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Robert Kendrick was a mine executive whose career spanned five decades and five continents. He holds a degree in mining engineering from the Colorado School of Mines and is a graduate of Harvard University’s Advanced Management Program. He was Chairman of Oro Gold, CEO of Monarch Resources, Ltd. in Venezuela, Senior Vice-President of Operations for AMAX North America, Manager of the Environmental Service Group at AMAX, and mine superintendent at several large mines in Colorado and Arizona. While at Climax Molybdenum, a subsidiary of AMAX, Kendrick helped develop the cavability index, used in mining worldwide. He served in the International Executive Service Corps, co-founded the National Mining Hall of Fame and Museum, and taught at the Colorado School Mines.
Oral History Center, The Bancroft Library, University of California Berkeley

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Burnett: This is Paul Burnett interviewing Robert Kendrick for the Global Mining and Materials Research Project. It’s February 25, 2019, and we are here in Sun City, Arizona, and this is our first session. Welcome, Mister Kendrick.

Kendrick: Thank you. It’s a pleasure to be here.

Burnett: I wonder if we could start talking a little bit about your family background, and early childhood. Can you tell us a little bit about that past?

Kendrick: Certainly. Well, I was born and raised in Leadville, Colorado, which is a mining camp, and at least half of my family were miners. Leadville is at 10,200 feet elevation which has its own detrimental aspects as far as oxygen deprivation and so forth is concerned. There are various illnesses that you can get at an elevation like that, such as polycythemia and so forth. Things do happen at that elevation.

Now, my people came to Leadville in more or less two tranches. There was a group that, on my father’s side, came through the Chicago area. They were in the Chicago Fire, which, as I understand it, was something like six years after the Civil War, and as a result, they got burned out in the Chicago Fire to the point where everybody ran for the Chicago River because everything was burning, and they lost my grandfather somewhere along the way. He was a three-year-old kid, and of course, nobody was really worried because they knew someone would have taken care of him, but he was gone for a couple of weeks before they really did find him down there by the river with this other family, who had taken great care of him, and everybody was happy to exchange him back again and get going with their lives.

They then moved. See, the Civil War was over in 1865. So, they then moved toward Leadville. It took them awhile to get there, and I’m not sure what diversions they had along the way, but they did get to Leadville some time after the Civil War, and immediately got back into the hotel business, which is what they were in when they got burned out in Chicago. I think it was the Clarion Hotel, or one of them that they built in Leadville. In any case, it, too, burned down, and one would say, “Well, isn’t that suspicious?” except there was no such thing as insurance in those days, so they weren’t gaining anything from burning up their own hotels. It’s just that everything was flammable, and—
Yeah. So, once that burned, then they got into another little hotel-like business, and they opened up what they called the Leadville Lodging House, great name. I’ve always thought that someday, somebody nice should start up the Leadville Lodging House and carry the torch, so to speak, but, in any case, that’s where they were. They were on Third Street, next to the Milwaukee House on Poplar Street, which is one block east of Main Street, and it was right by the Turnverein German Gymnastic Center there, and my folks were English; however, my grandfather was very active in the Turnverein in that he was really good on the rings, and did well with that. They had a stage within the Turnverein—they called it Turner Hall—and my father then, as a young teenager, actually drew up and painted the main curtain for the Turnverein Theater, and he was very proud of that, except that, sooner or later, that burned down as well.

So, everything was very flammable and very replaceable, and ultimately this part of the family stayed in Leadville for a while. My grandfather hopped bells at the Vendome Hotel, and the family decided to go to Glenwood Springs, but they left the youngest kid with my grandfather. His young kid was named Art, and they said, “Here, you take care of Art; the rest of us are going down to Glenwood.” “Oh, okay.” So, he took care of Art, and ultimately, he and Art built a hotel in Glenwood. It was called The Denver Hotel, and actually, the way that one worked was that Art had part of it, and my grandfather had part of it. Art got married, so his wife Mary had part of it, and pretty soon, the troika didn’t work, and lo and behold, my grandfather’s out of it. So, this is how things worked, and they were extremely foresighted in that by then, there was a train went by there, and they were right across the street from the depot. You couldn’t have had a better location.

Now, on my mother’s side, her family were from Iowa, and my grandfather, her father, was a very interesting guy in that he was into something all the time. Mostly it was all legal, but I mean, he wasn’t standing still for anything, and ultimately, he married a lady there in Twin Lakes, Colorado, and her father was a physician in Leadville who had some money, and he then, with the rest of them, built a toll road over Independence Pass from Twin Lakes to Aspen, and operated it as a toll road for a number of years. They had a gate. It would let a single horse by, or it would let a wagonload by. They charged by the size of the group that went through, and that was the first opening into the Roaring Fork Valley, over on the Aspen side. So, Aspen then became quite a silver community. They were really good, but unfortunately, you know, they had a lot of problems with bimetallics and so forth, and ultimately, there was the panic of ’93, that just shut down everything in Aspen and all those people had to leave Aspen. There are some big pictures in the Aspen area of all these people surging up and over the pass back into the Leadville area. Now I don’t know what good that did them, but they went back to Leadville, in any case.
So, now, we have the road over the pass. It’s available. People are using it, and as it moves ahead, I would have to say that, by the end of World War II, which is when my wife and her family moved into the Aspen area, it was the time of Walter Paepcke, and the building of Aspen, and the building of Ski Country USA, and everything was happening there. My wife, as a young teenage girl, made all of the drapes in the Jerome Hotel, by herself. Some of them were two-stories high, and her father had contracts to put all the antiques together to build banquet halls in the saloons, and to dress up Aspen, under the auspices of Herbert Bayer, who was just a fantastic leader in historical interpretation, and a Bauhaus designer from Germany, settled in Aspen, and as a result of Walter Paepcke’s money, and Walter’s ability to do all kinds of things with what he had, Aspen has become a premier event on anybody’s stage. It’s premier skiing. It’s premier architecture. It’s premier people that live there. It’s really great, and as a result of that, we have one son whose family live just out of Aspen because they like it. So, that’s kind of a thumbnail of what happened there.

Now, we have to back up a little bit and think about my grandfather, on my mother’s side, who came from Iowa. He and his brother took the train from Iowa to Colorado Springs, and in Colorado Springs, they left the train in January of ’78, and they walked all the way across South Park in January, and over Mosquito Pass, which is a high pass—that’s 13,167 feet, I know—and they descended into Leadville, and wondered what in the world they’d gotten themselves into, but they loved it, and my grandfather was a deputy sheriff in the early days there, and had many tales to tell about that, and his brother was a lot more stable on his feet, I think, than my grandfather was, but in any case, they both raised family there, and as I mentioned before, his wife’s father put the road over Independence Pass into Glenwood.

Now, he then, with his wife, settled in Twin Lakes, Colorado, which is not very many miles from Aspen, and with their family there, he took claims up on Perry’s Peak. Perry’s Peak is the southernmost peak of Mount Elbert. Mount Elbert is 14,431 feet, and it’s the highest peak in Colorado, and only behind Mount Whitney in the lower forty-eight states. So it would be number two, and Mount Massive alongside of it is number three. So, these are very high-country things, and Perry’s Peak is the southernmost peak of the Mount Elbert complex, which is where he staked all kinds of mining claims, and actually worked an awful lot of them, and my mother was the second-oldest girl in the family, and she would climb up there and help him with his mining claims, work underground alongside of him, was a real helpmate, because that’s the kind of person she was. Though people have mentioned that women in mining are a negative thing, really, all my life, it has never been that way. My wife has been in every mine I was ever in, and it never did hurt anything.
Well, there was an incident at one point when I was running, let’s see, the Henderson project, when we were sinking a shaft with a bunch of French Canadians, and they were a suspicious lot, and some lady in Denver decided she wanted to go through Henderson, and of course, these French Canadians said, “No, we don’t want her in here,” said, “it would be bad luck.” So, I asked them, “Wouldn’t it be all right if we let this lady go?” “No, we don’t want her.” So I said, “No, you can’t go through.” Well, she raised a lot of hell and it was all for naught. Shouldn’t have done it, too much publicity. It was no good, but in any case, that one incident, I think, reinforced the idea that it was really bad to put women in mining, but it isn’t. We’ve had women in mining forever. As a matter of fact, just before I was born, they had a great big banquet in Leadville, in one of the stopes of, let’s see. I’ve forgotten which mine. In any case, that will come to me, sooner or la—

01-00:15:48
Burnett: They had a banquet inside the mine?

01-00:15:50
Kendrick: Yeah, it was in a stope inside the mine. They had a big banquet, and years later, I saw a picture of the server people in there, and there were all kinds of women as well as women who were invited. Half the whole thing was women, and the whole city of Leadville loved it, and there were no big problems that happened after that as well, but—

01-00:16:16
Burnett: Well, I wanted to pause for a moment and just reflect on the kind of place that Leadville was, and the kind of experiences that your grandparents had. So there’re kinds of people who go to a place like Leadville, right, and then there are the kinds of people who stay in a place like Leadville—

01-00:16:37
Kendrick: That’s exactly right.

01-00:16:39
Burnett: —and I wonder about all the volatility. So, there are the fires in Chicago and ongoing fires in the hotel business, and then there’s the economic fires of the Panic of ’93, and 1873, and 1909, a lot of instability, and I’m wondering if you’d talk a little bit about the people of Leadville, what kind of person it takes to live there, and then as a segue into talking about you, as you grew up inside of it.

01-00:17:09
Kendrick: I did. It was a microcosm. It was a microcosm of intrigue and good things, and not bad things. Like I say, my grandfather was a deputy sheriff. The title didn’t mean anything, but he did have some interesting experiences. He utilized his position so that he would go off prospecting, for example, leaving his family in the Twin Lakes-Leadville area. He had seven children, and he would go off and leave his poor wife taking care of them, and wander around, perfectly unconcerned about not having a base out there. He would, for
example, jump on the train and go out to Utah, and get off there, and would have his horse with him, and travel down to the Henry Mountains, for example, and prospect, and hope that he struck it rich, and invited all kinds of people into his camp.

In fact, he told a story about how he had two guys staying with him one night that he was just sure were bad guys, and he slept with his—they called it a six-shooter. He had his six-shooter on his chest all night wondering what’s going to happen next, but that’s the kind of guy he was. Another example would be when he took his whole family up to Rogue River, Oregon, prospecting. They all went up there, all the kids and everybody, and he hired an Indian to guide him down the Rogue River, which is one of the roughest rivers in North America, of course. And so he went down the river, and they made it. He’s prospecting all the way, [laughs] and he just left these guys in the tent up there. He went clear down to Crescent City and then had to make his way all the way back. They were there for weeks, and he didn’t think anything about that. I’ve always marveled at his wife. She had to be a different cut, I’ll tell you, because she put up with everything.

And, so then, the family was back in Leadville, and this’ll maybe put your question more in the front of the line in that they were staying at the Elmore Mine, up in Stumptown, which is in the big Glacial Amphitheater there, and he was working the Elmore along with his brother, and it was January, and they didn’t have all the kids there; however, they did have a bunch of them, and they sent Uncle Walter, who was his brother, to town for supplies, the railroad went up there and wound around through various snow sheds and so forth, and so Uncle Walter went down to Leadville, got supplies, started back up, but he never made it to the Elmore, and so, they searched for him all winter long. They’d look out across the Amphitheater and they’d see a coyote digging over there, and they’d think, oh my God, that must be it, so they’d grab a shovel and go over, dig where the coyote was, and they never did find Uncle Walter until spring, and apparently what happened, he was walking alongside the railroad tracks, and fell down a shaft—
miserable, and Uncle Walter went to Leadville to buy supplies, groceries, primarily, but then he’d have to buy stuff like carbide and stuff like that to keep them able to work underground, maybe just candles.

In any case, he didn’t come back from town, and the way he went is down the railroad track, and he did make purchases and start back—everybody knew that—but he never made it, and as a result, it was very traumatic for the family, because now “Uncle Walter, where is he?” What’s happened, and what do you tell the little guys, you know, and there was nothing to tell them. So, they’d look off across a field and they’d see a coyote digging over there some reason. Why is he digging there? Well it might be Uncle Walter. So they’d grab a shovel and go over and dig, and it wasn’t Uncle Walter ever, but come spring, what they did find is that Uncle Walter was, once again, following the railroad tracks, very close, and apparently, there was a shaft very close, and he fell down it, and killed him, and they found him then in the spring, down the shaft, with his supplies, and like I say, it was a very traumatic time for that little family, but that was life in Leadville.

Burnett: So there was a volatility. Was there a lot of turnover in the population? Were there strangers coming into town, and—

Kendrick: Sure, there were a lot of people in and out, and a lot of people that just wandered through there. They had many more saloons than they had churches, that’s for sure, and not sure what the ratio was, but it was high, and they had churches all over the place as well, too. They really did, but Leadville, I don’t know, and, they had their labor difficulties. On the Coronado over there, they had a big labor strike, and the state got involved [September, 1896]. They called out the National Guard and they brought these people up, and they were apparently shooting at each other, and I think one man was killed in that altercation, but things like that were, well I won’t say the norm, but more the norm there than anywhere else, you know, yeah. And so there I come now; I’m a little kid now coming up through that generation.

Burnett: And when were you born, what year?

