get involved with the banks, although later we had to. We raised money from our private funds, and the total amount wasn't very large.

Swent: Were you a target for the army at this point? How did you manage that?

PM: I was registered in California but was never called. I offered to come back for service but got no reply.

I worked very hard at Abangarez. I made peace with the previous leasers, who were former United Fruit managers or staff people. They were somewhat resentful of us because we were instrumental in the termination of their lease from United Fruit Company; they had been making some money out of the operation. But they consented to stay on with us, and I worked out an agreement that their lease concept would still be maintained by us. They were sort of secondary leasers of the mine and would get a share of the gold that they produced.

Swent: That must have been a rather touchy negotiation.

PM: Yes. There were four of them who were operating the mine.

Swent: Were they Costa Ricans or Americans?

PM: Well, one was a Spaniard, one was an Englishman, and two were Costa Rican--and there were also two Americans involved. One was Duncan--a typical Bostonian, but he was not a leaser; he had chosen to retire there. The other was Price, who was our employee and ran the flotation mill. Anyway, I established very good relations with the leasers. They trusted me; I trusted them. We made it a cooperative enterprise since we were all interested in making profits. It was agreed that I would make daily trips to the mining operations, which were located within about ten miles of where the mill was and where we lived. So I made the rounds on horseback, twenty miles or so a day, every day except Sunday.

Swent: And the name of this place was....

PM: Abangarez. It is on the western side of Costa Rica facing the Pacific Ocean, in an area inland from the Golfo de Nicoya and Puntarenas, a little port in the gulf which was a terminus of the one railroad that Costa Rica had from the eastern coast to the western coast.

Most of our supplies came from the east, from the Gulf of Mexico side, where they were unloaded at Puerto Limon, the only port on the eastern shore. Our supplies arrived at the port and were carried by railroad to Puntarenas. There was a road from there to Las Juntas, a small village about five miles from the millsite, to which delivery was made by ox cart. We had no road to the mine--it was really a trail, and it could be negotiated either on horseback or by ox cart. We had no jeep, no four-wheeled wagons or trucks of any kind.

Mining proceeded with enormous investiture of time by me in order to keep things going and keep track of what the leasers were doing. I also did the underground mine surveying for them. I was especially careful and involved in the milling of the ore they produced in order to make the proper distribution of the proceeds.

Swent: This is gold again?

PM: This is gold, yes. We had a cyanide plant where I lived, for cyaniding the gold-bearing pyrite flotation concentrates. We recovered the gold and threw away the barren pyrite concentrates after cyanidation. There was a flotation mill at a mine some miles away that was producing the concentrates, and these concentrates were transported by muleback and ox cart to the cyanide mill where we lived. It was not a cheap operation, but we employed very few people. We managed somehow for a time, but then I decided that we needed help because I couldn't quite handle the whole thing. I offered the job of assistant manager to Allan James, who had left El Oro by that time, and he accepted.

It was before Allan's arrival that I felt lonely and decided it was time to marry. Originally I had planned to get married in Argentina, where I built an apartment for us at the El Oro Mine, but that plan could not be realized. And for a while I was so discouraged that I didn't want to tell Alexandra about our debacle in Argentina. I was certainly remiss, and for some four

PM: or five months she had no word from me and wondered what happened. Since this was during the war, she attributed my silence to poor communications due to the war. I finally wrote to her to ask if she would mind coming down to Costa Rica so we could be married. She came and we were married in San Jose. We didn't have a honeymoon, I didn't have time for a honeymoon; so right after the marriage we came on back to the mine. She rode horseback up to the mine together with me.

Swent: How did she get there? How did you travel from....

PM: Well, that was difficult. She had to come down from California by way of Mexico City, and then on by way of Guatemala....

Swent: By train?

PM: No, no, by air. But because we had military forces going back and forth, she was bumped in Mexico City and could not communicate with me. I was waiting for her in San Jose on the day she was supposed to arrive, but she never appeared. She had to wait until she could get a plane seat. Every day I would go to the airport to meet her, only to be disappointed, until she finally arrived three or four days later.

Swent: I was interested that you mentioned flying to Fairbanks. There must have been airplanes up there very early then.

PM: That was in 1936, I believe. By that time Pan American was flying DC-3's to Fairbanks. They stopped several places on the way.

Swent: Now when you went to Costa Rica yourself, you went down the coast by boat?

PM: No, we went by air.

Swent: Again by air?

PM: Yes. In Costa Rica itself we flew between San Jose and Las Juntas. The Costa Rican airline had several trimotor Fords, which were obsolete and no longer flying in the United States. To keep them flying despite the inability to get spare parts, they cannibalized some of the planes they had. It was always a hazardous experience to fly on these planes. They were so old that they could be fairly termed ramshackle.

PM: One time I made a trip to San Jose and the plane had to make its regular stop at Puntarenas, which also served as a small military base for the American Air Force. This trimotor I was flying in was so old that some of the seats were no longer properly anchored and slid back and forth if the plane banked too steeply. The plane was absolutely full of villagers from Las Juntas bringing their live turkeys and chickens and what not to the market in Puntarenas to sell them there. As we were about to land, all of a sudden one of the American war planes started to take off, and if we had continued our descent, we would have landed right on top of it. Our pilot banked very sharply to the left, right over the bay. The door flung open and the chickens and turkeys were abandoned as everybody grabbed something to keep the seats from sliding through the door. The chickens and turkeys all slid out the door and were flapping in the air around us as we were banking. We landed safely, though, minus the chickens and turkeys. (laughs)

Swent: The trimotor Ford was the workhorse of a lot of mining camps.

PM: That's right.

Swent: They were wonderful planes.

PM: Once, when my wife met Maria, my father's second wife, in San Jose, they both came back on a trimotor Ford. The little landing strip that we had at Las Juntas also served as a cow pasture--it was merely a grassy area. The normal landing practice was to make a false pass at the cow pasture and scare the cows away so the plane could land. The plane made the usual pass and then landed, but something went wrong; it landed in a soft place and sort of semi-crashed. I was there to meet them, and I ran out to the plane and found that nobody was hurt. The plane got stuck in the soft place and half-overturned.

Swent: It must have been quite an adventure for her. She'd never been out of San Francisco?

PM: I think that it was her first experience of a crash. I've never experienced one in all the flying I've done.

Swent: How long did she live in Costa Rica then?

PM: We were there for a total of nearly two years. After the first year, I suddenly developed a pain in the lower part of my leg. It got more and more painful with time, and the only way I could keep the pain down was to take aspirin. Finally I decided it required medical attention and I sought it in San Jose. The medical help there was very limited; I went from one doctor to another. Everyone had a different theory about it. Some thought it was the sciatic nerve; others thought it was some other kind of nerve disease. They tried all kinds of remedies, including that of injecting me with bee poison, which was horribly painful. They even tried an injection based on rattlesnake poison--the shock from which presumably would give me relief from pain. Well, that didn't help either.

With the pain getting worse and worse, we finally decided to seek medical attention in Mexico, where, after several false diagnoses, I was examined by a doctor who was trained in the United States. By the way, none of the previous doctors had considered taking an X-ray. It was my wife who insisted that an X-ray of the leg be taken. It was finally taken, and the first doctor who looked at it proclaimed that I had a hole in my leg. "I know just what it is," he said. "It's a parasite that gets into the bone and curls up in the bone and eats it away, which causes the pain." That sounded rather improbable to me.

I went to another doctor and he took another X-ray. It turned out not to be a hole, but a bump on the bone. Apparently the single previous X-ray was taken from the wrong side, and the bump appeared as a shadow. The final diagnosis was a bone tumor. The American-trained doctor recommended a biopsy. He said that if the biopsy showed malignancy, he would operate to remove the tumor. He said he would not know until he made the exploratory operation whether the tumor was so extensive that the leg would have to be amputated. They put me to sleep, and I didn't know whether I was going to wake up with a leg or without one.

Well, it turned out to be only a biopsy, and he found that the tumor was benign. For some reason he did not proceed to cut out the tumor. Apparently the part he took out for examination was, however, sufficient to stop the pain for a while. I went back to Costa Rica, where the pain revived, and within six months it became intolerable. I decided that the best thing to do was to have the operation properly done in the United States. I wrote to my father about it and he arranged an operation in a New York hospital by a famous bone surgeon. But I'm getting ahead of the story.

PM: Our gold mining operation at Abangarez became more and more threatened as we began to exhaust the reserves of various materials and supplies. Anticipating their complete exhaustion, I wrote to my father in New York that we must, we absolutely had to have some supplies, and I enumerated all the supplies that we needed. This was now 1943. It was after the famous order, L-208, that shut down the gold mines in the United States. The authorities refused to give a license for export of supplies because it was for a gold mine.

Somehow my father managed to convince the top man in procurement, who was then Paul Nitze; today Paul Nitze is a well-known figure involved in disarmament discussions with the Russians. Father argued that this little mine was in Costa Rica, which was close to Panama; Panama was a strategic area that the United States would defend against possible Japanese or German incursions, and Costa Rica was so close to Panama that it was in the U.S. interest to keep the Costa Rican government closely allied to the United States. Hence it was important to keep such industry as there was in Costa Rica going.

Paul Nitze finally bought that argument and allowed our supplies to be bought and shipped. They were loaded on a freighter and the ship came into Puerto Limon in the evening to be unloaded next morning by longshoremen. All our supplies were on this freighter, especially the cyanide, which was used to recover gold. During the night, a German U-boat torpedoed the ship at the dock and sank all the cargo in deep water. All the supplies, including the cyanide, were of course ruined, and there was no chance of getting the permit to export again. That closed our enterprise. It failed for lack of supplies--but it would have failed eventually anyway because there was not enough ore. I think I was right in counseling my father not to take on this lease.

So, in effect, one failure followed another failure. In the process, I lost all my savings, got a tumor on my leg, and finally left for the United States to have the tumor removed. (laughs)

Swent: And a bride!

PM: She left before me to have a baby in California. It was the low point of our life. However, the tumor operation was successful, and I was soon on crutches looking for another job. Andrew Corry helped me to identify a



Alexander Malozemoff at
El Oro Mine,
Argentina, 1942.



Alexis and Irene
Malozemoff, 1951.

PM: possible position that I could have with the OPA (Office of Price Administration), which was then in a sort of partnership with the WPB (War Production Board) in the administration of the Premium Price Plan which was designed to help maintain maximum production of strategic metals in the United States.

Office of Price Administration, Washington, 1944-1945

Swent: And were you working then with Jim Boyd?

PM: No. It was OPA, and the man who conceived the OPA was, I think, Hopkins. The head of it was Chester Bowles, who later became ambassador to India.

Swent: So this was in 1944?

PM: In 1944, the beginning of 1944.

Swent: And you moved to Washington?

PM: I moved to Washington, by myself, on crutches, and I was on crutches for something like three months and had to commute back and forth between the office and the little room I had rented. It was in the same house where Andrew Corry stayed when he was in Washington. At this time he was a minerals attache with the U. S. Embassy in India. I had to trudge up and down three flights of stairs on crutches. (laughs) And then there was the trial of getting to work in a taxi; when taxis weren't available, I had to get on a bus, with the crowd pushing and shoving to get on as well. Washington was overflowing with people during the war and there was a shortage of everything. I was always the last to get a taxi, or get on a bus, because on crutches I was not as agile as the others. It was a very hard time.

Swent: It must have been a rather exciting time to be in Washington, though.

PM: Well, I found it burdensome and difficult, and I was exhausted by the end of the day from physical exertion.

The OPA and War Production Board had a small staff of engineers to handle the Premium Price Plan work. The two committees, acting separately, analyzed the same applications for financial help needed by most applicants,

PM: because the prices of copper, lead, and zinc were frozen at very low levels. The purpose of this effort was to prevent inflation from getting out of hand.

Swent: Were you dealing only with those three metals?

PM: Yes, except for by-products like molybdenum, gold, and silver, essentially with three nonferrous metals, copper, lead, and zinc. There were only a few mines that were able to operate at that time at the very low set prices. Most found that their costs were rising during the war for various reasons, and they needed help from the Premium Price Plan. The OPA and WPB committees were expected to exercise the final judgment on what help was needed or whether, instead, production adjustments might achieve lower costs. The goal was to try to do it as economically as possible.

The procedure required that when an analysis was done, OPA and WPB had to agree on conclusions and make a joint recommendation to Metals Reserve, a government agency which was created to disburse the funds recommended in our analysis. They also had engineers who checked our analyses before funds were released.

Swent: What sort of analyses were you doing? Were you actually running a chemical laboratory?

PM: No, no. This was financial analysis based on operating and financial data that were furnished by the companies. We had to project their needs for six months to a year ahead, basing such projections on our understanding of the data furnished and our own judgment of the probable future of the operation.

Swent: Did you accept their data, or did you go out and check it?

PM: We were told that if we had any reason to feel that we needed more data or felt we needed to check what was presented, we were to make a field trip to examine the mines and talk with the operating people to decide if changes in assumptions were needed. I did a lot of travelling for this purpose.

The head of the OPA committee was Jesse Maury, a very bright, young mining man from Butte, Montana. His father had been the mayor of Butte at one time. His administrative assistant was Middendorf, a small-mine manager from Idaho. He was not well qualified for judging

PM: the merits of the analyses we produced, but he was a charming person with the intelligence and wisdom to understand and sometimes contribute to what we were doing.

I worked there for about a year and eight months. Because I was conscientious and tried to work as fast as possible, I acquired the reputation of being the fastest analyst in this program. Some of the other analysts were older, some were retired, and some considered the job as a sinecure and had no desire to be fast. This was typical in some of the civilian war efforts in Washington. I didn't feel that way. I think my rate of analysis was about three times as fast as the average of those people who were working with me. They weren't very sympathetic to the way I worked, because I sort of showed them up. The companies who submitted their problems to us sent their executives along to explain the data, and in this way I got to know most of the executives of the major producers of copper, lead, and zinc at that time, which served me in good stead later, after the war.

Swent: What were the mines that you were analyzing?

PM: Some of the major mines. All of the lead mines of St. Joseph Lead Company; some of the Newmont mines, among them the Resurrection Mine, the Idarado Mine--both of them in Colorado, and the Magma Mine in Arizona. American Smelting and Refining came for help for their Coeur d'Alene, Idaho, lead and zinc mines. Zinc smelter operators came for help, because they felt that their rates should be raised owing to inflation; since I was a metallurgist, I was assigned to handle their problems in addition to the other mine operations I handled. We had six or seven analysts, and I think I did half of the work submitted to us. All the applicants considered me a very conscientious analyst---one who quickly understood their problems and got out my reports expeditiously so they got financial assistance sooner.

Swent: Your recommendation then was passed on to whom?

PM: It was first sent to the WPB, but the WPB staff did not make as detailed analyses as we did. They usually went along with our recommendations--and mine were never questioned. Our reports then went right on to Metal Reserve. As a matter of fact, very few of the analyses produced by the OPA committee were questioned or returned by either WPB or Metal Reserve.

PM: My handling the analyses of some of Newmont's mines later led to my job at Newmont. Magma Copper Company asked for financial help to exploit zinc ore in its Superior Mine in Arizona; although Superior produced copper throughout its life, there were some zinc areas in the upper levels of the mine. Magma thought that producing zinc might help the war effort, so I went to the mine to look over this scheme. I came to the conclusion that it would be uneconomic to mine the zinc stopes--production would be too small to justify helping them. I consequently turned down their application.

I'm not sure that Newmont was convinced that this was a commercial enterprise. They thought that if they got enough financial help from Washington, they might be able to produce zinc, but otherwise it was not commercial. They did not seem too disappointed at the turn-down. I suppose they regarded my analysis as the proper analysis.

The other Newmont-owned mine that came for help was the Resurrection Mine in Leadville, Colorado. It was a lead-silver mine with some zinc content. Part of the mine was very old and had been operated in the past from time to time but it had been shut down because it couldn't make money. Fred Searls, the head of Newmont at that time, just prior to the war decided on geological grounds that certain areas were not fully prospected and perhaps had somewhat higher grade ore which would be commercially profitable. Indeed, his geological guess proved to be right; after development the mine started producing, but costs increased and they did need some help.

After reading their application, I felt I needed to understand their problems better, so I made a trip to the mine. I spent about a week there climbing around and examining the stopes, appraising their current operations, and considering the geological possibilities. I came away with a positive impression and a conviction that it was worth while helping this mine so that they could raise production.

Swent: Had you met Fred Searls at this time?

PM: I met him in California one time when I worked for Pan American Engineering, but he really didn't remember me. The Resurrection request was handled by Philip Kraft and

PM: Alexander McNab, both of whom were vice presidents of Newmont. I had the closer contact with Philip Kraft. At any rate, as was customary, I wrote a rather comprehensive report of my findings; I described the geology, mining, and milling, and evaluated the promise of their exploration effort to locate additional ore, and I gave my report to Philip Kraft. Later on, after I came to Newmont, Philip Kraft, who followed the operation of the mine and was familiar with the opinions of the Newmont geologists as to the promise of the mine, told me that my report was the best report they had in their files. That is what led him to become interested in me as a possible employee for Newmont.

There was another incident that illustrates some of the problems you run into in Washington handling applications for financial help. I was in Idaho, analyzing whether financial help should be given to one of the mines that belonged to American Smelting and Refining Company, when I was approached by a geologist representing a number of other people who were trying to develop a mine of their own. He was a very good geologist and I was impressed by his story. I told him that what he was telling me would qualify for an application for help from our Premier Price Plan, and that I would be glad to take it to Washington and make a recommendation if I came to the conclusion that the exploration and development they were planning justified help. When I got the application, I wrote my report recommending financial help.

After I advised the geologist of this, I got a letter from him with a check for \$500. I replied immediately, not referring to the check but simply returning it to him, making it clear that I couldn't possibly accept it as a government employee. This is the kind of problem one has to be careful about when working in Washington.

Swent: Were you ever pressured in any other way when you gave a negative report?

PM: Oh, yes, by a lot of arguments. No threats, but strong arguments that I was wrong, and I didn't know what I was talking about.

At any rate, to complete that story, the war came to an end in 1945, and I knew it was coming close to an end during our campaign against the Japanese. So I began to look around to see what my next job was going to be because I knew the Washington job would terminate soon.

PM: I reserved several indications of a possible job. One was with American Smelting and Refining Company in their metallurgical department which my father helped line up. I had an offer to come and talk about it in New York. The other one, much earlier, was with Freeport Sulfur Company. During the war they learned about a possible copper mine in New Guinea, what is now the famous Ertzberg Mine.

The origin of this mine is interesting. The outcrop, which was spectacular, was noticed, as I understand it, by Dutch military pilots as they flew over that part of the country during the war. The presence of this very prominent outcrop came to the attention of the Freeport Sulfur Company, and their chief geologist, Forbes Wilson, was assigned to examine, and later to explore and develop, it. They were getting ready to do this and were looking for engineers, so I applied for a job. This was while I was still on crutches. Forbes Wilson interviewed me at one of the social clubs in Washington. When he saw me come in on crutches, he must have thought, "Oh, my God--send this fellow to New Guinea? No way am I interested in his services." I tried to convince him that the crutches were not permanent, that I was going to be all right, but he was not interested. We wasted the time at lunch and no offer was made.

There was another offer that was also in Southeast Asia which would have required almost immediate absence from the United States. I looked upon that opening as being sort of a last resort, as I didn't particularly want to get away from the United States at a time of reconstruction after the war, when I knew that the areas in Southeast Asia would take a long time to recover.

Then, as a result of my analysis of the Resurrection Mine, Philip Kraft got in touch with me and suggested that there might be a job for me with Newmont. Having got to know Newmont and some of their people, and knowing something about Fred Searls, I said yes, indeed, I was interested. Eventually, while I was still working for the OPA, and perhaps two or three months before peace was signed with the Japanese, Fred Searls offered me a job as an assistant to a geophysicist whom he had hired, who was going to do exploration for Newmont in the western United States. This man had convinced Fred Searls that he had a unique method of interpreting magnetometer results. Not knowing much about geophysics, Fred Searls hired him to do the geophysical prospecting. He thought it would be a good idea to also employ an assistant to sort of

PM: watch what this man was doing. He offered me that job. Not being a geophysicist, I decided I wasn't qualified and turned it down. I'm glad I turned it down, because had I accepted it, I would properly have been very promptly fired, because it turned out that this man was a fraud--and he was fired.

I let Kraft know that I was interested in a job in headquarters in New York. It took some time for Philip Kraft to convince Fred Searls that they needed additional help in New York. Finally he got Fred Searls to interview me. One of my sponsors with the WPB was a man named Barker, a prominent mining engineer whom Fred Searls knew well from the time he was involved in the early development of Northern Rhodesian copper fields. A luncheon in Washington was arranged by Fred Searls, to which he invited Barker; it seems that Barker had earlier written several letters to Fred about me.

I later saw the letter that Fred Searls wrote from Washington to Philip Kraft after his interview with me. In his letter he wrote, "This was a curious lunch. Barker never stopped talking, and he was like a hen trying to protect his chick, Malozemoff. He extolled his virtues and claimed that Malozemoff was qualified to do almost anything. It wasn't a very impressive performance, and I paid very little attention to it." (laughs) Fred asked me a number of questions to which I replied modestly, without trying to boast about my accomplishments. It was really a very cursory interview. He didn't delve into my experience.

I guess he was being pressured very hard by Philip Kraft and even by McNab that he ought to hire me, so he said, "Well, what are you earning here in Washington?" I said, "My salary is \$4,800 a year." He said, "I'll offer you \$4,200." I suppose he thought that would be the end of my interest in the job, but I accepted it right there! (laughs) This was early in September or maybe late in August, 1945. In late September, I think, peace was signed with Japan. On October first I moved my little family to New York to take up the job with Newmont.

Swent: By then your family had come to Washington?

PM: Yes. I brought them out about a year and a half before that. We had quite a time in Washington trying to find a place to live, because the city was overcrowded during the war. Finally I got a summer lease on a very nice house in Westmoreland Hills, a suburb of Washington.

PM: The lease was only for two months while the owners were away. It was a fine house, too expensive for us, but my wife was delighted because there was a garden and it was in a very nice neighborhood. But because our lease would come to an end within two months, I started looking for another place to live right away. I couldn't find anything at all at first. Finally I found a little apartment in southeast Washington, in a not very good area, but I decided to take it. Eventually we moved in with our newborn son, who was only a few months old.

The former tenants of this apartment were young nurses, and they had army boyfriends on furlough visiting them from time to time. They came, I suppose, from the Far East. At any rate, the place was in a mess when they vacated it, nor was it very clean. We tried to clean it up as well as we could. I think it was the first or the second week we were there, when our baby boy, who was sleeping in a crib, woke up and started crying. My wife rushed to him and saw that he was covered with bedbugs.

This reminds me of the memoirs that my mother wrote, and her experience with her babies in Siberia--the same experience, exactly the same thing. I never thought I'd see bedbugs in America! In the search for bedbugs and their habitat, I had to take the crib apart, and I discovered the bugs in every mortise hole. We sprayed the crib to kill the insects, and then we traced the bedbugs to the master bedroom which was probably first infested with them. There were problems with cockroaches as well. At any rate, we finally cleaned up the place.

It was a very difficult time and place to adapt to and arrange a good life. We had very little money to spend, and the work that I was engaged in was strenuous. We were anxious about our future when the war would end and my job in Washington would terminate. It was not a happy time for us, but we faced it courageously. ##

Children: Alexis and Irene

Swent: The last mention of children was when your wife was just about to have one child. He was born in Washington, and then you suddenly jumped us up to New York and two children. You might say briefly where you decided to live in New York.

PM: Our first child, a boy, was born in California, in Santa Rosa. It was before I came to Newmont, when I was in Washington. Our second child, a girl whom we named Irene, was born four years later in Long Island, New York, after I joined Newmont. Both these children turned out to be wonderful people.

Swent: Your son, I presume, is named Alexander?

PM: Alexis. Alexis had a brilliant, absolutely brilliant scholastic record. He was a National Merit Scholar, and from the time he left secondary school, he didn't need any money from me at all to pursue his further education because it was all paid by scholarships. He was probably the best student that the Country Day School in Greenwich had ever had--that was a grammar school, and I think he was among the three or four best students that Andover Academy, in Andover, Massachusetts, ever had.

He finished summa cum laude in physics at Harvard, followed by three years at Stanford University where he got his doctor of science degree. He followed that with a whole year of post-doctoral study and research at Oxford. Before he went to Oxford, he joined IBM in France for a summer job; he apparently created a very favorable impression during this summer job, and IBM wanted to hire him permanently as soon as he graduated from Stanford. But he said he wanted the post-doctoral year at Oxford, and they offered to wait for him for another year and then hired him right after that. He's been with IBM ever since, in research. Lately he's been designated as a coordinator between the research and the application on super-conductivity. He's done very well with IBM.

He's also an excellent musician--he plays the piano, and for a time even considered the possibility of having a concert career; but by himself--without any influence from me--he decided that he probably was not good enough for that and he'd better take up science.

Swent: And does he have a son named Plato?

PM: No, but he has three sons now.

Swent: But he's broken the tradition.

PM: He broke the tradition. Although the youngest son is named Alexis after him. His other two boys are Andrew and Michael--and Andrew was named without my son having

PM: remembered that Andrew was my grandfather's name on mother's side, and also my brother's name.

Swent: Where do they live?

PM: They live in Mount Kisco, New York. I see him and his family quite often.

Our daughter turned out to be also quite brilliant. She went first to Country Day School in Greenwich, then to Rosemary Hall in Greenwich for her secondary school education, and then to Radcliffe College where she majored in fine arts. Shortly after that, she decided to go to London and audit some courses at the London School of Economics, essentially on town planning. The reason she was interested in that is because in her senior year at Radcliffe, she made contact with Jim Rouse, who was then developing a new town near Washington called Columbia. She worked for him in the summertime and was greatly impressed by the whole concept of creating new towns that improve the life of the people, and the idea of separating the workmen from the professionals and yet integrating them at the same time. She decided she wanted to know more about it, and that's why she went to the London School of Economics where they had an outstanding department dealing with that subject. In auditing, of course, she wasn't earning any credits, but just for fun she wrote the required papers for the course. The professor was so impressed by her papers that he finally convinced her to take credits for what she had done and obtain a master's degree.

In fulfillment of the master's degree requirements, she wrote her thesis on a subject that apparently had not been handled by previous researchers nor by people connected with town planning. Most town planning up to that time had always been done by architects and sociologists who implemented their own ideas of what the people would like. Irene's idea was to find out directly from the residents what they thought of the new town. So she went house to house with a questionnaire and then wrote a study which for the first time indicated what the people liked about the plan that was imposed on them and what they didn't like. It was such an original study at that time that the faculty urged her to stay on for the degree of doctor of philosophy in the same subject. And so she got a Ph.D. at the London School of Economics.

PM: She married shortly before completing the thesis, but she did complete the thesis afterwards. Then she and her husband, who is a doctor, moved to the Boston area and she joined a consulting firm in Cambridge that took on contracts with the U. S. government. Their clients were government departments such as HUD (Housing and Urban Development) and HEW (Health, Education and Welfare) which dealt with either aged or handicapped people and provided housing for them. She turned out to be an absolutely first-class analyst, and not only did she analyze, but she was able to propose schemes for improvement of what the government was doing. She became very valued in Washington. Every time she would appear with a new project, she would be told, "Irene, we will probably give this project to you provided you manage it."

She has two children; her oldest is now (February, 1989) nine years old. She's our oldest grandchild, a girl named Alexandra--named after my wife because she was born on the same day that my wife was born. The second child is a boy and his name is Jonathan. He's about two years old now. Irene had to quit her job after about three or four years in order to take care of the children; she was very determined to give the children the best motherly care she could.

She has been able to use her extraordinary abilities in helping the preliminary school (in Lincoln, Massachusetts) that the children went to in a business way. She's an active member of the Parent-Teacher Association now in the public school where her daughter goes. She's also been involved in the Lincoln Art Museum, helping them to define the purpose of the museum and what should attract the public to visit it.

Swent: You have an extraordinarily successful and interesting family. Is she musical also?

PM: Yes, she's very musical but--either because of lack of patience or lack of time or something--she never learned to play the piano well which she also studied. But she sings very well and has excellent taste in music as well as in art. We made it a point to be with our children as much as possible, and every summer we'd take them on a vacation--in the early years we went all over the United States. We've probably seen most of the national parks of this country. Both my son and my daughter loved it, and they love hiking and the outdoors.

PM: Then after they grew up a little, we started taking them to Europe. We'd go every summer to Europe with them. They were exposed, you might say, to those two worlds, and I actually took Irene on a very long trip to Africa once which she enjoyed a great deal. I combined going to the mines that I visited yearly with visits to game parks and other areas of interest in what was then Southern Rhodesia and also Botswana in southern Africa.

My son speaks Russian almost fluently and without an accent. My daughter understands Russian but speaks haltingly. One instance of my son's ability to speak Russian is interesting, I think. IBM sent him to Russia to deliver a lecture on the research that they were publicizing at that time, which he was to do at the Moscow University and also at the Leningrad Academy of Sciences. In preparation for that trip, I had a conversation with him and he told me roughly what he would be talking about. I said, "Are you going to present this in English?" "Oh no," he said, "I'm going to present it in Russian."

"Have you got it written out?" I asked. "Oh no," he said, "I never write out what I speak about."

"But," I said, "you're not that fluent in Russian to be able to speak easily without having written it out or without an outline."

"Oh, I'll get along," he said, "I may be stumped for some words, but I'm sure that among the fifty or a hundred people that are going to be listening to me, there'll be somebody who will know how to translate them from English into Russian." He later told me that his experience was exactly as he expected. Many of the people who heard him speak came up to thank him for his lecture, and they said, "You know, you're one of the very few that we have heard speak to us in Russian. The problem we have is that all these wonderful scientists coming from Europe and America speak only their own languages; we get the translation by simultaneous interpreters who work at the United Nations or something like that--but they're all non-technical. Because they're non-technical, their translations are sometimes so faulty that we don't really know what the lecturer is talking about. You're the first one who presented your subject so we could understand it because you spoke in Russian."

Swent: Have you always spoken Russian in your home?

PM: O, yes. We would speak it with the children to keep their Russian up.

Swent: I think it's one of the tragedies of our time how few young people are learning Russian.

PM: That's right, although there are more young people interested in Russian than ever today.

III EARLY YEARS IN NEWMONT, 1945-1954

(The following section was written by Mr. Malozemoff after the interview)

The second and more important stage of my professional life begins with my employment in 1945 by Newmont Mining Corporation in New York. Part of that period, from 1945 to 1971, has been well described by Robert H. Ramsey in his book Men and Mines of Newmont--A Fifty Year History published by Octagon Books, a division of Farrar, Straus and Giroux in 1973 in New York. He had been hired by me for Newmont and has known me since 1933. He has accurately sensed the unusual qualities and attitudes of the men who made Newmont and who enjoyed doing so in the process.

I will deal with that period in a sporadic way, filling out what was left unsaid by Ramsey, especially in my own personal involvement, but there will remain in my chronicle a certain amount of duplication in order to tell the story with some continuity requiring no reference to the prior text of Ramsey. Some parts of the story, such as Tsumeb and O'okiep, I have chosen largely to omit as I had comparatively little to do with the operations of these mines though I visited them yearly. There were lessons to be learned from them, and I made occasional contributions to operating policies, which, however, were not of a nature to affect their general direction. The principal story of these remarkable mines stands in proper profile in Ramsey's book.

Staff Engineer

I first reported for work at Newmont in October, 1945, at its office on the fifteenth floor of the Bankers Trust Building at 14 Wall Street. While I had been there before and met some of the officers, I really did not know the size of the organization or where I would fit in.

I was given a nice private office next to Philip Kraft, the vice president who picked me out in Washington. I was to be his assistant, and I discovered that I was the only staff engineer in the New York headquarters: Fred Searls, Jr., H. DeWitt Smith, A. J. McNab, Philip Kraft, Henry Krumb (engineers), Charles F. Ayer (president), H. E. Dodge, Franz Schneider and Arthur Lockett (financial men) were all top executives and/or directors--all chiefs and only one Indian--myself. After everyone met me, I soon became, in effect, a staff assistant to all of them, as they called on me for detailed analyses or to get information on their pet projects.

Newmont was then a relatively small holding company with minority investments in twenty choice mining companies. The more important were: Kennecott Copper, Phelps Dodge, Texas Gulf, International Nickel, St. Joseph Lead, Hudson Bay Mining and Smelting, and Rhodesian Anglo-American. The market value of these in 1945 was \$40 million. Other interests in fourteen companies not quoted on stock exchanges had a fair value of \$12.5 million as determined by the board of directors. Earnings that year were \$1.6 million. The company was highly regarded and was often referred to as the "Tiffany of Wall Street," somewhat mysterious and suspected of having hidden values. It shunned publicity, and largely through Fred Searls' initiative was always developing some new mine or exploring a new area. Franz Schneider, convinced with others in the company that the post-war era would witness explosive increases in unit labor costs, sought out investments in natural gas pipeline systems, capital intensive but with low labor requirements for operation. Sizeable and highly profitable investments were accordingly made in Transcontinental Gas Pipe Line, El Paso Natural Gas, Tennessee Gas Transmission Company, and East Tennessee Natural Gas Company, among others.

By the beginning of 1954, eight years later, when I became the chief executive, the portfolio of securities on the stock exchanges had a market value of \$125 million, and those not quoted, a fair market value of \$75 million. Net income for 1953 was \$8.6 million. I had made a modest contribution to this increased total value, all in properties under development at that time.

I now look upon those eight years as a time of apprenticeship in a lively, growing, diversified company. There was so much more to learn than what I knew from the prior twelve years of very varied practical experience which seemed to have prepared me for almost any job.

What I did not have was corporate experience and knowledge of taxes, legal matters and finance. Having understood this lack right away, I proceeded to learn all I could in these areas. Because Newmont did not offer to put me through an MBA course at any of the half dozen prestigious universities in New York and close by, I had to gain this knowledge by myself somehow. I was quite busy with much of the routine business at the office, and with the needs of my growing family at home, to say nothing of pursuing my second avocation in music (violin practicing and playing in amateur symphony orchestras and with a string quartet).

The only time I found for learning something about corporate practices and finance was during commuting time between home and the office. I read a small library of books and articles on these subjects while hanging onto a strap in subway trains, which were always full with standing room only. The course that I planned for myself for such subway study took several years, and I emerged from it knowledgeable, but by no means expert, although later I was attributed the reputation of being a smart negotiator and having acumen in finance. As my later recital will show, this is a reputation that should be shared by the very bright associates expert in these fields on whom I depended so much.

The senior officers of Newmont were quite remarkable men. All were of about the same age and had been together for a decade or more. Their knowledge, experience and wisdom seemed extraordinary in the little world of Newmont at that time. They were such independent individuals that they seldom agreed among themselves. Yet somehow the progress of Newmont continued despite disagreements, owing mainly to the strong personalities of each and the grudging respect they had for each other. In this diverse environment I found it possible to hone my own judgments to sharper focus. I could observe how complex was the multiplicity of variables and considerations past, present, and future, and marveled how these men reached the right conclusions without painstaking analysis, mostly on hunches based on their experience. I gradually began to be a player in this chess game of trying to anticipate the effect of decisions in the ambience of a changeable future, and I daresay my early absorption with chess probably conditioned my mind to try to anticipate the expected and unexpected moves by the opponent. At any rate, I adopted this method of arriving at decisions as my responsibilities grew.

After a few years I was given the responsibility of screening all the exploration proposals that would come to the New York office. As a result of this activity, I met many geologists and entrepreneurs, some of whom were or would become well known. One of the more colorful ones was Joe Hirshhorn, who came several times with prospects in the Philippines and in Canada. I thought most of them were of no interest to Newmont, but there were three uranium properties he brought in 1951 that I thought merited an examination: they were called Amax, Rix, and Clix, and were in an area in Saskatchewan where uranium had been found. I made a deal with Hirshhorn and asked John Drybrough, Newmont's head in Canada, to have these claims examined. A short while later I received the shortest report I had ever had of a geological examination. The telegram read: "Amax, Clix and Rix all nix. John Drybrough."

Properties Submitted and Considered

From August, 1947, to December, 1953, I handled 310 submissions of prospects for our further exploration or development, sometimes as many as twelve a month. Each property submission was carefully considered by me and written up for the files with the summaries of geological and mining reports submitted, sometimes supplemented by reports of previous examinations available in Newmont files, and research of other references such as government publications (USGS or Bureau of Mines) or other library sources. Appraisals covered geological, metallurgical and economic promise of each property. In 1950, Robert B. Fulton joined the company in New York and became my assistant. He helped me with appraisals of new submissions.

Most were turned down because they were either too small or uneconomic because of low grade or special metallurgical difficulties or because of unattractive deals or because of threatening political climate of a foreign country. A few were judged promising enough to merit examination. None, however, was taken on for development and eventual exploitation.

There were a few "misses," like the Pueblo Viejo gold prospect in Santo Domingo, which was later taken on by Rosario Resources for development and production. It was not an outstanding success and was eventually nationalized. We had a chance to acquire Bagdad, a copper

deposit in northern Arizona which eventually was bought by Cyprus Mining Company and became a successful major producer. Newmont's geologists, who examined it several times over the years, took too conservative a view of the property's prospective merit and did not recognize the geologic possibility of a large expansion of the mineralization. Some years later, R. B. Fulton conducted a drilling campaign in an adjoining area with negative results.

While fruitless, this activity of handling outside submissions was a great educational experience for me. I sharpened my understanding of what geologic environment is favorable to significant deposits, as well as my ability to analyze all the significant factors that make up an economically attractive deposit. In the course of those years I gained knowledge of attractive mineral provinces throughout the world and had the opportunity to review some of the famous old mining camps, like Ballarat gold placers in Australia, and many others. Looking over the memos I wrote then, I am impressed by the thoroughness and quality of these appraisals as I read them now from the point of view of a chief executive. These memos must have impressed my superiors at the time.

What is important to note is that immediately after the war and up to the late 1950s, there was a flood of submissions of prospects to major companies in the U. S. and Canada, but by the 1960s and later, this activity dried up. I presume it was because opportunities for independent financing opened up and developed, first in Canada and then in the U. S., so that new prospects did not have to go to major companies for financing as was traditional earlier. Thus, major companies had to rely more and more on their own exploration efforts to develop worthy prospects.

Sherritt Gordon Mines Limited

The first venture which was initiated by me and was my main responsibility at Newmont from start to finish was Sherritt Gordon Mines Limited's newly found nickel mine in Manitoba. A detailed story of this is told in Men and Mines of Newmont. The mine was relatively small, with 14,000,000 tons of reserves assaying 1.2% Ni and 0.62% Cu, and obviously could not justify a costly smelter

and refinery. That was the standard way such ores were processed by the large enterprises like International Nickel and Falconbridge Ltd., which had larger mines in the Sudbury Basin, Ontario. I was intrigued by the fact that Sherritt was using a chemical process to treat the nickel concentrate instead of using a smelter and refinery. The Sherritt process was considerably less costly and would also produce a saleable by-product, ammonium sulfate fertilizer.

The Sherritt process, ammonia leaching under pressure in autoclaves, was invented by Professor Frank A. Forward of British Columbia University, and it was exhaustively tested on a pilot scale in Ottawa under the direction of Vladimir Mackiw, a Polish emigré chemist who was the executive vice president of Sherritt Gordon. Because it was new and complex and had never been tried commercially before, I knew it involved the risk of failure. While it seemed practicable to me and required no recycling of solutions (often a source of trouble in chemical processes), Noranda, Inc., Hudson Bay Mining and Smelting Company, and Singmaster and Breyer, a well-regarded U. S. consulting firm, had all turned it down.

I knew that to be successful, the process and all the new applications of equipment had to work faultlessly; so while the actual work would be performed by Sherritt Gordon, I arranged to have the over-all assessment of process and equipment supervised by men in whose competence I had the utmost confidence--Oscar Tangel, chief metallurgist of Battelle Institute (whom I knew in 1933 at Montana School of Mines), and Eugene H. Tucker, chief engineer of Newmont. Additional laboratory work developed an understanding of the chemistry involved in one step of the process that was previously done empirically, and further pilot testing was carried out. Every piece of equipment planned for the eventual plant and applied under conditions never before encountered was meticulously tested for durability and practicability over a period of several months. All this delayed the completion of the testing program for about a year and cost over one million dollars, but it was worth it. Built in Alberta, the plant performed as expected, although it cost more than the original estimate. The process was a complete success and continues to operate well to this day.

Although it was technically successful enough to repay the investment and gain a modest profit, financially it was not outstanding. Nevertheless, it was the making of

my own first success at Newmont--technically difficult and risky, dealing with strong personalities like Eldon Brown, the president of Sheritt, and getting the financial backing of the prestigious J. P. Morgan Bank, Metropolitan Life Insurance Company, Mutual Life Insurance Company of New York, and others. At a time when financing efforts were stalled, it was Stuart Silloway, financial vice president of Mutual Life, who steered me to Metropolitan Life with his recommendation. That helped put the financing back on track. I asked Silloway to join the Newmont board later, and he served on it until after my retirement from the board in May of 1987. In putting this deal together, I dealt with Walter Page and Elmore Patterson, both of whom served as presidents of J. P. Morgan later and became my friends over the years. In these financial negotiations, Franz Schneider and Fred Searls helped and supported me.

This experience enhanced my reputation not only at Newmont but in mining circles outside of Newmont and in the financial community as well. It also marked Newmont as a courageous investor in enduring ventures shunned by others.

North Africa, NAP and ALZI

Another venture started while I was still a staff engineer at Newmont, but with which I became increasingly involved during its production years and later when I was president, was a lead-zinc mine in North Africa.

In 1948, Jean Walter, a prominent French architect, came to see Fred Searls on the recommendation of the J. P. Morgan Bank, where Jean Walter had applied for help in financing. Because Walter spoke hardly any English, and I was the only one at Newmont who spoke French besides Fred, he asked me to join him to hear Walter's story.

It was quite a story! He had been a resistance fighter together with his brother-in-law, Jean Lacaze. Both were from Alsace and, like many French from that region, were very tall--over six feet. Both were captured by the Germans during the early months of the war, escaped from prison camp, and joined the resistance movement for the remainder of the war. Walter was wealthy, having been

a successful architect before the war. A large hospital designed by him had just been completed in Beirut, Lebanon, and he proudly showed us photographs of the building.

Having been interested in minerals before the war, he acted on a story brought to him about ancient Carthaginian mines near Oujda, Morocco. He bought the property while applying for mineral rights on large tracts of land recommended by a French geologist as possibly containing extensions of lead deposits worked by the Carthaginians, principally for the cosmetic needs of the ladies of that time (accentuating eyebrows and eye shadows with finely ground galena and olive oil). After the war, deposits at moderate depths of about 400 feet were found, and a small mill was constructed and put into operation by the company formed by Walter, called Société des Mines de Zellidja.

The U. S. Government had formed a lending agency, Economic Cooperation Administration, to help rehabilitate the economies of European countries; Walter had heard of it and hoped to borrow money from the agency to expand his small operation. Fred Searls offered Newmont's help in obtaining the loan, along with Newmont's equity money and technical help in designing the expanded facilities as well as in exploring and developing extensions of the known deposits.

Typical of French dealings, Walter reserved the deposit with certain extensions that were then surmised, and the ownership of the new facilities (mill and mine, expanded from 1,000 tons per day to 5,000 tons per day), and offered Newmont a mere 3 percent interest in the Société des Mines de Zellidja. A new company was then formed called Société Nord Africaine du Plomb (NAP), of which Zellidja retained 51 percent interest while Newmont had 31.8 percent and St. Joseph Lead Company (invited by Newmont) had 17.2 percent. This company was formed to explore the areas outside those reserved by Zellidja.

Frank W. McQuiston, Jr., of Newmont was put in charge of designing the new expanded Zellidja mill, and Eugene H. Tucker, also of Newmont, was put in charge of all other engineering requirements, such as transformer station, power, water distribution and mine equipment. It took some time to examine the property, assess its exploration potential, and prepare proposals for the ECA. On Newmont's recommendation, ECA loaned \$1,500,000 to NAP, Newmont advanced \$880,000, and St. Joe about \$400,000.

Exploratory drilling indicated the possibility of an extension of the lead deposits to the east, and an examination by R. T. Walker, a retired senior geologist of the U.S. Mining, Smelting & Refining Co., whom Fred Searls knew well, pointed to a probable extension of this mineralization to the Algerian border and beyond on property held by Zellidja but not included in the original agreement defining the property of NAP. Following difficult negotiations and French reluctance to give up anything, a deal was struck that later turned out to be extremely favorable to Zellidja and not so favorable to NAP. NAP had to give up a large chunk of ground on which attractive lead deposits had already been found by NAP, as well as further eastern extensions up to the Algerian boundary, beyond which NAP acquired the further easterly extension of as yet untested ground.

Eventually NAP did discover a new deposit in Algeria, but it was not the high grade, highly profitable lead ores that Zellidja had. The new deposit was small (about 1,000,000 tons), a fairly high grade deposit averaging 18 percent zinc and about 2 percent lead, and it proved to be very difficult and costly to mine. Too small to justify its own mill, a deal was made to utilize the abandoned 1,000 ton-per-day Zellidja mill at a custom charge that yielded a handsome profit to Zellidja. A further disadvantage was the necessity of shipping zinc concentrates to zinc smelters in Europe, while Zellidja enjoyed low-cost lead smelting for their ores at a neighboring smelter jointly owned by Zellidja and Société de Développement Minière et Metallurgique de Peñarroya, and old-time Spanish-French company with numerous lead-zinc mines in smelters in France and Spain.

A new company was formed to mine the difficult orebody, called Société Algérienne du Zinc and with the same ownership as NAP, and Newmont secured the services of a French-Canadian engineer named John Kostuik (who later became president of a most prosperous uranium and other diversified products company, the Consolidated Denison Company of Canada).

Production began in 1953. By 1955 all shareholder advances were paid off, and by 1956 the ECA loan was repaid. During the lifetime of the operation, which lasted until 1963 when the company was sold out to a subsidiary of Zellidja for a nominal sum, Newmont received \$2,400,000 in dividends on an initial investment of about \$900,000. Not bad--but hardly brilliant.

Technically speaking, it was a challenging and difficult operation. Kostuik had to devise a unique method to mine the cigar-shaped, friable orebody. During the later years, the struggle for independence in Morocco and Algeria caused many traumatic incidents, shutdowns and sabotage, and eventually the Algerian properties were expropriated.

The French, Walter and Lacaze, Jacques Walter (Jean Walter's son), and their very competent general manager and mining engineer, Pierre Macheras, became very close friends of Newmont and of me and my family. They were charming and generous and very hospitable on a personal basis, but always extremely difficult, sometimes unreasonably so, in business dealings or negotiations. Pierre Macheras, the only survivor today and now retired, remains my best French friend. Jean Lacaze, also a good friend, got involved in a famous affair in France: the charges were ridiculous but he was nevertheless imprisoned for several months. Later, in a trial, he was completely exonerated and released from prison. "It wasn't bad," he told me, "I had a comfortable suite of rooms in prison, excellent service, and meals from Maxim's with any wine of my choice."

Acquaintances with Prominent People

While serving at the White House in Washington during the war, Fred Searls became acquainted with Edgar Sengier, managing director of the Belgian company Union Minière du Haut Katanga. The United States was developing the atomic bomb at the so-called "Manhattan Project," and it was decided that a source additional to the rather limited Canadian uranium production from Beaverlodge would be desirable. Union Minière had uncovered high-grade uranium ore in one of the open pit mines at their vast copper mining operations in the Katanga region of the Belgian Congo. Sengier established a Union Minière office in London during the occupation of Belgium by the Germans. Called to Washington to explore the possibility of securing a supply of uranium from his company's deposit in the Belgian Congo, Sengier readily agreed and pledged all of the uranium production to the United States at a moderate price, thus permitting the Manhattan Project to go on with no fear of a lack of supply of uranium.

Fred Searls became quite friendly with Sengier, and later the company's affiliate, Cie Metallurgique de Hoboken, treated part of the concentrates from Tsumeb. I had the privilege of meeting Sengier several times and was greatly impressed by his intelligence, his knowledge of the mining industry as well as general political affairs, and his wisdom in confronting a troublesome problem. He was certainly one of the great leaders of his era in the mineral industry.

It was through this general connection that Fred Searls also knew Camille Gütt, a remarkable Belgian public figure and a minister of finance in the Belgian government in exile during the war. Sometime in the early fifties, Gütt came to see Fred, together with Baron Léon Lambert, and I was invited by Fred to meet them. Mr. Gütt had served as a minister for one year after the war and then was asked to be Belgium's representative at the Bretton Woods negotiation that resulted in the creation of the IMF and the IBRD (International Monetary Fund and International Bank for Recovery and Development--known as the "World Bank"). Gütt was a man of keen and perspicacious intelligence that commanded respect in the highest government circles.

Baron Lambert, in his early twenties and an unusually handsome young man, was the head and major owner of the Banque Lambert in Brussels, as the result of his father's untimely death. He was related to the famous Rothschild family of European bankers and had vast connections in the European business world. He and I became good personal friends, and he would visit me in New York every time he came there, and I visited him in Brussels. In addition, we had a number of tentative business discussions when he sought my advice relating to his bank's investments. He was very knowledgeable in finance and business, both European and American, and he was charming and brilliant as well. One visit I remember well was when he invited me to lunch with him in his apartment on the second story of the Banque Lambert building in Brussels. I was met at the front door by a liveried attendant and ushered in to mount an impressive winding staircase to the second floor. As I was walking up the stairs, I heard torrents of an impassioned piano rendering of the second Ballade of Chopin--which stopped suddenly as my arrival was announced. It was Léon Lambert playing--obviously an accomplished pianist. Ever since that incident, we often talked about playing chamber music together, but unfortunately we never got around to it. He was also well known as an art connoisseur and was highly cultured, having been educated at Harvard and Oxford Universities. He died at the age of fifty-seven

last year. At one point in our acquaintance he invited me to join an art fund named Artemis which he was forming, and I did so. It was typical of him to have hired the best art appraiser he could find, David Carritt, a curator at the National Gallery of London, whose unerring knowledge and feel for genuine masterworks made this venture an outstanding success. My investment in Artemis is now valued at several times its initial cost.

The highly successful Union Minière du Haut Katanga, with its vast copper reserves, held a virtual monopoly in the Belgian Congo and had not allowed any foreign mining company to start a mine there. So Fred and I made another Belgian connection through the suggestion of Baron Lambert in the person of Henri Depage, administrateur délégué of Symétain. We thought we could enter the Belgian Congo mining scene through some deal with Symétain, a comparatively small and underfinanced company that had interesting tin mines in the Maniéma region of the Belgian Congo. Depage was an impressive man, obviously in love with the Congo and its native population; he had instituted many progressive measures to raise the economic standard of living of the natives working for the company. We offered to provide money for exploration of additional tin orebodies and other possible metal deposits but never reached an agreement satisfactory to Newmont. My only reward from these negotiations is a fascinating book in French on the history of the little-known Maniéma region, remote and difficult of access, and neglected in the initial colonial expansion by the Belgians in the Congo.

Move to Greenwich, Connecticut, 1954

(Return to interview transcript)

Swent: When did you move to Greenwich?

PM: In 1954, in the year that I became president.

Swent: Was there a reason for choosing Greenwich?

PM: Oh, yes. This was my ninth year at Newmont, and by then, of course, I had made acquaintances with all the people there. One of the lawyers, a young man, lived in Old Greenwich and he used to talk to me about the schools

in that area, which interested me greatly. I also found out by independent investigation that the private schools there really were of very high quality. We were living in Flushing at the time and our son was going to a public school. He was having a very difficult time because the other children called him "The Brain": he was the subject of much ridicule because he was so brainy and bright. The only thing that seemed to be valued among the boys and girls in that school was the ability to participate in sports. My son was small and not very able for that kind of thing, so he was looked down upon and had a very unhappy experience in that school. I was looking to move him out to some other school where academic excellence was valued and his abilities would be recognized. I found the private schools in Greenwich were of that quality, and so this was the primary reason for our move to Greenwich.

The other reason was that while we lived in Flushing (Long Island), we used to take the children to the beach in the summertime. Going to Jones Beach became a major problem because of the traffic, which got worse and worse with the passing years. When I compared it to the traffic in the Greenwich area, I decided I didn't want any part of the Long Island traffic any more!

I had our first house in Greenwich built for us. It turned out not to be the best thing to have done, so about six years later we bought another house in Greenwich which we still occupy.

Swent: Do you take a train from Greenwich to New York?

PM: Yes, I took the train, and in later years we acquired a company car and a chauffeur and I used to drive to New York. I always came back by train, however.

Swent: I was interested in your studying for your M.B.A. on the subway; that takes a lot of determination.

IV PRESIDENT AND CHIEF EXECUTIVE OFFICER OF NEWMONT, 1954-1965

(The following section was written by Mr. Malozemoff after the interview)

As Newmont grew during my first eight years with the company, and I became more and more enmeshed in its various activities, I felt secure in playing a significant, but not major, role in its fortunes. It was in 1951 that someone voiced out loud to an associate in my presence that I would eventually be Newmont's chief executive: that person was Joe Hirshhorn, and Franz Schneider and Arthur Brant, our chief geophysicist, said the same thing at about the same time. I dismissed these prognostications as mere pleasantries since I did not believe them, nor did I think I was sufficiently qualified.

The time eventually came when the senior executives and the board considered it necessary to seek a successor to Fred Searls, then president, and he was assigned that responsibility. He considered a number of candidates, three of whom I knew well: Evan Just, Frank Cameron, and John Gustafson.

Evan Just acquired prominence in heading up the International Lead and Zinc Research Association, and later becoming the chief editor of the Engineering and Mining Journal. But his main claim to acquaintance with Newmont was when he headed Euro-Dollar activity in Paris and was wined and dined there at Margaret Biddle's. She was a director of Newmont and the only daughter of the founder of the company, William Boyce Thompson. She was much impressed by Evan and his deliberate manner of making pontifical pronouncements.

Frank Cameron was an eminent geologist, formerly with Anaconda but then vice president at St. Joseph Lead Company, and he was well known to Fred Searls. The third candidate, Dr. John Gustafson, was also an eminent geologist, and he

had the finds of an important lead-zinc orebody in the Broken Hill district of Australia and an iron orebody in Labrador to his credit. He had also worked for Newmont for a time and was responsible for securing the San Manuel orebody for Magma Copper Company.

After taking me to see and talk to Evan Just, who was then in government employ in Washington, D. C., and after toying with the idea of having Frank Cameron and talking to Gustafson, who turned him down--all of which took about six months, Fred finally told me he thought I was a better candidate than the other three and made that recommendation to the board, which accepted it.

Before it became official, I sought the advice of Henry DeWitt Smith and A. J. McNab, who I knew were independently minded. Henry was somewhat noncommittal, but he warned me that strongminded Fred Searls was not likely to let me do my own thing. McNab, as usual, was brutally frank. He said he did not think I was qualified, and also predicted future trouble with Fred Searls, but he ended by saying that the offer was an unusual opportunity that I might have only once in a lifetime--and that I should probably take it!

Fred Searls spoke to me about our future relationship and said he would support me, but if he disagreed with me too often he would resign from the board. He did not quite live up to this concept and left it to me to find a way of accomplishing what I wanted to do without causing a rift with him. I was elected president effective January 1, 1954, at the age of forty-four.

Fred had been "Mr. Newmont," renowned and admired throughout the mining world everywhere and also well known and respected in Washington, where he was a dollar-a-year administrator of a number of programs during World War Two and had an office at the White House. All the "outside" board members of Newmont were his nominees, and the most illustrious among them were James Byrnes, Franklin Roosevelt's right-hand man during the war and secretary of state; Lewis Douglas, former ambassador to England; and General Lucius Clay. I had to be acceptable to Fred and to his (not my) board, and was obviously on trial, supported only by Fred himself and by Franz Schneider. There was clearly little or no room for mistakes, poor judgment, or lack of initiative in solving problems as they came up and in pursuing the growth of the company. I had to manage the company to this high standard and somehow manage the board so they would approve my actions. A tall order!

On assuming the presidency, I felt we needed to modernize our organization, compensation and benefits. I had read a number of articles by a McKinsey (management consultants) partner named Arch Patton, and I was impressed by his approach to these problems. I arranged to have him lead a team of McKinsey experts to study Newmont. Fred Searls was very much against the whole idea, and at a certain point in the study, I wondered if he were not right after all. In summarizing the functions performed by executives on which he would base his recommendation for level of compensation, he told me that the manager of a department store or a large retailing company had to face greater challenges, make many more crucial decisions, and exercise more judgment than we did at Newmont. While I agreed that retailers made many more decisions daily than we did monthly, I didn't believe that was a proper criterion to use in judging the merits of management in two utterly different businesses such as mining and retailing. Executives of a mining company may make fewer decisions, but they are important, long-term, and often irreversible decisions. A decision on whether or not to develop and equip a mine is based on many other decisions in exploration, in estimating reserves, production and costs--both capital and operating, taxes and the political climate. This process requires many highly technical appraisals and years of experience, as well as the acumen for making financial and business judgments. Not only is much of the company's capital involved, but also its reputation and credit standing, because the results of such decisions are visible to all and cannot be easily hidden.

However, in spite of these differences of opinion at Newmont, Patton produced a useful report and a set of recommendations to correct weaknesses in the organization and establish a more competitive scale of compensation and fringe benefits.

He also recommended establishing an incentive stock option plan, and in implementing this I ran into head-on opposition from Fred Searls, who was against the idea. He lobbied the board members against it, especially Margaret Biddle, who was the largest individual stockholder of Newmont. Margaret took me to lunch to find out what it was all about between Fred and me. Apparently my explanation was credible, and she suggested I compromise my stand on "key executives only" being granted stock options to granting options to some forty-odd employees in the New York office, many of whom had no part in "key" decisions. That was finally accepted by Fred and closed the incident.

Another conflict with Fred arose within two years of my ascendance to the presidency. I judged our office space at 14 Wall Street to be inadequate; we had already had to move the Newmont Oil staff to another building for lack of space. There was no room for expansion, and a downtown location in New York was not convenient for most of the employees who lived in the suburbs. Roy Bonebrake found suitable space in a new building being constructed on Park Avenue at 49th Street, which seemed adequate for expanding the staff of a growing company. When the time came to move, there was much commotion in the office--as one would expect. But the most dramatic action was outside Fred's office: in a mood of frustration over the move, he was throwing out of his office into the hallway, specimen by specimen, his rather sizeable collection of mineral samples! After we had moved into the new office, we discovered that Phelps Dodge Corporation and Cerro Corporation had also moved into the same building. Both of these companies were our partners in the new venture of Southern Peru Copper Corporation based on the Toquepala Mine drilled out by American Smelting and Refining Company (now ASARCO).

At first Fred refused to move uptown, remaining at a small office downtown belonging to W. B. Thompson Trusts (to which he personally carried his mineral specimens in the pouring rain, refusing all offers of help). I finally got him to move to Park Avenue with the lure of a large office containing all the old furniture from W. B. Thompson's office; I thought the old, familiar atmosphere of the furniture would soften the shock of the move. So this office was occupied first by Fred and then by me as chief executive.

One of my early tests came in discussing my salary with the Compensation Committee chaired by Henry DeWitt Smith. He stood by a figure of \$50,000 per annum, no more, because M. D. Banghart, the operating head of several small mines in Canada in the past and then general manager of O'okiep Copper Company in South Africa, was also receiving \$50,000. Banghart was named by me as vice president of Newmont in New York and was obviously DeWitt Smith's preferred candidate for the presidency. Having to accept this salary level and Banghart's stricture for me not to mess around in his domain in South Africa was not a very propitious beginning, but it seemed necessary in order to avoid a crisis.

It took time, diplomacy, and patience to avoid unnecessary conflicts and to gain the respect of these strong-willed men--especially Banghart, who was ten years my senior, a resourceful and tough operator, and a very able manager on whom I chose to depend in managing effectively the operations which were Newmont's responsibility. There were only a few--O'okiep and Tsumeb in South Africa, Idarado and Resurrection Mining Companies in Colorado, and Magma Copper Company in Arizona. However, there was a stable of prospective and potentially important new mines, the acquisition of most of which was made by me when I was vice president, namely Granduc, Western Nickel and Sherritt Gordon in Canada; Cuajone Mine (later consolidated with Southern Peru Copper Corporation) in Peru; and two producing lead-zinc mines in Algeria and Morocco. I needed a first-class operator to advise me on these and help in their proper development and eventual operation.

Another pillar of strength I leaned on was Roy C. Bonebrake, assistant counsel, whom I made vice president. Roy was a brilliant businessman's lawyer, pragmatic and thoroughly knowledgeable in corporate problem areas in which I was weak, and he was a man of profound good judgment. With Bonebrake and Banghart at my side, I felt I could avoid egregious errors. And there was Fred Searls, of course, who became the non-executive chairman. I don't believe I undertook any major decision without discussing it with at least one of these three. I managed somehow to elicit their independent opinions even though they might be opposing mine.

Even before becoming president, I recognized that as Newmont was growing, the organization had to change. I urged Fred to establish a special metallurgical laboratory for the needs of the existing mines and for those we were developing to make sure that metallurgical processing could be advantageously applied to their ores. This was previously done somewhat haphazardly in the laboratories of operating mines or at custom laboratories, both of which acted in effect as consultants. I found this quite unsatisfactory because their work and conclusions could not be made accountable. Fred consented--provided it was cheap, and insisted that we establish such a center at the laboratory of the Newmont-owned Empire Star Mine in Grass Valley, California, as the mine had been inactive since the beginning of the United States' entry into the Second World War. There was thus no rent to pay, and some of the equipment we would need was already there.

Fred had also established a geophysical center in Jerome, Arizona, under the renowned Dr. Arthur A. Brant, formerly a professor at the University of Toronto. Why Jerome, which was out of the way, remote, and hard to get to? Because Brant was then making geophysical surveys of the nearby United Verde Mine, looking for extensions of the rich mined-out orebody, and because Fred had negotiated a very low rental with Lew Douglas, then director of Newmont, for the use of a mansion as a laboratory which "Raw-hide" Jimmy Douglas, his father, had built in the prosperous times of the operation of the United Verde Mine, the major interest in which he had sold to Phelps Dodge Corporation. Arthur Brant was strong-willed and determined as to how the geophysical center should be run, and because Fred found him hard to handle, he gave me the responsibility of looking after Brant. This was in the early 1950s before I became president.

The inadequacies and disadvantages of these two locations--the metallurgical laboratory and the geophysical center, led me to reorganize both activities under one roof as soon as I became president. I bought quite cheaply a thirty-acre plot near Danbury, Connecticut, and built a proper facility. It was only one and a half hours away from the New York office of Newmont, and near enough to the centers of bustling activities in electronics on the famous Route 128 near Boston, to private laboratory facilities and those of the great Eastern universities. Largely due to the abilities of the men running these metallurgical and geophysical activities--and partly because of their proximity to headquarters and my personal involvement and support, both of these departments attained a high degree of competence and became well-known throughout the mining community as the best of their kind.

Reorganization at the New York headquarters seemed necessary as well. We needed clearer functional lines of authority in enlarged activities. M. D. Banghart was named vice president of mining operation; Philip Kraft as chairman of Newmont Oil Company; F. W. McQuiston, Jr., vice president of metallurgy; Eugene H. Tucker, chief engineer (mechanical, electrical and construction); Robert B. Fulton, vice president of exploration; Carroll Searls, chief counsel; Roy C. Bonebrake, assistant counsel; Walter P. Schmid, controller, and William T. Smith, treasurer, all reporting to me.

I assumed the added responsibility of seeking and negotiating for the acquisition of new projects. In this latter activity I scrupulously observed my own dictum of having every phase of the enterprise examined in detail by one of the above in whose area of expertise that phase would fall. By the time the appraisal was completed, I knew what were the obvious merits and weaknesses of every part of the new enterprise and could exercise an informed judgment as to whether the merits outweighed the weaknesses or not. It obviously put on me the burden of understanding the analyses and believing they were correct and hadn't overlooked anything.

While such a careful analysis is the precursor to forming a judgment, yet in my own case and in others I have observed, it is often not enough by itself. Intuitive judgments, based on experience, and a feel for the future or for a changing environment, sometimes override the careful analysis. There is always the danger that emotions and prejudices will enter in and lead to wrong intuitive judgments. It takes a conscious effort to recognize them and screen them out. The ability to do so leads to a better record of right judgments as opposed to wrong ones. It is widely recognized that most successful executives have the ability to make more of such correct intuitive judgments. It is difficult to define how such decisions are made, but I believe that what helps is having the experience in business, a very broad education, intense curiosity and effort to understand the world around us, and a knowledge of people and what motivates them. And yet some basically ignorant and limited people display the ability to make the right intuitive judgments: the whole subject is a "puzzlement," as the King of Siam aptly described undefinable issues in "The King and I."

I was always interested in the broad strategy of corporate behavior and gradually came to a set of beliefs which match very closely those held by some professional business advisers, such as those expressed in a speech by Fred G. Steingraber of A. T. Kearney, which I paraphrase briefly: Most American businesses look for shortcuts and simple solutions. A numerical analysis (P.M.: in mining, one based on assumptions of prices and demand for a commodity in the future) can lead to poor decisions. Such analyses often are based on an understanding of past events projected into the future and miss the imponderable new departures and changes that might occur in the future. Many businesses seek the fast track to success and don't

have the patience for a slower, more cautious progress that often assures success. Growth needs cash and reduces short-term profits. Often a lack of patience is related to compensation plans and stock options that reward short-term results. The stock market drives the profit-making efforts.

In short, I have found that patience, deliberate decision-making, and philosophical detachment pay off.

The first five years of my presidency at Newmont were characterized by almost feverish activity in acquiring new mining interests or properties. The profile of Newmont as I saw it and implemented it was described in detail in the speech I made to the New York Section of the AIME on April 21, 1960. It was the first public speech, I believe, made by any officer of Newmont since the company's inception. I have included the text of my speech in the appendices to this oral history. A review of the main acquisitions and some brief comments on them follows.

Southern Peru Copper Corporation

A 10.25 percent interest was acquired in this largest Peruvian mining enterprise. The original interest in the Cuajone copper property was obtained from Cerro Corporation, then headed by Robert P. Koenig, by an offer to survey the property with Newmont's exclusive geophysical tool--the pulse potential method, which could trace porphyry sulfide deposits through several hundred feet of barren cover. Cerro had delineated a small deposit by conventional drilling but was too short of funds to undertake extensive further drilling in covered areas where the direction of a possible extension of the deposit was unknown. Newmont's pulse potential survey brilliantly established the area of the huge orebody later confirmed by drilling.

American Smelting and Refining Company had drilled out a large copper porphyry deposit, Toquepala, several miles away and was attempting to finance it through the Export-Import Bank in Washington. Because of its size and requiring development as an open pit mine, with which ASARCO had no experience, Phelps Dodge Copper Corporation was invited to participate.

Cerro and Newmont applied for an Export-Import Bank loan to develop Cuajone, while ASARCO did the same for Toquepala. Because it was obvious that both properties needed a smelter and a port, and they were close together, the Bank suggested that the two properties be combined. This was eventually accomplished, but only after Franz Schneider, who was on the Phelps Dodge board, advised me that Lew Cates, the then chairman of Phelps Dodge, would not consent to the merger unless some special financial advantage was accorded to PD. A suggestion was made to issue a preferred stock to PD which would be retired before any return of capital to the other participants. This suggestion was accepted by all, and Southern Peru Copper Corporation was born, comprising the Toquepala and Quellaveco deposits originally belonging to ASARCO and the Cuajone deposit belonging to Cerro and Newmont, with aggregate reserves of one billion tons of ore containing about one percent copper.

Toquepala was developed first and then Cuajone some ten years later. Originally the results were very favorable, but under the socialistically-inclined junta which ruled the country, the operation became ever more difficult because of labor strikes and excessive taxation. While the initial investment of some \$237 million in Toquepala was profitable (Newmont was repaid its equity investment of \$13.2 million plus dividends of \$37.58 million), and the further investment of \$726 million in Cuajone was earned and recovered, Southern Peru Copper Corporation has not paid dividends since 1981 owing essentially to government-imposed restrictions.

Cuajone was originally estimated to cost \$500 million to equip and develop. Owing to mounting inflation and changes in scope, the actual cost ended by being \$726 million. Thus huge additional financing had to be arranged in the early 1970s when the political climate in Peru was deteriorating and a world-wide recession broke out in 1974. Forrest Hamrick, chief financial officer of ASARCO, and Charles F. Barber, chairman and chief executive of ASARCO, kept going back to the bankers for more money as estimates to complete development kept rising. Finally, in 1976 the bank refused to lend more money without additional funds being supplied by the shareholders. Default and receivership was threatened, so Barber proposed a new issue of preferred stock to be bought pro rata by the shareholders--ASARCO, Phelps Dodge, Cerro, and Newmont. He did not show much enthusiasm for the idea, and Phelps Dodge and Cerro did not wish to participate. Although

Newmont had only a 10.25 percent interest, I offered to take more than our share of the preferred, whereupon ASARCO committed for their share, but Cerro refused and Phelps Dodge took less than their share. Barber credits me with having saved SPCC from receivership by making that pledge: it cost Newmont \$6 million and served, with other preferred shares and bank loans, to complete the project.

An outstanding job of supervising construction and later, management, was provided by Ed Tittmann (later chairman and chief executive of ASARCO), and helping him was Nick Crossley, a construction engineer (later employed by Bechtel Corporation and intimately involved in the construction of Palabora). I had originally opposed Ed Tittmann's appointment as chief executive of SPCC because his experience was essentially in smelting and not in construction or open pit mine development. I got Charles Brinckerhoff of Anaconda interested in that job; he seemed eminently qualified with his experience of managing the just-completed expansion project in Chuquicamata in Chile. But on the eve of signing the contract with Brinckerhoff, Clyde Weed, chief executive of Anaconda, told him he was on the way to head up Anaconda in a few years, and with a boost in salary, got Brinckerhoff to turn down the SPCC offer. Under considerable pressure from Bob Page, the new chief executive of Phelps Dodge, I finally yielded on Ed Tittmann, who became the chief executive of SPCC and my very good friend for many years thereafter.

Cassiar Asbestos Corporation Limited

An interest in the highest grade open pit asbestos mine in the world was obtained by the purchase of a 16.4 percent position in the Cassiar Asbestos Corporation Limited in northern British Columbia. This was a very profitable investment for years but was finally sold in 1980 because of mounting litigation in the United States by threatened victims of asbestosis (cancer).

Dawn Mining Company

The only direct investment in uranium that Newmont ever made was its 51 percent participation in an open pit mine in the State of Washington, near Spokane; Midnite Mines held the remaining 49 percent.

A lease on this fairly high-grade property was obtained from the Spokane Indian Tribe as the result of difficult negotiations conducted by a recently-employed and very competent young lawyer, John E. D. Grunow, who years later became the head of Atlantic Cement Company and eventually moved to Martin Marietta as vice president. The uranium mine was a successful one, requiring modest financing of \$1,620,000 from Newmont and an estimated \$4 million loan, which I obtained from the Chemical Bank, our first departure from our traditional reliance on J. P. Morgan, Bankers Trust, and New York Trust. Only \$3.3 million of the loan accommodation was taken down in opening the mine and constructing the mill, and the loan was paid out in eighteen months instead of five years as originally estimated. This gave a boost to the reputation of Newmont as a reliable and good borrower and enlarged our borrowing potential.

Dawn was a profitable enterprise at the U₃O₈ prices originally contracted for. From 1958 to 1965, a \$1 million-per-year dividend was paid. A later drop in prices caused a shutdown of the venture for several years. While it reopened and operated for a number of years, the mine was shut down again in 1982 because of a controversy with the Spokane Tribe and the Bureau of Land Management regarding the mineability of the remaining reserves.

"Türk Madencilik Anmin Sirketi"

This was a joint exploration venture (Newmont, 66-2/3 percent) with the principal Turkish bank, The Etibank (33-1/3 percent). No mining development resulted from this two-year exploration venture. It remains in my memory for the successive disability, due to hepatitis, of our senior geologists, P. C. Benedict and John S. Livermore (the latter found the Carlin gold deposits in Nevada for us some years later). Only Jacques Claveau, the tough French Canadian geologist, survived without contracting hepatitis because his new French wife went with him on all locations and cooked his meals for him.

Winkelhaak Mine, Republic of South Africa

In the same year, 1955, we invested some \$688,000 in 350,000 shares (2.9 percent of total) of Winkelhaak Gold Mining Co., a new mine on the West Rand developed by Union Corporation. Several years later Banghart and I visited the mine and wrongfully concluded it would never be attractive because of unexpected step-faulting encountered in the development. We sold our shares at no loss, and the mine progressed to a very attractive future.

Resurrection Mine

Also in the same year, I made a joint venture agreement for the Resurrection Mine at Leadville, Colorado (after some years of being shut down), with American Smelting and Refining Company, Inc., through Ralph Hennebach, who later became CEO of ASARCO; they had a contiguous property in the same mineral belt. Hennebach insisted on ASARCO management, and I agreed to it. While small, this venture has been modestly profitable ever since, continuing to find additional high-grade lead-zinc ore with appreciable gold and silver content.

Algerian Oil Venture, 1957

This year was characterized by intense activity in trying to secure a position in the recently sensational discovery of gas and oil in Algeria, then a French possession, largely through the efforts of Philip Kraft, a vice president of Newmont and later named by me as chairman of Newmont Oil Company, and Jacques Leroy, a lawyer of Belgian extraction, recently hired by us to enlarge our legal staff because of the increased activity. Lazard Frères, investment bankers who helped us with Magma financing and whose parent organization was domiciled in France, helped in our efforts in Algeria and eventually took a minority interest there. One of the problems encountered early in our negotiations with Société Française de Recherches et d'Exploitation du Pétrole (SAFREP) was

the securing of "brave" money for the exploration effort. Penn Thomas, a neighbor of mine in Greenwich, Connecticut, was the chief financial officer of Sinclair Oil Company, and I got him interested in the prospective oil exploration in Algeria. A joint venture was eventually formed, with 27 percent each held by SAFREP and Sinclair, 18 percent each by Newmont and Lazard Frères, and 10 percent by Omnium, a subsidiary of Zellidja, the Moroccan mining company that was a partner with Newmont in a zinc mine in Algeria.

This exploration venture was successful in finding Rhourde el Baguel, the productive and profitable oil field in Algeria, but it took years to commercialize this discovery. Rebellion by the Arabs to gain independence from France broke out, and eventually the properties were nationalized by independent Algeria. After years of negotiations led by Jacques Leroy, a settlement was reached that recovered part of the expenditures made by Newmont on exploration there, with no recognition of future profit potential. This was a technical success and a page in the involvement with the French and the highly competent French engineers, all graduates of the renowned Ecole Polytechnique of Paris. But it was not a great financial success and was a warning to steer clear of politically troubled areas.

Palabora Mining Company Limited

Negotiations to acquire and later to enlarge Newmont's interest in the Palabora enterprise are accurately detailed in Men and Mines of Newmont, and I will not repeat the full story here, but it is worth detailing some of the problems I encountered in bringing this venture to fruition. (Some of the facts herein were supplied by Roy Wright, an executive director of Rio Tinto Zinc.)

Rio Tinto was an English enterprise that developed copper mines in the famous Huelva district in southwestern Spain and around 1928 invested some of their profits in Northern Rhodesian copper mines. During the long-lasting fratricidal war in Spain and the establishment of the Franco regime, Rio Tinto operations became difficult--and due to the actions of the government, almost impossible. After the Second World War, the company remained essentially a small investment company. Through personal connections in 1948, Mark Turner was asked by the then chairman, Lord

Bessborough, to become managing director of Rio Tinto. He accepted the position on a half-time basis, preferring to remain a merchant banker. In 1949 he brought in the brilliant young Val Duncan as a commercial director, whom he knew favorably in the war effort as a resourceful and able activist, with a view toward his becoming the managing director of the company in a year or so. However, Turner enjoyed being the managing director so much that he suggested to the board that he stay on in that position; the board refused, and Val Duncan was made the managing director in 1951.

The first significant step taken by Val Duncan in 1955 was to sell a part of the company's Spanish properties to a newly formed company, Cia Española de Minas de Rio Tinto, financed by Spanish banks; Rio Tinto retained one third of the shares of the new company and sold the rest for 7.7 million pounds, 2.5 million pounds in cash and the rest payable over five years. After an earlier modest false start (about 1953) in a minority investment in Kilembe, Uganda, Val vowed he would never again invest without control.

In 1953 the UK Government had offered to provide loan financing for development of any uranium discovery which would be independent of the supply available from Washington. A subsequent purchase of rights to prospects from Joe Hirshhorn formed the uranium base of Rio Tinto in the 1950s. Oscar Weiss, an eminent geophysicist, urged Val Duncan to make a deal on certain Palabora claims, on which uranium was indicated, with Transore Inc., headed by Jurgen von Bülow, a German and a former associate of Hans Merensky, the early discoverer of the world famous platinum mines in Transvaal, and later of diamonds. Von Bülow also found low-grade copper on his claims.

Newmont's interest in Palabora originated from early drilling done by the government seeking uranium ores. Low-grade uranium was indicated, together with what was deemed by the government to be an uneconomic grade of copper (less than 0.9 percent). This copper prospect triggered Newmont's interest, and this aroused Rio Tinto's interest. Rio Tinto made a verbal agreement with von Bülow and the struggle began for control of the prospect. Newmont had an excellent reputation as a knowledgeable and successful miner in South Africa (O'okiep and Tsumeb both being highly profitable at that time), while Rio Tinto was relatively unknown and had no recent background of successful mining operations.

The government, which owned all but the Transore claims, favored Newmont but respected the Rio Tinto-Transore deal (even though it was only verbal at the time). Someone in the government must have hinted their preference for Rio Tinto-Newmont joint ownership to Val Duncan, as he came to New York to propose it--but on the condition that Rio Tinto have the management. I refused such an arrangement because Rio Tinto did not have the experience, nor the personnel, for assuming management. After several months of stalemate, the South African government, appreciating that Rio Tinto's Transore claim covered perhaps as much as one-third of the orebody, let us understand that if Newmont did not consent to joint ownership, they might be disposed to turn over the government property to Rio Tinto since they did not wish to abrogate the Transore claims. This forced me to make the deal despite my objection to Rio Tinto's management of the venture.

We agreed on a further drilling campaign, and subsequently, on a pilot mill campaign in view of the metallurgical complexity of the ore, which contained certain exotic minerals that did not float well, along with a 20 percent content of titaniferous magnetites. Because Rio Tinto did not have the requisite engineers to mount this effort, they consented to having Newmont's personnel conduct this preliminary investigation. I named E. S. W. Hunt to manage it. Ed Hunt was then assistant manager at O'okiep and had done an extensive exploration in Equatorial Africa for Newmont, and he was also the mining expert in the North African venture in Morocco and Algeria that I have already described. My acquaintance with him and his work over several years led me to regard his engineering knowledge and judgment very highly, and I was confident he would do a good job at Palabora. I was not disappointed, as I could not have found a better man for the task.

As a matter of fact, he did such a great job that Val Duncan finally came to appreciate him and hired him away from Newmont to be the chief executive of Palabora, paid by and reporting to Rio Tinto. Eventually he became a member of the Rio Tinto board and was their top mining executive worldwide. But I am getting a bit ahead of myself here, for the recognition of Ed Hunt's abilities by Rio Tinto was not as easy and natural as it would appear from the above brief account and bears a more detailed exposition to illustrate the difference in management styles between Newmont and Rio Tinto.

The initial arrangement for management responsibility of Rio Tinto was made by Val Duncan in naming Frank Byers executive director of Rio Tinto, the management representative to whom Newmont was to report while fulfilling its temporary management role during the exploration and pilot mill investigation. Frank was the chairman of the small and unimportant Liberal Party in England, and much later he was nominated to the Peerage and ultimately became the Liberal Party leader in the House of Lords. He had no previous corporate nor engineering experience. An Oxford graduate with a great facility for public speaking, he showed poor judgment because he was ignorant of the responsibilities he was assigned to; he was a haughty and disdainful man, and unpleasant to deal with because of this. Both Ed Hunt and I regarded him in the same light and disliked him intensely. However, we played the game honorably and kept him fully informed on the progress of the investigation to make him believe he was managing the venture.

It is not surprising that Frank Byers disliked us intensely and ultimately began to undermine Ed Hunt in his reporting to Val Duncan and other directors. When the pilot mill campaign was finished, it was clear to Ed Hunt and me that while the ore was complex and copper recovery might be poor because of the presence of valeriite, a rare copper mineral ($\text{Cu}_3\text{Fe}_4\text{S}_7$) in certain parts of the orebody, a careful blending of the ore in mining could reduce the harmful effect of valeriite and the mine would still be economical.

A total reserve of 315 million tons of 0.68 percent copper, including 80 million tons of titaniferous magnetite, was established by drilling; an unusually low stripping ratio of 0.89 waste to 1.0 ore, plus the presence of additional by-product minerals that promised to be commercial, reduced the net cost of producing copper from this orebody. Rio Tinto's geologist resident at the mine apparently did not fully understand this, nor the significance of the pilot mill results, and reported to London that Palabora would be uneconomic, which gave the final excuse to Frank Byers to say that Ed Hunt's judgment was poor and he had to be dismissed.

Armed with a copy of the final report, I went to London to discuss the findings with Val Duncan. When I arrived at Rio Tinto's office, Val Duncan asked to be excused for a time because of an emergency commitment he had, and asked that I see Bob Lethbridge, Rio Tinto's

top mining expert, whom they had recently hired from a Yugoslavian copper mining venture. Bob was a nice old codger with considerable experience, on the verge of retirement and probably not too interested in his job. When I came into his office, his opening remark was "Well, Plato, I guess it is all over--I mean Palabora, judging from the report that your fellows produced." I was shocked from disbelief because the report was positive and recommended going ahead with the venture. I kept my temper and carefully explained why we thought the investigation and final appraisal of the results led to the recommendation to go ahead. To this day I don't know whether he had read the report, or was negatively inclined in exaggerating the metallurgical difficulties we had encountered, or was reflecting Frank Byers' conclusion.

Later I saw Val Duncan, who had not read the report but knew of Lethbridge's conclusion. As was the style in Rio Tinto, Lethbridge was not asked to come to this meeting. I proceeded to explain why his conclusion was wrong and that we had a very promising mine. Val was confused in disbelief, but after a time--because of my reputation--did not reject my conclusion. He then brought up Frank Byers' belief that Ed Hunt was incompetent and should certainly not continue in his present operating management role.

I anticipated the impending crisis regarding Ed Hunt's position by discussing the matter in Johannesburg with another Rio Tinto executive director, Roy Wright, who was on his annual vacation in South Africa at the time. Roy was educated as an electrical engineer, and though not in any way connected with the Palabora venture, he had heard at the board meetings about Byers' opinion of Ed Hunt. I found by careful questioning that Roy had no personal opinion about Ed Hunt and apparently was not ready to accept Byers' evaluation of him.

Armed with this foreknowledge, I finally decided to bring up with Val Duncan the obviously sensitive point of internal management in Rio Tinto. While Val Duncan was driving me in his mini-Austin to have dinner that night, I brought up the subject of Ed Hunt. "You really believe Ed is competent to manage the next phase of developing Palabora?" he asked me. I replied affirmatively and emphatically and said I was prepared to stake my reputation on this opinion. Then I touched on the really sensitive subject: Ed Hunt would not stay if he had to

continue reporting to Frank Byers, and I tried to make this impersonal by saying they had conflicting personal chemistry--which happens sometimes with the best of people. "Why don't you appoint Roy Wright in Frank Byers' place?" I asked, taking a huge risk that one hour's conversation with Roy was enough to forecast an enduring favorable relationship between Roy and Ed Hunt. "I'll think it over," Val replied, and a few days later he made the change. I never thought the change would be so easy to accomplish considering the pride of Rio Tinto's chief executive in his company and its people. I credit Val with keen intelligence and a sense of fairness, coupled with respect for my judgment in this unusual event.

Roy accepted reluctantly, as he was then very busy with Canadian and Australian uranium ventures for Rio Tinto. He now informs me that over the years there was not a great deal of good will between Val and Frank. Suffice it to say that the team of Roy Wright and Ed Hunt was a brilliant combination that achieved one of the outstanding successes in the world mining industry. Roy was as impressed as I with Ed's ability and judgment and supported him loyally in most of his recommendations and policies. Roy himself was a very intelligent, creative thinker with a keen understanding of finance and corporate problems, which I am sure added to the success of the constructive cooperation between the two men.

Despite this happy final selection of the management team, there were many difficulties and bothersome conflicts with Rio Tinto before the venture was successfully launched. The first task was to have a comprehensive feasibility report with an estimate of the capital cost of the venture prepared by an outside engineering firm with a world-wide reputation that would be accepted by financing institutions. Not having had previous experience in large project development, Rio Tinto argued this could be done in-house more cheaply and proposed that it be done by their newly formed engineering group in Canada headed up by a very bright young electrical engineer, Donald McParland. It was obvious to me and Ed Hunt that the group had little or no experience with mining projects, nor with any projects of the size, diversity and complexity of Palabora.

After many disturbing meetings, we managed to persuade Rio Tinto to have this feasibility study and estimate done by a reputable contractor with experience in mining and

smelting projects. We had to accept, pursuant to Rio Tinto's management prerogative, their representatives on the joint committee for making decisions in this regard--McParland and Earl Gillanders, a Canadian geologist with no experience in bringing developing projects to the production state. Ed Hunt carried out an exhaustive survey of the principal engineering firms in America by visiting each one to discuss the project and assess the abilities and experience of the to-be-assigned personnel of the firm. The two Rio Tinto representatives accompanied him, no doubt with some degree of astonishment because of their lack of such experience. In the end, the choice was made in my office to employ Bechtel Engineering together with Western Knapp Engineering; Bechtel for the depth and amplitude of their engineering resources, and WKE for their highly experienced smelter engineers and the several smelting projects they had recently completed. The next task was to marry the two engineering firms for this venture, both of whom were initially reluctant to do so, but under considerable pressure they finally agreed and accepted the scope of the project as worked out by Ed Hunt and Newmont engineers. While the Rio Tinto management representatives were there, Ed Hunt and I led the discussion and made the critical decisions. This was a source of complaint to Val Duncan, and I had to assuage the tempers aroused by this meeting, but all the decisions we made were finally accepted by Rio Tinto.

After nearly a year, with the final feasibility report and estimate of \$103 million completed, we were ready to secure financing. It was agreed with Duncan and Wright that U. S. financing would be attempted first and that, because of its connections, Newmont would do it: the U. S. Export-Import Bank, as well as the World Bank, would be approached. Lew Douglas, a Newmont director, spoke to John J. McCloy, chairman of the World Bank (whose wife was Douglas' sister-in-law). To make a long story short, we struck out and were refused by both of these institutions because it was deemed politically unacceptable for them to lend money to a South African enterprise.

We agreed that further financing efforts would be made by Rio Tinto in Europe and South Africa. Actually, it was a difficult time to do so anywhere because of worldwide adverse reaction to the Sharpeville massacre a few years before in which some sixty-eight rioting blacks were killed by South African police. Furthermore, there

was a lack of precedent in Europe for financing such a large mining project. After great effort, and with much ingenuity, Roy Wright, Val Duncan, and their associates finally put together financing with a German government agency and with insurance companies in South Africa. They had to pledge 36,000 tons of copper per year for five years and 30,000 tons for the following fifteen years for refining and sale to Nord-Deutsche Affinerie at terms quite favorable to the Germans, and debentures convertible into stock at low prices to the South African insurance companies. I was aghast at what seemed to me to be exorbitant terms and decided to oppose this at a meeting in Johannesburg called by Rio Tinto to approve the financing.

Albert Livingstone, a lawyer selected by Fred Searls many years ago to represent Newmont in South Africa, was confirmed by me in my accession to the CEO position. I delegated him to follow the financing efforts and other Rio Tinto activities with respect to Palabora in South Africa. I flew to Johannesburg, arriving at 4:00 a.m. without sleep for some forty-eight hours because of a delay in connecting flights in Amsterdam. Livingstone, though he was then over the age of seventy, met me at the airport and drove me to his home to get some sleep before the meeting scheduled for 9:00 a.m. that morning. On the way, knowing of my opposition to the financing scheme, he tried to convince me not to oppose Rio Tinto on the grounds that it was doubtful if alternative financing could be found--and many other arguments. I went to bed at 5:00 a.m. but could not sleep, going over Albert's arguments and feeling deep resentment at accepting such onerous terms. In the end, when Albert and I appeared at the meeting at nine o'clock, I accepted the financing with the feeling that I had been had, for I was not fully informed of Rio Tinto's financing negotiations until that day. The final package consisted of:

	<u>Millions</u>	
Common Shares	\$40.7	(RTZ, Newmont, Amax, Union Corp., SelTrust)
First Mtge.Conv.		
Debentures	17.7	(S.African insurance companies)
W.German Loan	27.0	(Kreditanstalt für Wiederaufbau (KfW))
Eqpt.Loans &		
Short-Term		
Bank Loans	<u>17.8</u>	
	\$103.2	

The shareholdings were:	<u>Percent in Palamine</u> (Palabora operating co.)
Palahold Co. (57.73% owned by RTZ and 42.27% by Newmont)	61.41
Others (SelTrust, Union Corp., public)	32.45
Newmont	2.66
RTZ	3.48
	<u>100.00 %</u>

Looking back on this, I have to recognize that the financing was a most difficult task at that time, and Rio Tinto had accomplished it despite the difficulties. Whether a tougher negotiation stance could have produced better terms, I will never know. In spite of the tough terms, Palabora turned out to be a most profitable and superbly managed enterprise; it is probably the lowest cost large copper mine in the world, in part because of several profitable by-products which, as credits against the copper costs, resulted in costs of around 30-35 cents per pound of copper. Production eventually grew to a peak of 150,000 short tons of copper yearly, and close to 80,000 tons of ore were mined daily. At its peak in 1983, 110 million tons of waste and ore were mined that year, and the highest rate of copper open pit production in the world was achieved for a time at 350,000 tons of ore and waste daily. The open pit will eventually be excavated to a depth of 2,600 feet from the surface.

Our relationship with Rio Tinto, and especially with the Rio Tinto appointed management at Palabora, settled down to a cooperative and mutually respectful one. The contract drawn up wisely by Roy C. Bonebrake in negotiation with Rio Tinto provided for Newmont's voice in the selection of the general manager of Palabora, and this has worked very well over the years and avoided unnecessary conflicts.

(Return to interview transcript)

(Interview 3: 4 May 1988) ##

Swent: We are continuing an interview that we began last December.

PM: One of our early acquisitions and the development of a significant mining project was occasioned by a chance lunch with a friend of mine in 1956, Clem Pollock, the chief geologist of American Smelting and Refining Company, and we talked about his recent trip to the Philippine Islands.

Atlas Consolidated Mining and Development Company

Swent: Where were you at this time?

PM: In New York City. We had lunch together and I was asking about that trip. He mentioned that he had spent some time in the Philippines, but his company was not interested in any of the attractive things he saw there. He described to me the geology of the property owned by Atlas Consolidated Mining and Development Company.

Swent: Was this a subsidiary of ASARCO?

PM: No, it was an independent company which had a new mine in operation on the island of Cebu. He told me that he thought there was a chance for a greater spread of disseminated copper in the areas that had not been tested by the company, and that there was a possibility of enlarging the operation into a large mine. This interested me because I knew him to be a very good geologist, and so within the next year I bought some sixty thousand shares of Atlas for Newmont at a price of about twenty-four dollars a share.

Swent: On the market?

PM: On the market. The company was headed up and partly owned by Colonel Andres Soriano, who was Spanish but domiciled in the Philippines and during the war chose to stay at Bataan. He knew General Douglas MacArthur very well, and the general thought so highly of Soriano that he made him a colonel at the very beginning of the war and insisted that he accompany him when he left Bataan.

PM: From then on throughout the war, Andres Soriano was his right-hand man and assistant. As a result of this association, Soriano went through the entire war with the Japanese. After the war, he came back to the Philippines to try to improve his mining operations. He hired a mining engineer named Charles M. Smith who had been with Phelps Dodge some years before. Soriano knew Smith during the war because Smith was then in the United States Army and had an outstanding record in fighting against the Japanese.

Soriano, having recognized that he needed more financing in order to expand the operations, came to the United States for that purpose. Because he had connections with Lehman Brothers, he made contact with their consulting engineer, Philip D. Wilson, one-time manager of O'okiep Copper Company for Newmont. So when Soriano came to him for financial help, Wilson mentioned Newmont Mining because of his former affiliation with Newmont, and this served as the first contact that I made with Colonel Soriano.

We agreed that we would like to take a look at his mine, and I sent out a team consisting of Fred Searls, his son Bob, Marcus Banghart, and R. M. Belliveau, an open pit consultant, to evaluate what Clem Pollock had told me a couple of years before and also to look at their current operations.

Swent: Excuse me, Fred Searls at that time was your superior?

PM: No, at that time he was chairman of the board and I was the chief executive officer.

Swent: But you were able to send him?

PM: Oh, yes. He was interested and, being a geologist, he was the logical person for me to send.

They confirmed Clem Pollock's opinion that there was promise in a certain area and it would be worth drilling that area. So when they came back, the next task was to see what kind of a deal we could make with Soriano. I think the deal that we did make was probably one of the best deals I've ever made.

The deal evolved as a result of discussions with Fred Searls; I was in charge of negotiations, and I elaborated on Fred's suggestions. This is all covered in Ramsey's book, by the way, but the principle was to

- PM: take down shares in proportion to the number of tons that we could develop into a minable reserve. And we worked out a formula that would entitle us to 1,512.5 shares for every 100,000 tons of ore we found. In addition, we said we would be deserving of a 15 percent royalty if we were successful in finding at least six million tons of reserves, which would be convertible if we so chose, into an additional 90,750 shares. We found ten million tons and earned 242,000 shares altogether, of which 90,750 represented the conversion of the royalty and 151,250 were earned by the discovery of the ten million tons. The amount of money we spent in doing this was about \$320,000. This translated into \$1.30 per share, whereas the market price was twenty-seven dollars per share. (chuckles) So almost immediately we had a profit. A very sizeable profit.
- Swent: Were you negotiating with Soriano alone?
- PM: He would occasionally bring in his oldest son, Jose Soriano, who studied to be a lawyer. Colonel Soriano was training him to be his successor.
- Swent: But he didn't have to go back to a board?
- PM: Not really, because he was old-fashioned and very dictatorial, and whatever he decided was what they were going to do. He had a board, but they would consent to anything that Colonel Soriano wanted.
- Swent: Who was negotiating on your side?
- PM: I did the negotiating. My custom at that time was to wait until the latter part of the negotiations, when we got down to specifics, and then bring in our lawyers to write the agreement. And sometimes the lawyers would bring along the tax people if the tax consequences appeared complex. The terms of the agreement would sometimes change as a result of the lawyers' and accountants' advice.
- Swent: Did Soriano feel that he had been taken advantage of at all?
- PM: I don't believe so. At the time, he didn't know how the terms would turn out, and Smith told him he didn't think we were going to find anything.
- Swent: So there was a chance that he had made a good deal.