Kendrick: I was born in August of 1930, 8-12-30, and I was born right there in Leadville. I had an older brother twelve years older than I, and an older sister eleven years older than I, and I had a sick father. He had tuberculosis and all kinds of things, and just had an awful life, was totally lame on crutches most of his life, and my mother worked. So, once I hit the first grade, I was pretty much on my own. Before that, I had a lady that looked after me, but once I hit the first grade, I’d come home from school—it was interesting. I think about it now and how it all worked, but they bought me two pair of shoes each year. One was a good pair of boots, and I had two pairs of clothes. I had corduroy pants
that were school pants, and then I had a coverall suit that you put on to protect that, so that you could keep those good for school, and I’d go skiing in that. We’d go out on the railroad grade and ski down the railroad grade. I mean the bank, not the grade, we’d ski down the bank.

It was a great life; it really was. I can remember many nights however, coming home with my pants having been wet with the snow, and frozen solid, so that you’re walking like you have stovepipes on, and I was so cold I was crying all the way home. Yeah, that’s just part of it. That’s the bad part. In addition to that, my brother built a skating rink in our backyard, and every kid in Leadville learned to skate on that, and once he went away to college, I kept the rink up, and like I say, every kid that learned to skate in Leadville skated on our ice.

01-00:27:20
Burnett: So it’s beautiful up there, I imagine, right? So it’s—

01-00:27:25
Kendrick: It’s beautiful. It’s beautiful. It’s 10,200 feet.

01-00:27:29
Burnett: Yeah, and you’re surrounded by, obviously, the mountains, and you were skiing on a kind-of amateur basis. Skiing wasn’t such a—

01-00:27:37
Kendrick: Well that’s all—

01-00:27:38
Burnett: —big thing.

01-00:27:38
Kendrick: —skiing was, was amateur. I have to explain our get-up on skis. What we would do is take a pair of overshoes, buckle overshoes, and the skis, all they had was a strap across here that went halfway through the ski, so it wasn’t on the bottom, but you could stick your foot in there, and the strap went over it, and then if you took an inner-tube rubber and put it around your heel, and out over the strap, the ski more or less was on your foot, like this, I mean, just totally—

01-00:28:23
Burnett: Totally loose as well.

01-00:28:24
Kendrick: You had no control over it whatsoever, but at least it was on your foot. So, yes, that was very primitive skiing. We did have two poles rather than just one pole, like some people used to have. We had two poles, and you’d try to go down the hill, and you couldn’t turn the damned things because your foot had come off the ski, so that didn’t happen, but there was a guy named Bill Copper there in those days, great guy, in the business of skiing, trying to make a living on it, and he put up a little Model-A ski tow out there on a hill just
north of Leadville, so that the rope went around the wheel, and he’d turn on the Model A and it’d pull a rope up the hill, and you could grab it and go up and come down.

So we had a tow. It was wonderful, but we still couldn’t turn. You’d go down the hill and you’d fall at the bottom, and there’s a transition, you can’t handle that transition, you go right on your face, because your heels are free, you know, and one day, this guy named McMillan, Old Man McMillan came out there and somehow, he had learned to snowplow, and all the kids watched this guy go by. He had controlled skiing; my goodness, how did that happen? And we were just amazed, and we all tried to mimic this guy, and we did, to a degree. We learned a little bit of control, and that was the beginnings of putting it together so that people could, in fact, ski. Then of course, the huge thing that happened is, they put the [US Army] Tenth Mountain Division out there just sixteen miles out of town, and these guys, they did know how to ski, and they did have equipment that would stay on their feet, and it then became part and parcel of any kid in Leadville that wanted to ski. However, even then there were a lot of kids that did not ski. It just did not happen, but in any case, I grew up with the Tenth Mountain people, and very much enjoyed them the whole time.

One time—I’ll tell you a little anecdote with them—I was a senior in high school, and we, as a skiing group, we had a group. There were about twelve people there that all skied together, and we decided we wanted to climb up Mount Elbert, 14,431 feet, and ski down. So we were going to climb all night and ski down in daylight, and it didn’t work out. We got in this great big snowstorm, and we were right on the verge of avalanches all the time, and things were sliding out from under us, and finally we shut her down, decided “boy, no more of this!” So we went the next weekend, and there were only seven of us that time, went from twelve to seven, and that time, more or less the same thing happened. We were not able to really make the transition to go up the hill. So then we waited the next weekend and there were only four of us. There’s three Tenth Mountain guys, and me, and so we did. We, by that time, walked all night long, carrying our skis. It was pretty much hard packed. We climbed to the top of Mount Elbert and skied down the next morning. Fantastic, I can’t say enough about it, but you can imagine what it would’ve been with the sun coming up, and all, and that was the first winter summit of Mount Elbert, me as a kid in high school and they as what they were. It was a great thing.

Burnett: Well, so what I’m gathering is that you grew up with risk.

Kendrick: With what?
Burnett: With risk. You grew up, it was kind of part of your life. People could fall down a hole. You could, for your recreation, you could die in an avalanche.

Kendrick: Oh, easily, easily.

Burnett: So—

Kendrick: Yeah, well, it—

Burnett: —it’s something we’ll come back to later, I think.

Kendrick: Yeah, we could talk about this because I did a lot of avalanche control when I was with the Vail people and all this, so I know a lot about, or at least I can talk a lot about avalanche control and so forth, but one of my worst nightmares as a child—you have a shaft here. It’s going down and when it caves in, what you get is a thing that looks like a funnel, and it’s on the angle of repose and it goes down to this hole in the center, and my worst nightmares were of falling down that hole. I would dream about it, that I was going to slide down this thing and go down in the hole. So, yeah, there was risk there and it scared the hell out of you. [laughs]

Burnett: But how did you know, as a child, about a mine collapse? How did you know that that’s what it does, there’s an angle of repose—how old were you when you had these nightmares?

Kendrick: Well, I was working with my brother up on Johnny Hill. He and his best friend had a lease on the Elk, and the Donavon Mines, which was the dump, to ship it to the smelter, and get paid for it. Now, these guys were very well defined in what they did. This was not haphazard. They took an assay, every day, of what it was they were sorting on that dump and they would sort this, and it would take most of the summer, and they’d have enough to load a railroad car. Now, the Little Johnny had a siding up there. You know the Little Johnny, of Molly Brown fame, all that kind of stuff, John Brown [“J.J.” Brown]?

Burnett: Right.

Kendrick: Well, 180 million in gold out of the Little Johnny. Most of the Leadville district was not gold. It was silver and everything else, but 180 million out of the Little Johnny, and at the Little Johnny, they had a siding for the trains. The
trains would come out there. We’d call for a car. They’d park the car there so that—we had a little four-ton dump truck, and you’d load the truck, and they’d back it up, and these were gondola cars. You can’t load them in the middle; you can only load them on the ends. So you’d load each end of this car, and then it was full. This was all empty here. Then it would be shipped to the smelter, and the smelter would sample it and pay you what they said it was worth.

Okay. There were problems with that. Now, my brother and I, but I didn’t count—I was just a kid, but I still worked on it—and his friend, Jack, had shipped this car to the smelter, and they got the word back, “Well, you’re going to have to pay us. You don’t have anything in there.” And so, they then got what they call an “umpire”, an umpire assayer, to take samples from what they have there, and then compare it with what the smelter had, and compare it with what the kids had all summer long, and this guy’s name was Charlie Parker. He was in Denver, and he was totally on the side of the kids. He was not an umpire, he knew damn well they were getting cheated, and he put up one big stink, and he got not only the values they thought they had in there, but for the first time ever, they got paid for metallics in there, in other words, free gold, free silver metallics, and this was unheard of.

So I started talking about risk, and I was thinking about bodily risk like health, safety, and you developed strategies around living around risk, where you become really concerned about safety, and you develop protocols and things like that, and you’re starting to tell a story about another kind of risk which is financial risk, which is getting cheated, maybe, by someone who has more power—

By people that have no business cheating you.

Yeah, and so, you’re getting these life lessons about not dying, on the one hand, in some kind of accident, but also learning that you can be cheated, that people will cheat you, and that you have to protect yourself, and that you also have allies, that there are people who will look out for you, and that you can trust.

That’s right, and they will.

And so, the other piece of it is that you are the proverbial child of the Depression. You’re born in 1930, so you’re growing up in a period of economic scarcity, at the periphery of economic activity in the United States. You’re on top of a mountain, far away from—I mean, Denver is a town at this point, right? It’s about a hundred thousand people. It’s the size of Grand Forks
today. It’s not a big place. So you are fifteen years old at the end of World War II, fifteen, sixteen maybe, so I’m wondering, given that upbringing, the family, history, and your environment, can you talk about mining, and when you decided to pursue a path? I don’t know what your thinking was, at say, sixteen, seventeen, eighteen. What were you thinking about school? What were you thinking about a career?

Kendrick: Oh yeah, well it was a very traumatic time for me. You see, my brother died. He was in the Underwater Demolition. He was a frogman and he was getting ready for Omaha Beach, and things didn’t work out—he got pneumonia and died—and he had had his own team. It was really massive trauma, massive, massive trauma, and it just about killed me, in that he was more family to me than all the rest of them put together. He took care of me. He really did, and that happened February 5 of 1943, yeah, 1943, and we got this call—it was from Fort Pierce, Florida—that he had died. We only barely knew he was sick, and my mother had tried to go down there to be with him and his wife, and she rode the trains, never did get there. He died before she got there, but my father—luckily, we had an aunt and uncle staying with us at that time—my father totally lost his head. He just totally lost it. He screamed and hollered and ran from one end of the house to the other end of the house. The devil was after him. And so it was a massive trauma, and it was all World War II massive trauma, and it was a transferable thing. In the meantime, my sister had joined the Hospital Unit in Denver, Thirty-first General Hospital Unit, and she was in the South Pacific at that time, so, the family was all spread all over hell.

Burnett: What was your brother’s name?

Kendrick: Frank. Frank, yeah, he was Frank the Third. We had, Grandfather was Frank Kendrick; my father was Frank Kendrick, Junior; and my brother was the Third.

Burnett: So you emerged from that family tragedy, and from national and global tragedy of World War II, and you survived—

Kendrick: Barely. [laughter]

Burnett: —and you had no choice but to go forward, and so, tell me about the next steps for you at that time.
Well, the next steps—let’s see. What were they? Well, one thing, of course, see, I’m twelve years old when this all happened, and I can tell you some—you don’t want a lot of gruesome stories.

Well, you don’t have to decide now. If we want to—

Let me tell you one. We had a complete military funeral there. They had the color guard from Camp Hale; the Tenth Mountain came over and they fired their rifles, the salute and so forth; and then of course, this was a hand-dug grave, and it was time to cover it up, and my father was scared to death that there was going to be a rock in there that would cave in and go on my brother’s face after the casket gave way, and there were a couple of them in there and he says, “Climb down there and get those rocks out of there,” and “no, I wouldn’t do that”, and so, I didn’t, but then the gravediggers moved the rocks, but there were a lot of inordinate things that happened during that time that were very difficult to accept and absorb, and ultimately shake off, because it was a very massive trauma.

In any case, what do you do? Well, now, I’m a sophomore in high school. I guess you get ready to go to college. Well, I didn’t want to go to college, and so I kept taking jobs. I had jobs every summer on all kinds of different things. I worked on churn drills. I worked on placer dredges, like for example, over in Fairplay, on that dredge over there, and as a result, I kind of evolved through the summer months, and then I would make it through the winter months, because by then, skiing has become a thing that is doable, and we did it very well, and—

And that gave you joy.

Yeah, it did, and it was something that you could sink your teeth into and make progress, and see other people making progress, and thereby learn from them as well, and you had synergy going, and it was a good thing. So that, when it came time to go to school, I had applied to Colorado A&M because my mother said—you see, I did an awful lot of high-lake fishing. I knew all the lakes in the area up there and I knew what kind of fish were in there. I knew what kind of flies they liked. I knew about fish.

I’m guessing these are coping strategies in part. You’re a bit on autopilot at this point, and you’re just trying to figure out what to do next.

That’s right. I had a group of about four guys that, we didn’t all go at the same time, but we always tried to have a group of three in case somebody got hurt,
you could get down out of the mountains, but that didn’t always work either, but nonetheless, we just really enjoyed it. We hit all those things. We didn’t have a way to really get there. Either my dad would take us out and leave us and pick us up in Minturn, for example, or one of the other parents would do this, and we always made our rendezvous, but I think we scared hell out of our parents, because many times we were out there in blizzards and stuff, but one time, the kid with me fell down an avalanche chute and hit the rocks, and broke his tailbone. It was not all peaches and cream, but, it was fun.

Burnett: It was worth it for you. I mean, you wouldn’t have done it otherwise.

Kendrick: Oh no, it was worth it. We never did have a tent. We never, ever camped in a tent. We just had a backpack, and the first parts of it, we only had bedrolls, but then we got sleeping bags, and that made all the difference in the world, but we never, ever packed a tent. So it was kind of roughing it, you know.

Burnett: Yeah, roughing it, and so you decided to go to—you did decide to go to college—

Kendrick: I did.

Burnett: —at twenty, is that right? Were you then about—

Kendrick: No, no, that would have put me at eighteen.

Burnett: At eighteen, so 1948, ’49?