PM: Yes. We couldn't evaluate it in advance either, but it turned out to be extremely favorable. The way we went about it was to begin with the geochemical survey; we had just recently hired an English geochemist by the name of Alan Coope, who is still with Newmont, and was later the head of exploration in eastern Canada. This survey was not productive because it gave us anomalous results all over the place. We finally determined that it was because of the misleading fixation of copper in clays. There was a lot of clay alteration, and clay tends to absorb copper. Because the areas of alteration were wide-spread and cupriferous clay was transported during erosion even more widely, we obtained false anomalies. Subsequent drilling showed such anomalous areas not to have had any copper underneath. So we had to abandon geochemical surveying and resort instead to conventional pattern drilling.

This drilling finally located the ten million tons. Ultimately, long after we had received our shares, the company continued this exploration and delineated an orebody of 147 million tons of .74 percent copper. By this time our deal was paid off, so we didn't get any more credit for our efforts.

My relationships with Soriano were extremely cordial. In spite of the fact that it appeared that he perhaps had paid too many shares for what we had delivered, I believe he recognized that what we had gotten was a finder's fee for a major orebody that was eventually drilled out.

The development of this orebody became a major problem because he and his organization didn't have sufficient experience. Smith, despite his previous experience with Phelps Dodge, did not have the experience of managing a large developing enterprise either. Newmont's engineers made up for that lack, and we undertook to continue to furnish certain consulting services to him. Having recognized that Smith was limited in his experience, we recommended hiring another manager, but Soriano rejected this at first and resented our even having brought up the subject, because he was so fond of and loyal to Smith on account of their shared war experience. Smith was a good man--there was nothing wrong with him except his lack of experience.

I had the task of trying to convince Soriano that while Smith may have been a wonderful war hero and a good mining man as well as an honest person, the mine ought to

PM: have a more experienced manager. It took some time for me to convince him. He finally accepted my arguments and consented to the change. We recommended Harry Nellems, a man whose qualifications we knew about because he was the manager at N'Changa, one of the major copper mines in what was then Northern Rhodesia. Soriano hired him, and indeed, it was a fortunate move, because Harry Nellems carried through the program of equipping this large open pit mine very well. Shortly after that he retired. In seeking to replace Nellems, we consulted with Robert P. Koenig--I've spoken to you about him in connection with Southern Peru--and he recommended very highly Dick Clarke; Clarke was formerly a manager for Cerro in Peru but had left there, and Koenig had a high opinion of his competence. And indeed, Dick Clarke turned out to be an even better manager than Nellems. So under those two very professional, very experienced people, the Atlas venture prospered and became one of the major producers in that part of the world.

Swent: I saw somewhere the statement, put in very tactful terms, that due to circumstances beyond your control, it was terminated. What really did happen there?

PM: In the end? Well, what happened was the recognition that the Philippine Islands' political climate began to change. You will remember there was a president by the name of Ramon Magsaysay at one time who was a young, very progressive man who tried to bring the Philippine Islands into the modern world. He was very receptive to foreign investors. He died in 1957, in an airplane crash, and from then on the Philippine Islands became more and more nationalistic. The government began to curb foreign investment and the return of money invested from abroad, and I could see that such attitudes would become more and more restrictive.

The stock was selling pretty well--up in the area of somewhere between twenty-seven and thirty-two dollars a share. In view of what we were then allowed to repatriate for payment of dividends, it might have taken twenty or twenty-five years to return the capital invested in the mine there. Furthermore, there was the possibility that the mine might be nationalized. So I thought it was best to sell our investment. We sold our entire position at those levels I mentioned--between twenty-seven and thirty-two dollars a share.

Swent: How did you sell it?

PM: In the open market. Because it was quoted on the American Stock Exchange, we sold it right into the market.

Swent: Did you have to sell it little by little?

PM: Gradually, yes.

Swent: Isn't it noticeable when you begin to sell these things?

PM: No, there are ways of selling so it's not noticeable; you can keep it fairly secret by using different brokers and different accounts. We were quite skilled at that. Actually nobody really realized that we were selling until everything was gone; we had to state in our annual report that we no longer had an interest in Atlas.

But it was really a very interesting experience for me, because this happened in the early years and I had to negotiate with a person who was difficult and very positive and very strong-minded.

Swent: Soriano?

PM: Soriano. However, we found him to be a real friend once he gained confidence in us. One time when I went to Europe, he insisted that we--that is, my wife and the two children--come and visit and stay with him near Biarritz where he had a house. We did that and we met his daughter-in-law there, a beautiful Spanish blonde, very ebullient and a very interesting person also.

Soriano was always extremely cordial and pleasant. A very interesting man; I classed him as a Spanish grandee. He had beautiful manners. I recall an incident when we got into very critical discussions about removing Smith from management. I told him that we felt Smith had to go, we had to have a better manager. Soriano became extremely angry but he contained himself: I could see his anger mounting--he became almost purple in the face, yet he said nothing. I thought he might have a stroke, he was so agitated. However, when he finally spoke, he was even-tempered and courteous. First, as I said, he rejected the whole idea; it took repeated arguments and meetings before he accepted it.

Swent: When did you finally sell out of Atlas?

PM: In the late sixties.

Swent: Were you on their board?

PM: Yes, but only for a short time. We preferred to advise them professionally on engineering problems rather than from the board level, which might have interfered with their policies.

I may say that Soriano's enterprises in the Philippines were numerous and various; he not only had this mining enterprise, but he also had a most profitable industrial enterprise--the San Miguel Brewery, still well-known and still quite prosperous, which his younger son managed after his death. I think it's only recently, within the last three or four years, that the family disposed of their interest in the brewery.



Plato Malozemoff, awarded the Charles Rand Memorial Gold Medal of the American Institute of Mining, Metallurgical, and Petroleum Engineers, 1972.

V CHAIRMAN AND CHIEF EXECUTIVE OFFICER OF NEWMONT,
1966-1985

PM: Well, maybe we might go on with some of the things I did with and for Newmont.

Newmont Oil Company, Dutch North Sea

One of the early concerns or responsibilities that I had even before I became president was Newmont Oil Company. Newmont Oil Company was then managed by Philip Kraft, who was a geologist by training but in later years, while he continued his interest in mineral exploration, he became involved in oil production and oil exploration. He had exploration experience in Rumania, for example. At any rate, he had the best qualifications to run Newmont Oil Company, which actually was a consolidation of earlier oil investments that were made by Newmont long before Philip Kraft joined the company.

Swent: He was actually your first contact with the company.

PM: Yes. That early history is in Ramsey's book, and I will not repeat it. At any rate, when I came to Newmont, Newmont Oil was a comparatively small company which Philip Kraft tried to enlarge. He bought a remarkable combination of royalty interests in various existing and potential oil fields in Texas and Oklahoma. This was a group of properties that L. P. Teas, a consulting geologist, called to Philip Kraft's attention. They're remarkable in that for some thirty-five years, and even now, they continue to be profitable. They're still producing income for Newmont Oil Company. The

PM: virtue of this group of royalties was that there were no costs attached to it except overhead costs in collecting the royalties and paying taxes on them.

The group of royalty interests in properties were apparently carefully selected. They were all of very high quality. I think there must have been something like a hundred and twenty different royalty properties.

While I was at Newmont in the early years, before being named president, Mobil Oil secured off-shore rights in a number of blocks in the Gulf of Mexico for oil exploration. Along with several other major companies, this was the pioneering effort in the Gulf of Mexico. In those days, in the late forties, Mobil Oil was not the company that it is now, and with the various commitments they found themselves short of money to develop these blocks. They sought a partner who could bring in the money. Philip Kraft heard about a fifty percent interest that was offered. Eventually Newmont bought it but knew it was more expensive than they could afford. Thirty-seven and a half percent was sold by Newmont to Continental Oil Company with which we had an affiliation also because we had four and a half percent interest in that company.

This was the beginning of a quantum expansion in Newmont Oil. This venture ultimately became very successful, but not right away. The costs of off-shore drilling and acquisition were quite high. For years Newmont Oil's investment in this off-shore was not returned. Yet Philip Kraft was absolutely sure that down the line it was going to be a marvelous investment.

This presented a problem within the board of Newmont and also the management. Fred Searls was always a little impatient with Philip Kraft because he found him somewhat difficult to manage. Also, he wanted more immediate results from the investment that was made and became very impatient with the slow progress that the off-shore venture made. At one time the board was in favor of selling either all of the oil company or the off-shore investment. This was a terrible blow to Philip Kraft and he was emotionally very disturbed by this. I was sympathetic to his point of view and I fought off this attempt to sell--Fred Searls was on the point of firing me for it.

##

Swent: So you were told later that Fred Searls even considered firing you.

PM: That's right. I was then still the only staff engineer that Newmont had at its headquarters in New York. Fred Searls was not sympathetic to Phil Kraft and his judgments, and he asked me to look after Newmont Oil. I stood as sort of a buffer between Phil Kraft and Fred Searls at that time, and I learned to respect Phil's knowledge and liked him very much as a person also. We had a very warm relationship.

Fred Searls didn't have much respect for Newmont Oil, nor the way Philip Kraft ran it. Philip recruited girls to take care of all the clerical duties, and hired a girl geologist by the name of Alice Langlois, quite a pretty French Canadian geologist, a graduate of Columbia University, whom he promoted to be the vice president of the oil company. Franz Schneider as well as Fred Searls used to refer to Philip Kraft and his organization as "Philip's harem," which was not absolutely true because the treasurer was always a man. (chuckles)

When I became president of Newmont Mining Corporation in 1954, I also assumed presidency of Newmont Oil Company and was its president from 1955 to 1962. After that I became chairman of the oil company until I turned that responsibility over to Jack Thompson. Philip and I, in effect, determined the basic policies of the Newmont Oil Company. The various new oil plays and their geological promise were always discussed in great detail, so I knew all the reasons for Philip Kraft's optimism in recommending the new ventures.

I previously related the acquisition of the Algerian oil field, the Rhourde el Baguel, and its development. Our interest was aroused by a recent discovery in Algeria. It was Phil Kraft's advice to me and his conviction that, for an oil company as small as Newmont, we should follow discoveries rather than try to make new discoveries in a new area, which takes more money and also involved more risk. Therefore, you could reduce the risk and also reduce the amount of money you would invest in an area already known to be petroliferous. This was the theory behind his judgment to await a discovery in Algeria and when it was made

PM: he felt that Newmont should undertake exploration for oil in an area known by other discoveries to be petro-liferous. As I mentioned before, we did find a major oil field but unfortunately it was nationalized later on.

I should mention Robert S. Moehlman, an old mining acquaintance of mine to whom I was introduced back in the middle 1940s. We were looking for someone to head up the oil company in Texas shortly after the previous operating head, Oscar Champion, died. I located Moehlman in Houston at a time when he had switched from mining to oil. Having formed a good opinion of him and checked on his record in the oil industry, I was convinced that he would be a good man for Newmont Oil and we hired him as president in 1962. Philip Kraft was chairman from 1955 to 1968 when he died. Moehlman remained as president and, as I said before, I was chairman until I gave that up in favor of Jack Thompson.

Incidentally, I gave up my post to Jack Thompson for probably the same reason that Fred Searls turned over the responsibility of Newmont Oil to me. I became impatient with the long-windedness of Moehlman and Philip Kraft in presenting the oil company problems. (chuckles) I just didn't have the time or patience for it, so I turned it over to Jack.

Another very significant milestone in the Newmont Oil development was the acquisition of interest in the Dutch North Sea in 1986. The interest was owned by Aminoil Petroleum Company, which was a wholly owned subsidiary of Phillips Petroleum International Corporation. Phillips, after an assault by a raider, incurred very large debts. To pay them off they sold certain assets.

Swent: Newmont had subsequent experience with that same raider?

PM: Yes. It was Boone Pickens. At any rate, Aminoil only had about three and a half percent to fourteen percent in various blocks and there were a number of blocks. The interest to be sold was definitely a minority interest, the major interest being held by Exxon and other larger companies. We had an exhaustive examination of Aminoil's interest done by Ed Barton, who succeeded Moehlman as president and chief executive of Newmont Oil Company. He came away from the examination with enthusiastic endorsement for purchase of that interest.

PM: The question at that time was what to pay for it. He made various calculations, some more conservative than others. One of his conservative evaluations was 114 million dollars, but it was obvious to me that the major participants in this venture, like Exxon, would buy this interest--probably at a higher price. So there was not much point in our offering to buy it at 114 million; we'd never get it. A further restudy of the interest offered ensued. In going over the details of the restudy, I reached the conclusion that we might have to bid as much as 180 million dollars; otherwise, the sale would be pre-empted by the major partners.

At that time I was grooming Gordon Parker to succeed me. I was still the chief executive officer, however. I got him involved in this discussion and he was against bidding any such high sum. He recommended a bid of no more than 120 million dollars. I was sure we would lose it at that price. I overruled him and we finally compromised at a figure of 165 million, which indeed was the successful bid--successful essentially because we avoided the auction procedure contemplated by Phillips as the way to sell the company. I urged Ed Barton to stay on top of this and to find out if there was any way we could negotiate and avoid the auction process. He found out that the auction was slated to be held on a certain day, and a couple of days before that there was an opportunity to discuss the matter with the people responsible for the sale. I urged him to negotiate the sale right then, which he did, and apparently the price we offered was somewhat higher than the price Phillips had in mind, and they decided to close right away rather than wait for an auction. We might not have gotten it if it had gone to auction, but of course we'll never know.

At any rate, our acquisition turned out to be just what I thought it was. First of all, it already had production that yielded income right away, and there were very large areas yet to be explored on which geophysical indications were very favorable. My own feeling was that perhaps they had discovered only half the gas that would be discovered eventually, and there were oil possibilities as well. Ed Barton was a little more conservative. At any rate, that was one of the reasons why I thought it was imperative for us to try to get this very attractive area. The reserves would probably turn out to last as long as thirty years or more.

PM: What we acquired was seven blocks in the Dutch North Sea with measured reserves of 150 billion cubic feet of natural gas and 1.6 million barrels of oil. Shortly after we had made the acquisition, they discovered a major oil field in one of the blocks which has not yet been evaluated from the standpoint of reserves. But it promises to be a major field. There's no question that it is one of the finest acquisitions Newmont Oil has made.

Furthermore, an additional advantage and attraction to this was that the Dutch had discovered and owned a very large gas field on-shore in Holland. They managed its production in such a way as not to hamper exploration and production of the off-shore by private companies, because they wanted to ensure maximum development. They would reduce their production on-shore when the market weakened in order to reduce pressure on prices and thus ensure that the private companies would produce at a maximum and continue exploration.

Moreover, the price is set by the government, and the price we were receiving at the time of acquisition was something close to four dollars for a thousand cubic feet. It was raised within the first year to about \$4.50. Lately, because of the collapse of world oil prices and of gas prices tied to oil prices occasioned by overproduction by OPEC producers, the gas prices determined by the Dutch government had dropped to about \$2.50 a thousand. But this is still a very generous and profitable price for production from these fields.

Swent: Where is the gas sold?

PM: In Europe. Mostly in Germany and Belgium and France. It is distributed fairly widely in Europe.

Swent: Did you have to get into the sales or distribution?

PM: No, just production. We did have to provide money for the pipeline to transport the gas from off-shore to the pipeline system on-shore, which was an additional capital expenditure. But I think it's one of the best things that Newmont Oil Company has ever done, and it's going to be very profitable. I regret to say that the present management has sold all the oil assets in order to pay part of the debt incurred in fighting off Boone Pickens.

Swent: Where did you get the \$165 million that you paid for it?

PM: We had cash enough by that time. Newmont became more and more prosperous, and in the mid-1980's and in late 1986 we were flush with cash.

Swent: So you could move it from one company to another.

PM: Well, we actually organized a special company because of tax reasons.

Swent: I see. Can you take profits from Newmont Gold, for example, and move them over into buying things for Newmont Oil?

PM: The actual financing of this gas and oil interest became quite complicated because of tax considerations. Actually, part of the money came from Australia. And the reason it came from Australia is because our gold mine there was profitable and the cash flow was more than they could use, but to move it by way of dividends to the United States would have incurred a tax. Rather than do that, the Australian company used its cash to make a gas and oil investment in the Dutch North Sea.

Swent: Who decided those kinds of things?

PM: This was recommended essentially by Ed Fontaine, our financial vice president. He used to work for Mobil Oil and was acquainted with all kinds of ways of financing things. He's a very good man, very talented. But it was a complicated deal and I don't even remember the full details of it now.

Swent: I was just curious. These kinds of things, are they in annual reports?

PM: The main terms of such a deal are usually outlined in the annual report.

Swent: Yes, it might be of interest. When an oil field is drilled, my understanding is that if I drill oil over here and somebody else is drilling in the same field, aren't you both tapping the same pool of oil?

PM: Yes, there's special provision for sharing that oil in a fair way so that one owner doesn't drain the others.

Swent: Are those provisions in the Dutch North Sea similar to the ones they have in other places?

PM: Yes, they are recognized world-wide.

Highveld Steel and Vanadium Corporation, Limited

PM: I'd like to speak of another, earlier foreign venture that we made in 1968, essentially as a result of my close acquaintance with the Anglo-American group of South Africa, Harry Oppenheimer and some of his associates. This is the acquisition of interest in Highveld Steel and Vanadium Corporation, Limited.

The initial contact was actually made by Frank McQuiston, our chief metallurgist at the time, who knew very well the chief metallurgist of Anglo-American, a man by the name of Ian Cairns. Cairns had been involved in the investigation for exploitation of a huge vanadium deposit that Anglo-American had in Northern Transvaal. One of the problems with it was that it was actually an iron deposit with vanadium content, and it was difficult to extract vanadium from the iron ore. Cairns had the responsibility of finding the best method. Eventually he developed a pyro-metallurgical method of treating the iron ore in a certain way in which the iron was recovered in a special shaking furnace. The slag from this furnace would contain the vanadium. This was a novel process; he piloted it for some time, and Frank McQuiston heard about it.

Anglo-American then decided to proceed with commercial operation. They had a financing scheme all set up and were about to launch the enterprise when it came to my attention. I was particularly impressed by the size of the vanadium deposit, which was then and is today the largest vanadium deposit known in the world, and probably the highest grade deposit also even though the vanadium content was something less than two percent in the ore.

Vanadium is a valuable ferrous metal used in high-strength steels, and my conviction at that time, and still is today, was that the future of these alloying elements that lend strength to steel was very good in that the general technology in the use of steel was moving into the high-strength steels. Even today, in building skyscrapers, we don't use the mild steel formerly employed. We use high-strength steels which are alloy steels containing vanadium, columbium and molybdenum as alloying elements. So it seemed to me that vanadium had an excellent long-term future and this deposit would always be a valuable deposit. ##

PM: I became acquainted with Ian Cairns and he explained to me the process and I went over all their results. I became convinced that the process he had piloted was going to be a successful venture, and I wondered if there was any possibility of Newmont investing in it. At that time I was well acquainted with one of the leading financial men of Anglo-American by the name of Sidney Spiro. When I talked to him about this, he suggested leaving it up to him: he was sure we could have an interest in it, and that we would be welcomed. I think it will be clear from what I have previously said that the association between Anglo-American and Newmont is of very long standing. He was right. When it came to be known by Harry Oppenheimer that we were interested, he confirmed that we could have a position in this venture. We insisted that we should have at least a 10 percent interest because this had U.S. tax advantage. If you had 10 percent or more, your investment was treated more favorably so far as U.S. taxes were concerned.

While this presented something of a problem, eventually they agreed and we drew up a contract which was rather an unusual one. In effect, we were guaranteed never to be diluted, to always have the opportunity of maintaining a 10 percent interest. Too, if they sold more stock we could buy enough to maintain our 10 percent. It is a habit of South African companies to give or option large amounts of stock to directors and other people involved in the venture. Since capitalization thereby increased, we had to buy stock in the open market in order to maintain our 10 percent interest. They were very meticulous in letting us know any time our interest threatened to drop below 10 percent.

We bought actually 11.9 percent for \$9.7 million and were not required to invest more money to cover the capital expenditure overrun. This was again an unusual part of the deal in that Anglo-American took on the responsibility for seeing this venture to the production stage, whatever it cost. If it overran, which it did, they would lend the money to make up the shortage. We had a guarantee of completion, in effect, without any requirement for further investment. Because of a large overrun, Anglo-American had to lend very large sums of money--something approaching a hundred million rand or more--to a venture that I think was originally estimated to require about 250 million rand.

PM: The whole venture, aside from a big open pit mine, involved not only the primary recovery of iron and vanadium slag, but also the use of that iron in a steel mill. They built and operated the steel mill with the most modern continuous casting. This was the most modern facility in South Africa, although patterned after some of the more modern developments in Europe. While they had some technical difficulties for a while, since 1973--and this is shortly after they started operations, they have been consistently profitable and paid dividends.

Swent: Do you still own this?

PM: It has been sold now by my successors. I have a record of our receiving our share of the dividends, and for our \$9.7 million investment, by 1985 we had received \$17 million in dividends. It wasn't a bad venture. It was slow in maturing, nearly twelve years, but they still have probably fifty or sixty years of reserves ahead of them.

It's an enormous, wonderful mine. Very well operated. I became well acquainted with the managers of this operation. Sir Albert Robinson was the first chairman of the company, followed by Harry Oppenheimer, who, in turn, yielded his place to Graham Boustred while General Langton, formerly of the South African army, was general manager. A technically competent, very good metallurgist, he has been since promoted and now is a director of Anglo-American and is in charge of all their operations. Leslie Boyd, a Scotsman, also a metallurgist and steel expert, followed Langton as general manager, and eventually replaced Boustred as chairman.

It's interesting that at almost the same time, we were contemplating the investment in Foote--and that's a separate story that I'll tell--but the connection between Highveld and Foote was that part of the slag that Highveld produced and exported came to the United States, and Foote developed a process for recovering vanadium from the slag. Since they needed the raw material, they made a long-term contract with Highveld to obtain slag. There was a melding of two interests, and for a time Anglo-American invested in Foote so they would have a leg in the United States as well as in South Africa, and have a minority interest in the company (Foote) that marketed vanadium products in the U.S.

Swent: Was this at the time that you already owned Foote?

PM: Yes.

Swent: Did Anglo-American ever own any part of Newmont or have a director on your board?

PM: Never did, although Harry Oppenheimer at one time personally owned about 200,000 shares of Newmont. That's a story in itself. I think it was in the eighties when Newmont began to grow like a mushroom. It caught his attention even though he knew about Newmont for many years. One time when I was in South Africa, he told me that he had bought 200,000 shares personally, saying "I think it will be fun to be a shareholder of Newmont after all these years."

Swent: Two hundred thousand shares for fun? How much was a share at that time?

PM: Oh, I don't recall right now, but I think it was probably around fifteen dollars a share before a subsequent split of two for one. Anyway, he made a lot of money out of that investment. (chuckles)

Australian Gold Ventures

I might skip now to a gold investment that we made in Australia which turned out to be extremely profitable. Our interest in Australia began back in about 1948 when we formed an exploration joint venture with the Zinc Corporation, which was an Australian company run by L. B. Robinson, a man of renowned stature and one of the important mining personalities in Australia whom Fred Searls knew and with whom I became acquainted later on. This exploration in the forties was a modest one. We sent one geologist from here, Platt C. Benedict, who was an excellent geologist, and on their side the man who looked after the Zinc Corporation's interest was Maurice Mawby, later to become a dean of Australian mining and the chairman of CRA, formed when the Zinc Corporation was merged with Rio Tinto.

We identified a number of rather interesting ventures; among them was a beach deposit of titanium and other heavy minerals on Stradbroke Island. This

PM: was a huge deposit which could be dredged or otherwise recovered by mass mining methods--cheap methods. One of the worries at that time on the part of Newmont's board was whether or not the product would be marketable. Henry DeWitt Smith, a director of Newmont, knew people in Foote Mineral Company who had some knowledge of these metals and asked their opinion of the marketability. Their report on the marketability of titanium was so-so and Fred Searls chose to drop that interest. Later on, the CRA took it on as one of the more successful ventures in Australia.

The other prospect that we identified as worth looking into was the old Cobar copper mine, the operations of which were temporarily suspended. Geologically it appeared that there were further possibilities of increasing the reserves, and our drilling program indeed confirmed this. It looked as though it might be worthwhile to further develop it and put it into production. Again Fred Searls ruled against it. This was all back in the late 1940s. We retired from the Australian exploration without any positive result. Cobar was later resurrected and operated by an independent mining group with indifferent results.

The reason I know about this in detail is because I was charged with the responsibility in New York of keeping track of exploration in Australia. The reports came to me and I made a summary of these reports for both Phil Kraft and Fred Searls so they didn't have to read the lengthy original reports. That summary book still exists in the files on Newmont and was often consulted when we resumed exploration much later and I sent Bob Searls, the son of Fred Searls, to Australia to be in charge of the exploration effort there.

Swent: I understand he eventually became an Australian citizen.

PM: That's right. He moved his family there and they all live there now. That's the early history of Newmont's involvement in Australia.

Swent: Was Fred Searls just opposed to doing a lot of foreign things or was it on merit that he turned these down?

PM: He was very hesitant in going into new ventures, especially those that he hadn't examined himself. He also didn't wish to spend a lot of money on a single venture. Prior to my accession as the president,

PM: I don't think he invested in anything that was in excess of five or six million dollars. I broke that sort of magic number almost right away and we went to much larger investments. Anything that smelled of a large requirement for money--he was hesitant about it.

The Telfer Mine

PM: Back in the late sixties as a result of some rather promising new developments in Australia, we decided that we had better mount an exploration effort in Australia again. I sent Bob Searls down there and he organized a group of geologists for an exploration effort. We were looking for all kinds of things at that time; among them was an interest in gold. At one point sometime in the early seventies, probably 1971 or 1972, he sent a report on an area in the Great Western Desert, a rather remote area, in which there were very interesting gold values scattered over a large area. The geological analysis did not define where this came from or whether there was any continuity in the mineralization. The results were rather erratic--some high-grade, some very low-grade areas. I remember that Bob Searls either called me or perhaps wrote me to say that they'd been trying to appraise it and couldn't make any sense of it and thought that maybe we should drop it. They had already spent a fair amount of money on this prospect.

Swent: At this time had you organized a subsidiary there?

PM: Yes, Newmont Proprietary Limited, headquartered in Melbourne.

I communicated with Bob that it seemed to me that because of the widespread occurrence of gold, there might be a mineable source. I urged that further geologic work be done to see if they could find the source.

Bob did not dispose of it and proceeded to do what I suggested. Sure enough, within six or eight months, they finally discovered the source of the gold in a gold-bearing stratum or reef which eventually was developed into the Telfer Mine. In 1973, the preliminary drilling indicated some 2,200,000 tons of ore assaying

PM: .42 ounces gold per ton, which was very promising. It was close enough to the surface to mine by open pit. Furthermore, metallurgical studies indicated that better than 90 percent recovery could be achieved.

Further drilling finally developed a total reserve of 4,200,000 tons of .28 ounces per ton mineable by open pit. We began to make plans for exploitation of this deposit, but one of the problems was an Australian federal law that prohibited foreign companies from owning more than 49 percent. However, the final judgment of Australian investment was left to the provincial heads, and the head of the Western Australia province was at that time Charles Cort. Bob Searls knew him and asked whether in view of our discovery, it would not be fair for us to find an Australian investor who would take less than 50 percent. After several discussions, Cort finally agreed.

We went to Broken Hill Proprietary Company, which Bob Searls knew, and which is the biggest mining company in Australia, and offered them 30 percent participation. Interestingly enough, despite the fact that this was just a minor speck in their huge investment position in Australia, they became interested in diversifying into gold and took this percentage. They've been very happy with that investment ever since.

By 1975, we had finally decided to go ahead with a 1,350-ton-per-day mill; the cost of the mill and mine development was initially estimated at something like \$37 to \$38 million. I felt that it was too high a figure; the return at the thirty-five-dollar gold price at the time was not going to be very attractive. I asked Peter Crescenzo, our chief engineer, if he could figure out some way of reducing the costs to the twenties, in which case we would go ahead with it. He managed to come up with an estimate of \$22 million. I then authorized for us to go ahead. Actually, we did spend \$27 million, but we enlarged the scope to some extent so it was quite an acceptable figure. The \$27 million included the mill, the development of the mine, the development of water, the installation of a power plant, the development of access--a 250-mile road, a townsite, an airport, a school for children, and amenities. The site was so remote that we wanted to be sure it would be a self-sustaining community.

Swent: What was the town that was 250 miles away?

PM: Marble Bar.

Swent: Was this anywhere near Kalgoorlie?

PM: No, at the edge of Great Sandy Desert, many miles north of Kalgoorlie. Telfer is about 300 miles from the famous Mount Newman iron mines.

Swent: But you did succeed in getting people there?

PM: The first problem that we had was in the construction of the mill in preparation for production. The workmen that we hired to do this all of a sudden struck. Labor strikes in Australia then and now are very difficult to handle, and this was a very militant group. The general opinion at that time was that we'd have to yield to their demands. Bert Mason, the manager, and Bob Searls on their initiative and with my approval said we were going to fight these people. We're not going to allow them to run us, and strangely enough--maybe partly because of the remoteness of the area, we won the strike. Most of the men went back to work, and we proceeded to complete the job.

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PM: In 1977, the mine was brought into production and 101,000 ounces of gold were produced and the very first year of production was profitable; \$4.7 million Australian was earned. The production varied and the second year of production, because of a very high-grade ore that we encountered at that time, the mine produced 160,000 ounces in a year. We recorded a net income of \$9.2 million Australian.

Swent: But you still hadn't gotten your investment back.

PM: No, not by that time in terms of net income, but by the time the third year came in 1979, the mine produced another 120,000 ounces, this time at \$15.4 million Australian net income, which gave us a cumulative total in three years of \$29 million. Total net income earned as of 1985 was \$151 million.

This mine and the deposits turned out to be unique. Because of our success in this venture, very soon many other companies staked ground all around us trying to

PM: find a mine but none of them succeeded. We had exploration rights in many areas in the district, and we had smells of ore in some locations and a few hundred thousand tons here and there, but never developed a mineable deposit outside of Telfer. We enlarged reserves in the so-called Main Dome, which was found first, and then in the West Dome, found later, and the area between them turned out to have ore so that the reserves gradually increased. Then we evaluated the possibility of treating by heap leaching low-grade ores that were not economical to treat in the mill and this enlarged the reserves further. The final decision, however, was to enlarge the mill to treat these low-grade ores, not quite as low-grade as we would heap leach, but that would give additional life to the total mine and additional profitability.

Swent: What treatment are you using in the mill?

PM: The cyanide process.

Swent: Do you have problems in Australia with environmental restrictions?

PM: Well, thank God we haven't. There are restrictions, but we haven't had any problems in this remote area. We discharge our tailings into big piles in an area that does not affect ground water supply. We do have ground water that we depend on for domestic water, but it's brought in from many miles away so it's not affected by seepage of spent cyanide solution from the tailing piles. In time, cyanide oxidizes to cyanate, which is harmless.

The New Celebration Mine

PM: In the eighties, after all those years of exploration beginning in the late sixties, our Australian subsidiary came up with another prospect in the Kalgoorlie area and this eventually was evaluated to become a producing mine, even though it was comparatively small. One of the problems that we encountered again in the development of this mine, called the New Celebration Mine, was the law in Australia limiting foreign investment to the 49 percent level. However, an exemption was incorporated as an amendment to the law fairly recently, whereby if

PM: the venture requires less than \$10 million capital investment, then reduction of the foreign interest to 49 percent would not be required. We had about 60 percent interest and we hated to reduce the percentage because we had Australian partners for 40 percent. So we actually equipped this mine at the \$10 million level, within about \$200,000. I think \$9.8 million was the figure in order to come in under that limitation.

However, since then the Australian government has become more liberal, and now I see that since I have retired, Newmont is expanding the operation at a cost of another \$4-\$5 million but still maintaining the 60 percent interest.

The significance of this development as well as the expansion of mill capacity at Telfer results in an estimate that sometime in 1989 or 1990, the production from both these mines will reach about 270,000 ounces of gold a year, which is almost two and a half times the potential of Telfer as it was mined before the expansion.

So the Australian effort is really blossoming. However, I must say that it has been disappointing to me that for so many years we have been unable to find another mine, while other people have found mines. New Celebration, while it's going to be profitable and capable of expansion, is really a comparatively small mine, much smaller than Telfer, and may have a relatively short life.

Swent: How do you decide what to name these mines? New Celebration's fairly obvious, I guess, but why Telfer?

PM: The reason for the name of Telfer is because at the time of its discovery, the government mining engineer in Western Australia was a fellow by the name of Telfer. He helped us with the problems in dealing with the government to establish ourselves, and it was Bob Searls's recommendation that we name it after him because of the help he had given us. However, the airport at Telfer is named after my wife; she inaugurated it one time when we were there. (laughs)

Swent: What's the name of it?

PM: Alexandra Malozemoff airport. She inaugurated it and broke a champagne bottle at the inauguration. (laughs)

Swent: And New Celebration? Who decided on that?

PM: There were several names to the prospects that we explored there, and Celebration seemed an appropriate name when it was finally decided that we could combine some of them into a producing mine. Our Australian geologists suggested the name.

Swent: You were able to hold a 70 percent interest in Telfer? How could you do that?

PM: Well, once it was approved by Cort, the premier of Western Australia, it was also approved by the federal government.

Swent: What was the basis for his making this acceptable?

PM: Our insistence that we ought to keep 70 percent, and perhaps the fact that Broken Hill Proprietary, the largest mining company in Australia, accepted our offer to them of a 30 percent interest. That was the proposal that Cort finally accepted. After all, we had found it in a remote, completely virgin area. I believe it was the skill of Bob Searls and his reputation and the respect in which he was held by the Australian authorities that enabled us to do this. Even though the Newmont exploration effort is comparatively small, he established the company as one of the notable mining companies in Australia. It's largely his doing. He did a remarkable job of public relations and government relations. He's now retired. He actually retired before I did even though he's younger than I am.

Swent: How do you sell gold in Australia? Where is it sold?

PM: It's sold locally at the world price. You never have a marketing problem in gold. The only problems you could have with gold are the ones you may create for yourself by starting to sell ahead and hedge the price of gold--which has been done from time to time by our Australian people. I've attempted to do it from time to time, and not very successfully. It's very difficult to do. I finally ended up with the conviction that one should not hedge gold prices.

Swent: Somebody told me that they thought you were sort of averse to gold for a long time or that you weren't very much interested in gold. That you preferred copper and other minerals.

PM: Actually I covered that in the speech that I made in Tucson recently. You have a copy of it. Because the price of gold didn't advance, stayed at \$35 an ounce while the costs were increasing, gold mining became less and less profitable. Newmont decided not to emphasize gold anymore and gave preference to nonferrous metals and we expanded in copper. When we developed Carlin, gold was still priced at \$35 an ounce. However, the new realization that some of the deposits in Nevada occur close enough to the surface to be mined by open pit and therefore at very low cost encouraged us to proceed with Carlin. Fortunately the grade at Carlin was initially better than two tenths of an ounce per ton of ore--actually three tenths of an ounce in the first reserves that we established there. It was profitable at \$35, that's why we went ahead with it.

Open Pit Gold Mines

Swent: So it was a technological change that changed your mind.

PM: Well, not really technological. It was actually the finding of a new type of deposits which were passed up in the past because most of the surface deposits were low-grade, too low-grade in terms of the standards that were then accepted as being commercial.

Swent: Why did those standards change?

PM: First of all, it wasn't recognized that there were any open pit deposits available. They were all thought to be underground, and underground deposits could not be profitably mined at .04-.05 ounces per ton of ore grade. So any time that drilling or exploration encountered deposits of that sort, or even as high as one tenth of an ounce per ton, they were passed up as being non-commercial. Our discovery and very soon afterward that of Cortez Mining Company, owned by Placer Development, were the first open pit gold mines, I guess, in the United States.

Swent: Why was this possible now when it had not been possible twenty years ago?

PM: Because economics were different, and lately, of course, the price of gold rose enough to justify development of much lower grade gold mines than in the past.

The Carlin Mine, Nevada

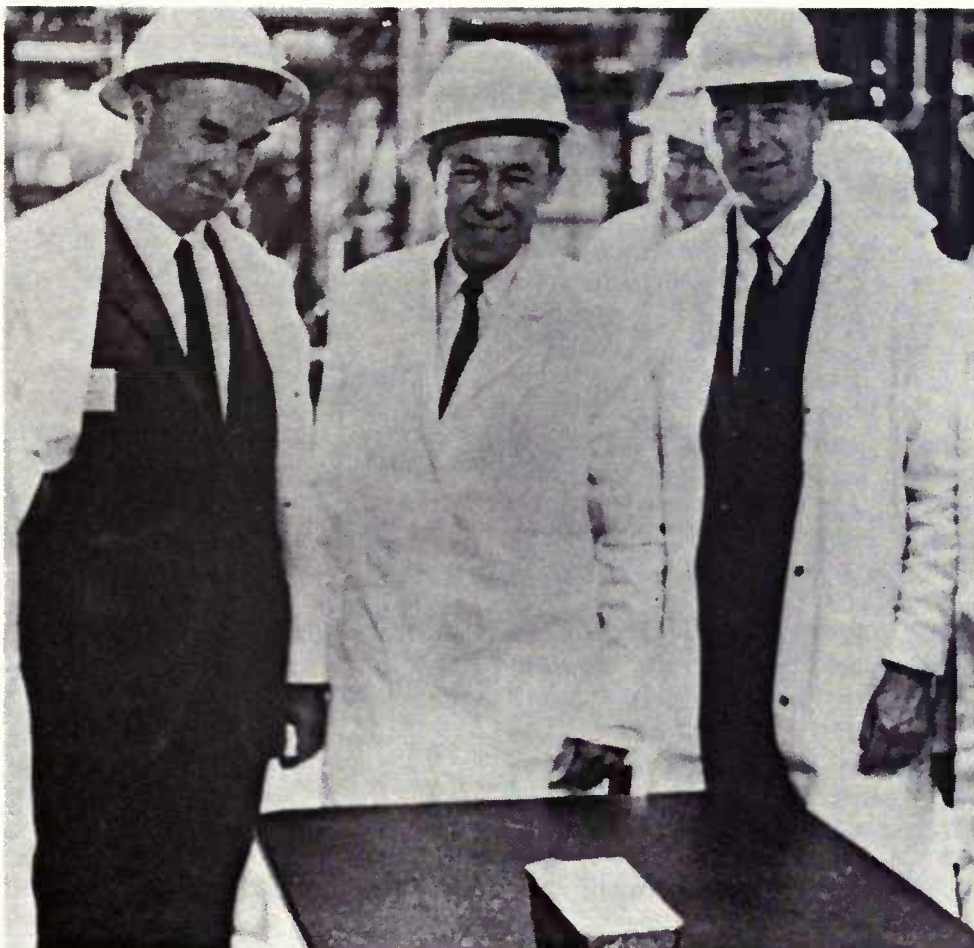
Swent: They hadn't found the deposits?

PM: Well, I think I can illustrate it by giving the story of Carlin. I might as well start with that. I'm not going to expand on it too much.

It was in the early 1960s when I entrusted Fred Searls, who had retired as chief executive and become chairman, while I was president and the chief executive, to manage our exploration. He was very happy to do this, going back, you might say, to his early career as a geologist. But he was then too old to do much field work, so he used a geologist by the name of John Livermore to do the exploration. He decided to center our exploration in Nevada. Livermore reported to Searls, and there was another part of the exploration effort headed up by Robert B. Fulton, who reported to me.

The two of them were working more or less in the same area in Nevada. About that time, Ralph J. Roberts, a geologist with the USGS who also had studied that very area, came up with a theory that there was a huge thrust fault that resulted in bringing up certain parts of the sediments close to the surface where erosion bared them and therefore created a number of windows of calcareous deposits that were intruded and had some gold-bearing possibilities.

Both Fulton and Livermore, following this theory, came upon a window where the Carlin mine is. The peculiarity of emplacement of this deposit is that the gold is microscopic in size and cannot be panned. So the early prospectors, while they were working all around this place, could never pan any gold, and they never recognized that there was a gold deposit there even though it was right at the surface. But when Livermore and Fulton zeroed in on this window and did some drilling, assays of the drilled cores revealed good values. As a matter of fact, the first hole that was ever drilled in Carlin area encountered eighty feet of plus one ounces of gold per ton of ore. Eventually when this deposit was drilled out, we drilled out eleven million tons of .32 ounces per ton.



John R. Kiely, Senior Vice President, Bechtel Corporation;
Plato Malozemoff, Chairman, Newmont Mining Corporation;
Steven D. Bechtel, Jr., President, Bechtel Corporation.
Ceremony for the pouring of the first gold bar from Newmont's
Carlin mill, designed and built by Bechtel. Carlin, Nevada,
April 1965.

Photograph courtesy of John R. Kiely

PM: Later geological studies done by other USGS geologists named (Bernard J.) Shiner and (Arthur S.) Ratke recognized that the colloidal gold or gold compounds that occur in these deposits are there because they were reduced by carbonaceous material. When carbon is present as graphite, gold is not easily recoverable except when the carbon is oxidized. Near the surface it is oxidized. The deposit that we drilled out was essentially an oxidized deposit so therefore the carbonaceous material had already been destroyed by oxidation, although there are certain areas, in depth especially, which are carbonaceous and very difficult to treat. However, we mined that ore and stored it in separate stockpiles. Later, we developed a method of treating these carbonaceous, refractory ores, but we had to treat them separately from the oxidized ores, and installed a separate mill circuit for this purpose. They were more costly to process, but fortunately they were higher grade ores.

This separate circuit has a capacity of only five hundred tons a day whereas the total mill that we built was about 2,400 tons a day in capacity. The way we treat it is by a method that we developed in our laboratories. Chlorine is used as an additive to the ore pulp to oxidize the carbon which releases the gold, and then the gold can be dissolved by cyanide.

In the early metallurgical investigation, Bob Fulton, who was always a little skeptical of our testing and research facilities which were at Danbury at that time, decided to hire an independent metallurgical group formed by Wayne Hazen, a young and very talented metallurgist who worked for me at Pan American Engineering in the 1930s. Hazen developed a process, but found that before he could cyanide the ore, the clay content required an enormous capacity for washing and clarifying in the thickeners because clay was so slow in settling. Because this required high capital expenditures, I insisted that the ore be tested in our Danbury laboratory. Danbury very soon found that just by raising the pH, they could use a standard reagent called Separan, manufactured by American Cyanamid Company, to settle the clay. Instead of requiring seven or eight thickeners for adequate settling of the clay, we could get by with only three thickeners. On the basis of our own research, we built the mill which has been successful ever since.

Swent: How do you raise the pH?

PM: With lime. Anyway, we found that we could get a recovery of about 92 percent from the Carlin ore. Ten million dollars was the total project cost of a 2400-ton-a-day mine and mill at that time, when we did not have the 500-ton-a-day addition for the refractory ore that I spoke of earlier. We paid out this investment in three years plus a \$3 million dividend to Newmont. It was started on an eleven-million-ton ore reserve. Through the years we found more ore, thus extending the mine's life. A total of about eighteen million tons of ore was recovered from the Carlin pit. Exploration of areas adjacent to and away from the mine never yielded anything very significant. We did find smaller orebodies at Blue Star and Bootstrap which were exploited. Part of this ore that was higher grade was sent to the Carlin mill, and the low-grade part of it was heap leached.

It was I think in the mid-1970s, on a routine visit to Carlin when as usual we had the Carlin chief geologist present the explorations program, that he also reviewed the efforts by other companies around us. I was amazed--I hadn't heard before--to learn that a number of them have discovered deposits around us and were planning to heap leach and build mills right in our back yard, so to speak. I became very disturbed about this and inquired further into our "outside" exploration. We were doing some, but comparatively little and were not acquiring significant new properties.

When I asked our general manager, Jay McBeth, who's a very good operator, what were we doing about this, he replied "Oh, we're watching these people. When they discover something significant, they'll come to us." Well, they never did.

At any rate, I realized right away that something was lacking here and we had to augment our exploration effort right away. There seemed not much point in doing it with the local forces because they had limited geological staff, and apparently no great enthusiasm on the part of management for exploration. So I decided to bring in an outside exploration effort through our Newmont Exploration Company. The head of our United States as well as Canadian exploration was Richard Ellett. Dick was reluctant to undertake exploration there because he did not want to interfere with the mine management. He claimed he always got in trouble when he appeared on

PM: the scene: the local management usually wanted to control exploration themselves. This activity is part of their budget which they try not to exceed. This, of course, is just the trouble with outside exploration done by operating mines. Such exploration requires a flexible budget, expandable when something promising is found.

I told him that in this case he would have to make an exception. I told him to mount a very aggressive exploration and acquisition effort because I felt that if there was any ore to be found, we ought to find it and not some people who are surrounding us.

Well, he reluctantly agreed to take some of his geologists and mount the effort. It soon became obvious to him that we already had done some drilling in a certain area that looked like something that might develop into a deposit, but we had done nothing about it as yet. He proceeded to acquire the Maggie Creek Ranch Company that had the mineral rights in this area, which he bought with my approval.

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Maggie Creek and Gold Quarry

PM: That led to increased drilling and exploration effort and we developed the Maggie Creek ore deposit. And as we drilled more in the vicinity, we began to get fairly consistent results in an area which had been drilled before very sporadically by Fulton and abandoned because it was too low grade at that time and mineralization did not seem to be consistent enough. The grade was low, it's true, but conditions had changed since Fulton abandoned it: the price of gold was then \$35 an ounce, but now it was \$350. So areas that he thought were uneconomical then became economical later.

The story behind this mine is a fascinating one, and has been partially recorded in Fortune magazine. ("Newmont Mining's Fourth Generation of Gamblers" Fortune October 1965) This property was under lease to Newmont when Fulton tested it and dropped it. When

PM: he dropped it, knowing that Newmont had done some drilling in it, and just as a gamble, Roy Ash and Chuck Thornton picked up the lease. Chuck Thornton was the son of Tex Thornton, who created Litton Industries. Tex and Roy Ash each had half interest in the ranch in Nevada from which we got a lease for the Carlin mine. It was this area, abandoned by Fulton and picked up by Thornton and Ash which became the great Gold Quarry mine, the biggest gold mine outside of South Africa.

A further problem we encountered was having a five-year lease renewable for only one additional five-year period, which was negotiated by Jay McBeth. Nobody in New York saw that lease until the second five-year term was about to expire. About two years from expiration we obviously had to start thinking about renewing it because we were already beginning to find a lot of ore.

The fact that there was no provision for renewal created near crisis in New York, because by this time we had something like 120 million tons drilled out. So, we made contact with Thornton and Ash, and, oh yes, they would talk about it. Shortly after, Gordon Parker arrived in New York from South Africa. Since I had found him to be a very skillful negotiator in South Africa, I decided to entrust the negotiation for extension of the lease to him.

He, together with Carmen Fimiani, went out to Los Angeles, where Chuck Thornton and Roy Ash were based. When Chuck Thornton's father, Tex Thornton, died, he left a very large estate and a big tax liability. The tax liability was something on the order of \$30 million or thereabouts. The estate didn't have any liquid cash to pay this. Knowing this, we approached them with the idea that first of all we wanted a renewal of the lease, and also we'd like to buy their ranch.

The ranch wasn't profitable anyway, it was a cattle ranch. So, Chuck immediately saw a possibility here of raising the cash to pay the inheritance tax. I think the tax was due within something like a month of the time when we started these negotiations. Everything was under time pressure to accomplish. At any rate, they took the position that they didn't have to make a lease with us; they would just keep it and not renew it and give it to somebody else. It was a most difficult negotiation.

- PM: Eventually, Parker made a deal whereby he renewed the lease on the mine and bought the ranch, the whole thing for \$27 million dollars. The term of the lease was extended for ninety-nine years but a royalty of 18 percent had to be agreed to.
- Swent: Did they keep the mineral rights?
- PM: They had the major percentage of mineral rights in the ranch.
- Swent: You could buy the ranch but not the mineral rights?
- PM: No, we bought the ranch with the mineral rights. This was probably the most lucrative deal that vendors ever made. Because just on the reserves that we have in sight, aside from what we might find in the future, their royalties are worth perhaps nearly half a billion dollars.
- Swent: Eighteen percent royalties!
- PM: Prior to this deal, the royalties varied between about seven and twelve percent.
- Swent: And this is in perpetuity?
- PM: As long as ore lasts in the deposit. This deposit and the new deposits we found on the ranch and elsewhere now amount to 302 million tons of .049 ounces of gold per ton. This is mineable, proven and probable reserves with a gold content of something like fifteen million ounces, which is the largest gold reserve in North America owned by one company today.

The present plans call for expenditure of something over \$400 million in order to expand production from the level of about 587 thousand ounces in 1987 and 830 thousand ounces in 1988 to about 1.6 million ounces a year in 1991, with a cash flow of about \$280 million at a \$450 per ounce gold price. It's a major enterprise and a major deposit.

- Swent: There was this article, March 26th, in the Chronicle on the front page about the Gold Quarry mine. Did you see it? "High Tech Gold Rush in Nevada." It's certainly vitalizing that part of the state, isn't it?

PM: Well, that's essentially a brief history of Carlin. It's a fantastic history both as to potential profitability and the rapid increase in reserves. It was during my administration, back in 1984 actually, that I said, "Look, our results of exploration are so good in the Nevada area, so let's funnel more of the money into that and reduce our exploration expenditures in Australia and Canada and elsewhere." And indeed, the exploration budget has been growing. I think that the present exploration budget in that area around Carlin is something approaching \$14 million, a figure which not long ago covered our world-wide exploration budget.

In addition to the proven and probable reserves of fifteen million ounces, there is a possible further large reserve, which is indicated by occasional drilling. It is too early to put a figure on this additional potential, especially in terms of a proven and probable category. In addition to delineating the size of the deposit, it remains to be determined how much of it can be commercially mined and what metallurgical recoveries can be obtained.

Swent: Of course, the price of gold determines to some extent the economics of it too, doesn't it?

PM: Yes, except that, you know, the mine as I reviewed it was profitable right from the start even with the \$35 per ounce price. Actually, at one time during the first two, three or four years when we mined the higher-grade material, I then compared the cost of producing gold at Carlin with the lowest cost producer in South Africa, and we were lower by about a dollar an ounce. I think our costs were something like \$7 an ounce when the price was \$35.

Swent: And you were still doing well.

PM: Well, of course, the costs have gone up with inflation since then. Our operating costs are around \$170 an ounce with a \$450 price; it's not so bad. (laughs)

Swent: No, not bad at all. Of course, it cost you an awful lot to find that mine, we mustn't forget that.

PM: I think the next bunch of operations and acquisitions that I will discuss will be those that were illustrative of an effort to become more domestically involved, because most of our big efforts were foreign, like Southern Peru and Palabora. The pressure to become more domestically involved did come from the board and especially from André Meyer, the head of Lazard Frères and a director of Newmont with whom I had a very good relationship. I credit him with a number of very critical judgments at the time that he was a director which were constructive and very important in the growth of Newmont. ##

Less Satisfactory Ventures

(Interview 4: 5 May 1988)

PM: Now I'd like to cover two foreign ventures that we went into that did not result in continued investment or a new venture for us. But they were illustrative of the kind of far-flung interest in exploration and new ventures that we had at that time.

Swent: What were the years of that period?

PM: Well, I have already covered it in what I have written up on my first presidency years at Newmont, which really covers from about 1954 when I assumed the presidency until the early 1960s. I said before that this period appeared to show almost furious activity in acquiring something to promote the growth of the company. This growth persisted from the early 1960s right on into the 1970's. Activity of acquisition continued in various areas. The one that I'm going to start with, a diamond exploration in Lesotho in South Africa, was actually begun in 1971.

Swent: It seems to me that in a way we have neglected to put some historical background on some of these things. I did want to be a little more assiduous in that, I guess, as we continue the interview. For example, we have not mentioned CIPEC or OPEC (Intergovernmental Council of Copper Exporting Countries and Organization of Petroleum Exporting Countries) or any of those background events and developments which affected your work also. Now, of course, diamonds--I know nothing about changes in the diamond world--

PM: CIPEC was very ineffective. They met many times and resolved to do things and never did them. Their influence on the copper industry was minimal. They really did not influence the flow of capital or the policies of the producing companies or even the policies of the government. CIPEC membership is composed of copper producing countries who expropriated existing, privately owned, producing mines.

Insofar as OPEC is concerned, our involvement in oil was not a major one. It was a comparatively small one, and the only time that it really had an impact is when OPEC drove the price of oil up from the three and a half dollar level to a nearly forty dollar level, which of course affected domestic prices as well, although domestic prices never went up that high. But it did affect the profits of our Newmont Oil Company, but there was nothing in Newmont actions or its policies that specifically related to OPEC where we did something because of the actions of OPEC. That is why I have not mentioned it.

Swent: Except that the whole world-wide economic picture was changed.

PM: Of course. I watched that very carefully and I think I understand the drives behind the actions and what happened and how it affected economics, not only of the United States but of the world as a whole. I ascribed the depression that the whole world suffered after 1974 essentially to OPEC action. I think that some economists disagree on this. I mean, I watched this with great interest and in detail because it did affect the world picture, but it did not affect directly Newmont Oil actions. OPEC oil price, and especially dollar profits that OPEC made, have had effect on gold prices sometimes. Some, including me, believe the rapid rise to \$850 an ounce in 1980 was at least partly owing to some OPEC nations buying gold with excessive dollar profits they were making from high oil prices. The current doldrum (1987-1988) in gold prices is partially influenced by OPEC oil prices being low, with resulting lack of excess cash to buy gold. Besides, U.S. dollar is strengthening as compared to the weak dollar in 1980 when they traded weak dollars for gold at growing prices.

Swent: We also haven't mentioned--we can bring this in later--but labor situations have not been mentioned much either.

PM: I'm going to bring that up in my summary at the end with certain observations on the total industry.

Diamonds in Africa

Swent: All right. Excuse me for interrupting; we'll go back to diamonds.

PM: Diamonds, being an important product from South Africa, have always been of considerable interest to us. Actually, O'okiep had some diamond deposits here and there and, at one time, a diamond indication was discovered by us. Banghart, who was then the manager of O'okiep, and this was in the late 1940s, felt that diamonds were always politically tinged, as they are subject to special regulations and special taxation. When the discovery was made on O'okiep ground, he decided not to get involved in this rather sensitive area and invited others to take on the exploitation. It was taken up by someone in partnership with a member of parliament from the O'okiep District. A deal was made retaining royalty for O'okiep. It turned out to be a profitable but rather small venture.

We did get involved directly in diamond exploration off-shore. For a time, a Texan came in with the idea that off-shore diamonds could be recovered from the west coast of South Africa in general areas where on-shore diamond operations were being conducted, especially those near the mouth of the Orange River where there was a huge operation run by DeBeers, and a very successful one.

He built a special dredge for recovering diamonds and at least from the press releases that he gave out, it seemed to be a very successful operation. At any rate, he operated for about two or three years. Harry Oppenheimer became intrigued with this idea, and DeBeers did know that diamonds did occur there and there was evidence that he was recovering diamonds. The Texan was bought out for a very good sum.

Swent: Oppenheimer was the head of DeBeers?

PM: Yes. So, they took over his dredge and continued operations but it was not successful and it shut down within two or three years. I was interested in the technology of this effort and why it was that they failed. At least at that time, it seemed that perhaps their ability to maneuver the dredge on paths that would consistently cover the whole diamond area was limited. The paths that the dredge took were rather erratic so they missed some areas and took other areas. The sampling, which was done fairly well and checked by DeBeers later on, indicated a somewhat variable concentration of diamonds here and there. Apparently the rich areas were somehow missed and dredge operated the low content areas--

Swent: Excuse me, this is a dredge that's operating in the ocean?

PM: In the ocean.

Swent: With tides, and waves--

PM: Waves and currents and winds and storms. So, after the shut-down of this operation, some few years later, one of the DeBeers men who was there, an engineer and a very competent technical man, decided to repeat that effort knowing the problems that they had in the big DeBeers dredge. He got financed by a fishing syndicate and decided to use and modify one of the fishing boats. A much smaller enterprise, modest in size and modest in total capital required.

Well, we heard about this and followed it for a while. I actually visited the dredge on one of my trips and had a very exhaustive explanation by this engineer, what he did and in what way it was different from the Anglo-American effort. It seemed to me that some of the problems that I suspected DeBeers had, he was overcoming. By this time, also, a development was achieved in the ability to locate precisely a floating vessel in the ocean, and to move it around on pre-determined paths with accuracy. It used trigonometric manipulation combined with computer technology. It was impressive. He pointed out to me how, regardless of the tides, storms and winds, he could keep that dredge located in the same spot and move it along a given path. I thought that might solve the problem that baffled the others.

PM: We entered into that venture and put up, I think, something like \$200,000 for our interest in the venture. Again, the exploration of the ocean bottom was, I think, fairly reliable and showed diamond concentrations of economical quantity. However, the dredge was not recovering what we thought it should be recovering. I sent Oscar F. Tangel to look at the dredge, essentially not because he was an expert in diamonds but an engineer with an amazing ability for meticulous and careful analysis. He was one who would not be influenced by the opinions of others and he relied entirely on his engineering analysis of whatever he was doing.

Swent: Was he working for Newmont?

PM: He was by that time at Newmont, yes. I hired him. So, he went out there and spent about two weeks on the dredge and ended up by recommending that we drop our venture and don't continue with it. He didn't go into the causes or what the problems were but it was obvious that they were not doing what they expected to do. That was our last diamond venture for a time.

The next one was something that we heard of in Lesotho. Lesotho is a small independent state in southern Africa which is a black state. We heard rumors of a very large pipe, diamond pipe of kimberlite, a typical mineralogical assemblage that big pipes in South Africa were characteristic of, that contained diamonds. And the diamonds had been known there and had been worked from time to time by natives on small scale.

The mineral rights to that were obtained by Lonrho Mining Company which was a smallish mining company but very venturesome, under the direction of a rather flamboyant character generally known as "Tiny" Rowland. He was a true entrepreneurial type and he operated then essentially within black Africa in areas where other larger companies tried to avoid because of political uncertainties. But somehow he made friends with the ruling parties and was able to make deals. Very venturesome. At any rate, he gained control of this pipe. He didn't have much money, and I approached him to see whether he would be willing to sell out. He had already done some work on it which was rather promising.

- Swent: Excuse me, how do you approach somebody like this? Do you call him on the phone? Do you write him a letter?
- PM: Well, I heard about him and first of all, we started negotiating with his people in South Africa. My representatives did that. But later on we offered a joint venture with him, it wasn't very satisfactory for a while and later on, I decided to buy him out completely. And to do that, I had to go to London and meet him and we struck a deal.
- Swent: I'm interested in, just specifically, do you do this sort of thing at the country club or at one of your offices or through an intermediary?
- PM: No, you learn who the owners are, their representatives. You contact the representatives, "Do you want to talk about the possibility of our entering the venture?" And they say, "Well, we'll check with our boss," and they check with the boss and he says, "Yes," and then you start negotiations.
- Swent: I was wondering, for example, do you avoid putting anything in writing? Do you do it by phone rather than by letter in the initial stages?
- PM: No, you sit down and have conferences. Then the next step is usually a letter of intent and you work on that and agree on the terms. Once you've worked that out, then the contract or agreement is made by the lawyers.
- Swent: The very first touchy contact?
- PM: Sometimes it's done by the principals, sometimes by subordinates. I remember I made one deal with Harry Oppenheimer directly, in his office where, in about three minutes, we agreed on principal terms. It took about three months to get an agreement signed up but the basic principles of the agreement were those that he and I agreed on, and he stuck to it despite the fact that his subordinates didn't like the deal.
(laughs)
- Swent: So, in "Tiny" Rowland's case, you went to London.
- PM: I went to see him and we made finally a complicated deal in which, at a certain time in near future, we had to pay him 500,000 rand for his interest. We invited

PM: U.S. Steel, who was then also exploring in South Africa, to become a partner and they consented. So, we each had 50 percent interest. The geological study which was done even before we made the deal, indicated that indeed there was a very large pipe, probably even bigger pipe than the famous Premier mine in South Africa. There were diamonds recovered from it for many years by natives.

The record of how much they recovered and what the concentration was, was not very reliable. It was suspected that there was a lot of stealing of diamonds and smuggling that were not recorded officially. The possibility existed that the entire pipe was mineralized as most of the pipe was covered with detritus and never sampled.

What we did then was to do some geophysical work in order to outline the limits of the pipe, which was relatively easy and reliable, and then did the drilling. Unfortunately, with diamonds, because the number of diamonds that are of commercial quality is so small, you have to have enormous samples in order to get the few diamonds that indicate the deposit to be commercial. So, you actually have to have a recovery plant for sampling, which treats these samples and recovers the diamonds by special washing and recovery techniques.

Swent: Were you looking mainly for industrial diamonds?

PM: No, this place was known for having some gem diamonds as well. At any rate, we continued this exploration for about a year and a half and we had to pay the 500,000 rand as the cost of acquisition of the rights to sample and exploit, which was not related to our success in finding diamonds. In the end, we found that indeed there were diamonds there but not in commercial quantity. Here and there, there were commercial pockets that natives worked, but not of sufficient size to mount a large venture. We abandoned this venture.

Nickel in Irian Barat, Indonesia

The other foreign venture that we did with U.S. Steel was in Irian Barat which is a section of Indonesia covering a number of islands. We were looking for

PM: nickel and it was known that these islands had laterite nickel deposits but they were never assessed. The joint venture was organized to explore these deposits in which Newmont had 15 percent, U.S. Steel had 43 percent, Sherritt Gordon, 10 percent, and two Dutch companies, 32 percent.

Our interest in this venture was to bring in a newly devised process for treating laterites that Sherritt Gordon had experimented with and were to pilot at their plant at Fort Saskatchewan to prove that it was a viable process.

We tested nickel deposits on two different isles and originally established the total reserve of some 309 million tons of 1.43 percent nickel, of which 164 million tons of 1.48 percent nickel were on Gag Island.

Swent: Is this high grade or low grade?

PM: This is sort of medium grade but approaching a commercial grade laterite. Later on, further exploration led us to decide that Gag Island was the one that had the better deposits and that we'd concentrate on that. Further drilling on Gag Island completed in 1975 indicated a total tonnage of 262 million tons of 1.52 percent nickel. And certain subsequent work indicated that part of this could be mined at even higher grade, perhaps approaching two percent.

The original estimate for the plant and opening up the mine, requiring a new port facility, was \$550 million which was made in 1972. By 1973, a new estimate was made and the new estimate approached a billion dollars. However, we persisted with it until 1975; the last assessment was on the high grade part of the Gag Island deposit that would be mined first.

One of the requirements of the Sherritt Gordon process was that the use of oil for fuel would be readily available at a low price. Indonesia produces oil. In early '70s, it was very cheap. The oil could be had for something like three and a half, four dollars a barrel. In '74, OPEC started raising the price, and by 1975, the price of oil rose to the point where it was questionable if the process was going to be economic.

PM: Before we undertook exploration, we spent a lot of effort in negotiating the basic agreement with the Indonesians to give the foreign investors the right to export money that would be earned from this venture. This was always a problem with the new nations, they want to keep most of the earnings and have control of what money was sent out. We were adamant in requiring the right to export our profits, and finally achieved acceptance of this provision in our agreement. To arrive at a satisfactory agreement took us almost two years. Ed Fontaine and Jack Thompson did the negotiating, but I was masterminding it.

Swent: They were doing this in Indonesia?

PM: I wasn't. I was in the United States, but they had to go to Indonesia, to Djakarta, to make this agreement. And despite the fact that we only had 15 percent interest, we really were the leaders in the negotiations at that time.

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PM: The U.S. Steel representative was a vice president and a geologist by the name of Bob L'Esperance. Very nice fellow. Good geologist but not a very good businessman. I think that the reason he allowed Newmont to dominate the negotiation process is because he didn't have that experience himself. At any rate, we had a very good relationship with U.S. Steel and despite our small percentage, they did listen to us and allowed us to be leaders in this negotiation--although they were always present there.

Also the question of whether a new estimate should be made or not was mostly in our hands because of Sherri Gordon's process and their technology, and their representatives were the technical experts in the metallurgical treatment of ore. At one time, they did pilot plant testing of tens of thousands of tons of ore that were brought over from Indonesia to Canada. Sherri made the estimates of cost which were used to assess the profitability of the venture.

PM: It was a very large venture. We established a special office in San Francisco, and in estimating the capital cost of the venture, we used Bechtel Corporation located in San Francisco. It was sort of a nerve center for this whole venture.

Swent: Did Bechtel do your construction for you?

PM: No, they did the estimates. It never got to the construction stage.

When finally these figures started coming out that it was going to cost close to a billion dollars, Sherritt Gordon became disillusioned and they dropped their interest. They withdrew from the venture.

Swent: But Sherritt Gordon is a subsidiary of Newmont?

PM: No, it was then a 38 percent affiliate of Newmont. So they had a right to individual action.

When they dropped out, because they lost interest in it economically, of course it made us think, and we reassessed it from our point of view. We kept up with it for another year, year and a half, and developed the new idea of high-grading the deposit. But even with that, the final estimate indicated that in order to make this a viable venture, we had to have a price of nickel of about five dollars a pound. At the time, it was only seventy cents a pound. It was estimated what the effect of the inflation would be, the effect of the increase in the price of oil, that affected the cost. The estimated cost of production had we mounted it back in late 1970s was escalated. Originally we estimated we had to have a price of nickel of at least two dollars a pound. It was escalated to require five dollars at the estimated time of completion of construction.

At this point, my associates, Jack Thompson and Ed Fontaine, thought that this was a reasonable estimate for the nickel prices to rise because at that time nickel was a desirable metal and the prices had been increasing. They were for recommending this to our board, to proceed with the construction and putting the whole thing into production. In reading the feasibility report, which was written by Bob Ramsey, I found the

PM: section on forecasting prices to be questionable. Just about that time, a number of other nickel ventures were to start up. One in Guatemala, another one in Indonesia, and one in the Dominican Republic. All nickel laterite ventures.

Some of them were already producing nickel and some of them were about to produce nickel, but it was quite clear to me at that time that the dominance that International Nickel had in the nickel market might be undermined. They held a price umbrella over the rest of the industry which protected the price from fluctuating widely but allowed a gradual increase. I was afraid that with the new production coming in, this dominance of International Nickel in the market place was about to be lost.

I could see from the scale of the new operations that they would probably result in excess nickel being produced. From the standpoint of demand, I didn't think that International Nickel could maintain the price and that the chance of a reduction in price was quite high. And I didn't think it was realistic to consider that the prices would escalate to three, four, or five dollars a pound.

I made that known to my associates. They didn't agree with it, but we had long discussions of this back and forth. We had many arguments about economic and market role of International Nickel. At any rate, I killed the feasibility report and insisted we do not make a recommendation to our board to proceed, which was a great disappointment to Jack Thompson and Ed Fontaine in whose hands I left this whole venture. Actually, I wasn't even represented on the new board that was created for running it; I let them represent Newmont, but they reported to me regularly. So, they saw it as their venture, and I killed their venture. They were greatly disappointed.

Well, it turned out that I was absolutely right. The price of nickel did move up to nearly \$2 and got up to \$2.10. But it hovered in that area and sometimes dropped as low as \$1.60 or \$1.70. It kept at that fluctuating level for the next twelve years, and only this year, 1988, did it all of a sudden blossom forth and rose to about \$7 or \$8 a pound in Europe.

- PM: So this venture would have been a financial disaster had we gone into it at the time, and I believe I saved Newmont countless headaches and a lot of money by not proceeding with it.
- Swent: Has anyone else continued with it?
- PM: No. For a time, U.S. Steel thought that they would go ahead with the remaining partners. Other executives of U.S. Steel wanted to know my opinion of withdrawing from the venture. They finally decided not to go ahead, I think, essentially because of my arguments that it was not going to be economic. Later on, we tried to sell our interest in the venture, but we found no takers. At any rate, the money that we put into it is lost.
- Swent: But if the price is high now, someone might be tempted into it.
- PM: Yes, but I don't think the high price is going to last. I think it's a blip. Furthermore, it requires an enormous investment. Today, probably, the investment would be a billion and a half or two billion dollars. Everybody would question whether they want to put that much money into Indonesia and a new high-cost technology. Most of the laterite ventures, except those of the French company, Nickel, in New Caledonia, have not had a long-term success.
- Swent: You had a small nickel venture in Baja California at one time.
- PM: No, that was just a metallurgical test to try to smelt the laterite ores in a reverberatory furnace. The laterite came from Hanna's mine in Oregon. It was just a pilot plant venture and it was a failure; we found that we could not smelt in reverberatories because reverberatories could not maintain high enough temperature to keep the slag sufficiently fluid.
- Swent: I presume that Thompson and Fontaine forgave you in time.
- PM: Yes, I think so. We had a good relationship later despite this.

New Ventures in North America

- PM: The independence movement which started in 1960 in Africa resulted in total or partial expropriation of large, viable and successful enterprises owned by the French, the Belgians and the English. The Newmont board began to look upon foreign investments there with a jaundiced eye.
- Swent: Were you also getting pressure from stockholders? Or was that later?
- PM: No, we weren't. I was watching this process also, of course, and was quite aware of greater and greater risks of investment abroad, and my policy was not to invest in any areas that I thought politically unstable. The last such venture which turned out to be a failure was in Algeria when Algeria became independent. So I avoided like the plague East Africa altogether and West Africa. We turned down any and all proposals that came from that part of the continent.

I had the same skeptical opinion of the stability and fair treatment insofar as the Near East was concerned. So, while we've had some proposals to go into Saudi Arabia and Iran, I declined to do anything about them. About the only area which we considered as being a stable one, and one where we could operate in the African continent, was the Republic of South Africa. That led to our development of Palabora in the mid-1960s which turned out to be a magnificent venture.

By 1970, feeling arose, especially on the part of André Meyer, that we should avoid making any more investments abroad. And he was especially apprehensive about the Republic of South Africa. I think it's understandable why; he was Jewish, and some of the actions and policies that the South African government employed reminded him of the Hitler regime, and that was something he was particularly sensitive to. He felt that this was an area that could explode at any time, that could be unfair, as a result, to private investment, and we shouldn't make any further moves in private investment there. However, he never got to the point of saying "Let's get rid of South African investments," because they were profitable.

PM: I felt somewhat reluctant to abandon South Africa altogether because there were some further opportunities, but every time I talked about something new, I got sort of a cold shoulder, first of all from André Meyer and then from some of the other directors. It was quite evident that the general mood of the board was to move away from these disturbed areas and from South Africa and to emphasize North America in our investments, which I made, in effect, our policy from there on.

Swent: Did you ever have a written statement of this policy?

PM: No, it was entirely verbal as the result of discussions. There was no big controversy about it. I stated my views quite honestly. I thought South Africa was safe, several directors did not agree with me. However, we already had excellent investments in South Africa, and I felt that there were opportunities also in North America and we could exploit them.

Swent: I think there was a statement in one of your annual reports, however, about that time.

PM: Yes, that's right. As a policy.

Over the next roughly ten years, we acquired new ventures in North America--five different ventures which cost us about \$660 million, of which \$165 million was Newmont equity investment and the rest was borrowed. These included the expansion of Magma (San Manuel); the resumption of the Resurrection Mine; the starting of the Atlantic Cement venture; the Similkameen Mine, which we discovered and developed; and the investment in development and operations of the Granduc Mine in British Columbia. Exploration continued in the U.S., Canada and Australia. The ultimate result of all these ventures was a mixed bag. Granduc was a failure, and Similkameen and Atlantic were only modestly profitable.

Swent: Similkameen was also in Canada.

PM: Similkameen was in Canada.

Magma (San Manuel, Kalamazoo)

PM: I think I might start with the Magma story, which embodies the acquisition and development of the San Manuel Mine. San Manuel story was described in detail in Ramsey's book (Men and Mines of Newmont, Robert H. Ramsey, Octagon Books, New York, 1973) and I will only summarize it here. Actually, San Manuel did not belong to Magma, but some claims at San Manuel in Arizona were owned by Henry Nichols, an assayer at Magma, and his three partners, Douglas, Giffin, and Erickson.

In 1942, they applied for a loan from the Reconstruction Finance Corporation, which consulted the United States Geological Survey, and the latter got the U. S. Bureau of Mines to do a drilling program. The first hole gave one percent copper grade. John K. Gustafson, an internationally-known geologist, working for Newmont at the time, recognized the promise of the prospect and made a deal with the partners. Further drilling of a few holes by the bureau disclosed thick sections of relatively low-grade ore.

Twenty-two percent was owned by Newmont, but it was run as an independent company with an independent board which was located in the Newmont offices. At any rate, after Magma made a deal and got control of the property, it drilled out the orebody. It turned out to be a major copper orebody.

Swent: This is all in the middle 1940s?

PM: After the war, about 1948 to 1950. The drilling results indicated that there was something like 123 million tons of oxide ore of about .767 percent copper, and 339 million tons of sulfide ore of .788 percent copper underlying the oxide ore, for a total of 462 million tons of .782 percent copper. Plans for doing something about this orebody were being made then.

Swent: Had you had any connection with this in your work at OPA?

PM: No, none at all.

There was a division of opinion among the executives of Newmont. Fred Searls, with his natural caution against spending too much money, felt that this should

PM: be developed and produced on a small scale not greater than ten thousand tons ore a day. McNab, who was then running Magma, felt that in order to make it viable--an underground mine and relatively low grade--the minimum tonnage should be thirty thousand tons a day. Of course, it made a vast difference as to what the capital costs would be. Capital cost of the thirty thousand tons approached the \$100 million mark, whereas ten thousand might have been done with perhaps \$40 million dollars.

I got involved in this altercation--I was Fred's assistant--and Fred talked to me about it at length and even wrote letters to the board and wrote letters to the government linking me with his opinion that the scale of operation should be ten thousand tons ore a day, which I did not hold. I actually sided with McNab. I felt that this should be developed at the higher rate; otherwise it would not be economic. At any rate, the story of the conflict is well stated in Ramsey's book and I will not repeat it. There were delays as a result of that conflict. Fred Searls was at that post-war period in the White House and still wielded a lot of influence and knew a lot of government people. He nearly killed the government financing of this project for a while. So, in effect the whole financing and development of San Manuel was delayed by this lack of agreement as to the scale of operation. But in the end, McNab won out and secured government financing and proceeded with this venture. It was started at thirty thousand tons a day.

When I became president in 1954, San Manuel was just about starting to operate. In planning the operation, the Magma engineers, directed by McNab, made a world-wide survey of all caving operations, because San Manuel would obviously be a caving mine. They received remarkable cooperation from all the companies, even visited those not affiliated with Newmont. Magma engineers learned a great deal, not having that experience and knowledge themselves.

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Swent: So you sent a team.....?

PM: No, I didn't. This was McNab who did this. This was in the forties and early fifties. They visited Climax Molybdenum in Colorado, Miami Copper in Arizona, Sweden,

PM: and El Teniente in Chile, also a caving mine. At any rate, as a result of those trips and investigations, they concluded that they could adapt what they had learned to San Manuel and make it an economic venture. But to be absolutely sure, McNab decided to hire a consultant who spent most of his life in operating caving mines--his name was Winther--who was instrumental in getting Miami Copper started and operating. The difference between Miami Copper and San Manuel is that Miami Copper orebody was fairly close to the surface, within 100 to 200 feet, whereas San Manuel orebody had an overburden of 400 to 700 feet, at which depth much greater rock pressures obviously developed.

Swent: This was why you had to do underground mining?

PM: Yes, because of excessive overburden which would result in too great a stripping ratio if it were developed as an open pit mine. Somehow this point, while recognized, was not considered to be a crucial point, and the mine was developed in accordance with Winther's recommendations, using the same kind of ground support that Miami had, which was timber. I first visited the mine, I think, about a year or a year and a half after it started. It was in dire state. In order to keep the openings available, a lot of maintenance had to be done because the timber was crushed by the rock pressure. The ground actually swelled even from the bottom. It was a mess. The cost of keeping mine workings open was prohibitive, it looked like the mine would not be able to make money, and some who visited the mine thought that the whole thing was a failure and it better be shut down.

Well, I must give credit to the resourcefulness and courage of the people who were running it, principally McNab and the people under him. As soon as they recognized these problems, they began to think how to remedy them. They found that in some areas of very heavy ground, they could do much better by concreting for support rather than use timber. A decision was made to do that after a trip to Butte where this was practiced, and indeed it solved the problem. All the openings were concreted and there was usually something between eighteen inches and two feet of concrete covering the openings.

Swent: Is this called gunnite?

- PM: No, this is actually concrete pumped behind forms. And it turned out that the maintenance cost was reduced drastically, so that all of a sudden the mining became economic when it wasn't economic the other way.
- Swent: What about safety? Had you had a lot of accidents?
- PM: It was much safer also.
- Swent: There were quite a few accidents as I recall, weren't there?
- PM: I don't believe so. Part of the know-how and engineering effort in evaluating what to do about it came from Ed Hunt whom I sent to San Manuel to try to assess this problem also. And he agreed with the San Manuel engineers that concreting was the way to go. At any rate, it became a successful venture, and by 1960 the question came up whether or not to expand operations in order to make it even more profitable and we finally made the decision to expand it to forty thousand tons a day.

Prior to that, in 1962, André Meyer talked to me a number of times--the operations by that time had been successful and profitable--of the advantages that Newmont would have in owning more than 22 percent of Magma. He said, "Does it have a good future?" and I was convinced that it had. "So why don't we secure full ownership of Magma?" This had occurred to me before and I said, "Yes, sometime we ought to consider it."

In 1962, when André Meyer started talking to me about it and we discussed it and I maintained that we don't really have to do it now, he urged me to do it as soon as possible. He believed that the market was favorable then and maybe in the near future it would not be. He had an instinct for the right timing that was absolutely uncanny, and I've become convinced that that instinct is something you're born with and you can't train yourself to have it.

At any rate, he put a lot of pressure on me and I finally decided that maybe it was the time to buy it.

- Swent: You just bought on the market?

PM: No, what we did was offer to buy enough of existing shareholders' interests to give us above 80 percent ownership. Eighty percent is the magic number because below 80 percent the dividends are taxed at the full rate, but above 80 percent the tax is reduced to only about seven percent of the dividends payout.

Swent: You had 22 percent. You wanted to go up to 80 percent in one day?

PM: No, not in one day. Public offerings of this kind usually last a week or so.

Andre Meyer wanted for us to acquire 100 percent. I knew some of the shareholders, large shareholders, of Magma, and they were very loyal to Magma and very loyal to McNab. They thought the world of McNab. I became convinced from just talking to them that they would never sell Magma, that our offer to buy them would be turned down and we wouldn't be able to acquire the 100 percent anyway. So, I passed this on to Andre, and he said, "Poof, everybody will sell, you know, if you offer them enough." And I said, "Well, I don't think these people will and I would prefer that we would go for 80 percent plus rather than 100 percent." "Well," he said, "Okay, go ahead and do that."

Anyway, we got 80.2 percent and that's all. The rest of the shareholders didn't want to sell. So it turned out that I was right in reading the intention of the principal holders of Magma.

Having 80.2 percent gave us greater justification for putting our money into the expansion that I spoke of earlier.

Swent: And was Meyer right that this was exactly the time to do it?

PM: Yes, it turned out that we probably could not have done it later because the Magma shares started going up in 1963.

In 1968, there was another development nearby in San Manuel that required an action on our part. A neighboring property was owned by a lady in Tucson, inherited from her father. She had relatively little money but from time to time she would put down a

PM: shallow drill hole, and there was a suspicion that there was ore in this adjoining ground. However, there was no real evidence of a big orebody; the drill holes just showed some mineralization.

She would come to Magma from time to time to ask if Magma wanted to buy her out. And every time they talked about the price, she wanted at least half a million dollars. She was turned down every time by the manager, who was then Wesley Goss. Finally The Quintana Minerals Company, owned by the Cullen family interests, which was then managed by Corbin Robertson, became interested in the property. Robertson hired David Lowell, a prominent geologist in Tucson, to evaluate this prospect and whether it was worth drilling or not. David recommended the prospect highly because he thought that there is a major orebody below and east of the San Manuel fault that cut off the San Manuel orebody that Magma had.

Indeed, Lowell was absolutely right. Quintana Minerals drilled out this orebody and it was another major orebody about the same grade as San Manuel. By the way, Quintana Minerals, I think, bought out the lady for something like a million and a half dollars. We heard about this and it was obvious that this orebody would probably double the total reserve tonnage of San Manuel.

Quintana was obviously wondering how this new orebody would be developed. Would it need new shafts or could it be developed through the San Manuel shafts? Also, what about the smelter and the mill?

Furthermore, because of escalation of costs, the capital expenditure might be \$200 or \$300 million instead of the \$100 million that San Manuel spent on such facilities. We talked with Robertson about joint venture and other ways of developing the new orebody and in the end it got so complicated, it appeared to me much simpler if we bought him out. His initial price was something like \$50 million and our people, Wes Goss and Roy Bonebrake, maintained it isn't worth more than \$10 or \$12 million dollars, and that's what our offer should be. I said "We'll never get it for that." Anyway, the negotiation was in my hands; Frank Rinehart, a Newmont counsel, did most of the leg work, but he was always under my tight direction.

PM: I will not go into all the details, but it took something like seven or eight months negotiation. In the end we agreed on \$27 million for a buy-out which was partly cash, partly Magma stock, partly Newmont, and we bought out something that we could have bought for \$500,000 maybe five years before that.

The orebody was named Kalamazoo by Quintana. We drilled some more, although Quintana had drilled most of it. At any rate, the total tonnage that we acquired was 560 million tons of .72 percent copper. It was a major acquisition.

Swent: And your price of \$27 million was justified?

PM: That's right. Now, in 1968, after acquiring Kalamazoo, and also because of excellent results we were having with San Manuel orebody, we decided to expand the capacity further from forty thousand tons to sixty thousand tons ore per day. With sixty thousand tons per day, San Manuel became the largest underground mine in the world. This is sixty thousand tons hoisted from two-thousand-foot level onto the surface. Just about that time and after the acquisition of Kalamazoo, André Meyer again spoke to me: "I think it's time to acquire the other 20 percent. This is the time! Do it now, not next year!" This time I didn't argue with him and I proceeded on his suggestion and he was absolutely right again. We got the 20 percent, and if we had delayed it by a month or two, the price of the stock would have risen beyond our range.

Swent: Are you planning to bring this up to the present now?

PM: I don't know. The latest move a few months ago (1988) was to lower production rate to 40,000 tons per day.

Swent: Because just recently there have been some other interesting developments.

PM: The new production rate of sixty thousand tons a day was achieved in December 1971 and actually exceeded it for a time. We mined and hoisted and milled as much as sixty-five thousand tons a day.

Swent: What was your final product?

PM: Copper.

Swent: Yes, but a concentrate?

PM: No. A smelter was built at the same time as the mill, and we sent the blister copper produced by the smelter to be refined at Phelps Dodge Refineries.

In 1970, the Arizona air quality law came into effect whereby 90 percent of the sulfur dioxide had to be captured. We would be able to capture only maybe about 40 or 50 percent of the sulfur dioxide by building a sulfuric acid plant. However, we decided to investigate the possibility of meeting the Arizona standard by new technology which would replace our reverberatory furnaces with flash smelting furnaces. These were first used commercially by the Finnish company, Outokumpu Oy.

Outokumpu's preliminary estimates indicated that they could convert our smelter using flash smelting furnaces for \$50 million and achieve the capture of sulfur dioxide prescribed by the Arizona air quality law. However, because their engineering estimates were based on conditions in Finland, we decided to re-estimate with an American engineering firm. Western Knapp Engineering Company did it and came up with a figure of \$88 million. At that time, it seemed to me to be too high a figure and we decided not to proceed with the retrofit.

The Arizona State Hearing Board, in the meantime, granted a conditional operating permit for installations that would capture 70 percent of sulfur dioxide emissions. However, in 1972 EPA (Environmental Protection Agency) revised it to an ultimate 96.4 percent within five years. This was challenged by the industry and the State of Arizona as there was no known technology to achieve this result by 1977. The further condition was that if it was not accomplished by the deadline, the government could shut down the smelter.

I made the deliberate decision against the retrofit despite the advice of my lawyers and those who were following this matter more closely. I reasoned that first of all, the entire U.S. copper industry was in the same boat with us and probably would not proceed to comply with the law because it was too costly. Secondly, the government would probably not shut down the copper industry, it was too important in the national economy for them to suddenly eliminate an industry by enforcing that law. I decided that we could take a gamble and

PM: not go ahead with trying to meet that standard. However, we had to do something in order to show that we're moving ahead and reducing the sulfur dioxide emissions, and I authorized the building of an acid plant which, however, cost less than \$20 million.

It was also then that there was a noticeable movement of refined copper consumption away from the eastern seaboard to the western states. More and more plants were built to fabricate copper in the West, and I authorized the study of having our own refinery with the idea that part of the economic justification would be that we wouldn't have to pay the extra freight to send copper all the way out to the east coast and could market it in the western areas. In the course of one study of this possibility, we decided we should know the up-to-date Japanese technology. Wayne Burt, John McIvor and I went to Japan to look at a number of smelters and refineries there to see what innovations the Japanese had adopted that we could use.

Swent: You had done this in Palabora also, hadn't you?

PM: That was later. At any rate, I got personally very involved in this whole thing and finally authorized the refinery plus the additional housing that we had to provide San Manuel to house the people who would be employed in the refinery. All of that cost about \$34 million.

Swent: You should probably mention that you also built a huge housing development for the mine.

PM: Oh, that was much earlier, in the original construction of San Manuel.

Swent: Yes, but this was a whole city in Arizona. Schools, hospitals and everything.

PM: That's right. It was a very large community, and it had to be expanded along with expansion of the mine capacity and the building of the refinery. Housing for nearly five thousand people is presently provided. As an adjunct to this, we also investigated the use of continuous copper rod casting which was previously investigated by Palabora.

Swent: Was this Japanese technology?

PM: No, this was American technology developed by Southwire Company in Georgia. At any rate, I think that within something like six months or a year, a decision was made to use the continuous casting machine, first at Palabora and then at San Manuel. The San Manuel facility was much larger.

Swent: And it produces a rod.

PM: It produces a rod, yes, which can then be drawn into a wire, rather than having blister cast into wire bar (blocks of copper) and then be reduced to wire. The continuous rod is only about five-eighths of an inch thick. Furthermore, the great advantage of continuous rod is that it can be coiled for thousands of feet from which wire can be drawn in continuous great lengths without a joint, thus improving transmission of electrical current by the avoidance of welded joints.

Swent: Is this the first venture that Newmont has made into fabricating?

PM: The first and only venture of initial fabrication, which permitted pricing of the continuous rod at a premium over copper cathode.

This completed the expansion and integration of various facilities in San Manuel, and San Manuel became a fully integrated mine, mill, smelter, refinery and continuous rod facility. There are few such integrated facilities in one place in the world, and it is a very modern one and one that is considered by the industry to be probably one of the most efficient. It was built at the time at much lower cost than could be built later on.

Swent: And have you been able to maintain the air quality?

PM: No. The subsequent problem was that the standards were becoming tighter and tighter, and finally it became obvious that we would not be able to meet the standards. We finally had to go back to the consideration of the flash smelting furnace which would produce much higher strength sulfur dioxide gas than the reverberatories; this would permit capturing it and converting it into sulfuric acid. With reverberatories, the gas emitted was too low-grade to be used in an acid plant, and it had to be vented into the stack.

PM: At any rate, this was a difficult decision but a recommendation to the board was finally made by me in 1985 to proceed with it, and the cost of this conversion to flash smelting was estimated at something in excess of \$100 million. Technology had improved a good deal since the early seventies when we last considered the flash smelter. The use of the flash furnaces produced a high-grade slag that had to be reprocessed for recovery of copper. The flue system also had to be changed. It represented a massive rehabilitation of the smelter.

It was authorized and was to be completed in July, 1988, and San Manuel should then be in compliance with present air quality standards.

Swent: Have you changed the organization of the company to finance this?

PM: No. Originally, when it was authorized, Magma was still a 100-percent subsidiary of Newmont, so we were contemplating that the expenditures--which would be something on the order of \$130 million--would be financed partly by Magma with Newmont's help. A later decision to divest most of Magma was made after I retired, essentially because of the low copper prices (in the mid-sixty cents per pound) that persisted for some three years and caused losses at Magma. Also, Consolidated Gold Fields, which had 26 percent interest in Newmont, feared that future copper prices were not likely to exceed sixty-odd cents per pound.

Anyway, a new feasibility report was prepared in which assumptions on prices were made, and one of the assumptions was that for the near term, the producer's price (usually several cents above COMEX prices) (New York Commodity Exchange), would be in the neighborhood of 57 cents a pound. The COMEX price under this assumption would be somewhere in the area of 53 to 54 cents which, corrected for inflation, never existed before. Because of this very pessimistic view of the copper prices, it was judged that Magma's losses would persist, reducing Newmont's income, and a dividend was paid out to the Newmont shareholders of 85 percent of Magma stock owned by Newmont. In effect it resulted in divestment of 85 percent of the stock while retaining 15 percent. A \$200 million preferred stock owned by Newmont replaced the \$200 million-odd advances Newmont had previously made to Magma.

Swent: What about labor relations at San Manuel? Would you like to say anything about the strikes?

PM: Well, yes. It was always a critical problem in the operations of copper companies in the U.S. It was customary and has been customary for many years now to negotiate three-year contracts. Every three years negotiations with the unions would be required, and they always--especially in the 1960s--demanded a raise in wages and improvements in fringe benefits that added to the costs. In addition, they demanded a "COLA" (cost of living) adjustment proportional to increase of cost of living.

Swent: Which unions were you dealing with?

PM: The biggest was the Steelworkers Union, but there were several other smaller unions. The principal union's headquarters were in Pittsburgh, and we had a special team and a lawyer from Arizona who negotiated. I was not directly involved except to be informed. One of the problems that the whole industry had, and we were at the same time affected by it, is that because of the very profitable operations in the 1960s, there was a reluctance on the part of management to take a strike. Rather than take a strike, all agreed to very high demands from labor, which increased the inflationary impact on the costs of producing copper.

Difficulty arose from the fact that labor was adamant and management was not. I remember that at one point, management said to the union, "If we accept your demands, we may have to shut down." The labor leaders' reply was, "Well, go ahead and shut down."

This attitude changed in the early eighties when many of the mines had to shut down because of low copper prices and many workers were terminated. I believe in Arizona alone employment of labor decreased from thirty or thirty-two thousand to eighteen thousand. This resulted in a change in labor's attitude, and the copper industry was able to reduce the unit costs of labor. In negotiations in 1985 we achieved a reduction in the cost of labor of close to four dollars an hour. The whole industry did likewise. In the case of San Manuel, this meant a cost reduction of something around seven cents a pound.

Swent: You did have one very long strike.

PM: Yes, it was nearly a nine-month strike. It was back in 1967-1968.

Swent: As I recall, Newmont settled before some of the other companies?

PM: No, not that time. In the past, the leaders in the settlement were Kennecott, who would set the pattern on their own, usually without consultation with the rest of the industry. The rest of the industry felt the settlement was too generous, but once the pattern was set the rest of the industry had to follow to prevent a prolonged strike.

Well, I think that's all I want to say about San Manuel. I might say a few words about Similkameen.

Swent: Before we leave San Manuel, what about their safety record?

PM: There have been accidents but basically the safety record was good. It wasn't outstanding because it was an underground operation and the chance for accidents in the underground is higher than in surface operations.

Swent: Did you ever have a written safety policy?

PM: Yes, it's comprehensively prescribed. But one of the problems was the attitude of the supervisors, who did not inspire the principle of vigilance through the ranks. The problem with most of these accidents is not negligence on the part of the engineers or the management but negligence on the part of the people at the working place. Even though they get training, they ignore some of the training precepts that they learned and, as a result, you get accidents.

As to fatal accidents, very few of them are accidents that you can't ascribe any fault to. I would say that usually the fault is essentially with the worker who does what he is not supposed to be doing. To get the labor force to follow the safety practices which they're trained to do is just a matter of inculcating the attitude of not taking any chances. We're constantly preaching this but sometimes it goes over and sometimes it doesn't. It really depends on the working force adopting a special attitude towards this and being careful themselves in order to achieve a good record.

Similkameen

PM: All right. In the exploration effort in Canada which had been continued for many, many years by Newmont, we had a special exploration team and a special exploration manager in Canada. And at that time, the manager of the whole exploration effort was John Drybrough, a Scotsman, a wonderful person and very knowledgeable and a venturesome kind of person. I ascribe to him most of the acquisitions that we have made in Canada. He had something to do with each in one way or another, either by recognizing its potential value, or by making initial contacts, and sometimes by actually negotiating deals.

It came to his attention that there was a copper outcrop near Princeton, British Columbia, right next to the Similkameen River. One of the principal owners was a garage owner in Princeton by the name of Jerry Burr. They scraped up enough money to do a little sampling and had a trench dug for something more than a thousand feet. This trench was only three or four feet deep; sampling got somewhat erratic values but still, there were values over the entire length of the trench.

Drybrough heard about this and made a geological examination near the surface. And the geologists were not particularly impressed; they thought it was perhaps too erratic an orebody and did not make a recommendation for acquisition. I had the results of the trench sampling and I was impressed by it. I called up John Drybrough and told him that in spite of the geologists' opinion, the trench sampling seemed quite impressive to me. I said why don't we try to make a deal and do some more sampling ourselves to see whether indeed there might be an interesting orebody there--which John Drybrough proceeded to do. And indeed, further drilling indicated that there was an orebody there.

Perhaps, had it not been for my intervention, we probably would have dropped it.

Swent: And what has become of Similkameen?

PM: The reserves established by us were something like seventy million tons of .53 percent copper. There was erratic distribution of copper in the orebody. It presented some problems in mining and also it was obvious that we had to incur some additional expenditures in moving a highway that actually overlaid part of the orebody.

PM: At any rate, after assessing all these problems, we decided to proceed with development. While we were developing it, we learned that across the river was another copper orebody that had been mined by Granby Company, a Canadian company, but the property was now shut down. It was an underground mine that became unprofitable because of rising costs. There was some indication that this underground mine could be converted into an open-pit mine with a higher stripping ratio than normal, but at a lower over-all cost.