Kendrick: Yeah, and I went to Fort Collins, and it was not a bad thing. I was kind of glad I went there, because it eased the transition into [The Colorado School of Mines]. Mines is a tough school, and it eased the transition for me, in that I was able to pick up some courses there. I was able to learn. I was a product of a high school that was a product of the war: whomever the hell was willing to sit up there and hold a book could be the teacher, or the librarian, or whatever, and the qualifications were nil, so I did not have a very good education. In any case, therefore, I was able to go to Fort Collins, which, it was not the steamroller that Mines was, but also, it had a bunch of people in there that I had heard of a lot of my life, in that, there were a lot of people from [pronounces as “Buna”] Buena Vista. We say Buena Vista; that’s [pronounces as “Bwayna”] Buena Vista. However, we got to be friends up there, and we had a great thing, and as a result of that, I was able to meet my lovely wife and marry her, because her sister married one of my friends, and they decided I
was the one for her, and they were right. It isn’t often you give credit to people like that. [laughter] They were right.

Burnett: And this is Marian, of course.

Kendrick: Yeah, that’s her, and—

Burnett: And this is Colorado A&M?

Kendrick: Colorado A&M, and she and I were married out on a homestead. Actually, we met out there; I don’t mean married there. We met on a homestead New Year’s Eve, if you can believe this, in a blizzard, and in this little ranch house that just had holes all over. It was colder than hell in there. One big stove in the middle of the room, everybody stood around that, and then we went into the Slovenian Lodge for a great big dance, and you haven’t danced till you’ve danced in the Slovenian Lodge, believe me.

Burnett: So there were Slovenian immigrants who were—

Kendrick: Oh yeah, we had lots of them, and they were polka people, I’ll tell you, and she loved it and I loved it, and so I proposed to her before we left that night, and she said yes, and we got married six months later.

Burnett: Wonderful.

Kendrick: What do you say to that?

Burnett: Yeah, and that’s—

Kendrick: That’s after seventy years. How long— [laughter]

Burnett: That’s a lot, yeah. What year were you married? It’s ’49?

Kendrick: We were married in

[Marian Kendrick off camera gives date]

Burnett: ’Fifty-four?
Kendrick: Yeah, ’54.

Burnett: So, you had to do some catch-up at Colorado A&M and to develop, perhaps, learning-to-learn skills?

Kendrick: Learning to learn, yes I did. I didn’t really have it, no, which was good, and it stood me well. I still remember things that other people don’t remember that I learned at Mines. Man, I—so it’s a good thing, yeah.

Burnett: And, this is one of the premier places in the world, even then, to learn the advanced technology and science of mining engineering.

Kendrick: Absolutely.

Burnett: So, what brought you there? Were you apprehensive about transferring over? What was the pivot point where you decided you were going to—

Kendrick: My brother. My brother had graduated from there. He was the Class of ’42, which, that was a dead class, essentially. Yeah, so, I had to go there, yeah.

Burnett: So there’s some redemption in a way, or whatever it is, exactly. So you applied, you got in, and it’s four years, and you had been doing mining since you were a kid. You’d been involved, and you said you traveled around. You worked at placer dredge works. You’ve worked in these different types of mining, and I imagine that was true for a lot of folks who went there, although not for Roshan, for example. Roshan Bhappu, he came from a completely different background and started from scratch. Can you talk a little bit about being at Mines, the kind of people you ran into, what you learned when you were there?

Kendrick: Sure. It was a fantastic place; it really was. I joined the SAE Fraternity, because my brother was in SAE, and they took care of me, and as a result of that, I had more friends than you can even imagine. I got a job there too. I was a hasher for three years there, and that paid my board, not the room—the room was fifteen dollars, the board was forty—and that paid my board for three years, and it was just kind of a perfect little setup, and I’d have to say, I really did enjoy it, even though it was an intense learning situation.

Burnett: So it was the fraternity that supported you, or the Colorado School of Mines that supported—
Kendrick: No, the fraternity.

Burnett: The fraternity, okay. Is it a kind of a fraternity for the university itself? In your career as you go forward, it’s that you know people from Mines, or if someone is from Mines, it’s a connection?

Kendrick: Both, yes. It’s definitely a connection, and it’s certainly not imperative to be a member of the fraternity. Mines, itself, is a connection all by itself.

Burnett: It’s a fraternity in and of itself.

Kendrick: I’ve been all over the world and I have that thing from Harvard which is a good thing, but I have had more positive acceptance out there in the world from having graduated from Mines than what my degree said from Harvard, and I don’t mean to cut anybody down by that. It’s just that’s how it was, and one of the reasons for it is because I’m in mining out there, and therefore, whatever I picked up at Mines is more meaningful than what I picked up at Harvard. You see what I’m saying?

Burnett: I don’t think Harvard wants to compete with Colorado School of Mines.

Kendrick: I don’t think they do. [laughter]

Burnett: So you graduate with a mining engineering degree. You were an eng—

Kendrick: An EM, that’s right.

Burnett: And you’re an engineer—

Kendrick: Engineer of Mines.

Burnett: —from the Colorado School of Mines, and today, or in the recent decades, there’s recruiters who come to a campus, and they come from a company, and they look at all the people. How did it work in those days at the Colorado School of Mines? This is now 1953, that you graduate?

Kendrick: Yeah. Actually it was ’54 I finally made it, but it should have been ’53. Well, there were recruiters, and I was recruited to go to work up at Butte, for
example. I had a job over at Gilman, for example, but really, I had Climax pretty much in my back pocket in that I’d worked there before, and why go someplace else, and another reason is economics. I can stay at home, and my folks didn’t charge me board and room. For example, in the summertime, I’d come home. I could live there all summer long, totally save my paycheck, and just about put myself through school. With the hashing job, I could, I could, and it worked out extremely well. There was a lot of synergy there, but it worked.

Burnett: Right. So you went to work for Climax. You went back to Climax, as your first job out of college. Can you talk a little bit about those years? In the 1950s, new technologies were coming online. I think there’s something about the Copco Drill; there was a new drill that was coming online in a lot of the mines in the 1950s. Things were changing. Can you talk a little bit about your experience? Were you learning the ropes in different types of jobs, or were you looking at management? How was it working for you?

Kendrick: Right. So you went to work for Climax. You went back to Climax, as your first job out of college. Can you talk a little bit about those years? In the 1950s, new technologies were coming online. I think there’s something about the Copco Drill; there was a new drill that was coming online in a lot of the mines in the 1950s. Things were changing. Can you talk a little bit about your experience? Were you learning the ropes in different types of jobs, or were you looking at management? How was it working for you?

Kendrick: Well, I’d like to put just a little preliminary in there before we get to that, if that would be all right.

Burnett: Of course, yeah.

Kendrick: Yeah, what I’d like to say is that I went to work first, I went up to the Resurrection [mine]. Now the Resurrection is the far end of the Yak Tunnel. The Yak Tunnel is a four-mile tunnel that goes right through the mining district, under Breece Hill and so forth, from California Gulch to Big Evans Gulch, and the terminus on the Big Evans side is the Resurrection Mine. This tunnel goes in there, and it hits the Resurrection Mine at the 800-foot level—and then there’s a winze that goes down from that, but, one of the first jobs I had at the Resurrection was, I was a nipper on the Yellow Streak Muck Train. The Yellow Streak Muck Train was kind of a fabulous thing in that it made that four-mile run downhill, and there’s no way you could stop it. Once you got it going downhill, it went, and you couldn’t stop it, and everybody get bent or get out of the way, and as you went downhill, you had “pull bottles”--. You’d reach up and pull a pull bottle, turn a red light on down there so somebody else didn’t come in, and you’d just sit there and ride the thing, and the caps are going over your head like this: frtt, frtt, frtt, frtt, frtt. I mean, it’s fast. That’s the Yellow Streak! It was a romantic thing all by itself. It was the darnedest thing you ever saw, and—

Burnett: And seems a bit dangerous, too.
Kendrick: Scared the hell out of you. It was a bit dangerous, yes it was. Yes, they’d wreck every now and then. Anyway, I had that for awhile, and I’ve never been sorry that I ran the Yellow Streak. That was really great.

Burnett: It was fun. So, there’s a bit of a thrill seeker in you—

Kendrick: Oh, I’m sure.

Burnett: —not a reckless—maybe? Maybe a bit of— [laughter] So, you were thinking about adaptation, of people, and the adaptation of a person to a job. I don’t know if you were picked for that job, or if you volunteered for that job.

Kendrick: No, they put you where they wanted you.

Burnett: Yeah, but you were able to do it. Other people might not have been—

Kendrick: Oh, I suppose.

Burnett: —enthusiastic about it.

Kendrick: I don’t know of anybody that didn’t do it, but maybe, I don’t know.

Burnett: Yeah, it was part of the culture. You just did what you were told—I mean, you did tell a story once about people who quit when something got risky, like miners—

Kendrick: Oh yeah, well that’s—

Burnett: —that could happen a lot.

Kendrick: —that’s on—

Burnett: We’ll come to that at a certain point, so, just to illustrate that sometimes, people working in mines evaluate risk, and they say, “This is too risky; I’m out—
Kendrick: Well, that’s right. They bring their family in, they get logical, and you really don’t want to refute this, you know.

Burnett: Yeah, and so there was a culture of, in general, accepting the risk.

Kendrick: Yes, that’s true.

Burnett: Okay.

Kendrick: That’s true, and that maybe puts us up there where we were talking about the finger draw-point caving in while we were inside of it, and—

Burnett: Yeah. Can you talk about what a finger is, in mining?

Kendrick: Yeah. Okay, well in the slusher drift system of the Climax Mine, a typical slusher drift has six fingers in it. They are thirty feet apart, essentially, and there are three on each side. In other words, this one’s A, this one’s B, this one’s C, D, E, F, and so, you’re working one side or the other, and I was on the muck crew. I was a loader on the muck crew. Now, when you’re in a loading drift, you have a hang-up man. He’s in charge of the drift. He’s the one that keeps the muck flowing by putting the bombs up that keeps it flowing. Then he’d have two or three loaders with him, call for a train, and these guys load the train, and the whole thing works beautifully. It’s well done.

Burnett: Are you injecting water in to create the kind of mud, slush—

Kendrick: No—

Burnett: —or is it water?

Kendrick: —you don’t want mud. No, you don’t put water in there. [Ed. note: Muck in mining parlance is the finer-grained ore that slides down from a blast in solid rock.] I’ll tell you a story on that, however, but anyway, what you want is free-flowing muck, and sooner or later, you get a big rock, or two or three hanging up here that blocks off the thing. So you have to go in there, and you have what they call a bomb stick now. There’s an eight-and-a-third pound of powder in each bag, so, here’s eight-and-a-third pounds of powder on a one-by-two stick that’s limber, and you put that up there with Primacord coming off of it, and get it placed, and maybe you put thirty more of them up there—it
takes a lot of them maybe—and then your Primacord comes down, you make it hot, and it blasts, and hopefully the whole thing comes the way it should.

All right, well that’s the simple way to blast a finger. However, this one day, we were in the B Finger of Number Nine: Number Nine, 160 North dash Nine B Finger. So, are you with me here?

01-01:03:46 Burnett: Yeah.

And we’re over here in the B Finger. There’s five of us in there. Warren Hatfield is the hang-up man; and then Danny Wilmot, he’s a loader; and then there was a guy named Toothless George, he’s a loader. Dick Kahn was a loader and I’m a loader, then there’s a guy that stayed out on the bottom. He didn’t ever go in fingers because he couldn’t hear, and if you can’t hear, it’ll kill you, so, you don’t go in fingers when you can’t hear. So he stayed down, and we’re strung out up this finger, periodically, you know, and we’re putting up a bunch of bombs, and the damned thing paid off. In other words, the major hang-up didn’t break loose, but under the major hang-up, here comes a whole bunch of muck down there and it filled the finger up. Now we can’t get out anymore, but luckily, Cecil is down there on the bottom.

01-01:04:42 Burnett: He’s the guy who can’t hear?

Old, deaf Cecil, [laughs] yeah, and he sees what’s happened, so he calls for a train and gets it in there, and starts up the slusher drift and pulls it, and some more comes in there, and by now, it’s a little bit spooky because it keeps filling up behind there and we can’t get out, and it’s not a pleasant thing. It’s kind of scary.

01-01:05:07 Burnett: Yeah. No one panicked, though.

Nobody panicked. In fact, they all voted that we should stay in there, once we got a hole open. We only had five more cases to put up. They said, “Well let’s put them up.” They didn’t ask me. I don’t know if I would’ve, but, anyway—

01-01:05:25 Burnett: But you did it anyway.

01-01:05:26 Kendrick: Yeah, we did it anyway, and we made it, but that’s life, in a hang-up situation, okay? Now—

01-01:05:40 Burnett: It’s life in the mines.
Kendrick: Life in the mines.

Burnett: Yeah. There’s a certain amount of risk that goes with it.

Kendrick: Yeah.

Burnett: So, were you moving then from type of job to type of job—

Kendrick: I was.

Burnett: —or were you developing a specialty?