We got in touch with Granby and bought that property, which was called Copper Mountain, for \$11.7 million. In trying to assess our property and the Copper Mountain property, I ran into differences of opinion among our exploration staff. Bob Fulton who was then the head of exploration didn't think much of it. He thought that it was too erratic and the price was too high and he recommended against our acquiring it.

He suggested a further evaluation by a South African geologist then working for him, Vivian Vellest, whom he prized and thought very highly of. He thought that Vivian would turn it down, but after Vellest examined it, he recommended that we acquire it in order to add to the reserves of the venture.

It did present a new problem, however. This was an orebody on the opposite side of the river from where we already had built a mill. So in mining it we had to actually move this ore back to the mill across the river.

In designing the mill originally, one of the problems was how to dispose of the tailings. There was no site that we could find on the side of the river where the original orebody, called Ingerbelle, was located and where we had built the mill. We finally found a site, actually a dead pond or lake on the other side of the river, which would permit us to stack tailings for a long time. To get the tailings across the river, we built a special suspension bridge to carry the tailings line to the pond; it was a rather spectacular installation!

Swent: So you were moving the ore across the river to the mill and then the tailings across the river again?

PM: No, the Ingerbelle orebody was on the same side of the river as the mill, and only the tailings were piped across the river to the other side. In the case of the Copper Mountain orebody, which is on the opposite side of the river from Ingerbelle, the ore is moved across the river to the mill and the tailings back.

Operating costs were remarkably low. While the venture did not make money during the period of low prices, it never required any additional capital from Newmont. They managed somehow to break even, and this in spite of the fact that for tax reasons again, we had all our exploration in Canada come under Similkameen and be paid by Similkameen.

Similkameen has not been a brilliant success but it has been a profitable venture when prices were higher. One of the gratifying results of developing this was the hiring as manager of a very nice and very competent mining engineer, Harvey Parliament, who was originally employed by Granby and actually mined the Copper Mountain ore underground. He knew quite a lot about it, so it was fortuitous to be able to get him to run the whole of Similkameen. When we tried to assess Copper Mountain, he was able to give us very valuable information about what was mined and how it was mined and the records that were kept. We were able to reconstruct what the orebody was like and also assess what was left behind that could be mined by open pit.

He was a very competent manager and did a first-class job of management. Later on, when Granduc got into trouble, I assigned the responsibility of running that to him also.

Atlantic Cement Company

PM: The next one I would like to talk about represents, in effect, a move towards diversification of Newmont and also the increase of our investment in North America. This is our effort to get into a different business than non-ferrous metals--a cement business. The venture which was finally incorporated was Atlantic Cement Company.

PM: The whole idea of this venture was actually born in the mind of a Swiss cement engineer, Bernard Ulrich, who had long experience with a very good company, the Holder Bank of Switzerland, in the cement business. Ulrich conceived the notion that what the American cement business needed was to get away from the restriction of having a relatively small market area per plant, for although cement itself is a low-cost product, freight delivery costs beyond a certain point raised over-all costs too high. As a result, the cement business in the United States developed with the general criterion of confining each plant to a marketing radius of about 250 miles: beyond that the cost of transportation made the price of cement prohibitive. Ulrich thought that this situation could be altered basically and importantly by building a cement plant next to a navigable river so that barges could be used to deliver cement at a very low freight cost to markets adjacent to the Atlantic ocean all down the East Coast. ##

He first sold that principle to Robert Koenig, who was then the chief executive of Cerro de Pasco Corporation. Bob had originally been employed by Newmont and had kept up his contacts with Newmont all through the years; when he found himself short of money at Cerro, he decided to invite Newmont to share the expense of a cement venture. I thought the basic concept was interesting, departing as it did from the usual practices, and clearly worth looking into.

Swent: This is also getting into a different field, as you mentioned.

PM: Yes. In effect, diversifying our activities. Ulrich had already investigated the various areas where navigable rivers coursed through the land and where there might be limestone deposits. He found one just south of Albany next to a little town called Ravena; there was a large limestone deposit there and the Hudson river was navigable there. So the joint venture between Cerro (de Pasco) and Newmont provided the money for drilling out this deposit, and it proved to be a very large deposit indeed, so further engineering plans and cost estimates were made.

In the end the total figure he came up with for building a plant with a ten-million-barrel per year capacity was \$64 million, using what was at that

PM: time probably the most modern technology and the largest equipment available. It was going to be the largest cement plant in the United States. Only two kilns were contemplated, but again, these kilns were to be the largest cement kilns ever used in America.

It soon became obvious that we had to investigate cement price trends. Not being knowledgeable about cement, we hired two different marketing consultants, one a very well known consultant in New York, Ford Bacon and Davis, and another located in a southern state. They examined and analyzed the past prices, possible growth in the area that we were going to be able to penetrate, and what the future price trend was likely to be for cement in the next ten or fifteen years.

We also took care to have these two firms work independently of each other without any knowledge of the other doing the same work. I think we achieved that, and interestingly enough, they both came up with exactly the same conclusions. Up to that time, the historic trend of prices had generally been upward; they opined that it would continue to be upward. They went into great detail and presented very well-reasoned and comprehensive reports stating that they thought we could with this new concept penetrate some of the coastal markets largely because the existing cement plants were mostly located inland where the limestone deposits were. As they marketed their cement, they in some cases went beyond their 150 to 250-mile radius and therefore gave us the opportunity of supplying cement at a lower cost in the immediate coastal areas. Depending on transportation and our costs, we could also penetrate some of their market areas.

The consultants agreed that we would open a ready market along the entire eastern coast and could even go into Tampa on the west coast of Florida.

At any rate, all of this seemed very favorable and we decided to go ahead. Fred Searls took a stand against it right from the start essentially because of his somewhat limited but local knowledge of New Jersey and New York, where the cement business was mostly in the hands of Italians and Irishmen and people who manipulated politicians in their own favor. He felt that it was a dirty business.

Swent: There's been talk of a Mafia connection also.

PM: And Mafia connection also. Well, we knew that, of course; however, this was not characteristic of the cement business throughout the area, although it was true to some extent in New York and New Jersey. While we built a distribution station on the New Jersey shore of New York harbor, we did not count that as being in the critical area anyway.

So, in spite of his opposition, the board authorized it and we proceeded with the construction of the plant. It soon became evident to Ulrich that he could not complete it at \$64 million, partly because of a not too accurate cost estimate, and partly because of inflation. However, he was so determined to justify himself and maintain his reputation that he started modifying the plant in order to be able to meet the \$64 million figure. So he cut here and he cut there and he cut everywhere. The result of all this cutting was that the plant was really not a ten-million-barrel a year plant--it was about a seven-and-a-half or eight-million barrel plant; he cut so many corners that it was not quite as good a plant as we had hoped it would be. When we started operations, they had all kinds of technical troubles with the plant. One of the most critical problems was with the very large kilns which, because of their length and because the supports were so far apart, began to sag in the middle; the sagging dislodged the brick inside and the kiln had to be rebricked too often. We also had problems with the very large motors for the grinding mills, and these problems were essentially the fault of the manufacturer. They had to be replaced. Anyway, these are only two of the troubles, and I won't attempt to relate all the others.

At any rate, it cost us a lot of money to put this plant in shape, but we finally succeeded. The most critical part of the venture was the market place. Instead of the expected upward trend, the market price froze and then started going down. The reason for this was essentially that besides ours, there were other cement plants built at the same time, resulting in over-capacity. Everybody tried to undersell the competition and to sell all the cement they were capable of producing. There was no discipline or statesmanship in the market place.

PM: The effect on Atlantic Cement was disastrous, of course. Year after year, we were losing money. One thing that I would give credit to our cement organization for was that we never had the problem of selling all the cement that we produced. We were not the initial price-cutters, although we were suspected of it. It was understandable that traditional cement marketers in our areas were upset that we were raiding their territory.

While we had a lot of trouble in making this plant profitable, it finally did become profitable. By 1985-1986, it became plain that persistent over-capacity was to stay and foreign imports increased. There were also foreign company buy-outs of some of the domestic companies.

Swent: Where was it imported from?

PM: The imports came some from Mexico, some from Venezuela, from Greece, from Sweden, from Spain. Even some from France, but Spain was the first to invade this market in quantity. Greece was the last. Some of the Caribbean producers also came in with lower-cost cement.

Swent: And what foreign companies were investing? Where was the foreign money coming from?

PM: Those were the existing cement companies in Europe who were furnishing the European market and who expanded to bring the cement here.

Swent: Yes, but I was going back to a previous statement that you made. You said foreign....

PM: Yes, several foreign companies came in here.

Swent: Was it Arabian money?

PM: No, no. A French company, LaFarge, came in and a German company, Heidelberg, and an English company, Blue Circle Cement; and there were others.

The third president of Atlantic Cement, Jack Gordon, was very knowledgeable about marketing. He was a good cement man with a lot of experience in the aggregate business, and he was realistically minded. It was just before he came that we entered into a venture that

PM: involved an agreement with Bethlehem Steel Company at their steel works at Sparrows Point, Maryland. The scheme was to utilize the slag produced by their blast furnaces in making special cement, slag cement, which has qualities very similar to Portland cement and in some cases is even superior. But it's not used to very great extent in this country, although in Europe and South Africa it is an accepted cement product and is utilized extensively. Actually, the slag produced by blast furnaces has the chemical and physical properties of cement made out of shale and limestone. All you have to do with slag is to crush it, grind it fine enough, and that's the final cement. It is a product that has already been fired in a blast furnace to effect the chemical combination, thus eliminating the expensive kiln firing and the use of fuel.

An agreement was made with Bethlehem, and the plant was built and is operating successfully. Jack Gordon completed its construction and started its marketing. However he became apprehensive about the cement business as a whole in the East because of the impact of the imported cement which he could see was growing all the time and against which you couldn't really fight in any way because it came in at a lower price. It could successfully penetrate the coastal markets that Atlantic had commanded.

His opinion was that we might have good years but we will also have bad years, and Atlantic Cement is probably in the long run and on the average not going to be a very attractive venture. We were then thinking about selling it anyway, because our principal shareholder, Consolidated Gold Fields, didn't think the cement business was a good business for us to be in. They wanted us to get rid of it.

At any rate, Jack Gordon made contact with a Norwegian company and then an English company, Blue Circle, which became interested. Negotiation didn't last very long, and we sold the cement company to Blue Circle for \$171 million which included certain advances that Newmont made in developing the slag cement project. This represented about a \$7 million profit over what we put into the business, not including, however, some \$28 million of dividends we have received. So we haven't lost any money in it, but obviously the return was not very favorable.

That's it. We can go to lunch now. (break)

Foote Mineral Company

PM: As an example of diversification, I became interested in acquiring an interest in Foote Mineral Company, which had a lithium deposit at Kings Mountain, South Carolina, and in effect shared the United States market with Lithium Corporation of America, which also had a property at Kings Mountain. The two companies are the only viable producers of lithium in North America.

Foote Mineral was a company that was known to me for some time through my becoming acquainted with Gordon Chambers, who at one time was chief executive officer of Foote. He had come to Newmont a number of times in the early years with propositions for us to share or perhaps buy some of the ventures that they started. One that I remember particularly well was in Brazil; when he began to explain it to me, it didn't seem very attractive to me, and apparently he read my mind and towards the end of our conversation said, "Well, I really don't think it's all that attractive and you probably don't want to do anything about this." I was surprised at his frankness and acquired respect for him which I maintained through the years. Later on I invited him to become a member of the board of Newmont.

Through him I got to know something about Foote and their operations. Their operations in lithium interested me essentially because of the long-term promise of lithium. This is a unique non-ferrous metal with unique electrical and chemical properties. I felt that these properties would in time be recognized, and a lithium producer could have an interesting future.

In the early sixties, Newmont acquired through my initiative some 19.5 percent interest in the company by buying stock on the open market. One time, I called up the then chief executive, Anthony Bliss, to become acquainted with him. I did not disclose at that time that we had an interest in Foote, but because of my acquaintance with Chambers, this was a natural kind of a contact to have made. His headquarters were in Pennsylvania and we chatted about this and that. I asked him about his business, but he was rather reserved about answering my questions. Towards the end of the

PM: conversation, I said "Maybe there's some opportunity for us to do something together in this. I think that perhaps Newmont might be interested in acquiring an interest in your company." His reaction to this was very cool and obviously he didn't like it; the conversation ended with no encouragement on his side to proceed.

In spite of that, we proceeded to buy some more shares, and we got up to 32.8 percent interest in the company. We thought that perhaps that's all we needed to have and we would have sufficient interest to take advantage of such growth as the company might have in the future. Later, Anthony Bliss called me and said "Remember that telephone call and your interest in the company? Well, I have a problem right now that I'd like to talk to you about. Could I come and see you?" He did and the problem was that another company, Vanadium Corporation of America, had decided to acquire or raid Foote. Bliss was not sympathetic to that and he said "I'd rather be acquired by you than by VCA. Are you still interested in our company?" I said yes, I was.

We discussed the matter of the VCA interest and concluded that perhaps he and I should see the VCA people and discuss the matter to see what possibility there was of defusing VCA's interest in Foote. So we arranged a meeting with Lew Harder, then the head of International Mining Company, which had a major investment in VCA. He conceived the idea that they should either merge or acquire Foote Mineral Company.

These original conversations led to nothing, but we had several more conversations, and little by little it became apparent that there was not much point in fighting for acquisition of Foote in the open market as we'd just raise the value of the stock--which also became apparent to him. He proposed merging the two companies together. In talking about managing the merged company, he said "Well, I'd be satisfied if this was managed by the existing manager of the company and you would have a principal role in it." So we proceeded to work out a merger agreement.

VCA had at one time a very good high-grade vanadium deposit in Peru which by this time had been mined out, but they were still in the vanadium business. They had also diversified little by little over the years into certain ferrous metals like chromium, manganese, titanium and other products. Most of these had to be treated in

PM: electrical furnaces, and they had a number of plants where this was being done. The company never grew very large; it was a comparatively small company but it was a profitable company and competed with the giants in the ferro-alloy business like Union Carbide. ##

At any rate, the merger was made essentially on estimates by VCA of how attractive their business was. It turned out that their estimates were too optimistic, for the ferro-alloy business deteriorated. As a result, Foote Mineral Company became less profitable than when it was strictly a lithium company. This was a disappointing development and we ultimately came to the conclusion that Foote should get rid of their ferro-alloy metal business--in effect, disinvest from the merger that we had made with VCA.

Just about that time Anthony Bliss died and we, as a major shareholder, had to find a replacement for him. Because Foote was a very specialized company with important research facilities in product areas which were somewhat foreign to what we knew at Newmont, I felt that the successor should be somebody from Foote Mineral Company. We finally decided on their chief chemist and research engineer, Wayne Barrett, whom we elected as the chief executive.

Wayne was a very good research man and a very nice and intelligent person, but he was not a good businessman. Somehow we couldn't get the company going under his stewardship, and later on he took early retirement; then we elected a younger man, Phil Comer, to be the president of Foote--and we had the same problem with him. I think the trouble with both of them was that they were not the entrepreneurial type. They were very good, honest people, hardworking, understood the business well, understood the marketing well, but somehow I couldn't energize them to think in terms of shrinking the unprofitable part of the business and expanding the profitable operations. Although they agreed with me and tried to do this, they were never able to effect it. A partial sale of the ferro-alloy metal business eventually took place, on not very good terms, and the company remained plagued with an unprofitable ferro-alloy business.

In the course of re-examining what to do with this company, Jack Thompson became president of Newmont in 1974, on my recommendation, and he proposed to remedy

PM: our frustrations with Foote by acquiring complete control of it instead of remaining with 32.8 percent of it. This meant going into the market again and offering a price above the market. I was not very sympathetic to that, and some of my associates like Roy Bonebrake weren't either. I also had a problem with the fact that I had just recommended Jack to become president of Newmont and this was his first initiative. I thought it would be demoralizing to Jack to oppose his first proposal, so I finally told myself "Okay, we'll do it. It isn't going to be too expensive and maybe it's going to be an error, but I guess people learn from errors and I will let him go ahead and do it." I was never enthusiastic about the move, but we went ahead and acquired 90.6 percent of the company--at some cost to us, of course.

Acquiring control of Foote made us the major shareholder; therefore, the management had to listen to what we wanted and we had the right to say what they should or should not do. But somehow we never found a way, even with control, to turn this company around. I thought perhaps we had misunderstood this company: to get a better understanding, I sent people out to their operations to report on what weaknesses they found and suggest what we should be doing. Among the people whom I sent was Oscar Tangel, in whose judgment I had great confidence, but none of these efforts succeeded in presenting some kind of plan to turn this company around into a profitable venture. Sometime before that, Robert Koenig retired from Cerro de Pasco, and I invited him to become a director of Foote Mineral Company. Bob, knowing South America very well, knew of a lithium property that Anaconda had in Salar de Atacama, Chile (Chuquicamata is operating in part of the Atacama desert area but considerably south of the Salar). There is there a very large dry salt lake that was known to have lithium in it. He called this to the attention of Foote, who had known about it but never done anything about it. With Bob's urging, we then proceeded to try to acquire it.

Just about this time or shortly before, we hired a new vice president, Phil C. Walsh, from W. R. Grace & Co. Walsh was a close friend and associate of John C. Duncan, whom I consulted on the matter. Walsh was charming, of Irish heritage, and a quite able negotiator with some background in mining but no actual mining experience. I found him quite useful in negotiating, especially in South America, because he was fluent in Spanish, having spent some time in Peru and Chile.

PM: Walsh was my principal negotiator with the government, which had taken over the Salar de Atacama when they nationalized Anaconda's interests in Chile. It was a long, tortuous, very difficult negotiation, and I must say that Walsh performed remarkably well. He was very diplomatic and never got out of my control; together we followed closely the terms of agreement, which were constantly changing under the pressure of demands from the government. I gave the authority to negotiate to Phil Walsh, and he never misused that authority. We always kept within the framework of what I conceived to be a good agreement.

After some three years of effort and all sorts of changes in the government in the meantime as well as changes in the negotiating parties, we finally reached an agreement. It was the first agreement made in Chile after the nationalization of the huge American copper interests that permitted a foreign company to have 55 percent interest, leaving 45 percent interest to a Chilean government company called Corfo.

We proceeded to examine the deposit, drill it out and evaluate it, and indeed, we found that this was a fantastic lithium deposit. It is the greatest lithium deposit in the world today. While we originally applied for the whole of the dry lake, the government negotiators kept whittling down the area accorded to us; they finally gave us a limited area, about a third of the total dry lake, but fortunately it was the highest grade part. We knew that, and they knew it also.

One of the great problems that we had in the negotiations was that lithium can be used in atomic energy--that is, there is a theoretical possibility that lithium can be used instead of uranium in nuclear bombs. The military in Chile were aware of that and didn't want to give away any interest at all to outsiders. There was a conflict within the government itself as to the terms that could be offered. The military always wanted some kind of a control to be sure they could require expansion or total use of product, equivalent in fact to expropriation.

It took a lot of effort and presentation of scientific information to argue the military out of their convictions. Wayne Barrett, being a well-grounded scientist, helped us

PM: convince the military that a fusion bomb from lithium was many decades away, if at all practicable. But once we made the deal, I must say the Chileans honored the terms of the deal, and we found them to be quite good partners and not difficult on the board level. We were able to create a management made up mostly of Chileans without interference from the Chilean board members as to the choice of management people. It turned out to be a very successful venture and not a terribly expensive one; I think we spent a total of \$60 million, most of which was borrowed. It took about two or three years to get it into a profitable category, but now it is profitable. I think that last year it made something like \$8 million--its first profits. By this time Phil Comer had taken early retirement, and we elected Tom Williams as chief executive. He was a chemical engineer by training, but occupied a business position at Foote. He was a charming, very intelligent young man who understood very well Newmont's frustration with Foote. However, the ferrous-alloy business kept on deteriorating and creating even more losses, so he could not turn around the over-all profits of Foote. Eventually, shortly after I retired--within the year, Newmont sold all their interest for about \$74 million. I had advised against this because I felt that what they should do is sell the unprofitable operations and keep the lithium business--the Salar de Atacama deposit was absolutely unique. I don't think anybody could ever find another to replace it. We were giving it up forever, you might say. It's true that it wasn't all that big, but there's no denying that lithium is a unique and very exceptional metal. The uses of it keep on increasing and therefore I still think it has a great future.

Swent: Who bought it?

PM: The Cyprus Minerals Company bought it. My good friend John C. Duncan, who is its chairman, was all for it. Walsh, who was our vice president, left Newmont to join St. Joe for a while where his friend Duncan was. Then when St. Joe was acquired by Fluor Corporation, he became a director of Fluor just as John Duncan was, and now that Fluor Corporation has been getting rid of all that they acquired from St. Joe, both Duncan and Walsh have resigned from Fluor and are at Cyprus Minerals--Jack Duncan as chairman and Walsh as a director. Walsh also remains a director of Foote, which is now a wholly-owned subsidiary of Cyprus Minerals. I understand that after Newmont sold Foote, the company made an \$8 million profit and is expecting to double it in 1989.

Swent: Where do they sell the lithium?

PM: They sell lithium in Europe through Metallgesellschaft which has sales offices there, and sell what is not contracted by Metallgesellschaft here in the United States through their own sales organization. Some sales are made in Japan as well.

I omitted to say that while we were trying to restructure Foote and sell its ferrous-alloy metal facilities, a Swedish company became interested. The terms of the acquisition of the ferrous-alloy metal facilities by the Swedes were more or less defined by the Foote management. The final meeting was to secure my approval. One branch of the business that was always profitable up to that time was the vanadium facility, in part due to the fact that they were getting vanadium-bearing slag--the raw material--very cheaply from Highveld. Because it was a profitable branch, I felt that we should not sell it, and I refused to let the vanadium operation be part of what the Swedes were buying. But the Swedes wanted that part so badly that the whole deal was turned down because of my reservations. So it was my fault that we didn't complete the sale back about ten years ago.

Swent: What was the Swedish company?

PM: SKF. I think their price was about \$66 million in 1970 dollars, which was a pretty good price since the whole company, including the lithium operation, was sold in 1988 for \$90 million, of which \$74 million was Newmont's share and represented a modest profit. We received no dividends while we held the shares. We should have made the earlier sale, especially since the vanadium business two or three years later turned unprofitable also.

Swent: Is SKF essentially a government company?

PM: No, I think it's a private company. It's essentially a manufacturing company, but they wanted to diversify and go into the American markets as well and this was a way of doing so.

Bethlehem Copper Corporation

PM: The next one I'd like to discuss is Bethlehem Copper Corporation, a British Columbia company owned by Canadians. I knew from my friend Clem Pollock of American Smelting and Refining Company that one time American Smelting was interested in Bethlehem Copper and thought about acquiring a controlling interest, but later new management decided not to do it and sold out. In my efforts to diversify our growth, I thought it was worth looking at again.

We learned that part of Bethlehem Copper was owned by a Japanese company, the Sumitomo Metal Mining Company. Bethlehem Copper wasn't doing very well, either. Sometimes it was profitable and sometimes not, and apparently Sumitomo, to whom Bethlehem sold their copper concentrate, became disenchanted with their interest and was willing to sell it. We bought 22.8 percent of their interest for \$26.6 million. We got on the board, and at the same time another American company run by Robert Allen, Gulf Resources & Chemical Corporation, became interested and acquired an interest in Bethlehem also. Between Bob Allen and ourselves, we really had a virtually controlling interest.

The reason I was interested in Bethlehem Copper Corporation was not because of their own deposit, which was small, but because they had claims covering 20 percent of the total orebody known as the Valley Copper Orebody; 80 percent of the property was owned by Cominco. It was a very large orebody estimated at that time to contain some 750 million tons of .48 percent copper with a very low stripping ratio. All our estimates as to the economic attractiveness of that deposit indicated that this would be a very low-cost producer despite the fact that the grade of the ore was low.

Swent: Where was this?

PM: This was in British Columbia, in the same area where Bethlehem Copper operated. Another very large company controlled by Rio Tinto Zinc Corporation (RTZ), known as Lornex Mining Company, also had a very large low-grade deposit there which was being operated at that time.

PM: In effect, therefore, my acquisition of Bethlehem Copper was essentially for the 20 percent ownership that they had in this huge Valley Copper deposit, and my hope was that somehow in the future we could make a deal whereby the development of this new orebody would be shared by Cominco and Newmont. We introduced that idea fairly early in the game, but Cominco didn't want to even listen to it. Repeated contacts were repulsed by the local management.

I finally decided that perhaps we were talking to the wrong people. Canadian Pacific Railroad Company owned a controlling interest in Cominco, and the man at the head of Canadian Pacific was Ian Sinclair who was well known as one of the leading industrial executives in Canada and very well regarded by the Canadian banks and other industrial leaders. My final check on him was through David Rockefeller whom I knew personally quite well, and David gave me a very high opinion of Sinclair as being a person of sound judgment, and one who would listen to a reasonable proposal.

We went to see him in his main offices in Montreal. I confirmed to him my opinion that Valley Copper was a great orebody. I said, "You know something about Newmont and its capabilities. It seems to me we could contribute something to Cominco know-how as we have been involved in several open-pit operations, while they had no open-pit operations. We would, of course, contribute money as well."

He listened with interest and nodded that yes, he recognized these arguments. And I thought I was getting somewhere with him so I said we would present a proposal to him when we had cleared it with our other partner in Bethlehem, Bob Allen. I worked out quite an intricate proposal that I thought was fair for everybody, attractive for Cominco as well as for us who were shareholders of Bethlehem, and Bob Allen agreed to it.

So we launched this proposal to Ian Sinclair again at another meeting in Montreal. I think that meeting lasted something like three or four hours because we went into all the details and then he wanted to think about it and talk to his people.....

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PM: He absented himself from the conference room to discuss our proposed deal with his associates in Cominco. In the afternoon he came back and said, "I don't believe we want this deal." It was obvious that his Cominco associates had talked him out of it for some reason or other and we didn't know what the reason was. So we returned home empty-handed.

Shortly thereafter, we noticed activity in the marketplace in the Bethlehem shares, indicating accumulation by someone. We traced it to Cominco. Between Bob and us we had only something like 42 to 45 percent of Bethlehem, so there was still 55 percent to be acquired. We debated among ourselves whether to try to counter this and acquire a controlling interest ourselves. Bob Allen didn't have the money, so he declined to do it. I couldn't get much enthusiasm among my associates to do it because the company wasn't doing well, and obviously we were running into opposition from a major company with considerable means.

So we decided to wait it out. We thought that even though we may end up with a minority interest, we could still do something with that minority interest and maybe propose some kind of a deal attractive to us. Cominco acquired sufficient additional interest in the open market to make a bid for all the remaining shares, including ours. It was a handsome price; I think it was something like \$32 or \$34 a share.

I refused to sell. So they acquired the public shares and were the dominant controlling shareholder. Some six months later, they came back to us and offered us an even higher price--\$37.50. Bob Allen sold out, so we were alone. Now we had only 22.8 percent; it was obviously not enough leverage to do very much. When they offered us \$37.50, I decided to throw in the sponge and accept their offer. That was the end of my ambitions to get an interest in Valley Copper. I must say that in selling out, we got back all the money we had invested in it and a profit besides.

Since then, Cominco made a very good deal with Lornex in 1988. Because they had the better orebody with a lower stripping ratio, Lornex, who already had a mill, decided to shut down their mine and bring the Valley Copper ore to their mill, which made a lot of economic sense. Cominco retained 55 percent interest in this joint venture, with Lornex having 45 percent.

Swent: So it's entirely Canadian-owned now?

PM: It's entirely Canadian. This shows you that I think I originally had the right idea in anticipating that Valley Copper would have unusual promise for the future--even though I had to start with acquisition of a small and not very profitable company. You can't always be successful in everything you want to do.

Peabody Coal Company

PM: The next major acquisition that we made was in 1976, acquiring an interest in Peabody Coal Company, the largest coal company in the United States and, indeed, in the world. Interestingly enough, some seven or eight years prior to that Peabody Coal Company's chief executives came into my office with a proposal to merge Peabody with Newmont. It was at a time when the coal business was going downhill, prices were bad, and they weren't doing so well. They wanted to diversify and thought that a merger with Newmont would be of advantage to them, and they were willing to deal on fair terms, I thought.

One of the difficulties was that at that time, even at these fair terms, Peabody was larger than Newmont, and therefore the Newmont shareholders would end up with a minority interest in the combined company. I was also afraid that as a result of this, the authority we had as managers of Newmont would be diluted to the point where perhaps we wouldn't have the kind of say over the combined assets that we thought we should. And the management at Peabody was not experienced in the non-ferrous metal area.

Swent: What was their motivation?

PM: Well, to them it was very attractive. They would diversify their interests from a coal company which was not doing very well with a successful non-ferrous metal company. To us, it was just a diversification step, but the threat of giving up control and ending up being a minority partner in a joint business resulted in my turning this offer down.

It wasn't more than perhaps two or three years later that Peabody Coal Company was bought by Kennecott Copper Corporation, a very much larger company than Newmont at

PM: the time. Almost as soon as the purchase was made, the Department of Justice attacked the acquisition on the grounds that it was violating the antitrust provisions of the law. Kennecott had a number of coal interests in the Far West, one of which operated for a while but at this time was dormant. So although they didn't have a coal operation, they had the potential ability to go into the coal business. On that very thin excuse, the Department of Justice sued Kennecott.

Kennecott defended themselves vigorously for the next five or six years with appeals to higher courts, and finally appealed to the Supreme Court. They lost in the Supreme Court, which was the end of their fight. Their president, Frank Milliken, and the board of Kennecott decided that they had no choice but to sell Peabody to somebody. They decided to auction it off to the highest bidder. They sent out prospectuses to many companies, and we received one as well.

I instantly became quite interested, for by this time Newmont had grown considerably. We learned in a roundabout way that Milliken had in mind a price of something over a billion dollars for Peabody. When I discussed it with my associates and Jack Thompson, who was then president, everybody was negative about it. They said "You must be mad to think that you can acquire something for a billion dollars when Newmont is barely a billion-dollar company. We don't have that kind of money--and they want cash."

I persisted. I said "Well, we don't have to acquire 100 percent of it. Maybe we can get a consortium together where we would have a minority interest but still have a substantial enough interest to be viable for us." On those grounds, I finally got the agreement of my associates and later of the board. The task was to first organize a consortium that would be interested in participating in an acquisition with Newmont, and second, to find out whether or not we could acquire Peabody in the face of competition from possibly thirty other interested parties.

When I started thinking about who might want to be in the consortium, I went first to the people whom I knew best. The one I knew well as a very venturesome head of Texas Gulf Sulphur was Charles F. Fogarty. He expressed an interest in it almost right away.

PM: Then I asked for suggestions from Lazard Frères who were going to be our investment bankers in this affair, and they suggested Williams Company. I didn't know Williams Company very well except for the fact that they were a venturesome pipe-line company that bought the Agrico fertilizer business years ago from Continental Oil Company at just the right time at a low price and made a killing on it.

We approached Williams Company which at that time was run by John Williams, for whom I developed a high respect as I came to know him; they immediately expressed an interest. Then I thought of Fluor Corporation which we knew rather well and whose chief executive, Bob Fluor, I knew personally; he readily joined the consortium.

Swent: Had any of these companies received the prospectus?

PM: No.

Swent: You didn't go to the companies that did?

PM: No. At any rate, we had a congenial group in the consortium and Newmont took the leadership in trying to acquire Peabody. I again used Phil Walsh to do the leg work on this, and he very soon became acquainted with the man underneath Frank Milliken to whom Frank had delegated the job of making initial contacts. Phil came up with the knowledge that they expected something like \$1,200,000,000 all to be in cash, and wouldn't take anything less.

That presented the problem of raising that much cash, and we approached banks and insurance companies. One of the insurance companies from which we had borrowed before a number of times was Equitable Life Assurance Society. They expressed an interest and volunteered to take the lead in getting several insurance companies to lend as much as \$500 million with twenty-year notes. Equitable also took a five percent equity.

We agreed among the participants that the total equity would be about \$200 million, so that left \$500 million missing. That caused us a lot of anxiety. We couldn't get any more loan money, so we had to find some way of bridging the gap. John Williams came up with an idea: why don't we give Kennecott a note for \$400 million? Everybody was aghast, because they thought Peabody would not accept it. He said "What I have in mind--and I think

PM: that maybe it will work--is this: why don't we give them a 30-year note bearing only about five percent interest?" (At that time long-term loans commanded nine and a half to ten percent interest.) "The note would mature in thirty years and we wouldn't start paying it off for ten years, so really the impact of repayment will be deferred until we turn Peabody around to be profitable."

That sounded like a good idea and we made it part of the financing package to present to Kennecott. I approached Milliken a number of times, and he refused to negotiate with me. He said "This is going to be auctioned off. Don't talk to me about it now." But unofficially at the Mining Congress meetings and other meetings, I would talk to him about it, and every time I would raise the subject, "Plato, go away," he would say. "Jump in a lake. You'll never make it, it's beyond your means. You're not going to be able to do it." I started talking to him about consortiums. "Forget it," he said. He was a good friend of mine--I've known him for years and we had very good friendly relations, but he got very annoyed at my insistence in bringing up the subject so often.

We finally identified that there were at least three or four serious bidders that were contestants for the same interest, and one of the more serious ones was Martin Marietta. Anyway, the time passed and Kennecott established a deadline. In spite of the discouragement of my approaching or even talking about the deal, we decided to launch the proposal described above. We assured Kennecott that we had the money in hand. It was committed, it wasn't just an idea, it was committed. The deadline for presenting a final proposal to Kennecott was, I believe, Wednesday. On Tuesday, when we got the consortium members together to secure agreement to the proposal we were going to make, all of a sudden my most trusted partner--and the one who always supported me very strongly, Charles F. Fogarty of Texas Gulf--announced that he had to drop out of the syndicate.

The problem was that some four or five months before, Canadian Development Company, a Canadian government financial corporation in Toronto, acquired a substantial amount of stock of Texas Gulf, and Fogarty opposed that acquisition unsuccessfully. Finally they got on the board, and Fogarty tried to establish friendly relations with

PM: them and they responded with cooperation in decisions he recommended. But when the Peabody investment came up for final decision by their board, all of a sudden the Canadian group balked, and because they had 38 percent of the shares he felt that he could not go ahead, which was the reason he withdrew from the syndicate.

This was a crisis which Williams Company and we discussed together, and we decided that we were probably the only ones who would be willing to take the risk of assuming a temporarily higher percentage of the syndicate. Each of us at that time had twenty-seven and a half percent. We agreed that we would each assume one half of up to 85 percent. It was very risky, but I felt that somehow I would be able to find somebody to replace Texas Gulf, although I had very little time. We made the proposal on Wednesday to Kennecott on behalf of the reduced syndicate, and I proceeded immediately to think of whom we could get as a substitute.

I was very friendly with Steve Bechtel as Bechtel Corporation was involved in the construction of our Carlin Mine in Nevada, and in Palabora in South Africa. I think they thought well of us and we thought well of them, and mutual respect had developed between Steve Bechtel and me. He seemed to have the utmost confidence in me and my plans. So I called him up, I think it was on the very next day, and I told him exactly what was happening and said, "We are looking for a substitute, and we're looking for someone who has the money. I know you have the money and I know you have the venturesome spirit. Do you want to be a partner in this very difficult venture?"

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PM: I characterized the venture as being one which had a lot of problems. I said "My own personal opinion is that we probably will not see money coming out of this venture for perhaps five or six years. But it's a prime coal company. I think that we can turn it around and it's eventually going to be a very profitable company." He said yes in principle but asked me "How much time do I have to investigate it?" I said "You have really only one day, which is going to be next Monday, because this is Thursday and your fellows need a day to fly east. I've got to have your answer by Tuesday because we're going to be signing papers then." His team arrived in St. Louis over the weekend and on Monday made a superficial examination of Peabody. He called me up on Monday

- PM: afternoon and said, "We'll go ahead but only for fifteen percent." We needed an additional interest and he brought in Boeing Corporation for fifteen percent. This replaced the interest that Texas Gulf had dropped, and Williams Company and Newmont were reduced to our twenty-seven and a half percent again.
- Swent: That's one advantage of dealing with a company that doesn't have public stockholders.
- PM: That's right. (chuckles) So the consortium was formed that way and it's been an excellent combination. We did have some problems with Williams occasionally which I will say something about later.

It turned out that no competing company had gone as far as we had in getting money committed. The others said that they would work out the financing after the deal was made. Martin Marietta came the closest in commitments from banks but didn't quite make it. Kennecott recognized that our bid was the only one with committed funds. Finally they accepted and Peabody was ours. It was \$100 million less than they expected, because they had wanted a billion two and ours was a billion one. At that time, it was the largest amount of money raised for the acquisition of a company in American corporate history. Since then, of course, many deals have exceeded this one, and a deal was made recently that exceeded ours twenty times. We were very proud of our achievement in effecting the purchase.

- Swent: You got this all negotiated before the auction?
- PM: There was, in effect, no auction because there was nobody else who came up with a ready-made package with assured money, so Kennecott sold to us.

I should say that preparatory to making this final deal, we were allowed to go to Peabody and make a thorough examination of it--all their mines, their management practices, their past records, their possible future, and so on. I organized a team of investigators headed up by Wallace Macgregor, who used to be an executive vice president of AMAX. When Ian MacGregor was chosen to succeed Frank Coolbaugh as the chief executive of AMAX, Wally Macgregor left the company and went out west where he is now a consultant. He worked for Kaiser Aluminum in the San Francisco Bay area for a while.

PM: At any rate, since he was a consultant and free, I asked him if he would head up the investigating team because I couldn't identify anybody in our organization who had the time to make this investigation, which took about three months.

Later when we gained ownership of Peabody and became well acquainted with the management of the company, they told us that among the several companies that made an investigation, ours was the most exhaustive and the most professional. Indeed, everything that we had imagined in the way of strengths and faults at Peabody was accurately diagnosed by our investigating team. The team was headed up by Wally Macgregor, but all the rest of its members were Newmont people.

In this investigation we found that a great deal of effort would have to be made to make it into a better, more efficient company. They had very poor labor relations and were always plagued with many wildcat strikes, especially in the eastern area, that would shut down their operations and hurt their deliveries. Their relationships with the customers that bought their coal were poor and they were suing each other. We went through all the agreements with their customers and found they had obvious defects in them and they had to be renegotiated.

It was a poorly-run company and what surprised me the most is that during the five years that Kennecott owned it, they really paid very little attention to it except to pour more and more money into it. They had a man delegated to look after it who lived in St. Louis, whom I originally met in Chile. He was the general manager of their operation at El Teniente in Chile, and I didn't think much of him there. Neither did I think much of him as someone who was looking after Peabody, although he was a very pleasant man, a very nice person.

So, it immediately became clear to us that we had to make a major move towards restructuring the management and getting better people topside. We found that the operating managers of the mines were quite good, and as a matter of fact, that judgment was confirmed later on as we became better acquainted with the mines. Most of our evaluation right down the line was quite accurate.

The way we thought best to restructure the whole company and the topside of the company was to get the best chief executive that we could find in the business.

PM: I consulted Chuck Robinson, a close acquaintance, who used to be the head of Marcona and was for a time employed by the federal government. He knew many people on the Washington scene, and my feeling was that we had to have a man with experience in Washington who could represent not only Peabody but the whole coal industry to the government in a favorable and understandable way so that the government would be more sympathetic to the coal industry as a whole.

Swent: What was the year that we're now talking about?

PM: This was 1977. He recommended four people with those qualifications and among them was Rod Hills, a lawyer who for a time was the chairman of the Securities and Exchange Commission. In considering Rod Hills, I asked the opinion of George Schultz who was at that time a vice president of Bechtel and was assigned by Steve Bechtel to look after the newly-acquired interest in Peabody. George Schultz, having been in Washington for a time, knew Rod Hills very favorably and he recommended very highly that Hills would be the right man for this job. We went ahead with a proposal to Hills. Negotiations were difficult because he demanded a lot of money, he wanted a private airplane, and he didn't want to live in St. Louis--he would commute between Washington and St. Louis because he had other things to look after for the time being. Furthermore, he wasn't prepared to start working until June or July, 1977. We acquired control of Peabody sometime in February or March, 1977, and he consented to become chairman but not chief executive officer then.

We agreed to most of his demands in order to get him. He gave us part of his time in the interim until June or July when he was supposed to give 100 percent of his time. But by that time he had changed his mind and insisted that he would take the job only if he were made president and chief executive officer. Even in those early months, I became concerned about our choice because he didn't seem to be all that interested in Peabody. His knowledge of Peabody was poor, which was understandable--that I didn't mind. He did a lot of flying around the country in the new airplane, presumably taking care of his previous obligations and making speeches.

At the same time we were also looking for an operating head who would have the best credentials in terms of experience, knowledge, and a record of managerial achievement. Everyone we consulted pointed to the same man,

PM: Robert H. Quenon. He was then the head of Monterey Coal Company, a subsidiary of Exxon. Exxon was also then developing the idea of acquiring huge coal deposits in Colombia. So Quenon had a very responsible position with a prime company and was doing very well. However, it intrigued him to come to Peabody. He knew the company quite well and he knew a lot of people there because he'd been in the coal business all his life. Becoming the operating head of Peabody seemed to him more attractive than staying at Exxon, so he came with us as the executive vice president in September, 1977, and became president and chief operating officer on January 3, 1978.

I think it was in July 1977 that negotiations for the renewal of a three-year contract with the unions began and Rod Hills took charge on the grounds that he was an expert in labor negotiations in California as an independent lawyer. It became quite clear from discussing the matter with the people in Peabody's old management and with Quenon that Hills's contribution was, if anything, counterproductive in these negotiations. In the fall I became convinced that he was the wrong choice and we had to let him go. Having become acquainted with Quenon, I felt we had a good backup so that if Rod Hills went, we could move Quenon into his position.

One of Rod Hills's activities in the job was to try to talk to each of the shareholders separately, presumably with the idea that he would gain more control of the company by sowing dissent among them. He thought he was succeeding with the Williams Company. I presume he tried to ingratiate himself with them, and raised doubt about Newmont as the managing partner.

It finally ended up in a confrontation: I was accused of going behind the back of everybody and trying to undermine Rod Hills. Rod Hills as well as Quenon complained of this to John Williams. It was very embarrassing. The meeting took place in an executive session where I was alone and had to defend myself without help from anyone.

I denied their allegations. "Quite frankly," I said, "I deny that I am undermining Rod Hills. I did talk to George Schultz about my concern as to whether we'd made the right choice about you, Rod. Nothing personal in this, but I'm disappointed. I'm not sure that you're qualified to run this job." Confronting the accusation directly and in this straightforward manner turned John Williams around and he became sympathetic. Perhaps it sowed doubts in Quenon's mind, as he didn't say anything. The confrontation broke up with really no result at all.

PM: I reported this to George Schultz again and said that because Rod engineered this confrontation, I felt he should be discharged forthwith. George demurred and said I was making too hasty a judgment, I should be patient, and Rod Hills had great qualities that I hadn't had time to appraise, and we should keep him on.

I kept on bringing up the subject with George Schultz and the other directors, and I think the others were becoming disenchanted with him also but they weren't ready to make a drastic move like discharging him. At any rate, we had to put up with Rod Hills right through to January of 1978.

What brought the whole thing to a conclusion in January was Bob Quenon's decision: he asserted to me that things had become so bad with Rod Hills that either he went or Quenon himself would go. He said he could not stay on at Peabody with Rod Hills in charge. We obviously wanted to keep Quenon as he was taking hold of operations very well. So I went back to George Schultz and told him of Quenon's position and urged him to agree to support the request that Rod resign. George finally acquiesced. Aside from this major disagreement, my relations with Schultz were always cordial and were reciprocated.

We made a very generous settlement with Rod Hills and he came out smelling like a rose. This settlement was largely formulated by John Williams and George Schultz, who were much more generous, I guess, than I would have been.

Swent: What they call a golden handshake.

PM: A golden handshake, that's right. Bob Quenon had some excellent constructive ideas of how to restructure the company. He hired many new people and let go some of the existing key employees of Peabody. We tried to prevent him from building too much overhead, but he wished Peabody to be an independent company and thought, understandably, that Newmont's role as a managing partner should be reduced. He wished to have a fully-integrated organization that would dispense, for example, with Newmont's financing responsibilities. He hired a financial vice president who turned out not to meet everyone's expectations, and he was discharged after about two years.

At any rate, time went on and our relationship became a little easier and more cordial, but still Quenon was very independently minded. I couldn't hold it against

PM: him because he was certainly an excellent manager, knew the coal business inside out, and did a wonderful job of renegotiating the contracts with the utility companies. Over 90 percent of our coal was sold on long-term contracts to the utility companies. He was developing new mines, shutting down unprofitable mines, gradually transforming Peabody from a loss company (\$54.5 million loss in 1978, mainly due to the strike) to a profitable company that could pay dividends. We deferred to Quenon, for otherwise he might have left, and we made him the chief executive officer in May, 1978.

The subsequent story of Peabody is fascinating in its details in terms of operations and how Bob managed them. Peabody's progress was largely his doing. Newmont provided leadership on the board and kept well informed on the operations. We had a few minor disagreements with Bob over his efforts to diversify the activities of Peabody, and we were supported by the other shareholders. But, by and large, we had confidence in him and did not interfere with his conduct of the operations.

Quenon showed great ability and flexibility in renegotiating most of the contracts with the utilities to obtain more favorable conditions for Peabody. Those that he could not renegotiate, he offered to sell the mine to the utility with an arrangement for Peabody to continue to operate the mine for a fee. In this manner he was able to reduce the number of unprofitable mines from ten to zero. In addition, he upgraded the equipment and raised labor productivity. This led to higher morale within the company, lowered costs, and in about six years he turned the company around to a profitable concern earning in excess of \$100,000,000 a year. He was now in a position to expand the company and acquired a major producer of low-sulfur Appalachian coal with a view toward increasing production of environmentally-acceptable quality coal to meet the government's drive to reduce the acid rain threat. This was important because a large part of Peabody's production was derived from the high-sulfur coal beds of the Illinois basin.

Bob Quenon fulfilled our best hopes for a knowledgeable, competent and dynamic leader of Peabody, which enhanced both his reputation and that of Peabody.

We didn't exercise our managing partner's role with a heavy hand. The relationship with all the shareholders was good, but it was a little tenuous and strained with

PM: the Williams Company. After John Williams retired, he was replaced by his cousin, Joe Williams, a much younger man. He did not seem to be as sympathetic to Newmont and seemed to resent somewhat the role that Newmont played as managing partner. We had some disagreements. There was no serious dissention, however, and we tried to compromise our differences as best we could, and by and large the shareholders acted in unison.

The Williams Company finally sold out to Newmont in 1986, and by way of a complicated deal with another company, Newmont now has just under 50 percent and thus virtually the controlling interest in the whole enterprise.

Swent: Still has?

PM: Still has. I think Newmont wants to retain it. So that's the Peabody story.

Unsuccessful Ventures

Offshore Oil, Santa Barbara, California

PM: I would like to switch to the unsuccessful activities that we were engaged in under my direction. I freely admit that we had some failures and we had some enterprises with very indifferent results. Some of them I've already detailed, but if I were to list all of those that would belong in this category, I would have to say that one of them, initiated in 1958, was a California offshore venture northwest of Santa Barbara which was a joint venture between Monterey Oil Company (25 percent), Texaco (50 percent), and ourselves (25 percent). The geophysical work indicated a massive structure, and it was right on the trend of some of the great oil fields to the south. It looked initially to be an extremely favorable venture to invest in.

However, we had to bid for the offshore blocks offered by the State of California, and our share of the cost of the bid was something like \$27 million. This was at that time the biggest investment that Newmont had ever made in a single venture, and I remember dreaming about it the night before we had to make the investment. I didn't know at the time what the bid was but in my dream it was \$27 million for our share, and I made the decision to go ahead. Indeed, the bid turned out to be \$27 million for our share and it was accepted.

PM: Oil and gas were found as a result of drilling by Texaco, who were the operators, but it became clear within a year or two that it would never be profitable enough to yield an attractive return on our investment. I decided that we had better get rid of it. We made various approaches to Texaco at the lower-echelon level, but we couldn't get them to consider or even pay much attention to us. I discussed the matter in 1961 with Franz Schneider, former chief financial officer and a director of Newmont, and he suggested we go to the top--to the CEO of Texaco, Gus Long. He knew Gus Long and believed that he would listen to us. Franz made the appointment for both of us, and I made a deal with Gus Long to sell our interest in about five minutes. That's the old-fashioned way of doing business. You could never do it today. It stands out in my memory as being a remarkable event, even though we backed a loss of \$5.9 million after the sale.

Venezuelan Oil

PM: Another deal in the unsuccessful category was a participation with San Jacinto Petroleum Corporation in an oil venture in Venezuela that was commenced in 1957. It was offered to us while I was in South Africa. I got a telephone call in Johannesburg from Phil Kraft, Franz Schneider, and Fred Searls, all on the same line, recommending that we consider buying into this joint venture in Venezuela. The connection was so terrible that I could understand only about one third of what they were saying, but I finally got the general gist that they wanted to make an investment of 15 percent in it. I said "Well, I know nothing about this, obviously. You fellows have been looking at it and you are prepared to recommend it as being very good?" "Yes, we are." "Well, in that case, why don't we take 20 percent?" Then they said "Gee, that's pretty venturesome, isn't it?--but we'll do that."

Anyway, the partnership found some oil, but the oil wells were not very good. It turned out to be a complete failure and we lost all our money on that one.

Swent: Was the name of the company Venezolano?

PM: It was a partnership between Venezolano Petroleum Ltd., which had a 25 percent interest in oil concessions in Lake Maracaibo and other areas, with 75 percent owned by Phillips Petroleum Corporation. San Jacinto had part of Venezolano Petroleum.

Swent: It was mentioned in the Ramsey book.

Granduc Mining Company

PM: The last but not least, because it was the biggest failure of my chief executive responsibility at Newmont, was Granduc. I think it was a fascinating venture, and it's worthwhile going into some detail on this venture and describing it from the start. It's an illustration in some aspects of a technical success which was a financial failure.

This was a copper prospect in Alaska close to the British Columbia border, and the access to it was by way of Portland Canal, the longest fjord in the North American continent. The canal is some 120 miles long, and at the end of it is a little town by the name of Stewart. The boundary of the United States, or Alaska, and British Columbia went right down the middle of this canal. Stewart was on the Alaskan side.

This copper prospect was located among glaciers way up in the high area of the Coastal Range some forty miles from Stewart. As it was then, it was really inaccessible except by helicopter. It was found, however, by a prospector who got there on foot and recognized it as something of interest. He was a Scandinavian named Einar Kvale. The discovery was made in 1948, and in 1952, Karl Springer, a well-known exploration geologist, organized the Helicopter Exploration Company for remote areas; he learned of the discovery and acquired the controlling interest in it in 1952.

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PM: The Helicopter Exploration Company staked the claims and acquired the rights to this prospect. In 1953, Granby Consolidated Mining, Smelting and Power Company, then managed by Larry Postle, bought out Karl Springer and incorporated a new company under the name of Granduc Mines, Ltd. Granduc was named after the Leduc Glacier that flowed into the valley just below the prospect. The foot of this glacier was not too far away from the prospect.

PM: Access from the other side, from Portland Canal, was blocked by the Berendon Glacier on the west and by the Salmon Glacier on the south. So there was just no way to get to it except by crossing these glaciers. You could get into the area from the north, however, by way of the valley of the Unuk River which flowed into the ocean, but in any case, in order to get to the prospect you had to make your way across the Leduc Glacier.

After Granby acquired the prospect, our field geologist, Cannon, examined it and recommended it to John Drybrough, who wrote to Postle about it asking if he would entertain the notion of Newmont's acquiring an interest in it. Larry Postle was known to Newmont because he had operated a nickel mine for Newmont called Western Nickel in British Columbia; it was rather small, not really worth describing in detail. We equipped it rather cheaply and sold its future production with contracts at the then "blip" of very high nickel prices in Italy, Austria and Germany. We justified development of Western Nickel on the basis of the high contract price. When we began to ship the nickel to Europe, the nickel price collapsed and the Europeans refused to honor the contracts and wanted to cancel them. The Italians and Austrians actually did cancel their contracts, but the Germans didn't. We made a final deal with the Germans to sell them some of the production at a reduced price. Anyway, we ended up by selling our interest to a small Canadian company by the name of Giant Nickel Company.

Our acquaintance with Postle led us to believe that he would be sympathetic to Newmont's participation in Granby. However, Postle was a real entrepreneurial type and he always wanted to run his own company. He was afraid that a giant like Newmont would displace him and he was reluctant to let Newmont come in. He never actually expressed this, but we surmised it from his reluctance to make a deal with us.

The chairman of Granby was Julian Beaty, an elderly man in his seventies. He knew some of the Newmont people and knew of me also. Some time back he was a lawyer and general counsel for Phelps Dodge and then counsel for Metallgesellschaft. He also represented American Metal Company and Climax Molybdenum; so he was acquainted with the mining community and knew something about mining.

PM: At any rate, when Beaty heard of our interest in Granduc, he prevailed on Postle to give us a sympathetic hearing. This resulted from a discussion that I had with Julian Beaty. One of our points of contact was his son, who lived in Greenwich and was our family doctor.

Well, that led to a deal, and Granby eventually sold their entire interest to Newmont. At that time, Fred Searls was not in favor of it. I did not have much opposition from the board and the board finally supported me. We made the deal and started the exploration. The exploration was difficult because, in order to supply the kind of effort we put into it--which included underground development as well as drilling from the surface, we could no longer depend on helicopters for supply and had to use a fixed-wing plane. We devised an air strip right on top of the Leduc Glacier. The air strip was covered with gravel in order to give some stability to the surface; this had an insulating effect on the strip so it stood up like a ridge when the glacier partially melted down in the summertime. So we had to make a new landing strip every year. It was an arduous, expensive effort, but it worked. We never wrecked a plane.

Swent: You were working year-round then at the mine?

PM: Yes, especially in the wintertime because it was easier to work in the wintertime there. Exploration continued for quite some time, during which we were always concerned about the access route for vehicular traffic, as it was unlikely that we could supply the actual operation by air. Building a road on the glacier would provide access only during the wintertime.

We investigated the route from the ocean up the Unuk River. One time, Banghart and I decided to make a very preliminary survey of it from helicopter on the way to the exploration site. We arranged to fly on a small chartered hydroplane from Ketchikan and land at the mouth of the Unuk River. There was no camp there, nothing. A helicopter that was based at the mine was to pick us up there and take us to the mine.

After we landed at the mouth of the Unuk River, the plane promptly took off to return to Ketchikan. There was no helicopter in sight; we waited and waited and no helicopter came. I mean, we couldn't possibly go anywhere or communicate with anyone. We were stranded thirty-five miles from the exploration site. It was a terrible risk to take.

PM: On top of it all, we recognized bear tracks right close to us! We began to wonder how we would spend the night and not get mauled by a bear. We each had an identical small suitcase made out of cardboard: Banghart got tired, he was older than I and a much bigger man--probably weighed nearly 210 pounds--and when he sat down on this cardboard suitcase, it collapsed! We had a laugh over that, and then we began to get rather anxious about our predicament. We probably waited about two and a half hours, until finally the helicopter arrived and rescued us.

Swent: It was a long two and a half hours!

PM: While we explored Granduc and tried to evaluate it, which took several years, we were able to observe the general climatic conditions. We found to our surprise that the snowfall in the area of the future mine could be as high as 110 feet in a season. Eventually we were able to establish an ore reserve of about 20 million tons of fairly good ore in excess of 1.5 percent copper. This was not quite enough, however, to justify an expensive venture.

We thought perhaps we might be missing something by drilling in this one place and sent Dr. Hal Norman there; he was an eminent geologist on our Canadian exploration staff who had previously worked for the Canadian Geological Survey. I asked him to look at Granduc to see if there was any geologic indication of additional ore that we weren't aware of. He spent some time in his examination, and in the meantime we suspended our exploration and took all our people out.

He spent a summer up there and actually had a crew and a diamond drill. What interested him was an outcrop across the glacier valley from where we delineated the orebody. Nobody had been there before. He took some samples of the outcrop on the side of the cliff and decided to drill there, and indeed, he found a zone of quite high-grade ore. The amount of drilling he did was minor; I think he only drilled about six holes and of those six, I believe that four struck very good ore.

Geological study led him to believe in the possibility that the orebody we had drilled extended in depth under the glacier, and what we saw on the other side was part of the same orebody which was in effect eroded by the glacier in the valley between the two outcrops. That gave additional promise to look for the ore in depth, and we resumed exploration in depth after his examination and the limited

PM: drilling that he had done. Indeed, we found more ore: by 1963, the reserves were calculated to be 32.5 million tons of 1.93 percent copper. By this time, we'd spent \$6 million.

With this, we thought we had enough to mount a venture. We proceeded to evaluate it in a preliminary way in-house. We brought John Wise, chief engineer at Idarado Mining Company, to New York to make the evaluation. He came up with a figure of \$55 million of total capital expenditure. Hecla Mining Company in Idaho, with whom we had had close relations for a long time, wanted desperately to enlarge their operations and they asked us to let them in on the financing of Granduc. I remember that I counseled them against it. I said that it was a very risky venture and there was no assurance of success. Les Randall, who was running Hecla at that time, said he was prepared to take the risk, so I offered to let them buy \$10 million worth of preferred stock; this gave them a little better position than we had with common stock ownership. I approached ASARCO and they were willing to advance \$10 million against the concentrates that we would send to them for smelting. Then I arranged a \$30 million loan with Bankers Trust Company, and we had a total of \$50 million.

Newmont had by that time spent, as I said, \$6 million. We were willing to put up an additional \$5 million as working capital, and that made up the total of \$55 million that we needed.

The next step was to put the project in the hands of contractors, make a final feasibility report, and reestimate the whole thing. I called upon our friends at Bechtel. They suggested various schemes for access to the mine. One of these schemes was a very long tunnel running under all the glaciers from Stewart. I thought this idea was impractical because such a tunnel would have to be in excess of twenty miles long and would be too expensive. We finally decided that the most practical access would be a surface road from Stewart to the foot of the Berendon Glacier and then a ten-and-a-half mile tunnel under the glacier to the mine.

The final estimate turned out to be not \$55 million but about \$85 million. By this time, I became rather apprehensive about the whole venture, but I still felt it was worthwhile going ahead. Considering the risks, I

PM: thought that we had better finance it in some different way and not involve ourselves with any bank financing at all. I thereupon cancelled the Bankers Trust loan.

During the next year many companies heard about Granduc and we had numerous offers to finance the equipping of the mine. Some offers came from major companies like Noranda, Falconbridge, NewConex Exploration Ltd. (a subsidiary of Consolidated Gold Fields), Nippon Mining Company, Hudson Bay Mining and Smelting, who wished to participate on an equity basis. Phelps Dodge considered it, and Anglo-American of South Africa did too, but they turned it down.

The new deal that we conceived and finally concluded was with ASARCO. Newmont and ASARCO were to become 50/50 lessees of Granduc Mines Ltd. We surrendered our shares in Granduc to the treasury of that company and agreed to a royalty payable to Granduc as a consideration for a lease on the property. Hecla retained the preferred stock. The royalty percentage was calculated on profits made. Negotiations were difficult but were finally concluded with our conceding a 22.5 percent of the profits to Granduc Company as their royalty. However, the royalty would be payable only after return of our capital expenditures.

By cancellation of Newmont-held Granduc shares, Hecla increased their interest from sixteen and two-thirds percent to thirty-four and a half percent of Granduc, and the lease structure allowed ASARCO and Newmont to write off all the development and exploration expenses against other profits that we had from other ventures. In effect, what we were doing was using fifty-cent dollars for development of the property. In funding the \$88 million, we already had \$10 million from Hecla which left \$78 million to divide between Newmont and ASARCO, or \$39 million apiece, but because of the tax write-off, it amounted to \$17.5 million apiece.

Swent: So you were the owners of the lease; you leased it from Granduc Mines.

PM: Which we accomplished by contributing our shares to Granduc Mines Ltd., the surviving company.

This rather involved deal was conceived by one of our lawyers, Frank Reinhart, and we saw its merits--both Jack Thompson and I--and restructured the whole thing

PM: that way. That permitted us to proceed. We decided to try to complete the ten-and-a-half-mile tunnel as fast as possible by driving it from both ends. We established a fairly large camp at the mine with something like sixty or seventy people there, and another camp at the foot of Berendon Glacier, where the tunnel would start.

During the first year of driving the tunnel we continued work in the wintertime. Next spring, a tragedy occurred at the minesite. An avalanche let loose enormous amounts of snow right over our exploration camp. Twenty-six people were killed and nineteen were injured. Our tunnel driving was stopped, of course. We were exonerated from culpability in this accident because we proved to the authorities that prior to the accident, the avalanche paths were clearly marked on the mountain slope by the absence of trees and scrub, and our camp was well away from these paths. But it was a very traumatic experience, and, of course, a lot of publicity resulted from it. Our public announcements had to be very sensitive. I must say that we did a pretty good job of it without hiring a public relations firm. We masterminded it all ourselves.

However, we interrupted all exploration, all activity, and decided to reassess the whole venture, beginning with the question of the tunnel. Obviously we were not going to subject any more people on the mine side to avalanche risks. We knew therefore that we had to complete the tunnel from the Berendon Glacier site only, and that required a completely new engineering approach as well as a reassessment of the time schedules.

After an interruption of, I think, about a year and a half or two, we decided to continue the tunnel with some apprehension. Back in the 1960s when we started, the cost of labor was relatively low. We paid only five dollars an hour for labor. Things seemed to be quite stable, and the inflation wasn't too bad at that time. Furthermore, we made a contract with the Japanese to smelt our concentrates and refine the copper. They offered us excellent terms which I think amounted to something like seven or eight cents a pound for smelting and refining. Sea freight at that time was also very low, so the cost of transportation, smelting and refining was something on the order of ten or eleven cents a pound. The economics still looked pretty good even when we allowed for moderate inflation. Actually, however, inflation escalated way beyond our expectations.

PM: By the way, our driving that tunnel occasioned world-wide recognition. We made a world record in speed by advancing the tunnel for one mile in seventy-three days, and occasionally we made an advance of ninety-three feet in a single day. Driving the tunnel was highly mechanized, beautifully done using the most modern equipment that we could find.

Swent: Were there any fatalities other than the avalanche accident?

PM: No.

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PM: That avalanche, of course, caused us to make a complete reexamination of the snow danger, not only at the minesite but also all along our access road. In order to arrive at the place where we started the tunnel, we had to make a thirty-one-and-half-mile road first along the Salmon River and later along the Salmon Glacier. That road took us past a very deep, long, narrow lake called Tide Lake, which was about five miles long. At higher elevations of the road, the mountains rose above it quite high, and there was very high snowfall there.

We hired a special expert on snow removal and avalanches by the name of Monty Atwater, who acquired his expertise in Switzerland first and later in Chile; we heard of him through Bob Koenig who used him in Chile and recommended him to me when he heard about our problems. Atwater made a survey of the region, identified the danger spots, and recommended remedies. He suggested we put in seventy-five-millimeter cannon to dislodge the snow accumulations before they became dangerous. The snow that fell on the road was to be cleared by bulldozers. That way we would avoid the "killer" avalanches. I think there were three or four avalanche sites located by him, and we installed the artillery to shoot the snow down every winter.

Swent: How about your insurance in a case like this?

PM: The mill, the power plant, and the campsite near the tail of the Berendon Glacier were not in danger of avalanches. We could not get any insurance on the road because of the avalanche danger, but our actual experience was that while we kept avalanches under control, the cost of removing the snow dislodged by the artillery was so high that we

PM: had to actually tunnel into the rock to avoid these areas. The road ended up costing us twice as much as we expected. Even though the capital costs rose immensely, the venture was technically well conceived and brilliantly executed.

Production began in 1970 and continued until we finally shut it down in 1978 because we could not make it profitable. And in addition to the above problems, we had difficulty with the mining method. We had anticipated this to be problematic, and even before we started the tunnel we had decided to bring in experts who could give us some guidance. Ed Hunt looked at Granduc's problems, made several trips to Sweden, and recommended we use Swedish engineers who had devised a new method called sub-level caving. It had not been used in this country but began to be used at Mt. Isa in Australia. We sent people to look at the Swedish mines and at Mt. Isa before we adopted the method.

One of the critical things about this method was the recognition that there would be dilution from the waste rock because we were dealing with rather wide veins. When caving took place, there would be little if any control over what would happen with the country rock on the sides of the vein. That's why we needed expert opinion as to what kind of dilution we could expect to have. The Swedish engineers spent quite some time at our mine as it was being developed, and they came up with very precise numbers--which always bothered me. They said our dilution would not exceed 16.7 percent. Swedes tend to translate everything into very precise mathematical figures. This 16.7 percent was not the figure they experienced in their own mine; I think in their own mine they had something like 13 percent dilution. Our rock strengths were different and they predicted greater dilution.

When we actually mined it, our dilution started out at about 40 percent, and we never could reduce it to less than 35 percent. This was one of the most serious drawbacks in mining there. Our ore grade was drastically reduced by the 35 percent dilution. The capacity of the plant was designed for lesser dilution and tonnage, so our actual production was less, grade was less, cost was higher. On top of everything, inflation all of a sudden took a quantum leap just about that time in the early seventies, and our hourly wages that we estimated to become about \$7.50 to \$9.00 actually became \$15-\$18 an hour.

PM: Increasing the capacity required more men and therefore more housing. Our experience in maintaining a crew at the site was absolutely dismal. We had up to 35 percent turnover in one month. The only way the manager saw to reduce that was to provide family housing--because single men would come and go, but with family men we'd have a more stable crew. But that required more housing, more capital. So, in effect, everything turned against us--inflation, cost of labor, unexpected excessive dilution in mining, higher capital costs.

Swent: The price of copper went way down too, didn't it?

PM: The price of copper was subject to a government-imposed ceiling of sixty cents a pound through December of 1973, and reluctantly increased to sixty-eight cents a pound through May of 1974. Prices rose moderately thereafter but did not reach the dollar-a-pound level until 1979. By 1978 we threw in the sponge and decided to liquidate the whole thing. When this was announced, we got an approach from Imperial Oil Company, a subsidiary of Exxon in Canada. Their interest was aroused by a young mining man we knew who had never been involved in a large enterprise and had limited experience. He convinced the oil company that Newmont did everything wrong and that he knew exactly how to do it the right way. The mining method was not only wrong but he could do it cheaper. He claimed it could be a good venture and Newmont blew it.

However, the oil company would not allow him to bid very much for it, and we sold the mine for \$8 million. Negotiations lasted a long time before the final papers were signed. It was during the winter and we were in the course of dismantling the facilities and selling some for scrap, such as copper trolley wire that we had for electric haulage in the tunnel and the mine. We were in the process of doing this when we started the negotiations, and so we asked representatives of Imperial Oil if they wanted us to stop dismantling as they would have to replace what we dismantled. They told us to continue with what we were doing, and expected to replace the facilities if we concluded the deal. Typical attitude of a cash-rich company, I suppose.

Another decision that was really stupid on the part of the prospective buyers was to ignore the dangers of collapse of structures from excessive precipitation of snow. We warned them of this as we had always protected the power plant and the mill by clearing the roof of

PM: excessive accumulations of snow. They said they did not want to have us do anything for their account. Sure enough, the roofs collapsed, much of the equipment in the mill was destroyed, the power plant was crippled, and they had to replace all of that.

Anyway, I don't know the exact figures but I think that in addition to paying \$8 million for the mine, they spent something like \$110 or \$120 million for refurbishing the mine again. Operations were not profitable and they had to soak up losses of another \$100 or \$120 million. It has cost them about \$250 million. And it's shut down now. A total failure. Our exposure was originally \$17.5 million plus the additional money that we had to put up for the tunnel and the additional cost incurred in controlling snow on the road. I don't know what the exact figures were, but by the time we wrote it off and after a tax credit, our total loss was something under \$20 million. Because we were the owners at the time the roof collapsed, we realized on the insurance claim--but that was after a lawsuit with the insurance companies that lasted about seven years.

Swent: How did you handle these suits? Did you have your own staff counsel?

PM: Yes, we did. We had a very strong legal department, always did, which I kept up to the necessary strength. When we had a very special event such as this, we did hire outside lawyers.

Swent: These were Canadian lawyers?

PM: I think our insurance was with American companies.

Swent: Did you ever have an organizational chart to keep track of all of these things?

Newmont Organization and Management Style

PM: I had a chart of organization, but I didn't believe in having one. My theory of management was you fitted people to what they liked best. Actually, it was impossible to keep an organization chart current in the way I used people.

PM: For example, our chief engineer, Gene Tucker, turned out to be a person of board interests, a man who could make an assessment of the marketing of metals. This had nothing to do with engineering--he did something which normally would be handled by an economics department. I never had an economics department because I could always find people in our organization who were sufficiently interested and smart enough to make an economic evaluation. I utilized most of our people in more than their own specialties.

They crossed lines of authority and had different bosses from time to time. It was not a rigid organization. The employees seemed to like this regimen, because most of them, sooner or later, would handle a varied job that they were fully responsible for rather than having only one line of activity. Because they occasionally had very variable tasks to accomplish, the monotony of doing the same thing all the time was avoided.

All our employees, and I don't think they were just flattering me, recognized that we had an unusual organization which they liked very much, and they felt it was better than any other that they had any experience with. They often said that it was like breathing fresh air to be able to work at Newmont because the job was much more interesting than they ever had in other organizations.

Wayne Burt used to tell this, and he was long employed by Kennecott in Chile and then in Utah. He's not the only one who said it. When Peter Crescenzo, the chief engineer who replaced Gene Tucker, came to Newmont, he said the same thing, and many of the others that came from other companies came to similar conclusions. I had a marvelous organization with very high morale. We had fine team spirit. Any time we had a big project, I could organize among them a team of people who would work together and allocate among themselves the jobs they would do best. They knew that when another job came up, some of those who were left out before might serve in new investigations.

Compensation was important to them, of course, and I tried to keep our compensation competitive although not at the highest level. As a matter of fact, I was sometimes blamed for being too tight, but actually, in comparison with others in our industry, our salary level was not low. It was in the medium range, and rarely reached the low quartile. In addition, we had a bonus system for the key employees. I must say that through the forty years of my experience at Newmont, we had very few resignations.

- PM: I can count them on the fingers of one hand. We had a high level of loyalty. I think I fired more people than people quit on me. I was loyal to them too, of course.
- Swent: Somebody told me once that you had a heliocentric organization.
- PM: (laughs) Oh, I don't know about that.
- Swent: It must have been enormously complicated, with all this multiplicity of companies.
- PM: Yes, it was. And I tried to keep the organization small. I know that when we were partners with Rio Tinto in Palabora, we were then larger than they were and had more ventures than they had. They wondered how we managed with a headquarters organization of about ninety people. They had two hundred and fifty or three hundred. They sent people to our office to find out how we could do more than they were doing with a smaller organization.
- Swent: What is the reasoning behind establishing all these separate companies? Taxes, efficiency?
- PM: Tax reasons and also potential liability of the parent company. Subsidiaries are responsible for their own liabilities. If anything disastrous happened, such as the avalanche at Granduc, that subsidiary would be liable and the damage would be limited to its own assets and not the parent company assets. This was conceived long before I came to Newmont by Judge Ayer, who was a lawyer, and continued by Carroll Searls and Roy Bonebrake, who succeeded him as a chief counsel. I understand that today it is not as simple as it was then, because of changes in some of the states's laws. Furthermore, the parent company insulates itself from the imposition of onerous special state taxes where it is not registered.
- Swent: Did you have written policies that were the same for all of these? Did you ever have a policy manual?
- PM: No. But I think the general policy of behavior, honest behavior, such as never to give bribes to anybody, was so well understood by everybody that I know of no infractions at all. We had an attitude of looking after employees in distress, sometimes going beyond the available authorized standard benefits.
- Swent: Your managers had that kind of leeway?

PM: Yes, they understood that they had that kind of leeway, and the morale as a result, I think, even among the subsidiaries, was quite high because of this. Furthermore, I made it a point--and all the principal executives in Newmont adopted it, of visiting all the operations at least once a year, and those in New York responsible for operations would visit them even more often. I made yearly visits to South Africa, as burdensome as that was, in order to visit every operation. This was a kind of a morale builder, and it gave the opportunity of my expressing the philosophy of management in the parent company that we wanted to be adopted by the subsidiary companies. I think this is partly the reason that we had unified management, not only in the headquarters but also in the subsidiaries, with which we had very good relations.

Swent: Well, you were essentially running every one of them, weren't you?

PM: Well, no. We were very well decentralized and the managers had great autonomy of action locally. Only when it came to a new or major project and new financing was the authority lodged in the parent company.

But insofar as any local improvements were concerned, local management had full autonomy to effect them. Of course, the frequent visits by the New York people responsible for all operations served to keep track of what the subsidiary was doing. If, for example, our chief operating officer in New York found that a subsidiary in Canada was proposing something that was not sound, he would try to persuade them not to do it rather than peremptorily forbid it. He did have the final authority of approval or disapproval. This was our management style with the subsidiaries.

We maintained a first-class independent exploration organization which could be called upon for any specific geological problem that any subsidiaries had. We had a metallurgical center for the same purpose. Besides, following new technological advances could be more easily done in headquarters centers than in remote areas that some subsidiaries were located in. However, we always encouraged the local subsidiary key personnel to keep up with any technological innovations applicable to their operations.

Our independent exploration, metallurgical and engineering staff were always available to be called upon for help. They also made visits to the operating subsidiaries to see whether there were problems that they

PM: could help in, not with the idea of imposing the services on the subsidiaries, but to be responsive to their needs. Obviously this required diplomatic handling in order to preserve the semblance of autonomy by the local management. The local management appreciated that, and this is, I think, the reason why we attracted some of the better managers. When managers have to follow detailed instructions for action from centralized authority, they usually don't like it.

Our practice was in contrast with the way that most South African and English companies were run. In South Africa as well as in England, they usually had a consulting engineer in headquarters with absolute authority over the operating management. Nobody dared do anything new without approval of the consulting engineer. He wouldn't visit the operation all that often, and it could take months, sometimes years, to make a change because the consulting engineer either didn't want to, or didn't get around to thinking about it, or didn't have time for it, or wasn't particularly sympathetic. These people were not always all that great themselves. They were supposed to be qualified people, and they generally were qualified, but often they were not sensitive to every phase of the operations.

In a sense, I think the management style that pervaded Newmont arose historically from being small and having only a few operations to manage. Headquarters had chiefs and no Indians, i.e., staff, and they just did not have the time for close supervision of the operations. I was the first staff engineer that Newmont hired, whereas most of the other companies like Anaconda or Kennecott or Phelps Dodge and many of the foreign companies had huge staffs, geological, metallurgical, and engineering. They had several layers of management in the headquarters who had operating responsibility and gave comparatively little responsibility to the local management of operations.

I observed that decentralizing was a good way to run the company, and I continued that general style--with a difference, however. Fred Searls, for example, was not very consistent in exerting his authority. He very often would go to a property and, because he was the chief executive, might order some change in the operating procedures without consulting or telling what he had done to Henry DeWitt Smith, who was nominally in charge of all operations in New York. This created a lot of frictions and problems.

Swent: That's not a very good way to do it.

PM: Well, I think that this completes the specific accounts of most of the operations with which I was connected during my employment as as a staff engineer, as president and chief executive, and later as chairman. What remains to be said is what is the meaning of all this and what generalizations one can draw from it. We just touched on the management style, but there are other generalizations that are worth mentioning.

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Takeover Attempt and Divestiture

Swent: Are you interested in discussing the problems of the divestiture? Newmont has recently been in the news a great deal for selling a lot of its properties. Would you like to comment on that?

PM: It so happens that I retired before the attack by Boone Pickens which resulted in a very vigorous defense to preserve the independence of Newmont. The final measure was to declare a \$33-a-share dividend amounting to \$2.2 billion, most of which had to be borrowed, a crippling financial event for Newmont. The divestiture that followed was in the attempt to reduce the debt.

Some measures were taken even before Boone Pickens's takeover attempt, such as the divestiture of Magma. Again, this was recommended and implemented by the management that followed me. I was on the board at the time and argued against it, but I found myself to be in a minority of one on the board. I feel therefore that I should not make any comments on subsequent events. They were of extremely traumatic nature and ones that will critically alter the asset value of Newmont.

Judgments will have to be made in the end as to some of these moves. Whether or not there were alternatives to the moves that were made that might have been less traumatic to Newmont, all this remains, I think, for the future to decide. I have some opinions but I think I should withhold these opinions until some years hence. Someday perhaps I will record my reaction at a time when I'm not so emotionally involved as I am within the year and a half or two since I have retired.

Environmental Policy

Swent: One question that I wanted to ask also was--and you have touched on it a little bit--did you have any overall environmental policy?

PM: Oh, yes. Very much so. The environmental policy was actually evolved with the events and with the change in the regulations that were tightened with time. I referred to it to some extent in discussing Magma, and this is, of course, the operation that had to confront the environmental regulations on a more critical level than any other operation.

Swent: This is kind of endemic to any mining operation, isn't it?

PM: Well, to some extent but never as critical as it is with smelting operations such as we had in San Manuel. Our final policy on this evolved with the time, and with the changes in the environmental regulations, and with advancing technology as well. Technology was changing rapidly, and I was aware of this, of course, right from the start. What we were not able to do well in 1970, we might be able to do better in 1980. Indeed, that proved to be the case; I think the facility that Magma has constructed in the retrofit of the smelter today is certainly a better facility than we could have constructed at the time this was considered in the early seventies. The present facility is costing somewhat more, but not all that much more than was originally estimated considering the inflation in costs in the interim.

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Plato Malozemoff receiving the third Distinguished Service Award of the American Mining Congress from AMC Chairman Harry Conger, 1989.



Plato Malozemoff, with wife Alexandra, when he was inducted into the American Mining Hall of Fame, Tucson, Arizona, 1987.

VI GENERAL OBSERVATIONS

(The following section was written by Mr. Malozemoff after the interview)

Serving on Other Company Boards

In addition to my involvement with Newmont as its chief executive officer for thirty-two years, I had many outside activities, some related to Newmont's minority shareholdings in other corporations or its interest in funding industry associations, and some unrelated.

Among those related, of which I was a director, but having independent management, were: Palabora, Sherritt Gordon, Bethlehem Copper, Southern Peru Copper, Highveld Steel and Vanadium, St. Joseph Lead Company and Continental Oil Company; also I was a director and a member of the executive committees of the American Mining Congress, the Copper Development Association, and the International Copper Research Association. In the latter two, I also served as chairman for a number of years.

Among those directorships unrelated to Newmont's shareholdings were: Bankers Trust Company, Browning Ferris Industries, Inc., Consolidated Gold Fields PLC, Boys Clubs of America, American Museum of Natural History, The Tolstoy Foundation, the Woodrow Wilson Center of Washington, member of the Industrial Advisory Board of the National Academy of Engineering in Washington, D. C., member of the Advisory Council of the J. F. Kennedy School of Government of Harvard University, and a member of the Board of Overseers, New York University School of Business.

Other meaningful pro bono activities included fund raising for Carnegie Hall and for the Association for the Help of Retarded Children in New York City, as well as for Boys Clubs, Tolstoy Foundation and American Museum of Natural History mentioned above.

In addition, there were numerous social contacts with prominent business and political leaders in New York, Washington, D. C., Houston, the San Francisco Bay area and abroad, as well as acquaintances and friends in Greenwich, Connecticut and nearby towns, where many prominent business leaders live. I have also belonged to a golf group for some twenty-five years composed essentially of CEOs of U. S. industrial and financial companies and New York and Connecticut banks.

Many of these very varied contacts threw light on the vast business scene of America unrelated to mining, but having common problems with employee and labor relations, government relations (especially pervasive lately on the environmental front) and financing. It was an opportunity to hear opinions on general and specific economic and social conditions and trends in the U. S. and abroad, and the impact of foreign nations' trade, scientific, marketing and management activities on U. S. business.

Not only were these contacts stimulating, but they helped broaden the vision of the world, its problems, solutions and frustrations, and helped in developing a better insight, not only into the past and present business and political scene, but also into the future, which helped in formulating and implementing a strategy for development of Newmont over the years.

It is worth recording more specifically some of these activities. Such a record will inevitably be episodic and sporadic, but it will illustrate an important aspect of my experience and illustrate the diversity of meaningful influences that one is exposed to in the course of a long and very busy life.

I met Joe Kennedy, the Boston multi-millionaire, former U. S. Ambassador to the Court of St. James (England) and father of President John F. Kennedy, at a baseball game in New York that I went to with Fred Searls one time in the 1950s. We talked about the world oil business, and in summing up his opinions, Joe Kennedy said he was selling all his investments in international oil companies operating in the Middle East because he was sure they would all be nationalized eventually. They were, some years later, but his prescience of the trends was at that time way ahead of his time. He was a controversial figure, but no doubt had the feel or intuition for realities to come in appraising the current scene. This is a rare and

valuable quality which no doubt helped him in achieving his phenomenal financial success. This one short conversation with him strongly influenced my judgment concerning the Middle East--which as a result has been justifiably skeptical over the years.

It was a policy of Newmont, established by its founder, William Boyce Thompson, and continued thereafter, to invest in the most attractive enterprises on a minority basis and without management responsibility when a 100 percent or controlling interest and management was unavailable or beyond Newmont's means. This led to a portfolio of investments in some of the finest companies in the world. The principal ones were Kennecott Copper Corporation, Phelps Dodge Copper Corporation, St. Joseph Lead Company, Continental Oil Company, Rhodesian Anglo-American, Texas Gulf Sulphur Company, Sheritt Gordon Mining Company, Atlas Consolidated Mining and Development Co., Bethlehem Copper Corporation, Palabora Mining Company Limited, Peabody Coal Company, Southern Peru Copper Corporation, and Highveld Steel and Vanadium Corp. Ltd. Of this list, the last seven were acquired as the result of my initiative.

In the case of the last seven, a primary consideration was the evaluation of existing or proposed management and the quality of the other principal or controlling corporate shareholders. Compatibility with management or with other partners was a major consideration, as well as their ability, professionalism and fair open-mindedness that would welcome constructive suggestions from a minority shareholder. It was also desirable, and almost always attainable, to have Newmont represented on the board of directors, so that we would have an inside view of the business and the ability to judge if continued investment in the company was sound. As the director representing Newmont, I found the diversity of companies in which we had minority investments to be of great help in broadening my understanding of the mining and oil business. Furthermore, each company had its own style of management, different from others, with different approaches to problems and their solutions, and often a different view of the industry and its trends. Most companies were headed and supported by talented, forceful and creative men with whom, as a director, easy communication and probing in depth of their judgment was possible. This set-up rendered an unusual opportunity to observe others' judgments and test and sharpen one's own.

These desirable relations were not achievable in all cases. In the case of Palabora and Rio Tinto's insistence on management, which in those early years was not up to the desirable standard, I had to weigh carefully the attractiveness of the enterprise (which I judged to be of the highest) and my ability and that of my associates to get along with the Rio Tinto people, as well as the likelihood of influencing them sufficiently to achieve the high degree of competence required in the development and operation of an outstanding enterprise. It was a matter of judgment and appraisal of people that I made to go ahead with our involvement. It turned out to be even better than I expected with the management in the hands of Ed Hunt and Roy Wright as I have related in the section on Palabora. I may not have thought well of Rio Tinto's management skills, but I do admire the extraordinary ability and creative drive of Val Duncan and Roy Wright, who within the period of my acquaintance with them of some twenty years, created from very modest beginnings the second largest mining company in the world, exceeding what we were able to do with Newmont in the same period, even though Newmont's growth was impressive to all outside observers.

St. Joseph Lead Company

My involvement as a director of St. Joseph Lead Company, in which Newmont had an 8.8 percent interest and was the largest single shareholder, is of interest. The company was the largest lead producer in the United States and had several excellent and profitable lead mines in Missouri, zinc mines in the State of New York (Balmat and Edwards), Aguilar in Argentina, and a not so successful mine in Peru (Santander). They had a very good exploration organization, headed up after the Second World War by Frank Cameron, originally a geologist for Anaconda before the war. When I joined the board in 1955, I soon became disenchanted with the top management in New York, which was dominated by Andrew Fletcher as chairman and subsequently by Frank Cameron as president and CEO, and later by Lawrence Riggs as president and CEO with Cameron becoming chairman. While they had very good and competent managers on the operating level, the top management was timid and unenterprising. The company was not progressing, and potential weaknesses began to be discernible. I found myself in the unfortunate and solitary position of a gadfly, and as only

one of several on the board could not accomplish much, although I did single-handedly get them to expand operations more than they planned in the newly found high-grade lead mining area. The only opportunity I saw of advancing this company was to try to find a more aggressive manager when the present management were to retire.

While trying to acquire, in partnership with W. R. Grace Co., the Wah Chang Company, which had an important, world-class columbium mine in Brazil, the Araxa, as well as other significant assets, I had the opportunity to observe the abilities of Jack C. Duncan, vice president of Grace, whom I knew socially in Greenwich. In those negotiations I found Jack to be tough-minded, intelligent, resourceful and a creative thinker, with a great drive for accomplishment. While these negotiations did not result in acquisition, I became greatly impressed by Jack Duncan's ability and stature as a first-class businessman. He had seven years of experience in managing some of W. R. Grace's operations in South America, including minor mining operations. When I later learned that he was leaving Grace and was entertaining several offers from major non-mining companies, I judged him to be the best candidate I could think of for running St. Joe. It turned out to be exceedingly difficult to accomplish my plan, as Cameron, Fletcher, and Riggs were very reluctant to bring an outsider into their organization. Somehow, by persuasion and with the half-hearted help of another long-time director, Whitney Debevoise (the head of the very prominent legal firm, Debevoise, Plimpton et al.), I was able to get Cameron reluctantly to offer an executive vice presidency to Duncan, who accepted--but with misgivings because he was dubious about the attractiveness of a predominantly lead producer. I argued with him that the company was financially sound, was the lowest-cost lead producer in the world, and had an excellent future with the new discoveries of very extensive high-grade lead deposits in Missouri.

Duncan considered his first year of employment at St. Joe to be a disaster. In fact, he had very little to do and every acquisition he recommended was turned down. He was about to quit when I persuaded him to be patient while I resumed my efforts to convince Fletcher and Cameron to make Duncan president and CEO. They finally yielded after several months and installed him in that position.

The rest is recorded history: Duncan revitalized the company with new acquisitions in oil and gas, coal, a spectacular new gold mine in Chile, and a new mine in Australia. St. Joe changed from a sleepy company to one of the United States's high-growth and very profitable companies, with excellent prospects for the future.

It became a target for takeover in 1981: in fighting off an undesirable suitor, I suggested that a consortium of companies might be the "white knight" and proceeded to try to mobilize such a consortium among the more aggressive companies I knew. Fluor Corporation was one I approached, and they were the first to express an interest. Bob Fluor came to New York to investigate St. Joe, and he liked what he heard so much that he made a deal for the acquisition of St. Joe by Fluor alone. Duncan obtained a very high price for St. Joe, which enriched Newmont. However, it turned out that the burden of financing the acquisition over the next seven years was too much for Fluor, and in 1987 and 1988 they finally divested all of St. Joe's assets except the coal company and their lead mines and plants in Missouri.

Continental Oil Company

Newmont obtained its 4.5 percent interest in Continental Oil Company of Delaware through merging its small oil holdings with those of Continental Oil of Maine in the 1920s and later amalgamation with Marlin Oil Co. Newmont was represented on the board of Continental Oil by two directors, and when I became CEO in 1954, I was elected to its board. Only three years before, Continental Oil had installed a new CEO and president, Leonard F. McCollum, formerly head of Carter Oil Co., a 100-percent-owned Venezuelan subsidiary of Standard Oil of New Jersey. "Mac," originally a geologist, had a meteoric career at Standard Oil, but the temptation of immediately running a sizeable oil company, with a generous salary and an even more generous stock option, induced him to switch to Continental. He was a dynamic, restless leader who in a few years transformed a small domestic oil company into an international world-class enterprise. I had the opportunity of seeing this process from the board level, which permitted me to learn a lot about the oil industry and the way to effect growth successfully.

I took a more active part on the board as my knowledge of the business grew, and eventually I had confidence enough in my own judgment occasionally to oppose moves that "Mac" made. An outstanding example was my opposition to his plan to acquire Agrico, the second largest fertilizer company in America. Franz Schneider, retired chief financial officer of Newmont and its other representative on Continental's board, was the only one who supported my views. I believed that Conoco was paying too much for the business and that its future was clouded by the probability of cyclicity. Being in the minority and because it is customary in American corporations almost always to approve management's decisions, the acquisition was made for some \$120 million. Over the next few years Continental invested a further \$250 million in Agrico, but it never generated enough profits to promise the return of the capital investment of \$370 million. Some five to seven years after "Mac" retired, his successor sold Agrico to The Williams Companies for \$70 million, which I also opposed, as a minority of one, as being too low a price. Ironically, the next few years were good for the fertilizer business, and the Williams Companies turned out to have made a brilliant purchase. (Williams recently sold Agrico at a profit of \$94.9 million.)

Some three years after the Agrico acquisition, "Mac" proposed to acquire the second-largest coal company in America, Consolidation Coal Company. In this I supported "Mac," and it turned out to be a real winner as the most profitable coal company in America, although it was second in the total production of coal after Peabody Coal Company, in which Newmont holds an important interest essentially as the result of my initiative.

I would assume that these two events, and my independence of judgment on the board (shared only in the last years of my tenure on that board by Gil Jones, a vice president of IBM in charge of foreign operations and a brilliant businessman of extraordinary judgment) led to one of the most gratifying and lasting friendships I have enjoyed in my life--the one with "Mac." At my invitation, he served on Newmont's board for a time after retirement from Conoco, and he invited me to join him on the board of Browning-Ferris Industries, Inc., a waste management company on which I will discourse later. Suffice it to say that BFI is one of the best managed companies I know, and my investment in their stock has been the most lucrative one for me.

From my brief account of these two events and from general knowledge of the quality of Continental Oil Company (acquired by E. I. DuPont de Nemours & Co. in 1981), I believe it is clear what great advantage this offered me in observing excellent, aggressive management and the interplay of bold gambles in far-flung exploration with careful consideration for maintaining the financial health of the company and its continued, carefully husbanded growth. This schooling was invaluable to me in the course of my career.

For about five years I was a member of the Advisory Board on International Business of the Chemical Bank of New York, which I found to be of great interest. Because of my knowledge of and experience in many foreign countries in Europe, Africa and South America, I found I was often able to contribute advisory opinions to the bank on a proposed new business or operation and on problems in existing business. This group of advisory directors was quite large, around thirty, and was composed of many prominent business leaders in Europe and other areas abroad, which greatly enlarged my acquaintance in the international scene. I enjoyed greatly being on this board and regretted the necessity of resigning from it to avoid a conflict of interest with another bank when I was invited to join the board of Bankers Trust Company.

Bankers Trust Company

I served as a director of Bankers Trust Company, the fifth largest bank in the United States, for some seventeen years. Outside board members were mostly CEOs of prominent companies, or occasionally second or third-in-line executives. I saw in "action" (i.e., heard their opinions on various aspects of world economy and political development and on Bankers Trust business) Tom Watson of IBM, Joe Cullman of Philip Morris, William F. May of American Can, Donald McCullough of Collins & Aiken, Anthony Reilly of H. J. Heinz Company, Richard Lennon of International Mining & Chemical Corporation (the largest fertilizer company in the world), Richard Gelb of Bristol Myers, William Ellinghaus of American Telephone and Telegraph, and William F. Travoulareas, president of Mobil Oil, among others. I was friendly with all of them and talked with them frequently on a variety of subjects

of mutual interest. It was a great opportunity for me to be with these leaders of some of our great companies and to partake of their wisdom, prejudices and opinions.

As for the role the board played in the business of Bankers Trust, I found this somewhat disappointing. Even more than in the case of industrial companies, the board served as a rubber stamp to most everything the bank management proposed, and while the management was very frank in revealing weaknesses and problems in the conduct of business, there was seldom an open discussion exhibiting varying points of view by the directors at the meetings. These views were usually expressed on a confidential basis among the directors after the meetings. During my tenure as a director of Bankers Trust, as the result of their practice of rotating board members on key committees of the board, I served on the Executive, Compensation, Nominating, and Audit Committees. Service on the Audit Committee was especially rewarding as it afforded the five members of that committee an opportunity to express their opinions and ask searching questions that went to the core of business decisions in the bank. I served three years on this committee, one year as the chairman, and my own queries and opinions became well known to some of my friends in the bank on lower management levels as "stirring up" the bank practices and actions.

I was especially interested, and had somewhat diverse views from the management, in their lending to chemical, oil and mining companies that I knew well, and in their foreign operations, especially in South America and Africa in countries where I had had experience.

Among my most prized associations were those I had in South Africa. Sometime in the 1910s, when Sir Ernest Oppenheimer sought financing for expansion of his interests in diamond and gold mining in South Africa, he came to the U. S. to discuss his requirements with the J. P. Morgan Bank. At that time the bank directed all mining propositions to Newmont because of the very close association between William Boyce Thompson, the founder of Newmont, and Thomas Lamont originating in their school years at Exeter, in New Hampshire. As a result of this contact, financing was obtained, and Newmont contributed some of it. A new company, Anglo-American Corporation of South Africa, was formed in 1917, and I have been told by the old timers in Newmont that the "American" of Anglo-American was attributed to that investment by J. P. Morgan and Newmont. Whether

this is true or not, the fact remains that it was the start of a close and friendly relationship with the Oppenheimer family, Anglo-American--today the largest mining finance company in the world, and many of their subsidiaries.

Fred Searls was greatly admired by Sir Ernest Oppenheimer, and later by Harry Oppenheimer, his son. He introduced me to that family, and I have been quite friendly with Harry and many of his top associates. I regard Harry Oppenheimer as an extraordinary business executive and an unusually gifted man of the world. He forms lasting and loyal friendships with those he likes, and I believe I am one of them. He is an independent, courageous and highly respected voice on the political scene in South Africa, one with a balanced point of view. He served in the Parliament as a member of a small opposition party but won respect from the ruling party because of his remarkable speaking and diplomatic talent, combined with uncompromising convictions based on an intelligent understanding of the political scene and its problems in South Africa. He is also a fine judge of art and has supplemented greatly his father's art collection. A profound thinker of the verities of life, he also has the highest ethical standards. In personal contacts he appears shy and diffident, but I know there is a steely resolve behind the surface. Being of the same age as he, I have always been intensely interested in exchanging views with him on the dynamics of historical development of economics, business, and the political and social scene of the world. We also talk frankly and more specifically of mining and new ventures and of the people directing these efforts. I used to see him in South Africa on my yearly visits there and sometimes in the United States and England. Our association has been informal, and my wife and I have dined with him and his wife a number of times in the United States and at his home in Johannesburg.