Kendrick: Yeah, well, I wanted to get as much background as I could because I knew that was my life from here on out, so, the muck crew, I enjoyed it the most, because it’s kind of a gung-ho job. It’s kind of my type of character where, by God, you want to get as much muck out as you can, which is different from drilling and blasting with a mining type situation. So, then, the first one I had was a timberman. I was a timberman with a guy named John Russ. He was one of Hitler’s tank drivers, mean bugger. Geez, he was a mean bugger. Anyway, he and I got along fine and we worked in the—it was called a high hang-up timberman, so we worked above the haulage drifts in the higher drifts there, and put up timber, and caught up rock, and made these loading cutouts then available for production, and John, he was a, like I said rabble-rouser. He finally—he was in our carpool—he stole one of the guys’ wives and it was just a thrill a minute with old John. He was something else. Anyway—

Burnett: So a lot of this work is, a lot of the labor-intensive work in the mines, is preparation, right, because once it’s in production, there’s something kind of—you’re moving cars in and out, and you’ve got drills, or whatever it is they’re blasting, but when you have people down there, those people are shoring up the drift. Is that right?

Kendrick: That’s exactly right, yes. Actually, you can take that people thing, and define hazard. In avalanches, for example, if you have an avalanche chute, which is what we had over there at Bolster and Henderson. We had them coming down all the time, but an avalanche is not a hazard until you introduce people into the equation. Then, it’s a hazard. The more people in there, the bigger hazard it is, and you can extrapolate that into whatever situation. When old Stan’s [Stanley Dempsey] over there drowning [laughs] in the mud, he’s in a hazardous situation. Had he not fallen in the mud, there’d be no hazard there, you see? You see what I’m saying?
Burnett: Absolutely.

Kendrick: And you can extrapolate that into any kind of job you want to. So you don’t get hazard till people are involved, and then you do.

Burnett: Well, I’d like to know, in terms of in the 1950s, you’re doing different kinds of jobs within the mine, when in the Climax Mine, and is there training programs inside it? Is it very much apprenticeship?

Kendrick: No. There had been previously; however, when I was there, there were no training programs. Now, different mines did have—Butte had a rock-solid training program. Today you did this and nothing else, and tomorrow did that, but that was the only one that I was really aware of at that point in the industry, but that doesn’t mean there weren’t more. I just wasn’t aware. So as a result, I kind of made my own training program, in that I made sure I got into a muck situation, timbering situation, a mining situation, and oh, a stoping one. Those were the major ones, and prep, preparation.

Okay. So I got into all of those and I had background in all of those and then at some point in time, the next step up for me was foreman. I became foreman of all of those. You know, first job is a shift boss; second job is foreman, and as such, I made it in all of those as a foreman, and then the next step after that is general foreman, which is just right under God, and I got into that spot, which was the first time at Amax that I really had a free hand to do anything. Other than that, it was all control—you got to get the muck out, you got to get the timber out, you got to prep this area—but at that time, I became a free thinker, as a general foreman. It’s the first time they had a computer. They moved a 1401, one of those damned card things—

Burnett: Yeah, the punch cards.

Kendrick: Yeah, punch card.

Burnett: What year were you general foreman?

Kendrick: I was general foreman the year before I went to Urad, which was—

Burnett: ’Sixty-four?

Kendrick: When did we move to Denver, Marian?
Okay, so, there. Now we’re down in Denver, and I’m working at Urad. Now I have to give you a little preface on Urad, in that Urad was unique. Urad has had the finest workforce I’ve ever seen. Urad had the most loyal, dedicated people with the entire community from Golden to North Park behind everything that we did. They just loved us, and we loved them, and those guys were fantastic, and I’d go down and every now and then, I’d give a little presentation, and make sure I had pictures of the guys that are working there, and everybody in town would come and say, “Oh! There’s so and so.” It was just so fulfilling to have that type of a situation to perform in, you know, and—

Well these were mining communities that had had mining in them for a long—and the mines had been closed for awhile?

Oh, they’d been closed for generations. Sometimes, it was really something. Anyway, that one really worked out. So here you have this microcosm, more or less, of a workforce sitting there on the property, that can hardly wait to do something good for you. It’s wonderful. Wonderful. Now, Urad had 21,000 linear feet of ore pass, 21,000 linear feet of ore pass. That’s the kind of stuff that goes from the bottom to the top, and it’s really remarkable. Now that was all mined with four Alimak Raise Climbers. I don’t know if you know the raise climber?

No, no.

[Ed. note: it is a kind of an elevator that climbs the ceiling of a tunnel] Well they crawl up a stem that you pin to the rib of an ore pass, and it climbs up there so that you can put in another round. You can drill right off the raise climber, then you move the raise climber down and move it out of the way so that you can blast it, and all the blast goes by; you move the raise climber out again, and do it again, and we did 21,000 feet of raise using this system with never an accident, never an accident. Now raise climbers are known to be killers. We never had an accident. We were very fortunate in that we had Jack Trevethin, who was a product—well, first of all, he’s an old Cousin Jack, but he isn’t an old guy. He’s a young guy, but his father was a Cousin Jack, and his whole family was and he was some kind of a relation to me too, and anyway, Jack was the one that was in charge of the workforce. He kept it, boy, like a military machine. He really did. He knew exactly what everyone’s
capability was and what they could do, and he made sure they did it, and it was primarily through his tutelage that that whole operation was as good as it was. He hit the beach there at Omaha on D plus thirteen [June 17, 1944], and immediately got into that mess at Saint-Lô. I don’t know if you know about that or not, but Sainte-Mère-Église, when they hung the guy on the steeple, the parachute guy—

Burnett: Oh, God.

Kendrick: —do you remember that?

Burnett: Yeah.

Kendrick: Anyway, he fought his way all across there and he got all kinds of expertise from that as well, and—

Burnett: Was he in Combat Engineers, at the time?

Kendrick: No, he wasn’t Combat Engineers; he was Combat Infantry, just infantry, yeah. Anyway—

Burnett: So you had these, you used the raise climbers to great success, and you were able to get through 21,000 linear feet of ore pass in setting this up. Are you put in charge when you take that job, ’65, ’66? Are you the mine superintendent?

Kendrick: I am the mine superintendent and the chief engineer. I run the whole thing, yes.

Burnett: Did you feel ready?

Kendrick: Absolutely. I never felt a better backup in my life. I knew they were all right behind me, every one of them.

Burnett: So it’s realizing you had that support, that the eagerness of the workers, and all the mid-level staff, and the emotional support was important for you as well. They had your back.

Kendrick: They had my back, but unfortunately, it didn’t cave. We put in this thing, and it was a typical Climax system with the slusher drifts and all the fingers like I
mentioned, superimposed on this seven-million-ton ore body that was two levels, two production levels, and the first level was the 1,100 level, so it’s this upside-down mine. You go in on the valley floor and then you go up 1,100 feet to the mining level, yeah, and then of course, all that comes down, comes down those ore passes through there. So, I put in all kinds of—we put in a big crusher room under there, huge, big thing, tertiary crusher all underground—that’s a huge room, big—and got all that going, and then, we had all these elaborate plans for pre-splitting and shrink stoping, and making the cutoff so that, here we go cutting off underneath the deposit, as well as down the ribs of the deposit, and we’re monitoring all of this with flat pressure cells.

We’re working with the Bureau of Mines. They have what they call pancakes. They were pneumatic, and you would put them in a hole in the rock so that they were directional, and you’d put them like this, and they could get the—the principal stress is coming down from the weight. You put them like this; they get—if there are any stresses coming in this way, or in this way, and you use also pogo sticks which are an elongated stick with a spring in it, and you can measure the stresses coming down from here, or and from here based on what the readings on this pogo stick is. However, with all of that, we never ever had any increase in weight, and in fact, what we did is, we put this whole damn thing together, shot off all the resin, you know, when you shoot off a—for pre-splitting, you have three-inch holes, and you put them every five feet, and they’re, say, 150 feet long, or 300 feet long, and then what you do is, you blast them simultaneously, so that the blast goes off, bang, bang, and it’s just right on, so that you get a shockwave going halfway through that five foot, and another one going halfway through, and they propagate each other in the center. So they go in there and they go, p-wang.

Burnett: And there’s a—

Kendrick: They bounce off each other, and that’s when they get the crack between them, and so you get a crack all the way around this thing, and you’ve got it all cracked off now, and here it’s sitting and nothing’s happening.

Burnett: It should have fallen. It should have fallen, because the idea of this, I can’t remember what it’s called, but it’s through gravity, so you mine upwards, and it’s this, through gravity, it collapses onto the floor, and then you can load it onto carts.

Kendrick: Well, through the finger, through the finger, okay?

Burnett: And then you can load it out efficiently.
Kendrick: Yes.

Burnett: Right. You blast it all out, and nothing happens, so what do you do?

Kendrick: It was like driving a great big drift, with a perfect arch on top of it, that was, let’s see, it was 140 feet wide, and then 1,200 feet long. It’s like driving a drift 1,200 feet long, 140—it’s just, it’s the damnedest thing you ever saw.

Burnett: And so what were you able to do? Did you do it again? Did you go in and blast again?

Kendrick: Oh, well, we did all kinds of things. We, for example, there were old workings there, and we were using ANFO [Ammonium Nitrate, Fuel Oil, a common explosive]. You know ANFO?

Burnett: Yeah.

Kendrick: Okay. We were using ANFO, and actually, I went up to International Nickel there in the Sudbury Basin, and learned how those guys were using ANFO and actually placing the ANFO in sacks, with Primacord on them, and you could put them up in the hang-up, and then blow the sacks full of prills in place, and then bring the stick down. Saved us all kinds of money because you see, ANFO was selling for $4.50 a hundred pounds, and the eight-and-a-third-pound bags were selling for fifty dollars a pound, a case, whatever.

Burnett: A bag, yeah.

Kendrick: Anyway, it just saved us lots of money, and all these sticks that I’m telling you about, bomb sticks, you don’t have them anymore. You only use one. You put it up there and you put fifty pounds of ANFO on the end of that thing and you blow hell out of it, you know? Great, geez. Anyway, that was a product of—I give it all credit to International Nickel, and we were able to use it extremely effectively. Never could get the people in Climax to do it. Of course, I was in Urad, and they wouldn’t do what I said down there, but they never did use it.

Burnett: Well I wanted to ask you about that, because earlier you said, “this was a classic Climax setup,” and so that, to me, I’m thinking about the knowledge in mining. It’s by company. It’s proprietary. It’s secret, but not quite, because
you learned about International Nickel, and so knowledge circulates as people move from job to job.

But people encouraged teaching each other too. They really did. We never did have a problem with that. We were able to borrow technology without any hard feelings whatsoever. The one place, where you and I chatted before we started, was this proprietary information that Al Provost had with Harrison Western, that he didn’t want revealed on how we got across the faults—

Yeah, the Vasquez.

—yeah, the Vasquez Faults, and I’m going to reveal that sometime.

Sure. [laughter] Well, yeah, and the Bureau of Mines, too, was a government agency.

Bureau of Mines were great. They worked with us, so whatever information they had, they were happy to share it. For example, we would do overcoring. Have you heard of overcoring?

No, I haven’t.

Well what you do is, you put in a six-inch-diameter hole, and let me see the sequence on this. Yeah, you put that in there, and you put this thing in that goes into the rib out there, and then, once you get it where you want it—it doesn’t go very far in there, maybe ten feet—then you put a hole right in the middle of the big thing—

Of the—

—yeah, and you put it—

—of the hole.

—so that it’s held there so it goes straight, and you put a hole through this thing that’s already a hole, you see, and what happens when you do the overcoring here, you have cut this bigger disk out of there, and so that the rock then has the opportunity to expand whichever way it wants to, because it’s no longer anchored in place. So with the hole that you put inside it now, you can measure what the principal stresses are by the elasticity that the hole
has actually taken by freeing it up. In other words, you’re getting—the principal stress, of course, is the one that comes down primarily from gravity, but it isn’t always, but for the most part, that’s what it is. But you can actually measure these things by that. We were as sophisticated as you can get.

01-01:26:28
Burnett: Well, so, when you went to school in Mines, you had to study, basically, physics, right?

01-01:26:38
Kendrick: A whole bunch of physics.

01-01:26:39
Burnett: You have to understand the physics behind blasting, and sort of the physical principles that underlie a lot of the work that you’re doing, and I guess chemistry, as well, if you’re talking about the separation processes. Even if you don’t work in separation, you have to know about it, and there would have been courses.

01-01:27:04
Kendrick: Yes.

01-01:27:05
Burnett: And so this is the studying that you did for your mining engineering degree. Everyone at that level is comfortable with those principles, and even the folks who didn’t go to school, they understand—let me pose that as a question. By working in the mines, by working as a blaster, or a shot caller, like you know what the limits are with certain kinds of rock, so you have to know geology as well—

01-01:27:35
Kendrick: Absolutely. When I came out of there, I felt that I had a minor in at least metallurgy, geology, chemistry, at least all of those—

01-01:27:53
Burnett: And physics.

01-01:27:53
Kendrick: —as well as my major in mining, because I had so many hours. I think they say thirty hours is a minor, or something like that, but, yeah, no, I had it in all of these courses.

01-01:28:04
Burnett: And then, and, once you have that core, you can, as new techniques come in, you’ve got the basic principles and you can evaluate it and say, “Oh, that’s how it works,” and that’s, you can easily adopt the new techniques as they come in.
Kendrick: I think so. I think so. In fact, not only adapt to them, but create your own. We created our own. We developed things like the cavability index, in other words, by using RQD. Do you know RQD? RQD is the number of cracks over x amount, and frequency, and pretty soon you could say, “Okay, well”; you can equate that to the cavability of the rock. So many more cracks make it easier to get such-and-such result, okay?