I have had continued friendly relations with his younger associates, particularly with Gavin Reilly, today's CEO of Anglo-American, with Ogilvie Thompson (the head of DeBeers), Gordon Waddell, Albert Robinson, W. D. Wilson, W. G. Boustred, G. Langton and Sir Keith Acutt, all of whom were on the board of Anglo-American.

Browning-Ferris Industries, Inc.

In 1973, McCollum suggested that I join the board of Browning-Ferris Industries. This rather small but promising company had been formed some three or four years earlier, and McCollum became its sole "outside" director two years later through his close acquaintance with Lou Walters, one of the three chief executives of the company. (A few years later BFI changed to a more traditional management form with one chief executive, Harry J. Phillips, whom I consider one of the best executives I've ever known.) After a brief investigation, I became interested and was elected to the board that year.

This affiliation with a rapidly growing company has been one of the happiest experiences in my business life. While their business in the disposal of wastes was totally unfamiliar to me at the time, I eventually saw in it similarities to the mining industry--with some crucial differences. Like mining, it deals with a "natural resource"--wastes; unlike mining, this natural resource never gets depleted, but continues to grow. Like mining wastes, it must be disposed of in the cheapest possible way and dumped somewhere; unlike mining waste, industrial and domestic wastes can be further processed and transformed into useful and saleable products. Similar to mining, the organization and equipment of moving wastes to disposal or further recovery sites involves fleets of large trucks and their economic maintenance, as well as complicated and strict scheduling in order to achieve the lowest costs. Further, the more recent developments in disposing of hazardous wastes require an exhaustive appraisal of their chemical composition, their chemical treatment for stabilization or destruction, and an appraisal of disposal sites along with development of means to prevent contamination of the ground water supply, which problems are identical with some mining wastes and the EPA (Environmental Protection Agency) and RCRA (Resource Conservation and Recovery Act) regulations affecting such disposals.

Basically, therefore, the technology of the disposal of wastes is related to that of mining and for me became understandable to the point of near equality with the BFI technicians. I can also appreciate therefore the developing complexity of their business, the dangers of certain discernible trends, and have a technical understanding of

the issues involved in the numerous litigations confronting the waste industry in challenges to their waste disposal practices.

I have found the management of BFI highly competent in organizing and operating their currently widespread business--some 340 districts served in most states in the U. S., and in Canada, Australia, Kuwait, the Netherlands, the U. K., Saudi Arabia, Spain and Venezuela. They have been outstandingly successful and profitable since the company's inception, showing a growth averaging about twenty percent per year. Compared to Newmont, they were a small company when I joined their board in 1973, and since then they have grown into a company that is valued on the New York Stock Exchange at nearly \$4 billion, with \$1.6 billion in revenues and a current net income of \$172 million.

As chairman of their strategic planning committee, I am aware not only of their current operations and problems, but also of the future factors that will determine the possibility of continuing their growth in a world environment that will have ever greater and more complex need for the reduction and avoidance of pollution. BFI's management is self critical and welcomes points of view that are sometimes different from theirs, thus resulting in an atmosphere of creative reexamination of present policies.

Building a Successful Mining Company

I have often pondered what are the more important factors in making a mining company grow and be successful. I had ample opportunity to observe the progress of many companies for some fifty-odd years. In the course of my being the chief executive officer of Newmont Mining Corporation for thirty-two years, I was dedicated to the aim of having Newmont be a growth company.

My observations on this subject are derived from this cumulative experience. I was especially interested in this, of course, while running Newmont, and constantly compared Newmont's progress with that of other companies. I don't for a moment contend that Newmont's progress was the most successful despite the growth of its market value from \$144 million at the end of 1953 to the heavily discounted figure of \$1.5 billion at the end of 1985, when I retired. Within a year and a half thereafter, when market values began to reflect revived metal prices, and the sale to the public of a small part of Newmont's gold operations in the United States and Australia established a market price for these holdings, Newmont's market value increased to \$3.0 billion. Later in the year, partly because of T. Boone Pickens' attempted takeover, the value peaked at nearly \$7 billion.

There are certain factors that appear to be common to all successful mining companies, including Newmont. These are:

1. A strong exploration policy. This is not necessarily measured by the amount of money spent on exploration. It does require a selective exploration effort by experienced explorationists who have extrasensory perceptions, aided by a comprehensive knowledge of geology, of promising areas, and a hunch as to when to continue and when to quit. An accurate feel for what is economic is of the utmost importance and is only gained after years of experience not only in exploration but in observing operations of various kinds and understanding the economic factors that make them successful. The personal involvement of top management personnel who understand exploration, its risks and its opportunities, is indispensable. In my time there were examples of little growth in large corporations where such involvement was lacking, or where deliberate virtual abandonment of exploration was chosen because existing assets were large enough to provide long-term profitability.

Furthermore, exploration with a world-wide spread is important because it provides "listening posts" that can lead to knowledge of other exploration efforts and sometimes to opportunities to acquire an interest in other companies' discoveries.

Cominco, Noranda, Rio Tinto, Western Mining (in Australia), and Newmont come to mind as examples of growth through such an aggressive and enlightened exploration policy.

2. A timely acquisition policy. In our experience at Newmont, successful exploration discoveries were rare (Carlin, Telfer), and meaningful acquisitions were often the result of serendipity. However, taking advantage of an opportunity requires a special blend of entrepreneurship with the ability to appraise a multiplicity of risks, technical business and financial knowledge, judgment, controlled imagination, and a knack for the right timing. Even all this is not enough to guarantee infallibility of final judgment, as I have demonstrated by the less successful and failing ventures that Newmont took on, and by examples of other companies' similar experiences. Lately, Teck Corporation under Norman Keevil, St. Joe Minerals under the leadership of J. C. Duncan, and even more recently, Cyprus Minerals Company (Duncan is chairman but not CEO), have shown a flair for growth by acquisition.

3. Desirability of long-life prospects. In both exploration and acquisition, preference should be given to long-life projects. I deem important a policy of seeking large, long-life mines, even though only a minority interest might be available. It takes as much or more effort, judgment, and top management involvement to develop and run a small mine as it does a large one, but with lesser returns.

While acquisitions may not always appear initially to be outstandingly attractive (e.g., Newmont's involvement in Magma, Palabora, Carlin Gold, Newmont Oil, Tsumeb, O'okiep, Telfer and Peabody Coal), in time they can be-- as this list demonstrates. Long-life mines have the time to mature and become more efficient technologically, and they can take advantage of the cyclical rises in metal prices while having the staying power to survive during price slumps. True, they may develop their best profitability slowly and from the standpoint of the financial standard of discounted net worth be disappointing for periods of years. What is important is that they serve

as building blocks for a corporate edifice that gives a sense of assured continuity, even though all mining assets eventually become depleted. And not all will be recognized as long-life ventures; for example, Newmont's Carlin and Telfer mines initially promised only a relatively short life of less than twenty years, but they blossomed--especially Carlin--into longer life ventures as the result of aggressive exploration in promising surrounding areas.

4. Diversification. To avoid dependence on a single metal and be vulnerable to its vagaries of price and marketability, diversification of ownership of assets is usually advantageous. However, many attempts at diversification are unsuccessful because managements are in too great a hurry to accomplish meaningful acquisitions.

The successful acquisition of attractive and growing assets needs more than just a policy to diversify. The same effort that is defined in item 2 above is required, and it might have to be even more careful, especially in acquiring assets in an industry with which the management or staff is not fully familiar. As a matter of fact, it is generally wise to avoid unfamiliar industries because of the risk involved in depending on the judgment of consultants and financial advisors; such help is usually necessary because the acquiring organization cannot apply its own judgment, which is specific and developed over many years of experience in its own industry.

Especially difficult, I have found, is making an accurate appraisal of markets in those commodities that have a closely similar cost structure of production, in which profits depend almost entirely on the marketplace. Competitiveness in these cases depends on who can outsell the others through clever advertising, special customer relationships, or advantages in the geographical or demographic position of the enterprise. More often than not, some of them are changeable and unpredictable and require the ability to adjust rapidly in order to survive.

The advantage of the mining business is that if one is selective in choosing the mining enterprise with the better grade of ore, a cheaper cost of production because of natural circumstances, in areas of cheap and reliable labor and in countries whose governments favor mining and aid rather than fight miners, then the advantage over competition is achieved by way of recognizable factors that are endemic to that enterprise. Long-time continuity

of such advantages protects the enterprise from ruinous competition. In Newmont's stable of assets, Palabora was an outstanding example of this kind of advantage.

I tried to diversify essentially within the natural resource industry for the reasons outlined above. Non-ferrous metals, gold, asbestos, oil and gas, coal, and a spread of foreign locations for some of them, comprised the rather limited but largely successful diversification of Newmont's assets. When it became clear that asbestos was fraught with uncontrollable litigious attacks from victims and would-be victims of asbestosis, we sold our interest in that industry. The cement industry has largely the characteristic of depending essentially on marketing, and when the industry in the eastern United States became vulnerable to increasing foreign imports that were invading the very markets on which our Atlantic Cement Company depended and initially took advantage of by waterborne transportation along the entire East Coast, we sold it. The same general factors affected the ferro-alloy business of Foote Mineral Company. Unfortunately, while we recognized this long ago, we were not able to sell that part of the business advantageously.

5. Choice of executive management and morale.

Last, but certainly not least, in a successful mining enterprise is the quality of top and middle management, as well as staff. This need not be elaborated on, as it is obvious to everyone. What is more elusive and difficult to define is the factor of an organization's morale.

Achievement of high morale can follow many courses, and means to that objective differ widely among companies. A charismatic leader might suffice in small organizations, but that is not enough in larger enterprises because such a leader cannot relate personally with everyone in the company.

Mutual pride in the company, in what it stands for and in its successes, is the universal annealing factor for high morale. The route to this result is complex. Ethical behavior, honesty, high principles, and accountability are basic to lay the groundwork for that purpose. But even more important are the interpersonal relationships between the bosses and their subordinates. Pride in work accomplished well, no matter how menial, must be fostered by timely recognition that it serves as a contribution to the over-all effort.

What I have found important also, especially among professional staff and middle management, is avoidance of the rut of a repetitive job with limited horizons. Diversification of responsibilities involving new problems and new fields of endeavor is a valuable stimulant for arousing and maintaining an interest in the job. This is difficult and sometimes impossible within a rigid corporate structure with line responsibilities and an inflexible organization chart. Freedom of movement from one objective to another requires recognition by superiors of the abilities of an individual to tackle efficiently the new assignment and may require his reporting to a different boss. This makes for what can appear to be a somewhat messy procedure and it can cause some confusion in the organization, but I have found it to be a powerful tool for achieving high morale.

Accessibility of top management to subordinates, untrammelled by orderly progression through management levels, is also of importance; admittedly this has to be controlled within limits because little time for this is available to top management. In short, measures that create a family feeling of unity and loyalty to the organization are of great importance.

Taking the blame for poor decisions and failures on the part of top management--rather than putting that blame on subordinates--is a factor that induces respect and admiration. Generous and fair treatment of unintentional mistakes made down the line is equally important, and avoidance of treatment "by the book" of extraordinary illnesses or unforeseen or tragic circumstances affecting employees gives them a conviction that their employer cares and understands. Such actions are great morale builders.

Perhaps some of these precepts are difficult or impossible to achieve in a very large organization with thousands of employees. I recognize the difference between the small and the very large organizations, and I have not had experience with one of the large ones. However, as Newmont grew larger, I believed we could continue to apply these principles and practices. In any case, I am sure that we were able to maintain to a large measure the high morale within the organization. As mute evidence of this, during the thirty-two years of my stewardship of Newmont, we had fewer resignations in the management group, top, intermediate and staff,

than the fingers on one hand. Yet I don't believe this resulted in personal favoritism as we discharged a number of nonperformers and the over-all standards for competence remained high.

I was recently asked by a young man about to start his career, the son of a friend I greatly admire, what were the qualities and behaviors I consider important in molding the success of my career. The success of Newmont during my stewardship is undeniable. How much of this was due to others within the organization, and how much was due to the general growth of the industry and how much to inflation (in affecting market values), and how much was due to my personal input is the question. That I achieved a position of "leading statesman" in the industry, as some of my mining company friends repeatedly expressed to me, I dismiss as friendly flatteries. Though it was pleasing to hear, from my own realistic appraisal it is at best an exaggeration. I have not been, nor tried to be, a public spokesman for the industry, nor in any "political" sense a leader of the industry. Though I have strong convictions about management and about the industry, some of which I have related in this story, and occasionally expressed to my associates within and outside the company, I don't believe I have formulated a profound, philosophically sound message of permanent value to the industry. My experience and views need better forms for a permanent contribution to the thinking about the industry.

However, the questions raised by my young friend have a wider relevance than my own experience. Universally recognized is the high quality of judgment as an indispensable trait of a successful executive. I read many biographies of successful public figures to try to understand what personal characteristics led them to their notable accomplishments. One common trait is perseverance in pursuit of their objectives and finding ways to overcome obstacles in the way. While perseverance is a common trait, it is obviously successful only when applied intelligently, with a full appraisal of the odds and superior knowledge and understanding of circumstances encountered on the way. The right instinct or hunch is usually based on analytical ability, skepticism, self-questioning, and experience encompassing like precedents. In my own case, I found that discussing problems with my more intelligent associates and trying to elicit their independent and conflicting opinions was almost always helpful in clarifying a problem and bringing out facets

that I may not have thought of. I went through this process on every major decision in the attempt to get a consensus for the line of action, a consensus that was not necessarily my preference but sometimes that of one or several of my associates. Occasionally, but not often, I acted without such consensus on my own conviction that I thought was well based. I don't really believe that for most of us normal beings, an inspired, passionately-held conviction is necessarily a reliable path to the right decision, although for the exclusive few creative geniuses, it might be.

According to a friend of mine, I expressed these same views in slightly different terms in talking with a chief executive we installed for a recently-acquired company. The man already had acquired considerable experience as manager of a mine owned by a major oil company, and he wished to know what I thought were the essential elements in successful management. As my friend relates the story, no one present really expected any more than the usual litany of factors, such as strong leadership, ability to delegate, recognizing the talent for advancing, liking one's subordinates, and so forth. So they were surprised and even shocked to hear me say that stubbornness on the part of the executive is the most important characteristic. I don't recall the incident, but I do acknowledge that I hold stubbornness to be one of the primary factors of successful management. I believe it is a natural characteristic of mine to be stubborn--which is usually considered to be negative. "Positive" stubbornness, I hold, is being intelligently stubborn. In other words, one should be stubborn about achieving a realistic and desirable aim, and willing to abandon or modify it when it is objectively viewed as unattainable or found to be erroneously conceived.

As I've already said, I read a number of biographies of famous achievers, and it appears to me that stubbornness was a common characteristic among all of them. And some, Columbus and Napoleon, for example, ultimately failed because of their inability or unwillingness to be objective.

At any rate, my friend told me that the executive who sought my advice came to appreciate the importance of being intelligently stubborn. In fact, I believe he had that quality even before my talk with him. He has proven to be a superb manager.

Keeping an open mind until all the facts are in and probabilities examined and evaluated is important. Too many poor decisions are made in a rush without adequate examination. The usual practice is to have a feasibility report prepared after a comprehensive examination and evaluation of alternatives. It was always useful to read this report analytically and carefully to be sure it all hangs together and nothing of importance was overlooked. This sort of procedure may be frustrating because it delays the final action, but it tends to improve the quality of the decision.

Again, in my own case introspection has been the habit of thought. "Know thyself," the precept of Descartes, meant to me the knowledge of my weaknesses and inadequacies which led me to examine critically decisions I was about to make. However, overpreoccupation with this can lead to indecision, hesitation, or pusillanimous action--typical of some intellectuals with lack of courage or fear of being wrong.

Very often the timing of the decision can be a critical element in its success. Providing financing terms at a certain time may be feasible, at other times not. Launching a business in a rising trend of metal prices rather than the reverse can be critical. Starting an enterprise in a foreign country at a time of improving political and economic trends rather than deteriorating ones is the obvious preference. There are many more illustrations of the importance of timing that can be cited. Favorable trends are not always easily discernible and require judgments on facts that have little relevance to the technology of mounting a mining venture. Thus a wide appreciation of the present scene and its possible future--socially, politically, and economically--is necessary, and this is usually acquired by wide interests, curiosity, and contacts with all kinds of people.

Reflections on the Minerals Industry

The minerals industry is unique in many of its aspects. It is a basic industry, and for large nations, an indispensable one. Recently expressed opinions featured in the media that the "smoke-stack" industries, which include the minerals industry, are on the way out and are not necessary, and that gradual transformation of economic activity to service modes is our ultimate destiny, is so much nonsense, in my opinion. Availability of metals is required for manufacturing a vast number of consumer products and capital goods and for the balanced economic strength of a great nation.

We have only to observe Japan, which has inadequate natural mineral resources, to realize that even with that lack, the mineral industry has been one of the basic elements of their phenomenal economic success. They attracted increasing imports of metals in unrefined form by building huge iron, copper, and other metal processing industries, always, however, with the aim of retaining the metals for fabrication into goods to be consumed at home and exported as value-added products, among which automobiles, trucks and other industrial machines and power-generating equipment stand out.

Of course, we have seen depletion of some of our mineral resources in the United States, particularly in the iron and steel industry. We have never had adequate aluminum resources in high-grade bauxite deposits, and attempts to extract this metal economically from low-grade sources such as clays have failed. Yet the aluminum industry looms large on the U. S. metal industry scene, quantitatively second only to iron and steel. Aluminum smelters in the United States process imported alumina, and the aluminum metal supplies our enormous aluminum fabricating industry.

The ever higher past cost trend of producing metals in the United States is undeniable. It was caused by (1) the explosion of wage rates after the Second World War and the lack of resistance by management during the super profitable decade of the 1960s; (2) government imposition of various restraints, taxation policy, and environmental regulation; (3) the aging of plants and inadequate capital formation to renew them or to apply new technologies; and (4) management inertia caused by phenomenal success and profitability in the earlier years of the post-war era, and (5) decreasing grade of ore.

Adversity is often the mother of invention and recuperation. We are seeing in the last few years a resurgence of entrepreneurial spirit, modernization, restructuring and shifting of emphasis, and finding ways to cut costs, all of which has gradually brought about increasing competitiveness in the U. S. mineral and manufacturing industries. We now have major copper mines that will compete with the lowest-cost Chilean mines; steel companies, by shrinking and specializing in special steels, have turned profitable again; and the auto industry is producing some cars cheaper than the Japanese. And so it goes throughout many branches of industry. All this is eloquent evidence that the U. S. mineral industry and its associated manufacturing industry are not to be written off.

Yet the basic factors underlying the mineral industry still persist, such as its capital intensity, long and costly preproduction periods, high proportion of fixed operating costs and environmental costs. Because of depletion of existing mines, there are the additional and constantly increasing costs of finding replacements of ore deposits. The unpredictable cyclicity of metal prices makes decisions for expansion and for bringing in new mines extremely difficult. It is obvious that the already financed and operating large old mines, which still have vast reserves left for exploitation, possess inherent advantages over new ventures that must be financed at a higher money cost and in sums dwarfing the past ventures. Where a world-class integrated copper venture, with mine, mill, smelter and refinery may have cost \$100-150 million twenty to twenty-five years ago, today its cost would be probably in excess of \$1.5 billion, an increase far in excess of the general inflation rate.

Bringing in new mines today presents special challenges. There are several world-class copper deposits in the world, especially in Chile, which have been explored and the reserves accurately evaluated; yet they remain unfinanced and unexploited because of the problems enumerated in the previous paragraph.

To complicate the picture, there is a historical tendency to approach the task of economic evaluation with mathematical computerized methods that partially replace personal judgment and experience. The well-known DCF (discounted cash flow) method of financial evaluation, which displaced the obsolete Hoskold formula taught to us in mineral economics in the 1920s, has been inappropriate for the mining business from the start, in my opinion.

The DCF method of evaluation was first developed for the appraisal of bonds. John McLean, a professor at the Harvard Business School and later CEO of Continental Oil Company, applied it to oil production. Use of the method for bonds is proper, and it was useful in the oil industry because the average oil field find has an effective production life that usually peaks within an eight-to-ten-year period. It is totally inadequate for mammoth oil fields and major mining projects. The very method of discounting puts a premium on early production results and reduces the value of longer term results. If followed, the preference would go to smaller high-grade deposits, and the huge long-term deposits would be rejected. With the usually accepted 15 percent discount factor on cash flow, the value of profits after fifteen years becomes minimal.

Unpredictable financial, political, and catastrophic risks cannot be adequately covered by raising the required DCF return by a few more points. The slavish assumption of a 15 percent DCF return, when the cost of money is around 10 percent, leaves the obviously inadequate 5 percent to cover all the imponderables, such as those I have cited, as well as the technological risks of a complex enterprise using innovative or little tried methods or equipment.

Ever since my father explained it to me in the 1920s, I have always preferred the test of cost ranking, which avoids the specific evaluation of many of the risks confronting a new enterprise. So long as the venture is in the cost rank of the lowest cost producers of the industry, it is likely to be a viable venture. When prices drop during the down cycles, the higher cost producers eventually shut down or else reduce production if they can "high grade" and thus reduce costs. The low-cost producers survive without losses or with nominal losses, and the essential health of the enterprise is not impaired.

Supporting this view is a very good paper written by D. W. Gentry, Dean of Engineering at the Colorado School of Mines, published in the Transactions of The Institution of Mining & Metallurgy, Section A., Vol. 97, January 1988. It is worth quoting several paragraphs of his paper (pp. A31-A32):

"From the mid-1960s and well into the 1970s graduates of M.B.A. and similar courses were unleashed on the minerals industry armed with the concepts of the time-value of money and possessing knowledge of new investment decision-making criteria (e.g. discounted payback period, net present value (NPV), benefit/cost ratios, discounted cash flow return on investment (DCFROI), wealth growth rate (WGR), growth rate of return (GRR)--and numerous variations of these--costs of capital and discount (hurdle) rates). This new breed of analyst attempted to quantify the entire capital investment process. Interestingly, this process coincided with attempts at 'fine tuning' of the U. S. economy during the Kennedy administration, as already mentioned.

"Bright, aggressive professionals trained in new quantitative techniques revolutionized the mine valuation process during the 1960s and 1970s with the aid of progress made in the development of investment decision-making criteria, sensitivity analysis, probabilistic risk analysis, utility theory applied to decision-makers, quantitative modelling and computer software packages. Unfortunately, analysts and decision-makers became enamoured of the calculation of DCFROI values and similar investment criteria and misjudged the relative importance of the technical aspects of mining projects. Less time was spent on the engineering and economic aspects associated with feasibility studies (e.g. revenue and cost estimation) and more time was dedicated to performing rigorous quantitative assessments with the new analytical tools that were available for investment analysis.

"Certainly, the quantitative models and tools available to the investment analyst contributed much to improving the potential of investment decision-making. The fact is, however, that many of the impressive quantitative projections for mining ventures that were spewed forth by computers during the period were not very accurate--as the result either of unforeseen factors or of the inability to incorporate properly the importance of fundamental, underlying data. Consequently, the so-called DCF era began to yield in the 1980s to a new, integrated approach to mine valuation that promises further improvements to investment decisions.

"The latest phase in the continuing evolution of mine valuation and investment decision-making attempts to recognize more thoroughly the importance of technical analysis, the importance of factors not easily quantified, the relatively poor track record of recent mining investments in achieving projected DCFROI values and the many recent developments that have made the quantitative evaluation of capital projects more difficult and the results more problematic. In essence, in the 1980s mine investment decision-makers have made efforts to concentrate more effectively on the total aspects of the mining venture and not just on the economic component. More time is being spent on careful analysis of the business and financial risks associated with the project: business risks associated with rapidly rising capital requirements for new projects as a result of hyperinflation, with unpredictable future economic conditions and with evolving host-government attitudes to private investment in minerals development; and financial risks associated with corporate capital structures and the sophisticated financing packages being assembled for large projects.

"In addition, it appears that mining executives are increasingly turning to a more conservative investment criterion--competitive cost ranking--to reduce investment risk. For example, some organizations screen projects by requiring that the projected operating costs be in the lower quartile of those of all major producers of that commodity. This is based on the premise that if commodity prices drop, catastrophic loss can be avoided and the operation will be protected by the cushion of higher-cost producers, who--it is assumed--would be forced to curtail production at an earlier date. The implication appears to be that decision-makers have concluded that mineral price estimates required for DCFROI analysis are subject to unacceptably high forecasting errors.

"Mine investment decision-makers are now coming to appreciate that project evaluation criteria do not, by themselves, provide investment decisions. They only provide guidelines for the making of decisions. Ultimately, managers must make the actual investment decision after consideration of all the engineering and economic analyses, the large amount of relevant

qualitative information that affects any major decision and the unique risk and uncertainty attached to each investment alternative. Investment decision-making is a complex process in which quantitative economic studies are of considerable assistance. In a world, however, where future values of critical variables are subject to large estimation errors sound managerial judgment has no substitute."

Of course this test requires a realistic cost appraisal, which I believe can be made by a careful technical evaluation based on comprehensive experience and judgment. High technical and financial competence is required of a staff, as well as of the final decision-maker, to assure that the cost estimate is realistic. As can be seen from the paragraphs quoted from Gentry's paper, this approach is being increasingly used by present-day management who have experienced failures using the mathematical criteria. Yet I have found that most board members and the MBA-trained staffs insist on a DCF evaluation because they look upon it as the simpler evaluation avoiding some of the risks of personal judgment, which might be questionable. I have observed that a strong CEO can sometimes achieve a degree of confidence in his judgment on the part of the board so that they will follow his recommendations even in the absence of or with inadequate DCF evaluations. I had that happy experience for a time, at least, despite occasional failures of projects I recommended.

Bechtel Corporation and George Shultz

Bechtel Corporation, the largest engineering and construction firm in America, has engineered and constructed a number of plants for Newmont and its affiliates. The relationship between Bechtel and Newmont has been very warm and one of trust and respect for each other. The quality of their engineering and construction has always been of the highest order.

I initiated the first contact with Bechtel that blossomed into the long-time association afterward. We had a small secondary oil recovery unit in New Mexico in the early fifties which required moving water to the existing wells for water pressure recovery of the oil. In expanding the operation to several small fields, we needed a centralized water distribution system from the water source. This represented an engineering problem of no great complexity, but I felt I should have an expert opinion on the quality of the engineering calculations made by a local contractor.

Across the street from my house in Greenwich lived Porter Thompson, at that time Bechtel's representative in the eastern area, headquartered in New York. We had met as neighbors and I had a friendly relationship with him and his family. I asked Porter if the small job I had in mind could be done by Bechtel, who, I knew, were experts in pipeline construction. After asking me for some details, he answered in the affirmative. I asked him if he would estimate the cost of their effort for this job, and he replied that it would be nothing. In reply to my wonderment, he said that Bechtel was more interested in establishing a relationship with Newmont than in getting paid for this small job. I left it at that and was really impressed when I heard they had sent three engineers to go over the project. They did so, thoroughly, and they endorsed most of our plan but suggested some useful changes, which we adopted. It was far more than I expected.

A year or so later, we decided to construct a recovery plant for uranium ore that was to be extracted from an open pit mine owned by Dawn Mining Company near Spokane. The formation and financing of this company is briefly described earlier in this chronicle. The job was estimated by Bechtel at \$4 million but was completed at \$3.3 million, and the plant operated successfully thereafter.

With this as the beginning, Bechtel engineered and constructed most of our new plants. Carlin Gold in Nevada had its initial plant done by Bechtel, as well as the next major plant in Nevada at Gold Quarry in 1985 and the subsequent additional plants for the Rain deposit, the extraction of Gold Quarry, and Mill No. 4 for the northern area deposits. They also built the Similkameen mill in British Columbia. The two biggest projects we had them do were Palabora in South Africa and the retrofit of the San Manuel smelter for Magma Copper Company (\$130 million). They also designed and constructed the solvent extraction electrowinning plant for the copper oxide open pit mine at San Manuel in 1984. Earlier they had the responsibility for building the power plant and mill for Granduc Copper Company in British Columbia.

All of these have turned out to be first-class plants which operated and delivered as planned. Yet an indispensable factor for this success that I recognized early in my stewardship was the close association with the contractor on every job of the highly competent and dedicated engineering group employed by Newmont. I have found that even the best of contractors, such as Bechtel, welcome careful guidance by a knowledgeable company representative, reflecting the future needs of the operation and exercising control over design and performance. Professionalism in this area of engineering is a special skill requiring specialized knowledge and experience. The need for careful and reliable estimation of costs is the first important step that leads to confidence in arranging the financing based on a realistic appraisal of a satisfactory return on the investment. Such cost estimates require experience and knowledge of economic conditions and trends (e.g. of inflation), of the labor market in terms of availability of required skills and costs and labor stability (threat of strikes), and realism in providing adequate contingencies in the event of unexpected occurrences. Here, factors such as complexity of process, especially when new use of equipment or new equipment never before tried is involved, require judgment as to what amount for contingencies should be added to the estimated cost. Construction activity also requires a special organization created for a short term which will function efficiently. Unless the owner's representative has these factors in mind and has the experience and knowledge and diplomatic skills to induce the contractor to provide the most efficient effort, overruns can result, and what is more, breakdowns and

ill-fitting elements of the plant can cause ruinous unforeseen delays and reconstruction. This vigilance should be the responsibility of the owner's representative.

During my time at Newmont, we were fortunate in having Gene Tucker, an electrical engineer who had the talents for overseeing contractors and ensure that they performed at maximum efficiency. Tucker chose as his successor before he retired, Peter Crescenzo, whose performance through the years has been outstanding. At any rate, since I gave these two the responsibility I speak of, we have had no overruns and our new plants operated according to plan.

Our use of Bechtel as a contractor for engineering and construction has been by conscious preference because of my observation, in the case of Anaconda Copper Company, that when this activity is conducted "in house," it can cause intractable problems. In the days when Anaconda was an international giant with many activities, they gradually built up a large and competent engineering and construction staff led by an extraordinarily able manager, Wilbur Jurden, whom I got to know well. Despite the size and variety of activities and the growth of Anaconda, they soon found that there were periods when this very competent staff had no Anaconda project to engineer. The company then took on construction projects for other firms. For reasons not altogether clear to me, even this did not work well either, and Anaconda finally spun off their engineering branch to A. B. Parsons & Company, a prominent engineering concern in Los Angeles. Parsons decided to make the mining engineering section, represented by the Anaconda group, a subsidiary of A. B. Parsons and named it Parsons Jurden Company. This company operated for many years as an independent contractor competing with the other prominent U. S. mining contractors, such as Bechtel, Fluor Engineering, Western Knapp and Stearns-Rogers Company of Denver.

This history of an in-house, fully-staffed engineering group led me to the determination not to have such a group at Newmont, but to hire independent engineering contractors who would be monitored and supervised by a very small but highly competent engineering group at Newmont--never exceeding five members. This formula succeeded very well for us.

As a result of our close association with the Bechtel group, I made long-term friendships with Steve Bechtel, Sr., Steve Bechtel, Jr., Porter Thompson, and many others. There were times when Steve Bechtel, Jr. talked to me privately of his plans to diversify the family company and asked my opinion on steps he planned to take. An outstanding example of the mutual regard and trust we felt for each other was the occasion of my forming the consortium that bought Peabody Coal from Kennecott. When Texas Gulf Sulphur declined to proceed with our bid for Peabody, I turned to Steve Bechtel to take TGS's place on a Friday, with a request that they give their commitment by Monday--which they did, I believe, largely on my personal assurance that it would be a good investment eventually despite requiring perhaps five to six years of rebuilding, with some losses or indifferent results. My personal friendship with John Kiely, in those years the right-hand man of Steve Bechtel, has endured for over twenty-five years.

It was our venture with Peabody Coal and Bechtel's participation in it that brought me in contact with George Shultz, who was at that time a vice president of Bechtel and assigned by Steve, Jr. to look after Bechtel's interest in Peabody. Shultz became a director of Peabody Coal Company, and because of his stature as former Secretary of the Treasury, was the most prominent member of the board. This fact, and my friendship with Steve Bechtel, caused me to communicate frequently and in all frankness with George Shultz.

As I have previously recounted in Section V of this memoir, the board agreed to my suggestion that we seek an outstanding man with Washington experience to be the chairman of Peabody Coal Company. (I made this recommendation because for some time, coal had had a bad image in Washington which hurt all coal producers in their labor relations and their standing with government agencies; since Peabody was the country's largest producer, I felt it was fitting that we have able representation in Washington as it would help the coal industry at large as well as make Peabody the leader of the industry.) At any rate, George Shultz was the man who highly recommended the first CEO of Peabody Coal after we acquired the company.

President Herbert Hoover

I met Allan Hoover, the younger son of Herbert Hoover, in Greenwich where we both lived, and I became good friends with him and his family. His son Andrew was interested in mining, and shortly after his graduation from the Colorado School of Mines, I arranged to have him work for Newmont at the Idarado Mining Company's mine in Telluride, Colorado, where he spent about a year. I also had a passing acquaintance with President Hoover's older son, Herbert Hoover, Jr., who was with the government in Washington for a while.

The former President's original profession was mining engineering, which made his life and career a matter of special interest to me. My admiration for him was heightened by his remarkable humanitarian feat when, as head of the ARA (American Relief Administration), he supervised American aid to Russia during a period of mass starvation there after the collapse of the Russian economy in the early twenties. His subsequent political career as Secretary of Commerce and eventually President of the United States seemed a logical progression of a world-class personality.

On the eightieth birthday of President Hoover, his son Allan had a birthday lunch for him in Greenwich and invited me to that lunch. The only people present at the lunch were the President, his secretary, Allan and his wife, and myself. I was introduced as a Russian mining engineer and president of Newmont Mining Corporation, which caused President Hoover to reminisce about his own early years as a mining engineer and his extensive visit to Russia before World War One. For an hour before lunch, during lunch and after lunch, President Hoover riveted his attention on me and conversed almost exclusively with me all that time.

While he asked some questions about me and my father, most of the time he recalled his experiences in Russia. I was astonished at his memory of that sojourn. Not only did he remember the cities he visited, but also the names of the mines and several of the names of the managers of those mines. He described the mines and their problems to me in minute detail and commented on the advice he gave them.

He was most pleasant and seemed to be in a very good mood, obviously enjoying the opportunity to recall his early experiences which he savoured. Aside from his graciousness, he showed keen intelligence and an ability to express himself clearly and emphatically. Clearly, a most gifted person, he also expressed great sympathy and liking for the Russians he had met and a sorrow for the Russia that is and the Russia that might have been. He was a great man, unfortunately overwhelmed at the end of his presidency by the Great Depression and resentments against events not of his making.

General Lucius D. Clay

A West Point graduate in civil and military engineering, deputy to General Eisenhower in 1945, commander-in-chief of the U. S. forces in Europe and military governor of the U. S. Zone of Germany in 1947-1949, former chairman of the board of Continental Can Company, General Lucius Clay was a director of Newmont from 1950 to 1955. In 1963 he became a senior partner of Lehman Brothers, and Fred Searls, who had known General Clay since the Second World War, proposed to him that he rejoin the Newmont board shortly after this. However, André Meyer, senior partner of Lazard Frères, who was then a member of the Newmont board, strenuously objected to General Clay's election to the board because he was a partner in a competing investment banking house, thus representing a conflict of interest. The proposal was dropped.

General Clay was an impressive man of obvious searching intelligence, courtly, with a typical Southern demeanor, and possessing an unusual ability for expressing complicated concepts in concise, clear terms. His attitude toward me was unfailingly courteous, and I admired him very much. In the 1955 annual report, announcing his resignation from the board, I wrote: "His vigorous espousal of new projects and his confidence in management's efforts toward expansion have been of great assistance to your corporation."

I never really knew the reason for his resignation, which came one year after I took charge. I had a feeling--with no grounds to support it--that he may have left because I, a young and untried executive, did not possess

the stature that a man of his standing and talents would wish to be associated with. If such was the case, I accept it without rancor.

In reviewing the two years from 1953 to 1955 when he and I were both members of the board, I recall two incidents when General Clay expressed himself eloquently. On one occasion he protested my recommendation that we offer top employees a small percentage of interest in an investment Newmont was making, and the board voted in his favor. I think now that he was right; I was wrong in proposing it because I lacked experience in the interpretation of the preemptive rights of the corporation. The other instance was his recommendation to initiate a mining exploration campaign in Cambodia because he thought it would become politically stable. We did not follow his advice--fortunately--as Cambodia has been out of bounds for private effort ever since. I don't think this illustrates anything significant beyond the fact that great men can be wrong on occasion just as ordinary men are.

My sincere admiration for General Clay's intellectual superiority never waned, and I applauded his many fine accomplishments, particularly his courageous and successful Berlin airlift. I thought he was fully qualified to be a candidate for the U. S. Presidency when Eisenhower threw his hat into the ring. His subsequent willingness to return to the Newmont board in the 1960s, although frustrated by Andre Meyer, indicates to me that he accepted me as a chief executive--if indeed he had ever had doubts in 1955.

Governor John B. Connally

I have had several contacts with John B. Connally, former Governor of Texas, wounded while riding in a car with President John F. Kennedy when he was assassinated; he had been Secretary of the Navy, and was Secretary of the Treasury when I first met him.

This first contact with him came in connection with a tax matter affecting Newmont's subsidiaries in South Africa, O'okiep Copper Company Limited and Tsumeb Corporation. For many years these companies paid no United States income taxes because the IRS acknowledged

that they did not make any profits from imports of some of the copper blister refined in the United States. In 1972 this interpretation was challenged by another IRS agent who examined the O'okiep and Tsumeb cases. He contended that the IRS had been wrong in its original interpretation and that these companies' imports should come under another provision of the tax law that was applied to other imports, such as furs, where further processing in the U. S. enhanced the commodity's value and a substantial profit was earned from the sale of the product.

By going back all the way to the start of operations under Newmont's management, an assessment of \$44 million was calculated as the income tax due (this figure included interest as well since the tax was not paid currently for nearly thirty years). After so many years of IRS acknowledgment that no taxes were due, this outrageous new interpretation was vigorously protested by Newmont with the help of the principal tax lawyer from the highly reputable law firm of White & Case, and Arthur Andersen & Company, our auditors. After months of arguments, we were getting nowhere. It was then that I decided to appeal to the Secretary of the Treasury, John B. Connally. I made an appointment with him through L. F. McCollum, who knew Connally personally.

The White & Case lawyer, and two Newmont representatives, the chief counsel and the manager of taxation, accompanied me to Washington. We were cordially received by Connally and we explained in detail the problem we were facing. He acknowledged that we had a good case, and in our presence picked up the telephone to call the senior tax man in the IRS; he discussed our case briefly with him, showing obvious incredulity as to the merits of the IRS position. At this point we left, and Connally promised to follow it up. As a result of his intercession, we then pursued discussions with senior supervisors in the IRS.

Some time later we learned that our appeal to Connally had not succeeded, and it was explained to us that there was no precedent in the Treasury Department for the Secretary to overrule an Internal Revenue Service decision. What a typically bureaucratic tradition!

I was furious and considered going to court (tax court), but I was talked out of it by the White & Case lawyer, who pointed out that court decisions could not be forecast with any certainty; he said that if the decision

should go against us, it would be difficult, if not impossible, to make a settlement with the IRS within some reasonable bounds. He counseled us to try to settle the claim by negotiation. A further factor which influenced me even more was that a court case would become public knowledge, and a \$44 million claim could seriously affect the market price of O'okiep (on the American Stock Exchange) as well as affecting Newmont for years since court tax cases tend to drag on for a long time.

Reluctantly, I made the decision to negotiate a settlement, which, after further effort, was finally made at \$2,678,000, of which \$135,000 represented the accumulated interest. Even these figures I considered unfair in the light of the facts of the case.

The second instance of my meeting with Connally was more pleasant, and was equally--if not more--impressive from the standpoint of his talents as a political figure. He was master of ceremonies on the occasion of a charity dinner for the Association for the Help of Retarded Children at which I was to receive an award. He and I sat next to each other on the dais, and we had a pleasant conversation during which he asked me a few questions about my background. I noticed that he did not have with him any notes or the usual book with a written-out speech. When it came time to introduce me, he spoke extemporaneously and waxed eloquently about the Russian boy immigrant making his way to a successful career with a leading mining company, and having had the compassion in spite of or because of his experience as a child in the Russian revolution and his struggle during the depression to make a significant contribution to the worthy cause, which he described just as eloquently. The speech was a masterpiece of construction, weaving the various considerations and facts into a unified whole with a strong element of emotional appeal.

Justice James F. Byrnes

James F. Byrnes was invited by Fred Searls to join the board of directors of Newmont shortly after the Second World War, and he served on the board from 1948 to 1965. Fred Searls was at the Office of War Mobilization during part of the war and was later with the Atomic Energy

Commission, and so he got to know James Byrnes, who was director of the Office of War Mobilization from 1943 to 1945 and then Secretary of State from 1945 to 1947. Byrnes liked Fred and considered him outstanding in many more ways than as a geologist. The admiration was mutual. Justice Byrnes (he liked that title although he had been a Justice of the Supreme Court for only about one year, 1941 to 1942,) was a pleasant man and fully cognizant of his political stature. He contributed little to the deliberations of the board at Newmont--probably because he understood little of the business and had little interest in Newmont beyond his admiration for Fred Searls. I never got close to Byrnes, but he loyally supported all of my recommendations to the board. He was, however, a master at making brilliant speeches without any prior preparation. I witnessed this on a number of occasions and was much impressed by his forensic skill. It may have stemmed from his training as an attorney before he became Governor of South Carolina.

Russian Connections in the United States

My brother, Andrew, and I came to America in 1920 at ages eleven and ten, and like many other Russian emigré children of that time, we should have become totally Americanized while going to American schools and socializing and eventually working with Americans. While we did follow this pattern, we were nevertheless exposed to the Russian language and Russian culture through the persistent efforts of our mother. We never lost our Russian language, which we spoke without an accent and fluently. We read Russian literature in the original Russian and wrote it as well.

Mother was tireless in her effort to help us retain and be proud of our Russian heritage. She was very active in various cultural pursuits within the Russian colony. She organized a Russian literary club, which studied and discussed Russian masterpieces in fiction, essays, philosophy and theatre, and followed the literature of Soviet Russia too. She put on Russian plays and acted in them and exposed her two boys to as much of these activities as she could and for which there was time. When we were in college, she engaged a tutor named Andrew Uschenko, who was then studying for a Ph.D. in philosophy at the University of California at Berkeley; he later became a professor of philosophy in Michigan. He gave

Andrew and me a course of study on Tolstoy, his literary and philosophical works, and the influence of one upon the other. I played tennis with him often. He was a highly cultured man, slight of stature, and the antithesis of what a military man should be--yet his background was that of an officer with the Black Sea Russian Navy throughout World War One and the Russian revolution. He eventually escaped into Mesopotamia and in the 1920's came to California.

My wife, Alexandra (née Harlamoff), is also a Russian, and her family settled in San Francisco several years later than our family. I first met her in the late 1930s and we were married in Costa Rica in 1942. She was also exposed to Russian culture through her mother (her father died a few years after coming to America). She is deeply religious and attended the Russian Orthodox church school at Green and VanNess Streets in San Francisco. She speaks, reads and writes Russian fluently and is a devotee of Russian art and ballet. With this association, I have had frequent contacts with Russian emigres.

Among those who stand out in my memory are Prince Kropotkin and his wife, who arrived in San Francisco at about the same time as we did. He was a cousin of Prince Peter Kropotkin, the well-known political philosopher and anarchist, self-exiled to London, where he wrote his works in English and Russian. The Prince Kropotkin I knew was a tall, distinguished-looking, typical aristocrat, with impeccable manners and a handsome head crowned by a shock of white hair and delineated with an immaculately tended white beard and mustache. Like many aristocrats, who either went into the military establishment or the government service, he had no profession despite the depth of his extensive education and knowledge of several languages. He came to California penniless, and the only job he could find was washing railroad car windows at the Southern Pacific terminal. This menial job did not, however, break his dignity or good humor nor his ability to give learned lectures on Russian culture at the literary club my mother organized.

I got to know Sorine, a famous Russian portraitist, in New York; he acquired international fame in the 1920s and 1930s. Among his subjects were the royal family of Great Britain and a number of well-known political figures in the United States. I have a remarkable portrait of my father sketched by him, in which he caught the essence of my father's personality--intelligent, self-assured, yet with a twinkle in his eyes, confirming his

boundless sense of humor. Sorine was an interesting person, also with a sense of humor, and he admired my father greatly. Because of his great financial success as a portrait painter, he often sought father's advice on how to invest his money. He was a bachelor, with no relatives, and I don't know to whom he left his wealth.

I briefly met a number of times Alexander Kerensky, the head of the ill-fated provisional government of Russia after the abdication of the Tsar and the February 1917 revolution. While he had a reputation as an inept political leader (his provisional government lasted only eight months, and was replaced by Lenin and the Communist regime), he was an interesting and attractive man who also admired my father and was a frequent visitor to his apartment in New York in the 1940s. I rode with him from New York City to Port Washington for my father's burial, and held an interesting conversation with him for an hour and a half.

Another most engaging Russian emigre I met, and with whom I became quite friendly in the late 1940s, was Professor Smirnov. Swept into a displaced persons' camp in Germany after the Second World War, he finally made his way to the United States in the late 1940s and for a year and a half was extensively interrogated by the CIA with the help of petroleum experts from Standard Oil of New Jersey. He was probably the most prominent petroleum geologist in Russia, and while occupying a professorial post at the Moscow University, he developed theories of the more likely petroliferous basins in Russia. One of his recommendations was to search for oil in northern Siberia, which was based on his study of the geology of that region and a paleontological study of the rocks encountered there. While meaningful work in that region was not undertaken until after the Second World War, after he left Russia, several discoveries have been made of giant oil fields in areas he recommended.

He tried to persuade Standard Oil to explore northern Alaska and certain arctic areas in Canada, but to no avail, and he was unable to induce the company to hire him. Almost two decades later, the mammoth discovery of Prudhoe Bay in the northern slope of Alaska was made, and it is today the largest oil field in the United States, amounting to one-third of all U. S. reserves.

I remember him as a very friendly, lively, and most enthusiastic man who couldn't talk enough about his geological theories. He found a ready listener in me, as

I knew enough geology to understand him. Newmont was then preoccupied with the discovery of minerals, and our oil venture in Texas, Louisiana, and Oklahoma was not looked upon with favor by the board because it was not yielding any profits. I was unable to generate sufficient interest for an Arctic oil venture which would have been very expensive and beyond our means. We did go into that area later after the initial discovery was made by others, but unfortunately with no success.

The most recent Russian connection is my appointment a few years ago to the Woodrow Wilson International Center for Scholars in Washington, D. C. This remarkable organization, established by an act of Congress in 1968, has grown in prestige through its sponsorship of international scholars' studies of current and past political science subjects--with a heavy emphasis on Russia. A part of the Center is the George Kennan Institute for Advanced Russian Studies based at Princeton University. I have had the privilege of meeting George Kennan a number of times. One of the early United States ambassadors to Russia, shortly after the revolution, Kennan epitomized the best understanding of the Russian scene through his profound scholarship based on a life-long study, a knowledge of the Russian language and culture, and an outstanding ability to convey his thoughts clearly and emphatically both orally (without notes in speeches lasting an hour or more) and in writing. At the Wilson Center, council members have the opportunity to meet and hear scholars speaking on their subject of interest and to discuss these subjects with them.

Dr. James Billington, a director of the Wilson Center for some fourteen years, is a profound scholar of Russian history, and is one of the ablest men I have known. In 1988, he was named the chief librarian of the Library of Congress.

And finally, through my association with the Tolstoy Foundation, I met Igor Sikorsky, the prominent Russian emigre who invented the helicopter. He was a shy but very attractive and intelligent man, who was a director of the Tolstoy Foundation before and also during the time while I was chairman of that organization.

Musical Pursuits

Perhaps this is as good a point as any for a digression about my passion for violin playing. On my father's side of the family there has been a tradition of interest in music for at least two generations. Father's aunt was a prominent concert pianist who studied under Anton Rubinstein and later became a renowned professor of piano in that world-famous institution, the St. Petersburg Conservatory of Music. Later, father's younger sister, Olga, a fine pianist, also became a professor of piano in the Conservatory in that city, now renamed Leningrad.

As I mentioned before, my father studied violin in the St. Petersburg Conservatory, and for a time attended violin classes given by Leopold Auer, probably the greatest violin teacher of all time, with Mischa Elman, Heifetz, Milstein, Zimbalist and Piaastro among his many famous pupils. Father arranged for a teacher in Siberia to start me on the violin when I was seven years old. After some seven years there and in Oakland, California, of rather mediocre instruction, mother finally secured a good professional teacher in Berkeley, Mme. Kalova, a pupil of Sevcik, the famous Czech violinist, teacher, and composer of numerous exercises for the violin. She was a bit pedantic in her methods and made me start from scratch, condemning my previous instruction as less than useless. However, she was exacting and skillful in her teaching and aroused in me the ambition to apply myself seriously. Also, from the time we settled in California, mother regularly took me to symphony concerts, piano, violin and chamber music recitals of leading artists, as well as to the opera. Thus I heard the best violinists and pianists of the world and began to appreciate the ultimate artistry of musical performance. Concert-going has remained one of my greatest pleasures.

After two or three years with Mme. Kalova, and after finishing highschool, my mother, brother and I spent a year in Paris in 1926-7, where I studied art and joined a private music school established by the famous French violinist Lucien Capet (noted at the end of his career for forming and playing in the Lucien Capet string quartet) and Mme. Joachim-Chaigneau, daughter of the famous German violinist Joachim, a close friend of Brahms. She then had a fifteen-year-old daughter, Irene, who was the most beautiful girl I thought I had ever seen. I was smitten

by her instantly, but I saw her only fleetingly and intermittently at the time of my lessons. Years later I recorded a concert in which she sang, but I never saw her since those Paris days. Later, when my daughter turned out to be both beautiful and astonishingly accomplished, I suggested that she be named Irene, to which my wife graciously consented.

Whether it was that first Irene or the excellent instruction I received from her mother that inspired me I cannot tell from my present vantage point of sixty years later, but I do know that that year was an important boost to my dedication to violin playing. When we got back to California in 1927, I felt I was ready for a first-class teacher, whom mother and I found in the person of Michel Piastro, a Russian concert violinist of extraordinary talent (and pupil of Leopold Auer). I had previously heard him in recitals, and in 1927 he was the concertmaster of the San Francisco Symphony. I studied with him for four years and can truly say that I absorbed the Auer tradition, not only of the technique of violin playing but also of his musicianship, which is recognized world-wide as being refined, scholarly, and impressive with audiences. I don't mean to say by this that I became a concert violinist--far from it, although I later played in public occasionally and even dared a recital one time in Butte for a very small audience. I never considered myself a specially talented performer, but I derive great pleasure from playing some of the solo violin literature I hear at concerts, and especially from chamber music, which I played for years with several congenial groups. I've also played with several amateur symphonies. Thanks to extensive study and concert-going, I believe I have an understanding of appropriate musical interpretations. I enjoy practicing and did so two or three hours a day for four years while in college and studying with Piastro, and I continued to practice diligently for some fifteen years when first with Newmont.

It was not always easy to so indulge myself, as my other pursuits absorbed most of my waking hours. I remember how in Oakland, while in college and studying with Piastro, I could only find time to practice from 11:00 p.m. to 2:00 a.m.! My mother used to come downstairs and plead with me to stop and go to bed--no doubt partly because I was interfering with her sleep, too. This habit was repeated fifteen years later when we lived in New York with my stepmother while I was working for Newmont. In order not to interfere with the sleep of the other

denizens of the house, I finally found a place in the basement, two stories below the bedrooms, where my practicing would not be heard. I continue to practice and play to this day, although not so assiduously as before.

This unremitting determination to study to achieve a higher degree of knowledge and understanding or of performance has been my lifetime pursuit--whether the subject was business, economics, engineering, governance of a corporation, literature, history, art, music, violin-playing, tennis or golf. While accompanied by a certain amount of frustration because I do not know enough nor excel in performance to the degree that I would like, and am only mediocre in some, such as golf and tennis, it has seldom caused me to stop applying myself. ##

Women Directors and Executives at Newmont

(Interview 5: 10 November 1988)

Swent: We were talking about women on your board.

PM: Yes. We had three women on our board, not all at the same time but over a period years. The first woman director was the wife of the founder of the company, William Boyce Thompson. She was on the board for quite a number of years. After her husband died, she resigned from the board.

Swent: And what was her name?

PM: Well, we just called her Mrs. Thompson--Gertrude, I think, Gertrude Thompson.

Some years later, perhaps ten or twelve, her daughter, Margaret Biddle, became a director of the company also, and she stayed on as a director until she died. I got to know her from the very early years. Margaret had a name that she established on her own. She was first married to a vice president of Newmont, Theodore Schultz, and they had two children: a boy, Theodore, and a girl, Peggy. Later she divorced Schultz and married Anthony Drexel Biddle, Jr., of Philadelphia fame, who was an ambassador to Poland during the war. She divorced him shortly after that, and she was already a member of the Newmont board

when I met her. She lived in Paris, had an estate in the south of France, and also established a very sumptuous apartment in New York City.

She was a very intelligent woman with a good business sense, though perhaps not much business experience. I liked her a great deal, and the others--the other executives of Newmont--had a great deal of respect for her as well. She seemed to be quite interested in Newmont and its affairs.

One of the more interesting references to her I read in her correspondence with one of the Newmont executives who was a favorite of hers, Franz Schneider. She was quite frank with him; when there were crises from time to time at Newmont, she would write her thoughts to Mr. Schneider and ask what he thought about it. That exchange of correspondence was interesting in itself.

One particular instance that I remember reading about was during the depression of the 1930s when Newmont stock dropped to something like \$7 a share from \$110 or \$120 a share. She simply wrote to Mr. Schneider that perhaps the trouble was that Newmont was being run by engineers and not businessman. (laughter) I didn't see Mr. Schneider's reply to that, but it must have been very diplomatic, because the engineers continued to run Newmont.

She was an important director, of course, because of the shares she inherited from her father. At that time, she probably had something close to 20 or 25 percent of Newmont and was thus the largest shareholder of Newmont. I got to know her in the 1940s before I became president. She was always very gracious to me, and we talked quite frankly about the business of Newmont. When I became president, my relationship with her became even closer. She offered advice, some of it quite sensible, and she tried to help our business in Europe, where she resided, because she knew practically everybody in the top echelon of the French government. She offered to seek assistance from some of the most powerful members of the government if we needed it.

Swent: She was very helpful in that Algerian episode, as I remember, wasn't she?

PM: Yes. So, before she died, in her late fifties, her daughter, Peggy Schultz Downey, became a director; I believe it was sometime in the early 1950s. Peggy was a

very beautiful girl, and she had an unfortunate first marriage with Prince Hohenlohe, a very attractive Austrian nobleman. She had two children by that marriage, a boy, Christian, and a girl, Catherine. She divorced the Prince in a well-publicized conflict in New York in the early 1940s; she told me a number of details about the divorce, and I think it must have been very difficult for her. She later married Morton Downey, the famous Irish tenor, who turned out to be very good for her and was extremely kind and nice to her two children. Both of the children actually called him "Daddy."

Swent: Have there been any other women directors besides the relatives of the Thompsons?

PM: No. One instance of Peggy's interest in Newmont--even before I became president--was when she asked me if I could recommend some simple texts so that she could understand chemistry and physics and geology and mineralogy, which she thought was basic to an understanding of the company. I did recommend some rather elementary books which I sent to her. I don't think she read them, however. (laughter)

She died of a stroke when she was in her forties. The very next day after her death, I realized that it was important to get the best-known and most reliable member of the family on the board. There were two contenders at that time who I thought might wish to be on the board: one was the wife of Ted Schultz (the son of Margaret Schultz Biddle), and the other was Peggy's daughter, Catherine. I knew them both, and it seemed to me that Catherine was more likely to be interested. I was afraid of Ted's wife for a number of reasons; she seemed to be a very unsympathetic kind of person, very imperious, and I thought she might perhaps be dangerous in the future.

Perhaps I was too hasty in deciding to invite Catherine on the day after her mother's death; she was very surprised--even somewhat shocked. But she said she would think it over, and within the next two or three weeks she accepted and was on our board for the next ten to twelve years. When she finally resigned, it was because she found it too burdensome to follow all Newmont's business--which she was trying to do very conscientiously--and she suggested that we elect her husband to replace her. This was her second husband, whom I got to know, and I then recommended to the board that he be made a director. He was duly elected and served until 1987.

Swent: What was his name?

PM: His name was George Jacobus. So that is the story of the women directors that we had, all of them from the family of Boyce Thompson. Wife, daughter, granddaughter and great-granddaughter--four of them! (laughs)

Swent: There have been no other women, though?

PM: No other women.

Swent: Have you ever considered any other?

PM: Well, we had repeated requests at annual meetings from some of the shareholders to have more women directors. We always said we had nothing against women directors, and as the record shows, we have had four women directors.

As for women executives at Newmont, my assistant, Ruth Vanderpoel, was elected assistant vice president, administration, of Newmont Mining Corporation in 1979, a job which she held in addition to continuing on as assistant to the chairman. Ruth has worked for me for nearly thirty-five years in various capacities, and I can't overestimate the value of her contributions to me personally and to my family as well as to the company.

I might also mention Alice Langlois, who reached the position of vice president at Newmont Oil Company. She was French-Canadian, a very pretty young woman, who got a degree in geology from Columbia University. She was hired originally to help Philip Kraft in the conduct of Newmont Oil Company. She turned out to be quite competent, a good organizer, and Philip Kraft advanced her until she finally became a vice president. She left the company shortly after I became president. I think she may have had some problems with the fact that she was so pretty--some of the people at Newmont chased her. (laughs) I still correspond with her; when she left Newmont, she went to Paris and worked for Mobil Oil Company, one of our partners in an offshore oil venture in the Gulf of Mexico. She worked for them until she retired, and then she settled in the south of France and is living there still. She never married.

Swent: Did you ever consider your daughter as director material?

PM: No, my daughter pursued other avenues and another career quite independently. I don't think she would have wanted a directorship, and I never thought of it myself.

Swent: Where do you look for directors for your company?

PM: Well, I will talk about that in a minute, but first I want to continue with the subject of women directors. At Bankers Trust Company, for instance, when the pressure was put on the management and the chairman of the board to find a woman director, he made a rather thorough search of possible candidates. The qualities that they obviously wanted were some acquaintance with the business world, a reputation for intelligence, and the ability to get along with other people. He finally chose an academic, the president of a women's college. She was a good director, a very good person to have on the board and she was well respected by everyone.

Other companies have done the same thing; by and large, the women directors come essentially from the academic world, where they can progress more easily than in the business world. They can end up being high up in the administrative side of universities, and very often make the presidency.

Swent: Now, in general, how did you choose directors?

PM: The practice in American business is to leave that up to the chief executive. I think the board generally feels that he has a right to have a board that he is comfortable with, people whom he knows, people who would understand what the chief executive's policy might be and would be sympathetic to his goals. From what I have seen on the outside and from my own experience, I believe that's the usual preferred way of choosing directors.

Swent: What about Newmont's move to Denver?

PM: Well, I think that's a part of the sad story that I'd rather not comment on. (laughs)

Swent: Do you think that's pretty sad?

PM: I do.

Swent: It's a major shift, isn't it?

PM: Yes. Newmont has undergone a major change in stature, in asset value, and in policies. The move is one of them.

Swent: Will they have anything in New York?

PM: I think the chief executive may retain a space that he can come back to from time to time, and keep a secretary there, but that's all. I understand it's going to be a rental, a sublet, from Consolidated Gold Fields' offices; they own 49.7 percent of Newmont.

Swent: What effect did being in New York have on running the company, then? It was a different environment.

PM: I really don't know. All I know is that the successor management decided to make this move, and the main reason given to the press and to the shareholders was that Denver would be a more convenient location for Newmont's headquarters: because of the restructuring of the company and the shrinking of the company's assets to only the gold operations in Nevada and the coal investment in Peabody, Denver was closer to both operations. Also, there was an economic reason; the Newmont offices in New York were very expensive, whereas they were able to get the necessary space in Denver for only \$10 a square foot per year.

Swent: From the point of view of the chief executive, I would think being in touch with the financial institutions is just as important as being in touch with the operations, isn't it?

PM: That depends. If the company is expanding, it needs financing. If the company is shrinking, it doesn't. And Newmont has been shrinking in the last year and a half.

Swent: Did you spend much of your time visiting operations?

PM: Yes. Most of my absences and most of my traveling was to visit the operations.

Swent: I had heard that you visited Carlin, Nevada, very little.

PM: Oh, no. Since its beginning, I must have visited Carlin four or five times. Not every year--maybe every two to four years; but I followed it very closely and I knew everything that was going on.

Swent: Well, Denver certainly will mean a big change.

PM: Well, I think that the biggest change is what has happened to the company, not where it's going to have its offices.

Director, Southwire Corporation

Swent: Are you still as involved as you were before in things like the museum in New York, the American Museum of Natural History?

PM: Yes, I am, and I've taken on another board directorship in a company called Southwire Corporation, near Atlanta, Georgia. It's a company I've known for quite a number of years. It's a comparatively small company but is now well known throughout the world for their continuous rod. Their fame arose from their adaptation of an idea first promulgated by a Romanian named Properzi, I think, who invented a method of continuously casting copper on a wheel so that one could draw a rod, a continuous rod, that might be many miles long. Southwire's adaptation of this process resulted in some improvement patents, and they were able to sell their version of this idea all over the world. They are today probably a company that has manufactured and sold more continuous rod installations than anybody else in the world.

In addition, they have their wire and cable business, which really was the initial, basic business of the man who started the company, Roy Richards. He was an electrical engineer and he worked for utilities in the South, and as a result he knew quite a bit about the wire and cable business. He saw the advantages of having a continuous cast rod out of which a wire could be drawn; he knew it would be a great improvement over the usual method of drawing wire from a sort of copper pig known in the trade as 'wirebar'--which is cast in a refinery.

Southwire's business today is essentially the business that Roy Richards established. They have an aluminum pot line which produces aluminum metal from alumina (aluminum oxide); a copper smelter based on scrap feed, and an adjacent refinery, so that, in effect, the aluminum and copper wire and cable business is now fed by the products that the company refines itself. They have a total of five plants in the United States, with perhaps something like four or five thousand employees.

Swent: Didn't you have something like this at Palabora?

PM: Well, we bought a continuous rod plant from Southwire, and so did San Manuel. That's how my acquaintance with Roy Richards began. He died in 1985 while still a fairly

PM: young man--from cancer. He had a large family, seven children. The two oldest boys--Roy, Jr., twenty-nine, and Jim, twenty-seven, are now running the company in accordance with their father's wishes. Both of them have had extensive experience with the business because their father saw to it that they received training in the plants when they were in their teens. They are both very intelligent and talented, and I think they are doing very well. Actually, the company has prospered under their management since their father died.

Swent: Who invited you to be on the board?

PM: They have one outside director, George Kruger, who is quite well known in New York circles. He was originally a geologist at Cerro de Pasco in Peru, and later became the mining expert for Chase Manhattan Bank. He retired from the Chase bank about ten years ago, and has been a director of Southwire for two years. He was the one who mentioned to Roy and Jim Richards that if they're looking for another outside director, they might approach me.

Swent: So both of their outside directors were involved in mining.

PM: That's right. Before we were on the board, it was an inside board, because it's a family-owned company. There's no public stock outstanding.

Swent: Have you become a stockholder, then?

PM: No, because the stock is all owned by the family. They wanted to go public in 1987, and they prepared a prospectus and secured the help of investment bankers in New York for that purpose. However, the stock market was not conducive to floatation at that time, so they withdrew the prospectus and are remaining private. When I joined the board, they were still thinking of going public sometime--but I advised them emphatically not to go public, to stay private--and to keep away from raiders! (laughter)

Swent: It was such a bitter experience?

PM: That's right! It's an interesting company. Their father named both of these boys chief executives, so there were two CEOs. It worked for three years, but finally the older boy began to feel that it was an unnatural kind of situation, that there should be only one chief executive.

PM: Being older, he thought that he should be the one, and he convinced the rest of the family that they should make him the sole chief executive. George Kruger and I were not convinced that that would be the best avenue for management of the company, but we had to accept the will of the family since they owned all the stock! (laughs)

Swent: But the other boy is still with the company, is he?

PM: That was the problem. We were afraid that as a result of this change, we might lose Jim Richards, who in some ways is probably more talented than his older brother--although his older brother is a very good man for running the company. After the family had made its decision, both George and I bent our best efforts to try to keep Jim Richards in the company. In fact, he was contemplating leaving the company, but fortunately he has decided to stay after all. His older brother named him president, and named himself the chairman.

The two of them really have a great deal of respect for each other, but the division of responsibility when there were two chief executives was somewhat unnatural and created problems and conflicts. We hope that the present setup with Jim Richards being president, in effect not a chief executive but reporting to his brother, will work out all right. It is only a few months since this happened, and only time will tell whether the arrangement will work well or not. I hope it will.

Swent: Are you still on the Browning Ferris board?

PM: Yes, I am still on their board. We have a new chief executive there, William Ruckelshaus, who is famous for having been the head of EPA twice in the last eight years. He's a very good man, and I noticed that at one time before the election the press mentioned him as a possible attorney general in Bush's cabinet.

Swent: I guess we should mention that we're talking just two days after the election, and Bush was elected president. This whole area of waste, of course, is something that mining people were very conscious of long before anybody else became concerned about waste and the disposal of it. It's a logical thing for them to be interested in, isn't it?

PM: Yes, I suppose it is.

President George Bush

Swent: You've been on fairly good terms with a number of presidents, haven't you?

PM: Well, I wouldn't say that. I got to know Herbert Hoover, and I discussed that acquaintance earlier in this memoir, but I met Lyndon Johnson and Ronald Reagan only casually. I met Jimmy Carter, too, but only after he left the presidency. And now there's George Bush, whom I know better than all the others I've mentioned.

It was interesting to see Bush progress from the time I first knew him as a member of the House of Representatives. He went on from there to the CIA and being special representative to China, and also the United Nations, and then he became vice president. I think he has grown over the years. The final test of his career will be the presidency. It's a very difficult time, and he has inherited all kinds of problems. How he will deal with them remains to be seen. He did not reveal very much during his campaign as to how he plans to deal with some of these problems.

Swent: You've mentioned that you're a friend of his brother.

PM: Yes, I'm a good friend of his elder brother, Prescott Bush. Actually, he was a neighbor of ours in Greenwich. I met him some time ago, and I used to see quite a lot of him. We talked politics and business. He was a vice president of Johnson and Higgins, who are insurance brokers. At one point, Pres Bush thought he would like to have a political career as his brother did, and he wanted to throw his hat in as a candidate for the U. S. Senate. That did not work out, however. He lost the nomination.

Swent: Thank you very much, Mr. Malozemoff. You have certainly had a remarkably wide-ranging and successful career, and we are grateful to you for documenting it so thoroughly.

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APPENDIX

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"Fuerstenau to Hold New Chair Honoring Malozemoff," <u>Matrix</u> , <u>Berkeley Engineering</u> , March 1987.	330a
"1,500,000-Acre Lease Made for London Combine," Oakland <u>Tribune</u> (?), 1925.	330b

Plato Malozemoff, Honors Received

- 1957 Honorary Degree of D. Sc. in Engineering
Colorado School of Mines
- 1957 Professional Degree of Mining Engineering
Montana School of Mines
- 1972 Charles F. Rand Memorial Gold Medal
American Institute of Mining and Metallurgy
(for distinguished achievement in mining
 administration)
- 1974 Gold Medal
The Institution of Mining and Metallurgy (London)
(in recognition of outstanding service to the
 mining industry in the international field)
- 1975 Distinguished Member of the American Institute
 of Mining, Metallurgical and Petroleum Engineers
- 1976 Gold Medal Award
Mining and Metallurgical Society of America
(for distinguished service)
- 1977 ANKH Award
Copper Club (Copper Man of the Year)
- 1982 Distinguished Alumnus Award
University of California School of Engineering
- 1982 Honorary Membership in Beta Gamma Sigma at
New York University
(in recognition of outstanding character,
 scholastic achievement, and qualities for
 leadership)
- 1985 First Gold Medal Award
Montana College of Mineral Science and Technology
- 1986 Honorary Membership in AIME
- 1989 Distinguished Service Award
American Mining Congress

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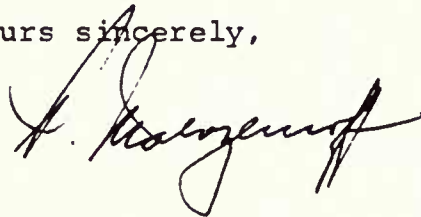
Mrs. Eleanor Swent
Regional Oral History Office
The Bancroft Library
University of California
Berkeley, California 94720

Dear Lee:

I am enclosing some data I found in my old records illustrating the account I gave of the drag-line dredging operations in California after the increase in the price of gold from \$20.67 to \$35.00 per ounce in 1934.

The Exhibit "A" is only a partial list of the little operations mounted mostly by individuals. These operations only lasted, on the average, three years, but because they could be mounted cheaply (see Exhibit "b"), for less than \$100,000, many of them paid out with return of investment and a profit besides. While in spirit and entrepreneurial drive the men that mounted these operations were like the '49'ers, they had to be technologically knowledgeable and astute and have a business sense to manage the operation frugally and get the highest productivity from the men and machines employed.

Yours sincerely,

A handwritten signature in dark ink, appearing to read "Plato Malozemoff", written in a cursive style.

Enclosures-2

"A"

Dredging Dredges in 1937 in California *

	Owner	Dredging Dredges	capacity cu/yds/day
Consuelo Miner	Max Hoffman	1	3,000
Oroville Gold Dredging Co	Wanderford	2	?
Butte Dredging Co	EC Carter	1	?
Richter & Son	Richter	1	1,500
Cruz Hermoso Mining Co	Cummings	1	?
Penn Dredging Co	AB Innes	1	1500-2000
Oro Bell Dredging Co	CW Erickson	1 (bucket line)	700
Midland Co	Hoyer	1	1,500
Gold Acres	Flumerfeld	1	1,500
Pioneer Dredging Co	Baker	1	3,000
Carlson & Sandberg	Calken	1	3,800
RS Olson	RS Olson	1	1,500
AC Mining Co	Collins	1	1,500
Pacific Gold Dredging Co	J.T. Shepherd	1	1,800
Junction City Mining Co	Sorensen	1 (bucket line)	10,000
Hayfork Gold Dredging Co	Chas. Stearns	2	3,500
Fay Placers	-	1	3,000

*) all visited by P. Malozemoff

THE BOOMS AND BUSTS OF GOLD MINE PRODUCTION

Address by Plato Malozemoff on the occasion of his inauguration into the Mining Club of the Southwest's Hall of Fame, Tucson, Arizona, on December 5, 1987

I was raised at gold mines in my early childhood in Siberia, where my father eventually became the general manager of the then biggest gold mine center in Russia, employing nearly 10,000 miners and located some 700 miles north of the Trans-Siberian Railroad. These rich placer drift mines were owned by the Lena Goldfields Company, a subsidiary of Selection Trust of London. Curiously, for a time, a minority interest was owned by Consolidated Gold Fields of London, which about two months ago increased from 26% to 49.7% its holding of Newmont Mining Corporation, of which I was the Chief Executive Officer for almost 32 years before October, 1985.

My professional involvement with gold mining was during the depression of the 30's, when my first job was with the Alaska Juneau Gold Mining Company, and later with Pan American Engineering Company in Berkeley, California, when I covered many of the operating, as well as developing, gold mines in the western states trying to help them to

improve their recovery of gold and to sell machinery for this purpose that the Pan American Engineering Company manufactured. Thus my interest in gold mines began early and has never flagged since.

Gold has been and is seductively attractive to men and women. Ever since civilization dawned, thousands of years ago, gold has always been sought after by every civilization as a standard of permanent value. It is also a symbol of opulence, refinement and even mystery. It is the only metal that does not seem always to obey the laws of supply and demand despite the widely fluctuating demand for jewelry, its principal use, which generally varies with prosperity. The trend of its value or price is rising, certainly in the last 15 years, faster than the rate of inflation. You would think from this that mining and producing gold leads to the end of the rainbow and assured fortunes.

Not so, there are good times for the gold miner, and there are bad times when gold mines die and fortunes are lost, and the gold miners look for other occupations. There are various reasons for this, some simple and some complex, and for the general public, not understood, perhaps because their eyes are not on the plight of the gold miner and mines but on the desirability of owning gold.

During the Great Depression after the stock market crash in 1929 and before the gold price was raised from \$20.67 to \$35.00 an ounce in 1934, all mining activity was in the dumps, including gold mining, and many of my colleagues abandoned their struggle in mining to seek jobs in oil or other industries. Some made illustrious careers there despite intense competition with petroleum and other engineering graduates, which says something about miners, who are generally considered to be a dull lot.

Why is gold different from other metals? (1) Gold is for all practical purposes indestructible because of its atomic structure and chemical properties, and is not lost when put to use. (2) It is malleable and easily fashioned into most intricate designs for jewelry. (3) Because of its apparent permanent value, governments have used it in the past for currency and reserves and frozen its price for long periods of time.

As for the reasons for the wide variations in gold production from deposits in the earth, they are complex and have to do with the price of gold in terms of the relative exchange rates of currencies; with inflation and rise in costs; with geology and exploration; with technology of recovery; and with the unpredictable behavior of men wishing

to transfer part of their wealth at times into jewelry or hoards of gold bars or coins.

As I said, gold is essentially indestructible except for insignificant losses in gold injections for arthritis and dentistry, and in electrical connections in microprocessors, satellites and missiles--uses requiring minute amounts. Hence, practically all the gold mined and recovered since the dawn of man remains on this earth in vaults of governments, private hoards or jewelry, or in industrial uses from which gold is ultimately recoverable and reusable.

. It has been estimated that to date nearly 100,000 tons of gold, or in terms of the present price of \$450/ounce, some 1.5 trillion dollars worth, have been produced from mines and are above ground. Of this, roughly 60,000 tons are now in jewelry and 25,000 tons in central banks and 15,000 tons essentially in private hoards. Only about 1,600 tons a year are presently being mined, so that there is 60 times the present annual production available above ground. Having that kind of potentially available accumulated supply, it is small wonder that gold is always available, and the spectre of a real shortage never appears, even during World War II, when new production was suppressed because gold is not a strategic metal in the waging of a war. Strangely, this overhanging enormous

stock of gold has not served to prevent price increases.

Some prominent analysts try to base their gold price predictions on the forecast of mine supply and demand balance. These exercises are for the birds, in my opinion, because when the mine supply exceeds demand, the difference is bought by hoarders, and when the opposite occurs, hoarders disgorge. The price is sometimes affected by these movements, but mostly not. More recently, fears of instability, changes in relative values of currencies, and the imagined political threat of interruption of production, such as that of South Africa's black riots, seem to have been the more important factors.

Turning now to the subject of the ups and downs of gold production as they affect the gold miner, generally speaking, when mine production is increasing, it is boom time for the miner. When it slows way down for over a long period, it is a bust for him.

One hundred years ago, the annual world-wide production was about 650 tons, gradually rising to more than double that level by the end of the 1930's, a long boom period, but it dropped by about 40 percent during the World War II years. After the war, production recovered in the 50's and 60's to about the level of the 30's, another boom period. After another slump or bust in the 1970's, it rose in the 1980's to the present highest

historical level of nearly 1,600 tons a year--characterizing the third boom in 100 years.

The gold price movement in the past has been extremely sluggish. According to Simon Strauss in his book entitled "Trouble in the Third Kingdom," the gold price was established in England at the equivalent of \$20.67/ounce for monetary purposes in 1703 by Isaac Newton, then Master of the Royal Mint but better known as the famous physicist who formulated the law of gravity by observing the fall of apples. The same price was later adopted by the United States in the early 1800's, and this remained the world price until 1934. This price was accepted by most countries which were on a gold monetary standard. It is amazing that for nearly 230 years gold mining persisted and boomed at this constant price in spite of increasing costs and depreciation of currencies.

The increasing world production in the 18th and 1st half of the 19th century was largely due to the discovery of new deposits high enough in gold content to be exploited profitably by the then primitive methods and at that constant price of \$20.67/ounce. Later, especially at the turn of the century, new mines were developed in the Yukon, Australia and South Africa, doubling the world output.

Also, an increasing role was played by technical innovations. In the early days, the invention of the

Cornish pump permitted mining to continue below the water level. The invention of the steam engine increased power availability and reduced the cost of mining, hoisting and beneficiation. Later, development of large continuous bucket line dredges floating in a pond permitted very cheap digging and recovery at only a few cents per yard of gravel in placer mines, which are auriferous deposits occurring in some old river beds. Likewise, for ores from hard rock mines, the introduction of stamp mills (whose infernal noise damaged my hearing somewhat) provided simultaneous fine crushing and amalgamation of gold and its easy recovery very cheaply.

Subsequently, the invention of the process of extraction of gold by cyanidation increased the percentage of gold recovered from ores. In mining, the introduction of tools driven by compressed air, mechanization of underground transport with trolley locomotives and improved explosives served to increase productivity of labor through increased efficiency of operations. All these metallurgical and mining advances in technology permitted profitable mining at the constant price of \$20.67 per ounce by lowering the cost of production which offset the cost increases due to inflation and other physical factors.

However, even these advances eventually were not enough to ensure profitable results in the face of post-World War I inflation, and by the early 1930's, many mines could no longer operate at the \$20.67 per ounce gold price, and deep gloom descended on most mining districts with mines shuttered and men out of work. The annual world production slumped to 19 million ounces (or to the level of 50 years before) from the prosperous 40 million ounce level in 1915-25. This was the first serious bust in the period I am covering. Incidentally, to relate to my previous mention of weights of gold in tons, there are 32,000 ounces in a ton.

Other mining activities, such as iron and nonferrous metal production, suffered even a greater decline accompanied by a disastrous drop in metal prices. Newmont rode out this depressed period by developing and operating several small, profitable and relatively high-grade gold mines in Canada, as well as the newly acquired old mines in Grass Valley, California, the Empire Star and the North Star mines, all of which became real winners in the last more successful period of gold mining activities in the later 30's that I will describe next.

For reasons not related to the plight of gold mines, the gold price was raised from \$20.67 to \$35 per ounce by

President Roosevelt in 1934. The result for gold mining was almost miraculous. Many old mines were reopened, as, with the 75 percent higher price, they became profitable again. New mine discoveries were made, placer dredging was revived and expanded, and the world annual production surged from 19 to 35-40 million ounces again. The United States had a true boom in gold mining by the end of the decade of the 30's as production more than doubled from around 2 million ounces a year.

That was a stimulating, exciting and feverish time for those of us who were launching our careers in mining in the West. New and imaginative innovations, such as drag line dredges--drag line excavators on shore and a floating screening and recovery plant in a moving pond--and the use of jigs instead of riffles led to the ability to exploit small and shallow placer deposits. The number of small mines, most of them profitable, grew like mushrooms and harbored a host of entrepreneurs not unlike those in the gold rush in 1849 in California except that the new breed were technical and management innovators. Most were small enterprises requiring small capital infusions and quick payouts. Unfortunately, for lack of capital or access to the capital of others, I was not among the entrepreneurs but had a stimulating and productive time in applying new technologies to the improved recovery of gold.

The boom in gold mines in the late 1930's was, however, short lived, lasting only about eight years, collapsing during and after the Second World War.

The entrance of the United States into World War II suddenly stopped this exciting activity in its tracks. The law L-208 served to shut down most of the United States gold industry in order to free the labor employed in that industry for employment in base metal mines that were important to the war effort. This intent was not realized because the multifarious skills possessed by the miners could be used in building liberty ships and in other industries supporting the war effort where wages were higher than in base metal mines. In any case, that regulation was a disaster for the gold mines in the United States.

My own experience was equally disastrous. My father and I, Herb Kursell, of American Smelting and Refining Company, and a Costa Rican banker formed a partnership to lease the Abangarez gold mine in Costa Rica, formerly exploited with indifferent results by the United Fruit Company. I was the manager and applied the technologies newly learned in California in that boom period I have just described. Things moved promisingly, but we were totally dependent on supplies from the United States. After valiant efforts by my father with Paul Nitze, then in charge of procurement on the War Production

Board, an exception was made for our gold mine in Costa Rica--I assume to keep friendly that country which was adjacent to the threatened Panama Canal. Would you believe it? The ship bearing our supplies stopped at Puerto Limon one afternoon for unloading the next morning. That night a German U-boat torpedoed the freighter in the harbor, which ended our abortive gold mining effort in Costa Rica.

Gold production in the world during the war slumped again to about 26 million ounces a year from 42 million, and in the United States to 1 million ounces from 4.8 million. Gold mines in the United States fared worse than those in other gold-producing countries.

After the war, gradual inflation raised the costs of operation so that mines shut down during the war could not resume. The Depression continued in gold mining. Indeed, some labor-intensive underground mines were forever abandoned, especially those having heavy ground in deeper workings and requiring extensive support, such as square-setting. Placer mine dredging remained idle also because of increased costs. While further technological advances were made in metallurgy, especially crushing and grinding, as well as in mining, their contributions to lower costs were not sufficient to offset the increased costs due to inflation and the dramatic rise in the costs of labor, supplies and equipment, as well as the cost of money.

Thus, gold mining was depressed for nearly forty years from the 40's to the late 70's. However, world production gradually increased from a 30 million ounce level in the late 1940's to 47 million ounces in 1970, but not in the United States where production languished, gradually decreasing from the 2 million ounce level a year immediately after the war to as low as 1 million ounces late in the 1970's. Yet some new gold mines were started in this country during this period--notably Newmont's Carlin and Placer Development's Cortez mines, both in Nevada, but most of the increase in world production in the 1950's and 60's was largely centered in South Africa, where newly discovered areas led to development of great mines in the Orange Free State and West Rand.

In addition to the ups and downs caused by economic factors, gold mining in certain local areas has been buffeted by many environmental concerns. One of the most famous at the turn of the century was the shutdown of all the very profitable hydraulic gold mines in California because of the contamination of rivers with silt from these operations.

In my own early personal experience, when I was managing a gold-copper mine in Argentina just before Pearl Harbor, we had a comic incident which could have been tragic.

Our mine was at 10,000 feet elevation in the foothills of the Andes, and we were dumping tailings into the stream that served to irrigate vineyards in the valley about thirty miles below the mine. The farmers complained bitterly of possible damage to their vineyards, which I was able to persuade the authorities was nonexistent. One day, we got word that in desperation the farmers mounted an expedition to the mine to blow it up that night. The telephone line was cut, and at the mine we took an all-night vigil armed with harmless homemade bombs that could make a hell of a noise in the narrow road of the canyon where the invading host was to travel. But they never showed up. We learned the next day that they sapped their courage and resolve for the invasion at a tavern on the way to the mine with wine, women and song. However, with this potential threat, the authorities persuaded me to compromise, and we diverted the entire stream to an area with a dam to settle the silt from the stream and release the clarified water back to the stream bed. At times of monstrous floods, which occurred often from the melting snows of the Andes, the diversion would be cut off, and farmers could only blame the gods for silting their vineyards. Anyway, this crazy idea, which didn't work very well, served to cool the tempers.

The gold price of \$35 per ounce, persisting since 1934, was finally freed from regulation nearly 40 years later in 1972, and began to fluctuate widely thereafter, reaching the lofty level of \$850 per ounce for a short time in 1980. This extraordinary rise in price coincided with a weakness in the exchange value of the U. S. dollar and a dramatic rise in the prices of oil established by the Middle East Arab producers following expropriation of oil concessions and the Iranian revolution. The fall in the relative value of the dollar currency induced the Arabs to convert their tens of billions of dollar earnings into gold, the price of which consequently rose.

However, following that dramatic rise to \$850 an ounce, as the exchange rate of the dollar strengthened and Arab oil production diminished with an accompanying drop in the prices of oil, the gold price fell and reached a low of \$287 an ounce in 1985. Even this represented an eight-fold increase in price from \$35 per ounce. It stimulated gold mining, and world production increased to over 50 million ounces in 1986. In the United States in 1987, it is estimated to reach the pre-war level of 4.8 million ounces. The annual world production grew by nearly 10 million ounces since 1981 and is attributable largely to production from mines in the United States, Canada, Australia and Brazil.

The gold price, freed from restriction, stimulated exploration for gold, and because of the continuing low prices of base metals, most companies concentrated 80 to 100 percent of their exploration on gold.

A repetition of the air of excitement of a gold rush developed similar to that of the pre-war 30's. This time, however, especially in the more recent stage, there is an important difference. Everything is so much more expensive, and large capital investments, most of which are borrowed, require more careful planning. There is a trend towards larger scale operations, some of which are exceeded only by those of the Rand and Orange Free State in South Africa. What a contrast this is with Newmont's Carlin and Placer Development's Cortez's initiation of significant new mines in Nevada for less than \$10,000,000 each only 20 years ago. Today even a medium-size mine requires an investment of 30 to 50 million dollars, and a recent decision by Newmont to boost its production from 1 to 1,600,000 ounces a year will require \$400,000,000!

Yet this new era of gold production has shown some of the same characteristics of the earlier pre-war period. The same entrepreneurial spirit led to many significant new discoveries in areas previously not known to contain gold. Most of these are relatively low-grade surface mines that can

be cheaply mined at a high rate of production. Furthermore, surface mines of even lower grade have been developed by avoiding costly milling for extraction of gold by way of cheap open-air heap or dump leaching of run-of-mine ore, or ore that has been only coarsely crushed, thus requiring very little energy and only a small plant for precipitation and recovery of gold from aqueous solutions.

I should emphasize that the cheap technology I have just described is applicable only to oxidized ores that are near the surface. There are sulfide ores and carbonaceous ores which require much more expensive processing and therefore have to be higher grade than the oxide ores. Don't believe the media's statements that heap leaching is the modern panacea for all gold ores.

During the last ten years or so new finds of significant gold deposits outside of South Africa are too numerous to mention here. The biggest now exploited which contain gold in reserves which will probably mine out at more than 20 million ounces in their lifetime are the group of surface mines owned by Newmont Gold Company in the so-called Carlin trend in Nevada, the Hemlo group of underground mines owned by three different companies in Ontario, Canada, and the Olympic Dam deep-seated deposit in South Australia. There was no previous mining at these locations; hence they

can truly be considered new discoveries.

Each one of these discoveries and subsequent development has had a fascinating history of inspired revelation, painstaking and learned geological efforts and boldness in pursuing the ultimate goals. I wish I had the time to relate this to you now as I was a participant in Newmont's development until only recently. However, there is a written record of these histories. The Newmont story has been told in the two FORTUNE magazine issues of October, 1965, and December, 1982.

How long will the present prosperity of gold mining last? I would say as long as the price of gold stays above \$350 per ounce, as long as the mines' reserves last, and as long as significant new discoveries are made. As for the longevity of the mines, I see a disturbing trend. The desire to exploit mines for maximum profit, sometimes influenced by bankers' demands for rapid repayment of loans, has motivated many companies, especially the smaller ones, to expand production, reducing the life of the reserves to a short span, sometimes even less than five years. This makes the task of prolonging the life of companies by finding replacement of reserves that are mined out very difficult. As exploration proceeds at a heated pace, new deposits will be more and more elusive of

discovery, and it will take more time to find the profitable ones to replace those depleted. It is hardly possible in this mode to build great enduring mining companies.

The other factor in raising the rate of production, and shortening the life of a mine, is the foregoing of possibly greater profits in the longer term future if gold prices trend higher with time. This has been an important element in the growth of our great copper mining companies that had long-life deposits. While no one can predict reliably what price gold will command in the future, if the past is any guide, the trend should be upward in the long run, although there will no doubt be troughs in the trend line over the years. Perhaps this is a foolhardy prediction in the light of the great hoard of gold above ground that I called attention to earlier. But gold is unique in its attraction, and the world seems insatiable for possessing more and more of it.

Fuerstenau to hold new chair honoring Malozemoff

Prof. Douglas W. Fuerstenau of the Department of Materials Science and Mineral Engineering has been named to fill Berkeley's first fully endowed chair in mineral engineering.

A member of the Berkeley faculty since 1959, Prof. Fuerstenau is an internationally known authority in mineral processing and extractive metallurgy.

His new post is the P. Malozemoff Chair in Mineral Engineering. The chair was endowed by a \$500,000 gift from Newmont Mining Corporation to honor its recently retired chief executive, Plato Malozemoff.

"Our wealth of natural resources is one of the foundations of the greatness of the U.S., but funding to explore new concepts in mineral recovery is often not available," said Prof. Fuerstenau. "The Malozemoff Chair will allow me to carry on this kind of research.

"It will also open more time for thinking and writing by lessening the need to write proposals and manage research projects," he said.

At Berkeley, the annual income from an endowed chair supplements the chair-holder's funds for research, teaching projects, and related activities. (A chair does not provide faculty salaries, which are funded exclusively by the State of California.)

Recognized for many years as the dean of American mining executives, Mr. Malozemoff graduated from UC Berkeley magna cum laude in mining engineering in 1931. He received the Distinguished Alumnus Award in 1982 from Berkeley's Engineering Alumni Society.

Mr. Malozemoff began his long association with Newmont in 1945, becoming president and CEO in 1954, and chairman emeritus shortly after his retirement in late 1985. He has been a major force in the mineral engineering industry, serving on as many as 23 corporate boards at one time.

Born in St. Petersburg, Russia, in 1909, Mr. Malozemoff and his family came to the United States in 1920. After graduating from UC Berkeley, he earned a master's degree in metallurgical engineering from Montana School of Mines. For 12 years he conducted research and field work in metallurgy and managed small gold mining operations in North, Central, and South America.

Before joining Newmont he spent a year as an engineering analyst in the U.S. Office of Price Administration in Washington, D.C., assisting mining companies during a price freeze for nonferrous metals.

In 1969 he was elected to the National Academy of Engineering, his profession's highest honor, and has received many U.S. and international awards from mining and metallurgical societies.

Prof. Fuerstenau, the new chair-holder, has explored areas of applied surface and colloid chemistry and particle science and technology, in addition to his research in mineral processing and extractive metallurgy. He is the author of some 280 papers on this work.

Much of the technology used in mineral processing was developed by American engineers, he says, but with reduced supplies of ores and high costs of production, the industry is in a period of transition.

"Many of the remaining mineral deposits are lower in grade and more complex to treat," he noted. "New advanced technology is needed to process these minerals economically and in an environmentally sound manner."

He was chairman of the Department of Materials Science and Mineral Engineering from 1970-78 and chairman of the faculty of the College of Engineering from 1982-84.

Prof. Fuerstenau did his undergraduate work in metallurgical engineering at South Dakota School of Mines and Technology, earned an M.S. in mineral processing engineering at Montana School of Mines, and received his Sc.D. in mineral engineering from Massachusetts Institute of Technology.

At MIT he studied under Prof. A.M. Gaudin, who had guided Plato Malozemoff's graduate work 20 years earlier at the Montana School of Mines. "At the time, I remember Prof. Gaudin saying that Plato Malozemoff had been his most outstanding student," Prof. Fuerstenau recalls.

A member of the National Academy of Engineering since 1976, he has received honors from AIIME, the Metallurgical Society, and the Society of Mining Engineers. He is a 1974 recipient of the Distinguished Teaching Award from the Berkeley campus.

He is currently a director of Homestake Mining Company and is founding co-editor-in-chief of the *International Journal of Mineral Processing*.

"The new chair will allow me to expand my approach to graduate education in mineral processing, which has always emphasized the fundamentals of surface chemistry, particle behavior, and process modelings," said Prof. Fuerstenau. "With such an interdisciplinary education and research background, my students have gone not only into mineral engineering but also into the ceramic, computer, petroleum, and other industries."

Prior to the announcement of the new endowment, Mr. Malozemoff was guest of honor at a University House dinner hosted by Chancellor Ira Michael Heyman. Guests included Jack Thompson, former vice chairman of Newmont Mining, Dean Karl S. Pister of the College of Engineering, and a small group of MSME faculty and alumni.

Matrix, Berkeley Engineering
March 1987

500,000-ACRE LEASE MADE FOR LONDON COMBINE

MOSCOW, May 1.—(The Associated Press.)—The contract closed by the Soviet government with Lena Goldfields, Ltd., a London corporation, yesterday, covers the exploitation of 1,500,000 acres of gold, silver, copper and lead-bearing areas in the districts of Lena, Altai and Sissert, in Siberia, and is the most important concession ever granted by the Soviet.

The concession was negotiated by Walter Lyman Brown of Los Angeles, formerly European director of the American Relief Administration, Alexander M. Malozemoff of San Francisco, Calif., formerly chief engineer of the Lena properties, and Frederick W. D. Gwynne of London.

BANKERS INVOLVED.

It is understood that important New York banking and mining interests will participate in the operation of the company when its plans are completed. If the concession runs to the end of its term in 1935, it will involve a turnover of many hundreds of millions of dollars.

Lena Goldfields, Ltd., embraces the interests of the Russian Gold Corporation, Ltd.; the Altai Gold Corporation, Ltd.; and the Sissert Company, Ltd., which with the Lena Goldfields, Ltd., operated the mines covered by the present concession before the revolution.

The company's engineers estimate that the sections of the properties prospected there are \$150,000,000 worth of fully developed mines, while in the unprospected areas there is said to be a much larger amount.

HUGE ORE DEPOSITS.

In the Altai district alone, which covers 12,000 square miles, there is declared to be 2,000,000 tons of ore with an average recoverable content of silver, copper and lead of \$50 a ton. The Sissert Mines, the largest in Europe or Asia, cover 1,250,000 acres, and yield an average of \$100 worth of gold, silver and copper per ton.

Under the terms of the contract the Soviet government turns over to the company many steamers, steel barges and tugs for transportation on the Lena river. The contract provides that 6 per cent in cash or kind of the total production is to be paid to the government by the company during the first five years of the contract. The company agrees to install several million dollars' worth of modern equipment, which will be largely of American manufacture.

The company's technical staff will be largely British and American. The company agrees to abide by the Soviet labor laws; but the contract contains a unique clause providing that all disputes shall be referred to a special arbitration board consisting of professors of geology and mining in Swedish and German technical academies.

LIVES IN OAKLAND.

Alexander Malozemoff of 248 Santa Clara avenue, Oakland, one of those who negotiated the Lena Goldfields, Inc., concession in Siberia with the Soviet government, at present is in Moscow, where he conducted the negotiations for a group of New York bankers, Mme. Malozemoff said today. She expects to hear from him within a few days.

Malozemoff is president of the Bogdanov Investment Company of New York City and is a consulting engineer. He has been working on the project for some time, and only recently managed to interest the New York bankers in it. Malozemoff formerly handled a mining project in the fields before the war, and is said to be thoroughly familiar with the concessions.

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