Burnett: Right, but there’s a ratio or there’s a relationship.

Kendrick: Well, that’s right, and we came up with that, and came up with indices that were used frequently in the industry, from the work that we had done.

Burnett: Yeah. What formal ways are there, because I know on the university side, there are conferences. The Society of Mining Engineers, they have conferences, and are discussing papers and new techniques and so on. Are there other ways? Is it just through the practice of working at a particular mine and learning from people who come from other mines, and you going to other mines?

Kendrick: Well, there’s always that, but as I said to begin with, Urad was extremely different than any place else, and it was therefore more open, more learning, open more. It was just unbelievable. So as a result, you see, I wrote a paper that was just very well received, and the only reason I was able to write that paper is that, the family and I were on vacation out at Mission Beach and I was playing some kind of dumb game on the beach, and I broke my fifth metatarsal, and I had to be in a walking cast for a number of months, which slowed me down a bit. I still went underground every day in the walking cast. I’d put plastic on there and tape it all up and stuff, and I still went underground, but it still freed me up to write a paper that I never would have had time to do, had I not broken my foot. So, that was one of the biggest things I think that came down the pike for a long time for me. I wrote this paper that she just pointed it out. It’s a very well-done paper. It was so well received that I can’t even, to this day, realize what a great thing it was, and it opened all these doors in the East. We, all of a sudden, had friends in Japan and in Taiwan and in everywhere that just encompassed us.

We went to Tokyo to present that paper. Actually I had presented in New York before; that’s why they wanted me in Tokyo. It was the first time they were going to have a joint meeting between the AIME and the MMJ, which is the Mining and Metallurgical Institute of Japan, and as a result of that, the lady, Madame Kurusu—Kurusu, if you think about it, was the guy, the head negotiator on December 7 [1941] in Washington that was trying to get that all put together, and then they had their attack, and he went down in infamy
except I don’t think he knew that that was going to happen; but anyway, his
wife then, when we got to Tokyo, totally took us under her wing, and taught
us about Tokyo, and about food, and about the green mustard that they put on
the sashimi [wasabi] — all of this stuff, and she put on a big banquet for us in
the Swiss Embassy, if you can imagine. And when they had the big doings—
they had a big ball and everybody—she and I led the grand march. My God,
who the hell ever did that?

01-01:33:16
Burnett: So you were celebrated, and what started it off was this induction caving of
the Urad Mine.

01-01:33:23
Kendrick: That’s right.

01-01:33:24
Burnett: That’s the paper that you wrote, and the paper was delivered at this joint
meeting of the MMII, the Mining and Metallurgical Institute of Japan; and the
AIME, the American Institute of Mining, Metallurgical, and Petroleum
Engineers; and this was in 1972. So developing new techniques, and I guess
one of the stories is, if you can do one thing that has value, it can go around
the world.

01-01:33:55
Kendrick: Oh, it’s that. Absolutely.

01-01:33:58
Burnett: And it can be because everyone—one new technique, one increment even, and
this wasn’t just an incremental thing, but one incremental change, if you
multiply that across all the mining that’s done of that type, over the next fifty
years, if there’s nothing that replaces it, that’s a lot of efficiency, that’s a lot of
money, that’s a lot of safety. There’s a lot of different benefits, and you were
both fortunate and you had the desire to write about it, because you were
proud of it. This is something that you and others had worked on and
developed, and you wanted to share it, right?

01-01:34:38
Kendrick: Right, right.

01-01:34:38
Burnett: And so that now introduces you, because that’s your first—was that your first
AIME meeting?

01-01:34:46
Kendrick: No, actually back up a little bit, because there was a rock mechanics’ meeting
in Golden at the Colorado School of Mines prior to this, and it was put on
by—I guess I don’t know who it was, but I asked my boss if I could go to it
and he said no. He said, “We can’t afford that.” So I went down there anyway
and there was a bunch of guys who came down from Climax, and I just got in
their group, and I went in anyway, and there was this fellow in there named
Barry McMahon, who was an Aussie, and kind of a neat guy, kind of an overbearing guy, kind of guy you’d like to be with because he had a lot of thoughts and ideas, and he was talking about slope stability on road cuts, and I was looking at him, and I was thinking, Jesus, he’s talking about what I’m working on. What I’d like to do is introduce myself to this guy, and get him into the Urad Mine prior to caving, and then after caving, so that we had before and after.

So I went up, introduced myself to him. He said, “Hey, that’s a great idea. How do we do this?” and I said, “Well, come up and see me.” So he came up and saw me and ultimately, we developed synergy and a way to do it. I was able to pay him, and we did just that, and he then became another source of information that I would never have had. It was just beautiful, and he’s one that, we did come up with the cavability index, that was published as well, and the finite element analysis that, you know, you put in all of these structures and you start removing the elements and see when it falls apart.

01-01:36:49
Burnett: Right, and what are the physical principles, or otherwise, that go into that?

01-01:36:54
Kendrick: All these really sophisticated techniques that these dumb kids up there are doing [laughter], and it was just really neat. [break in audio] As a little sequel to this, as we’re on the airplane going from Tokyo to Taiwan—we’re going to Taipei—the stewardess comes over to Marian and I and she says, “They want you to host a cocktail party for the minister of mines of Taiwan, and all his entourage, in the hotel when you get in, on the airplane.” I thought, we don’t know anybody over there; how do I do this? She says, “Ah, they’ll help you,” and so we did. We got off the airplane, went in there, and we hosted the whole group of professional people from Taiwan, which incorporated the minister of mines and the whole thing. We hosted them at a cocktail party, in this big hotel, and it took me a long time to figure that out. I think what happened is, they just decided we were young people, we needed the experience, and they kind of dumped it in our lap just to give us the experience. I really think the people on the airplane, because they were all technical people, professional people, I really think they did that, which was a fine, kind thing to do, wasn’t it?

01-01:38:44
Burnett: Yeah.

01-01:38:45
Kendrick: Yeah, really was.

01-01:38:46
Burnett: And it’s part of—

01-01:38:47
Kendrick: But she and I very much enjoyed the whole thing. It was great.
Burnett: That was great. And just to build contacts as well, to the international community of folks who were thinking about the same types of problems, and there’s also future business contacts, possibly.

Kendrick: Oh, forever.

Burnett: Right? And that can be a really, really important thing. [break in audio]

Kendrick: They all had more or less the same name. We were in this receiving line. They started coming in; they’d say, “How do you do? My name is Fu.” Okay, and so we’d say—and then, “How do you do? My name is Liu.” Okay, and—[laughs]

Burnett: Oh, you were trying to keep the name straight, and it was all the same—

Kendrick: Yeah, well, they were—

Burnett: —vowel sounds?

Kendrick: —all the same, Fu, Soo, Liu.

Burnett: But it was unfamiliar to you, so you didn’t know—for them, it’s distinguished in various ways, but not to your ear, right? Yeah.

Kendrick: No.

Burnett: So, I’m wondering if you could talk about molybdenum, and—

Kendrick: Repeat after me: “molybdenum.” [laughs]

Burnett: Three times fast, yes, yes, and that’s something that comes out of this meeting, isn’t it? Is it the one, or is it earlier, that this comes out? Isn’t there the joint meeting in Japan, AIME meets in Japan, and there’s a discussion about the demand for molybdenum?

Kendrick: The two that I was involved in were more broad than just molybdenum. It was more techniques that were applicable to various metals.
Burnett: Well, so, Urad was a great graduate school for you, in a way, right—

Kendrick: Yeah, absolutely.

Burnett: —and you were actually writing graduate papers, right—

Kendrick: Yeah, yeah, we were.

Burnett: —and so that had an enormous benefit.

Kendrick: Do you want me to tell you some of the things that we came up with as a result of being there?

Burnett: Yeah.

Kendrick: Okay, well, one of the things is that we were using two-foot scraper run by a little bitty slusher to clean out the stope level, which was above the fingers. So it was extremely inefficient; just took forever to clean that out. Okay. I wanted to do it faster, so, I was working with—I have to say a truism. Right off the bat in my career, I have always felt that the people that call on me have something to sell me that I probably want, or at least teach me about, or that I should know, and as a result, I encouraged people to come to me with sales pitches and whatever else it is they had, because I knew I needed to know that, which is different from an awful lot of people's approach—they don't want folks bothering them, they already know what they want, just get out of my hair—and I was never that way. Here I am sitting over there at Urad, and this guy that I used to work for at the Resurrection, Elzie Ray, hell he was a legend in his own time. Everybody at the Resurrection thought Elzie was just the end of the rainbow, and I did too.

So, here comes Elzie Ray and he said, “Hey, I’d like to see you,” and I said, “Great, Elzie, happy? What are you doing?” He said, “Oh, I’m pushing this and that,” and I said, “Well, come on in. Let’s talk about it. Sit down. How does it affect me?” and this has always been my approach to peddlers, to technical people that know things I don’t know: welcome them. Hell, Martin Marietta, in those days, was a great big cement company. They made cement for all over the world, and they were doing things in Mexico City with concrete that nobody else was doing. Now, the reason is because Mexico City is sitting out there on that damned lake that turns to gel every now and then, and as a result, they’re actually building foundations under buildings that can handle this shaking and stuff that goes on, and so as a result, geez, I want to talk to these guys.
The guy that represented them was a fellow named Bob Haack. He and his whole family became friends of ours for the whole time we ever knew them, and we learned, and we had synergy back and forth so that we could do this. I would take his information. He’d bring some engineers up from down below and we would take and drill holes. I had all of those 21,000 feet of ore pass come in to just four slusher drifts, which were just right above the primary crusher, so as a result, those four slusher drifts were where all of the abrasive material stood at one point in time. Every time they did it, all had to go right by there, so, I wanted to put in things that would make those fingers abrasive resistant, and so well, we did. We drilled holes in there. We took fiberglass rope, and we were able to then use that fiberglass stuff by treating it with whatever the developer was, and it would activate the fiberglass so it glued it in the hole, and then as you brought your slusher through there, it would hit on that fiberglass, and therefore save the concrete. You see what I’m saying?

Burnett: It was a lining, a kind of lining for it.

Kendrick: Yeah, but it was only in the holes like this, you see, but it still performed that way, and—

Burnett: Because it would erode, otherwise. It would erode away—

Kendrick: It would erode, yes.

Burnett: —erode the concrete, yeah.

Kendrick: Okay, so we did things like that. Then there was a guy named John Jett that sold Vulcan Slushers. Okay, well old John’s a good guy, and I said, “John, you see that dipper right there?” I had a dipper there, and it was pulling, and I said, “It holds five ton. Every time it comes back down the slusher drift, it pulls five ton.” I said, “I want it to do ten. Can you do it?” He said, “I don’t know, maybe. Let’s try it.” Okay, that’s what all you want, just try it, and it did!

Burnett: It worked.

Kendrick: Yeah. Pretty soon, we’re pulling ten ton with this damned aberration of a dipper that never anyone had seen before, simply because he was able to take it and build it and make it work.
Burnett: So, I guess that’s a trend in mining too, because now we just see the size of
the trucks that are used in open-cast mining. You go to the conferences these
days and they’re gigantic, and you can see it as this process of new materials
become available so it’s possible to build on a larger scale, but also, it is these
moments, when you’re actually in the mines and you’re doing something, and
perhaps the equipment, the five-ton was maybe built for a different mine, or
was a standard product that a company made, that was meant to fit a bunch of
different mines, but in your mind, you were able to do ten, and so why not
make ten?

Kendrick: Yeah, why not? Why not? Now, I didn’t finish telling you about the damned
little slusher up there. So I’m playing with another guy now named Scotty
McQuaid who has a Cavo, which is a rubber-tired, pneumatic mucking
machine, and he said, “What you need out there is a Cavo up there,” and I said,
“Well, yeah, they won’t let me buy one.” And so, he and I sat there and
looked at it, and we decided, why don’t we take a 630 Mucker, which is a
track-mounted one, and cut it in two, and take it up in the stopes, take it up the
finger? Whoever thought of that, I’ll tell you, huh? And so I got with my guy
over in the mechanical electrical area, great, great guy, and I said, “Let’s cut
that 630 in two and put it up in the finger. Can you do that?” and he said,
“Sure.” “Can you glue it back together again?” “Sure.” “Will it work?” “Yeah,
it’ll work.” So, we got this huge chunk of mucker goes from here to there.

Burnett: And just briefly, a mucker is a kind of—what is it? It’s a kind of a shovel,
right? It’s a scoop.

Kendrick: Yeah.

Burnett: Okay. It can go on a belt, is that right?

Kendrick: Well, no, this one would just throw it behind it, but that’s all you needed it to
do, and it was the beginnings of load-haul-dump units [LHD], you know.
Anyway, we cut that damned thing in two and took it up to the stope, and
immediately, the muck just disappeared. It immediately just flat worked. Now
that’s the kind of thing you want. You want to utilize these people. You want
to pick their brain. You want them to feel free to give you whatever they—no
matter how weird it would seem, talk about it.

Burnett: So this in advance of Total Quality Management in Japan, and Edwards
Deming, this idea that you empower the workforce; if they’ve got an idea,
they can volunteer, and get credit for it, and make things better.
Well that was that—what’d you call it—zero-tolerance thing that they came up with right after MacArthur turned them loose over there. Isn’t that true, or—

Yeah, yeah, MacArthur, yeah, absolutely, out in Japan, yeah, and so, yeah, so the Total Quality Management took a long time to come back to the United States, but it sounds like you had a kind of version of that.

Oh, we had a microcosm of it right there.

So that was something you then took, the Urad experience is something you took with you everywhere you went after that?

Everywhere, everywhere. Yeah, sure did, and that was the Urad experience; it was also the peddler experience. I don’t like to call them peddlers because these guys are scientists. They come out there with ideas and are able to turn them into something that works.

Well, I don’t know if they’re entrepreneurs. I don’t know if they get a cut of it, but the idea is entrepreneurial, that you would go out, and I’ve got an idea, why don’t you try it, and they’re trying—

Well—

They are trying to sell you on it, in a sense. They’re trying to get you to buy in.

And I go a little off sequence here because the same thing happened in Henderson. Now we’re over at Henderson, and—

Well let’s talk about the segue. How do you get to Henderson, from—

Okay, well, how I get to Henderson. Well, that’s a little difficult. Maybe we need to follow like we’re going. Actually, what happened here is, I still have to stay on Urad because there’s some very significant things happened with Urad.

I want to talk about the Colorado State Historical Association, okay. Now, Amax came up with $12,500 that they appropriated for the Colorado State Historical Association to work with them on opening up the Everett Tunnel up there on the Georgetown Loop situation. Okay, so, they gave that to me as
additional stuff because I was close there at Urad, and I could make a run down there in the afternoon and make sure that everything was going, they had what they needed, and so forth, without encompassing anybody else, and it worked out and I enjoyed it and they enjoyed it. So I had these two guys that were working for me directly on opening up, let’s say the Everett.

01-01:53:18
Burnett: Meaning the Everett Mine?

01-01:53:19
Kendrick: Yes.

01-01:53:20
Burnett: Okay. It’s the historical society?

01-01:53:22
Kendrick: This is an historical mine that last—

01-01:53:25
Burnett: Oh, I see, I see, okay.

01-01:53:26
Kendrick: —that last was opened in 1902.

01-01:53:28
Burnett: Okay, so it’s reopening a formerly closed mine.

01-01:53:32
Kendrick: It’s reopening, and what it is, is, it’s going in right under I-70 into the bank there, so it’s a tricky situation in that, to establish a portal there, you have to really work at it to get it, and as a result, we had to drive spiling. Do you know about spiling?

01-01:53:52
Burnett: No.

01-01:53:52
Kendrick: Okay well, let’s say you have a set of timber here, and you have another set of timber here. Now, in order to go ahead, what you do is you take ten-pound rail, and you put it over one set of timber so that it extends out like this, and you drive enough in there so that you stop the muck from coming in here. You clean it out underneath, and you’re able to set another set of timber over here. So you’re able to extend your timbered area under the spiling, but you have to use a lot of ten-pound rail, which exhibited itself by the cooperation of the little miners around there that were no longer open and didn’t intend to open, but they donated all their ten-pound rail to us to use, and we used a whole bunch of it.

I had two guys. One guy’s name was Ray—anyway, two guys, and they were very dedicated folks, and I also had the mayor of Silver Plume, who was one
of the last people in the mines down there, and I had an old map from him, as well as whatever his expertise was, and so we’re working and when we first started into that bank, I thought an eight-by-eight timber was sufficient to hold it up. It wasn’t. As we went in there and drove the spiling over it, the eight-by-eight timber started taking weight, and bowing out, and I realized immediately, we better get twelve-by-twelves in there, which we did, and that stopped it. Now, you should go take a look at that, because it shows how the difference between an eight-by-eight and a twelve-by-twelve and how you get the crushing down. You know, timber has a dap, and it fits here in a groove like this, and it puts a batter on the post, so that it doesn’t stand like this; it stands like this, so it pushes out this way. All right, so you can see how the eight-by-eights failed, how they crushed, and you can see how the twelve-by-twelve just stood there no matter what, and it’s a beautiful thing, and you can still see the spiling going over the top of it.

01-01:56:33

And so we get in there, and geez, it’s a little wonderland in there. There’s a winze going down, and it’s got such clear water in it you can’t even know it’s water in there. Just, you can look way down there. You go around the corner, and there’s an old hoist that says, “Made in Georgetown, Colorado,” yeah, a hoist there that goes down, and goes up over a shiv up there, and we get this thing—oh, I have to explain old Ray. Old Ray was something else. He was capable of making anything work. He was an old miner that had to make do or just not do it, and he made do. So here we are with a 12B Mucking Machine, with a twenty-four-inch gauge on it—you know the gauge, between the wheels—

01-01:57:30

Burnett: Yeah.

01-01:57:31

Kendrick: —all right, but it’s too big, because these tracks were only put together at eighteen inches so it sticks over out here. So he said, “Ah, that’s no problem. We’ll just roll the rail over.” So we rolled the rail over, so that it’s right on the right center, and just stood it on edge. So now, we’re running the 12B Mucking Machine on this. This is a regular rail here that goes like this, but we’re running it on the edge of the rail over here.

01-01:58:04

Burnett: You actually turned the rail on its side.

01-01:58:07

Kendrick: Yeah! And it worked, it worked just as beautifully, and so we’re running, and they’re like, whoever did that, my God, I don’t know; this is innovative thinking.

01-01:58:18

Burnett: Yeah, ingenuity.
Anyway, they just never ceased to amaze me. Anyway, as we were working here, we’re getting it all caught up, and cleaned up, and ready to go, and I get an old map from the mayor of Silver Plume and I said, “Geez, that looks like there’s another piece of the mine in here.” He says, “Yeah, I think there is,” and I said, “Do you know where it is?” and he said, “No, I don’t.” So, I took my oldest son, on a weekend. We took a Brunton, and we surveyed that little mine up there with a Brunton survey, and Mike and I said, “Geez, that should be right here.” And so we looked over there. Do you know gob, gob?

It’s a word that’s an old Cousin Jack word, but whenever the Cousin Jack is put in a situation, they always clean it all up and everything that’s laying around, they throw it behind the timber with some lag in there. That’s called gob, gobbing. So all of this timber was gobbed so you couldn’t see back in there at all, but Mike and I took the Brunton survey and we found where there’s a little trickle of water coming out of the gob here at one place, and so we scratched around with it, and we felt certain that that was the indicator that says there’s another drift back there.

So, when the guys came to work on Monday, we looked it all over very well and I said, “I’m pretty sure there’s another piece of the mine here that we may be able to open up and see what it is, and they said, “Well, okay, let’s work on that.” So they were working on that. They took the lagging off the timber and cleaned the gobbing out, and there, sure enough, there’s some dirt in there, so they start mucking it up, and it’s moving back and they’ve got ten or twenty feet here that they have opened up, and there’s definitely a drift there. So, about that time, we’re running out of money. We had $25,000. We’re running out and I said, “Guys, by the weekend, we’re going to be out of money here,” and I said, “I’m going to see if I can get some more, but I don’t know that we can,” and those two guys said to me, “Gee, we want to work on this anyway. We’ll work for free.” How about that? How about—

They just wanted to know.

Yes. So I said, “Well, okay,” and they did, and I did. I got another $25,000. And so we started cleaning that out, and at a point then, we got into the rest of the mine there, and the mud on the floor was calcareous. In other words, it turned into concrete when it set, CaCO₃, okay, and the last guys that worked in there wore hobnail boots. So here’s all these hobnail footprints, walking on down into infinity, that are in there permanently, you see?
And what a fascinating thing, and then there was a little bit of water running through there, and if you’d watch it, you’d see a little candle, three-eighths of an inch high, go by. I saved a bunch of them, and I said to the mayor, I said, “Why are they down so low? Geez, you burned them down to nothing.” He said, “They only issued us two candles a day. You had to burn them down that low or you wouldn’t have enough to get out.”

My God.

How about that? Anyway, that’s a little anecdote that—

Well, it is a story that represents something in the history of mining, which is that reworking of mines is an important activity, as you find that it’s not the same thing; not that I mean it’s the same thing, but the idea of going back to something a mine that has been closed, and recovering, trying to find—because minerals can be sort of co-located or valuable ores can be co-located, so there might have been a gold mine, but—

It probably was; it was a gold mine.

Probably was a gold mine, but maybe you’re interested in another element that is going to be there.

It was touristic.

It was a touristic—

Yeah, it was a tourist tunnel.

So this was literally, the Colorado Historical Association, they wanted to open it back up so that you could—

And it is opened up, and it’s being run in conjunction with the Georgetown Loop.

That’s phenomenal.
And we took this other $25,000 and tried to open the next tunnel, next adit up, and it was even tougher with spiling than the other one. It was just really, really hard to do, and we finally got through it with twelve-by-twelves, of course, and got into there, and the whole thing was caved in there, and there’s no way I could have made that safe for a bunch of tourists, no way. I got a lot of lip from the State Historical. Even my bosses were saying, “Well, maybe we can do that.” I said, “Maybe you can, but I can’t.” Anyway, we pulled out of that one, and they were not able to have in one and out the other, because I wouldn’t do it. Yeah, okay, and so that’s how it is now, and it’s functional, and everybody is just happier than hell with it.

Right, and that’s a feature, and we’ll come back to that too, about the historical value of your work and the historical interest and historical preservation as well. Did you want to talk about Henderson—

I would love to. Do we have time?

If you’re feeling good, we can keep going.

Okay.

One more thing.

Oh, there’s one more—

The cave.

The cave. Well, I better say that, yes—

Actually, we did cave Urad.

Is this back to the, when you tried to blast around and it did not cave at that time, okay.

Yeah, so what we did is, I took a semi-truck load of ANFO, and pumped it up to this level. It was called M Level, which was above Urad on the mountain, and it was old workings that were up there, and we pumped that drift full of ANFO, and it took a whole semi-truck load of ANFO to do the job. And so we blew it up there through a hose that, I wasn’t sure we could blow it that far,
but we did. We blew it up there and filled that drift, and then—this is a key
thing that I developed myself and I’m going to brag about it—is, we took
fifty-five-gallon drums, and just laid them in on top of each other, and for a
good portion of the drift, and then filled them each with water, so that, when
that big shot went off down there, it came rushing out there, and liquefied
everything, broke all the drums, but contained the blast so that it was
stemming, and really was an effective blast because of all of this water for
stemming [Interviewee Note: “stemming” means a pack around a shot to
contain the force of the blast].

01-02:06:46
Burnett: So you shaped the charge, basically.

01-02:06:49
Kendrick: Well, yeah well they’re shaped by the drift, yeah.

01-02:06:53
Burnett: And so that did it.

01-02:06:53
Kendrick: That did it. It came down. Yeah. Okay, now—

01-02:06:59
Burnett: Now that’s the Urad Mine, which is—

01-02:07:00
Kendrick: That’s the Urad. Now, let’s go over to Henderson, and we’re still working in
Urad because what we’re doing is, we’re driving this drift thousands of feet
under the valley floor and under Red Mountain, and over the whole top of the
Henderson deposit, and—

01-02:07:26
Burnett: Can you tell me about the Henderson deposit first? It was discovered long
after Urad, right, because it’s underneath Urad.

01-02:07:35
Kendrick: Yes. Urad, you see, was the best investment Amax ever made because they
discovered the Henderson deposit because of this, and it was because of the
good geologic workup that they were able to do, that they did, in fact,
discover it, but then, they needed more access to it so that they could
capitalize on just how big and how thick and how wonderful the Henderson
was, and that then was the purpose of this huge drift that we drifted all the
way across from one valley floor to another valley floor, across the whole
Henderson deposit, and put in huge—we brought those two big drills. Let’s
see. They would drill 8,000, I think it was, 8,000 feet instead of—no, it must
have been more. They must have been capable of drilling at least 10,000.

01-02:08:40
Burnett: These are brought in from South Africa.
Kendrick: They were brought in from South Africa, which—

Burnett: And at that time, I mean, South African mines were the deepest in the world, right, at that—

Kendrick: Oh, they still are.

Burnett: Yeah, and so in the United States, you’re bringing in these drills. Did that mean that this was the deepest—it’s hard to say deepest because it’s inside a mountain, in some ways.

Kendrick: Yeah, well you take the mountain on top of it, and you’ve got a bunch of thousand feet there, but no, South Africa is still deeper. Yeah, they—

Burnett: I just meant in relation to other mines in the United States?

Kendrick: Oh yeah, yeah, in the US now, there isn’t very much underground if any anymore. It’s pretty much shot. So, anyway, now we’re in Henderson. We’re sitting over there and while I’ve got these guys still in Urad driving this drift over here, and in the meantime, Boyles Brothers is sitting here finishing up their 10,000 feet of linear drift in their contract, and they bump into the Vasquez Fault, and that’s when the whole thing came in. They shot just the burn. They come running out of there, on their knees. The whole thing was just something else, and they got—

Burnett: Well—

Kendrick: —down there and they were able to put in a sixteen-foot bulkhead with—and I don’t remember if it’s five or six ten-inch pipe laying on top of that, and then covered that up with some more, and like I told you, they pumped themselves up 800 feet in the Number One shaft just by the pressure from the fault.

Burnett: Well, let’s back up for a second here, just to help our listeners and viewers understand what the consequences are of cutting a—so a drift is a horizontal tunnel, right—

Kendrick: Yeah.
Burnett: —so there’s a shaft, which is up and down, and a drift cuts across, and so you’re cutting across, and I’d like you to talk about what’s bad about running into a fault.

Kendrick: Woo. Well, the continuity of the rock, the rock goes to hell on you, and you don’t have any support; you have water coming after you; you have gravel coming after you; you have really bad things happening.

Burnett: So these are two plates. Is this the Continental Divide?

Kendrick: Simplistically, but it is and—

Burnett: Yeah, it’s a fault.

Kendrick: —it’s a shear zone. It’s a 200-foot-wide zone that went like this.

Burnett: Right, it’s just, it’s been—

Kendrick: It didn’t just go like this.

Burnett: Right, it’s been millions of years of seismic activity cracking, crumbling, and pressure in every which direction, and so it’s created a crumbled soup of rock, and so, you’re drilling along through solid rock and everything’s fine, and you have to shore things up like you normally would, and then you hit this thing, and the rock can just slide out. Rocks can be of various sizes, right, so if they’re smaller than the actual drift that you’ve cut, they can pour into the drift?

Kendrick: Well, yes, but they become mobilized with water, and mud, and everything, so, it’s mobility, they just go [makes sound effect].

Burnett: It’s like the hole in the dyke.

Kendrick: Yes.

Burnett: It comes in and this thing’s—you can’t put your finger in it because it’s way too forceful. So, give me an idea of the pressure that’s involved with this
when you were trying to figure this out, and talk to me about that encounter with the fault.

01-02:12:35
Kendrick: Okay, well one of the easiest ways, of course, is to—do you want a picture now or not? I can show you a picture of the core.

01-02:12:45
Burnett: Well, let’s look at a picture after, and we’ll maybe put it into the video.

01-02:12:48
Kendrick: Yeah, so, what’s happening here is, we want to know what that fault looks like or shear zone looks like inside, and so we start diamond drilling on it, and taking core samples of it. All right, so at this point in time, we drill a hole in there and the water pressure is so high that it just backed the diamond drill right off the hole. We couldn’t keep it on the hole. It just backed it right off there with—

01-02:13:26
Burnett: And the diamond—

01-02:13:27
Kendrick: —water pressure.

01-02:13:28
Burnett: And the diamond drill is heavy?

01-02:13:30
Kendrick: Heavy, and it’s got pressure on it, itself.

01-02:13:34
Burnett: Right. It’s pushing forward.

01-02:13:36
Kendrick: But it’s not now. It’s going backwards, all right, so that it pushes it over, and then the water comes out of that hole, and it doesn’t go up. It goes straight like this for 200 feet at least, before it ever dips down the rest of the drift. It’s just under tremendous pressure, just [makes sound effect], and so I wanted to measure it. So I took two guys with me, and gave them a fifty-five-gallon drum, and I said, “When I say ‘go,’ stick it under that water, and when I say ‘stop,’ pull it out.” So, I said, “Go,” and they stuck it under, and I said, “Stop,” and it was only in there one second, it was full. So, it’s real easy to calculate how much water was coming out of there. All you had to do was multiply time by fifty-five gallons—

01-02:14:33
Burnett: It was something like 1,500 gallons a minute, or something?

01-02:14:35
Kendrick: Oh, God, it was, yeah, it was unbelievable. So anyway, that is one measure of the pressure that you had. So, now, as we poke these various holes in there,
we find that this shear zone, on top of being 200 feet wide, is not homogenous in any way. There is no homogeneity in there whatsoever. It’s everything. It’s water. It’s gravel. It’s mud. It’s gouged, you know, fault gouged. It’s everything.

01-02:15:17
Burnett: Boulders, big hunks of rock, right?

01-02:15:19
Kendrick: Yeah, and big chunks of rock that are staying in there. They called them horsts. Horsts are in there. So then, we got good thinkers on here, and they’re saying, “Geez, let’s use those horsts. We’ll use that to anchor our holes in, and build it all around that,” which is what we did. We drilled the holes in there, had a horst there anchored in that—I think the first one was in there sixty feet—and we used that as an anchor, and also anchored that to the rib here, so that we had some semblance of stability, and as we poked more holes in there and found more anchor points, we used these, incorporated them into the overall plan of filling it, and then we started going into the ribs. We would go off into the ribs, and go a long ways in there maybe in good rock, and get some holes in there, and then put the pressure on the grout machine, so that you forced it in there now as much as you possibly could. Now—

01-02:16:45
Burnett: Okay, just to back up, the grout machine is injecting a wet kind of concrete material, and then it—

01-02:16:56
Kendrick: Grout.

01-02:16:57
Burnett: —grout—and then it cures, or hardens, and that solidifies that area. You want to make your way across this chaotic, mobile, 200 feet of everything, and use the bigger pieces of rock as kind of stepping stones. You—

01-02:17:18
Kendrick: Yes, yes, as anchor points.

01-02:17:20
Burnett: Anchor points, and you go into areas that are somewhat less stable, and you inject this grout material, and you create kind of a concrete mass out of it, or grout mass out of it.

01-02:17:35
Kendrick: Yeah.

01-02:17:35
Burnett: Okay, and that’s how you do it, and you do it stepping stone by stepping stone all the way across.
That’s exactly right, but you incorporate it into anything you possibly can. You drift your holes out into the rib like this, and the idea is to move the stuff out of the center here. You inject it in here first, so the material goes out to the ribs, and up to the back, and down to the floor, and you continue pressuring it, and putting more holes in there, until you have pressured the water and mud out of the center. Are you with me?

Mm-hmm.

You’re forcing it out here, down here, up here, and you’re gradually coming up with something solid in front of you.

That makes sense.

Yeah. So, you just continue working that way. Now you’ve got sixty feet of it, where’s the next anchor point, and you do that, and you do that for 200 feet out here.

Right. And so you’re able to get across in that fashion.

We were, but it wasn’t easy. Every now and then, it’d just about go to hell on you. We had a great guy down from—I don’t know. I think he was from the Yukon. He was an old ton of stuff from up there. His name was John. John and I were great friends, and old John knew what he was doing, and I was with him one day there, and he was up on the muck pile here, and I was handing him stuff to stuff in the hole because there was a hole opening up up there and we’re trying to fill it up before it gets big, and we did, and that kind of stuff is really touch and go. It’s really touch and go. You either make it or, whatever the alternative is, you lose it.

Well, tell me what happened when they, I can’t remember who it was, but when they first struck the Vasquez Fault. What happened?

Well, we shot just the burn, just the burn, you know.

What’s the burn? The burn is the—

The burn—
Burnett: —initial shot, the initial hole?

Kendrick: Yeah, when you advance a tunnel—let’s think of a tunnel, okay. When you advance a tunnel, you have to have two faces to advance it. One face is the face of the tunnel. There’s one right there in front of you. So you have to create another one. That means that you simplistically go right in the center of it, and you put in maybe a five-hole burn, so you put in all these holes like this, right in the center of the drift. Now you got one face here, and you’ve got all these holes in here. You load them to the hilt with powder, and you blast it with one timer so that this hole then comes out, so now you’ve created another face in this hole, then and you just make it bigger and bigger and—

Burnett: Right, exactly.

Kendrick: And—

Burnett: —in this case?

Kendrick: So, they had done that. You’d put in one burn, and then what happened—

Kendrick: Yeah. What happened is, that was enough to just start the whole thing going. The whole thing turned loose, [makes sound effect] come running out of there in a big wave.

Burnett: It’s like in the movies, when something collapses, and there’s just this—yeah, and so, you had to get out.

Kendrick: I wasn’t there and I’m glad, but my people did, and they’re running like hell, and old Whitey Williams fell down; he’s running on his knees to get out of there. Somebody picked him up.

Burnett: He was just panicked, and so he was just—

Kendrick: It was panic, and all of our equipment was in there. Who cares about the equipment? Leave it alone. But it buried everything, buried everything.
Burnett: So the equipment was never recovered from that—

Kendrick: Oh sure, we went back through there and picked all that up.

Burnett: Oh you dug it out.

Kendrick: Yeah, no, but that was incidental. It’s not a factor; it just happened. So we recovered it. Who cares, you know?

Burnett: Right, well safety and the lives of people is what’s paramount. So this is, the Henderson deposit is several thousand feet underneath the Urad deposit, inside a mountain, and there’s one side of the mountain, and then there’s the other side of the mountain, and I think in Urad, you were drilling kind of sideways, right, from the side of the mountain?

Kendrick: Well, we went right across, yeah, right across through there. It’s a little bit perhaps misleading when you think of it as one side of the mountain, the other side of the mountain, because it’s deep enough that you’re below the valley floor anyway.

Burnett: Yeah, in both Urad and Henderson?

Kendrick: Yes.

Burnett: Okay.

Kendrick: Well, not in the upper part of Urad, but where we were, yeah.

Burnett: Okay. So it’s already, it’s quite a ways below. So there is this great deposit, but you have to get there, and one challenge that you’d mentioned was getting across these faults, which are part of the Continental Divide. It’s these great sort of tectonic plates, and so—

Kendrick: Yes, and we had to cross that thing four times: three times on the drift and one time with the shaft, because we’re going down with a two-shaft over there, it has to go through the fault as well. Okay? So, we came out of there with all kinds of experience.
Burnett: [laughter] I guess. So, can you talk a little bit about the engineering feat of the Henderson mine, because it’s long. That tunnel is really, really long, and it joins up with something on the other side. That’s what I was thinking about when I was thinking of it, in my simplistic way of thinking of joining up with another tunnel on the other side. Can you talk about that, and how that was done, and what it meant in mining consequently?

Kendrick: Oh, it was a real piece of work, and once again, I have to give the South Africans credit, because what we did is, we went over there. We had a direct line on those people in that they’d, Boyles Brothers, had worked in the South African situation, and they had inroads there, and we were able to get a gyroscopic theodolite for one thing, and we bought it from them, which in effect was somewhat simple, but if it was so simple, nobody else seemed to have one of them, I’ll tell you that, and what it was is a regular theodolite, which is like a transit, better than, but that’s what it is, and with a gyroscope on it. And so you simply take the thing out on the surface, if you will, and you have a bearing. Okay, I want to shoot those candlesticks in there, so you shoot that and see what the bearing is. You fire up the gyroscope, and it just swings over and there it is. Now, now it’s on that bearing, so no matter where you move that transit, it’s going to come around and come to that bearing. So you pick it up and take it underground and set it up, and here it comes over to that bearing. You see what I’m saying?

Burnett: Yeah.

Kendrick: Simple gyroscope. That’s what gyroscopes do. And so, you get it going, and that’s why they were able to close within one inch on elevation and whatever the hell it was on—

Burnett: And it’s miles long.

Kendrick: It’s 9.4 miles long.

Burnett: So, you drilled a drift, essentially a tunnel 9.4 miles long, within one inch of tolerance of the—

Kendrick: That was the vertical. That’s unbelievable, huh?

Burnett: Yeah.
Burnett: Wow. Well, and did that technique or that technology then get more widely used in the United States, or does mining go more global, American mining companies are operating more outside of the country, in the 1970s, and eighties, and nineties?

Kendrick: Perhaps, yes, but we used it one more time. We put a raise down in the Continental Divide that actually hit that tunnel down there too, using the same instrument.

Burnett: Extreme precision in this.

Kendrick: Extreme precision, and then I told you about the company in Leadville that wanted to borrow it, which, they can’t borrow it. I told them that I wouldn’t let anybody touch it except the operator, but we might be able to do something and this is how it’ll work: You’ll come there, you take good care and put them—all this, that, and the other, and I didn’t even charge them for that. It put their things together just like they hoped, and they were happy, and we were happy. What the hell? You have something good, you just, well, share it. You never know when you need it from somebody else.

Burnett: I hear that all the time. I heard that in talking about steel companies, same kind of thing. There’s this portrait of corporations in competition, and withholding things. We get that picture in different industries sometimes, but you hear these other stories.

Kendrick: It’s not realistic and it really isn’t realistic, because it’s against the overall good. Now I’ll give you an example of that. For example, I was asked to go down and look at what they were doing with the Eisenhower Tunnel. Okay? The guy that was doing that’s a guy I used to know at Gibbons and Reed on the historic level, and I didn’t ever really know him. He was a guy that was way beyond me, but anyway, we knew each other to say hello, and he called up to Henderson, and what they had is a big shield. Do you remember this? They had a big shield to go in the Eisenhower Tunnel to support the rock, and then they’d mine out under the shield, and theoretically, they’d push the shield ahead on these big thrusters, and then they were able to keep that thing moving, and well, common sense is, you get something that big in a hole like that, it ain’t going to move anymore, and it doesn’t.

So, he’s all screwed up. He’s got this big thing sticking out there, and he said, “I’d like you to come down, see what we’re doing, and also I want to talk
about load-haul-dump units.” I said, “Sure, I’ll come down.” So I went down. A long story short, he had figured out what to do, and what he did is, this big thing, still, there’s the tail of it still sticking out in the gulch there, and it won’t move anymore in, around, or anything. They finally had to cut it off and get rid of it, but anyway, he decided to go around the periphery and put—these are seven-by-eight-foot drifts, and he put in, as if they were skipping a drift all the way around, so they put in half of the drifts all the way around on the bottom, on the top, and everything, filled them with concrete. So now, he’s got a lining going around there that’s half full of concrete. So then he goes in. He mines out the rock between these, and fills that with concrete.

Now he’s got a complete lining around the thing that’s concrete. It’s eight-feet thick, for goodness sake. It’s beautiful. I thought, man, that’s a fantastic thing, great way to go, and then he says, “What do you think of your load-haul-dump units?” and I said, “Geez, I love them. They’re really great.” Then he says, “Which one’s better?” and I said, “Well there’s no doubt that this one is better than that one, and the reason is, you can go into muck pile, and hit it in a single pass and get a full dipper, and take it out. This other one, you have to back up and hit it twice.” Says, “Oh, well, why don’t you just go with that one?” and I said, “Because you and I know that we have to have two suppliers. We have to bring this one along, so that he is competitive, because we have to have two people in the business or it ain’t going to work.” You see what I’m saying?

01-02:31:53
Burnett: You actually supported to prevent a monopoly situation.

01-02:32:00
Kendrick: Yes, and he supported it with me, yes.

01-02:32:06
Burnett: So collusion isn’t always to jack up the price, or to restrict the supply of something. Sometimes, it’s to maintain competition.

01-02:32:15
Kendrick: It’s self-preservation.

01-02:32:18
Burnett: By maintaining a market.

01-02:32:20
Kendrick: Yeah. Yeah, you got to have two people in there. So anyway, that was another tenet in my mantra of keeping things going like that, and at that point, I would mention one more thing that I did at Henderson. I had a guy from—Joy, I think. Anyway, the rock bolt jumbos had come on pretty well in the industry, and they were being used a lot, but every now and then Amax would get a screwy idea and they decided they’re not going to buy one, mostly. So he and I colluded that we’d make one, and we did. We went up the valley there—that’s the valley up Highway Sixty—and he found an old warehouse we could
work in up there and he got the rudiments, a chassis, and a couple of different
booms, and he started putting together, with the blessing of his people, started
putting together this rock bolt jumbo and of course, I was his cheerleader back
there. I wanted to get it going too, and I’d go up every week or so and take a
look and see what it looked like, and lo and behold, we built a rock-bolt
jumbo, single boom, but it had another boom that would hold the hog wire up
there, and this one then would drill the holes and anchor it up there, you know.

01-02:34:17
Burnett: Here, I’ll just— [break in audio to adjust camera shot]

01-02:34:20
Burnett: You built a rock bolt jumbo.

01-02:34:22
Kendrick: Yeah, we brought it down and put it in Henderson, and my two guys, they
kind of stayed away from it. I’m not going to name names, but they didn’t say
anything about it, and I wrote a big report on it, and one of them said to me, “I
don’t think you can say all that in the report. You’ll get the union all upset at
Climax.” “Okay, tell me what to say,” but it worked, and by another year or so,
they had a half a dozen of them themselves, but long story short, you have to
break the ice sometimes too, you know?

01-02:35:02
Burnett: It’s a demonstration project, it sounded to me, like you actually, you have to—
like, in farming, the universities had developed new techniques, technology,
seeds, whatever, but no farmer would adopt them unless you could show them
that it worked. So they’d have demonstration farms. So you had your own
demonstration farm down in the mine, showing people that something could
work, by trying it.

01-02:35:26
Kendrick: Yeah, yeah. I just have to smile about it, because it just worked.

01-02:35:33
Marian: There’s one more piece of technology that you did and I don’t know if it was
Urad or Henderson, but you were the first guy to put port-a-potties
underground.

01-02:35:42
Kendrick: Oh. Well, I’m not sure I was, but we sure put them underground and also
potable water. One of the things we found out at Climax years ago is that
there’s a real increase in uric acid in our workforce, and the reason was
because they were supposed to carry canteens full of water and they weren’t.
They weren’t drinking enough water and so they were building up uric acid
and this was giving them gout, and all kinds of things, and to get water
underground was very difficult, because the airway was right through the
portal, and everything froze up in there in the wintertime, and so it was
problematic trying to get water in there, but the minute we got that shaft down
at Henderson, I had potable water in it, going wherever it needed to go down there, and we put in port-a-potties, and modernized as much as possible, yes.

01-02:36:44
Burnett: Yeah. And there’s a lot of movement. The Bureau of Mines did a lot of worker-safety things. How did knowledge that was developed at Bureau of Mines get to your work?

01-02:37:00
Kendrick: Well, I asked them to come over, yeah. No, they were invited—

01-02:37:04
Burnett: So they’d give presentations—

01-02:37:06
Kendrick: —yeah. “Come on over and help me. You guys want a place to work? Here it is. Come on. Your own lab.”

01-02:37:13
Burnett: Exactly. Well perhaps we should pause for today. What do you think?

01-02:37:17
Kendrick: Okay, that’s fine.
Interview 2: February 26, 2019

02-00:00:10
Burnett: This is Paul Burnett interviewing Robert Kendrick for the Global Mining and Materials Research Project, and it’s February 26, 2019, and this is our second session, and we’re here in Sun City, Arizona, and, welcome back, Mister Kendrick.

02-00:00:37
Kendrick: Thank you.

02-00:00:37
Burnett: And, we were talking about the innovation of a particular Urad cave that you undertook in the Urad Mine, and it was written up and presented at the joint meeting of the Mining and Metallurgical Society of Japan, or Institute of Japan, and the AIME in Tokyo in ’72, and I read that paper, and it was interesting, and it had some visuals that helped, and I think we’ll try and get that in the appendix, and one of the sort of punch lines of this research that you wrote up was a kind of cost-benefit analysis, very, very simple, just, because there is a concern about the extra cost of doing something like this, and I think with all the repairs and all the extra money that was spent on doing this cave, it came up to 300-some thousand dollars, and the punch line of all of that is that it was an extra sixteen cents a ton. [laughs] So there are these gains, and you’ve got an extra two million tons out of this, so, to me, that also signals—

02-00:01:59
Kendrick: More justified [the cost].

02-00:02:00
Burnett: —some of the value of what this type of innovative work could do. So, this was something that you’re obviously very proud of, and that was communicated around the world. You and B. K. McMahon also wrote up something for the SME, the Society of Mining Engineers, and you wrote up about the techniques, about using the RQD analysis, and all of the elements analysis that has to be done in order to do this kind of work. So it’s getting into the literature; it’s circulating in the mining industry worldwide, and it has an enormous impact. Not everything goes as planned in mining, and that is, unfortunately, when you hear about mining in the news, one of the big things that makes the news is a mining disaster, a mining catastrophe. So I’m wondering if you could talk a little bit about what happens when that happens, and how do you handle it, and how do you work to resolve a situation when obviously, something goes wrong?

02-00:03:28
Kendrick: Yes. Well, with the Urad, and the Urad cave, it started on the 1100 Level that needed the caving and we put in all of our work up there and above the 1100 Level and the cutoff, and pre-splitting, and shrink stoping, and so forth, that was done to assure no lateral transfer of stresses from inside the boundaries of
the 1100 Level and outside the boundary. They were completely cut off so that we were dealing only with that piece of property inside the cave area, and this is where all of our work was concentrated. All right, well, at obviously some point in time, we needed to move down to the 830 Level, which was about, I don’t know, 230 feet below the 1100 Level, and it was such that it was a wider level than the 1100 Level, by about forty feet wider, so that as we worked on that level, we now have expanded the breadth of the potential cave area by at least forty feet. Now, to do that, it meant that the stability had to take a bit of a shot, because it is wider now, therefore the rock in place is put under more stress in order to cave, or because it wants to cave now because it is a wider base.

All right. To do this, we had a drill, with two men on it, on the 1100 Level, drilling off into the cave, and all through the caving of the 1100 Level, we made a total and complete effort to keep broken material in all of the draw points so that if there was any sign of an air blast at all, it would be blocked with broken muck in the draw points, which worked very effectively and it was a sincere effort to keep people safe. Well, once we expanded into the 830 Level, this is a different set of parameters, and we still are keeping this area of broken material between our people and the cave, except that it’s harder to keep track of, and that’s exactly what happened, because these two men were working there on the 1100 Level, actually drilling, and we got a spontaneous cave that happened on the 830 Level, and put an air blast on these two people, which unfortunately was fatal for both of them.

02-00:07:17 Burnett: When you say “an air blast,” it’s a shockwave?

02-00:07:20 Kendrick: Shockwave.

02-00:07:21 Burnett: So that’s what happens when you encounter that.

02-00:07:24 Kendrick: Yeah, you get an air blast, and it just takes whatever’s there and it rolls it down a drift including people and it’s really hard on folks. It kills them. Totally and completely a surprise, it was massive trauma to the whole operation. Everyone is involved in a situation like this, and it happened about two o’clock in the morning. I got a call at my home about that time and I came up immediately, and by then, of course, the people had been removed from the site and they were down in the dry area, and there was absolutely nothing to be done at that point except notify the next of kin, and make sure that that was done as gently as possible, and the only way to do that is to find people that these guys worked with, and find out who knows them and is in the same area of where they dwell. One of them lived in a trailer court down in the valley below, below Urad, and the other one lived over in North Park, and they were a local family over there. And so, I took the one that was on the Clear Creek
side, and took some people with me, made sure that I had some neighbors there waiting for me, and the people on the other side knew Walton’s family over there, and they too had folks with them to talk to them.

Now you have to take this picture and really, more or less, analyze it, because here you are at say, 3:30 in the morning. By now, the time has lapsed and you’re knocking on someone’s trailer, at the direction of the neighbors, and you have a little group of people there. [pauses] This is really difficult, because here you have this lady, out of bed, not quite all together; she has two little kids; they have their blanket, you know, and sucking their thumb, and they’re wondering why all these people are in their house, [pauses] and what can you say?

So you take care of it, and everyone stands around very dumbly not knowing what to do, so you say, “For goodness sake, put on some coffee.” And so they put on coffee and you try to come up with something that you can normally hang your hat on, and that’s how that kind of thing goes. I’ve been on way too many of them, and it’s never, never good. And so in fact, that’s what was happening over in the area to the north as well as down there, and I assured them that people would be by in the morning and explain all the situation to them in the way of insurance, and how things would be handled, and what things wouldn’t, and tried to leave them with some kind of an anchor through the rest of the night; asked the neighbors to stay. And so that took care of that, but it never takes care of it.

02-00:11:57
Burnett: No. No. Well, so, you’re in charge of the mine, right, and one of the things that makes it better is that you were there personally. I think sometimes, in news reports, when bad things happen, and people are angry about bad things happening, and it’s a workplace accident, that somehow, the workplace is responsible, or it’s their fault, and they’re angry, and one of the worst criticisms that can be made is that the company did not care, the company did not show up; there’s some hotshot in a capital city somewhere far away who’s pulling the strings and sleeps well at night, but here you are at three o’clock in the morning and you’re in their house, and you are addressing them, and they are seeing you as the head of the operation, and that makes it, I’d like to think—it doesn’t bring anybody back. It doesn’t fix the larger—

02-00:13:18
Kendrick: It’s certainly personal.

02-00:13:20
Burnett: It’s personal, and you took it personally, I think, obviously, and I think that makes a difference in people’s lives, as much as you can make a difference in those kinds of situations. So you carry that with you when you do this work, and it gets back to risk, and what you were talking about in your childhood.
Kendrick: Hazard, right.

Burnett: You were around it. It was something that comes around once in a while, and it, I don’t know, maybe that early experience made you the right kind of person to be around when things go bad, because you know what it’s like, and so there’s that element to it. So in this work, it’s dangerous. It’s become far less dangerous over the years, in part by efforts, when people do take it personally, they do commit themselves to, “I don’t want this to happen again; how do we change things to make things safer?” The Bureau of Mines had a huge role in mine safety and making things better. This is one side of the job, isn’t it?

Kendrick: It’s true. It’s true, yeah, and really, I can’t find fault with what you’re saying, because actually, that is what happened, and that is how it all took place, and the people that were involved, nothing they could do except accept it, you know, that’s it. There’s no place else.

Burnett: Yeah. I think well, it is part of the life of a mining family. It’s something that they—it certainly was more so in the past, and so, these are many generations, and they know, and just like in industrial work, in farming, there are these accidents that happen and it’s part of the life.

Kendrick: Yeah, and they do. It’s extremely personal for everybody involved, and it does. I like to think it makes you a better person, but on the other hand, maybe it tears you apart.

Burnett: Well, it’s a balance, right, and you have to protect yourself in order to keep going, in order to do the work, right, and I imagine there’s a lot of, not a lot of, but I imagine there’s some talk about that. You have to keep yourself together, and you had your spouse to help you.

Kendrick: There’s nobody to talk to.

Burnett: No? Right, yeah, because not a lot of people are in that boat.

Kendrick: Now I’ll take that just another step further. Now once this air blast happened and it’s all cleaned up—it isn’t cleaned up, but I posted a man there overnight, every night, and during the day. Someone was there listening to the cave, because we didn’t know what was going on in there. We didn’t know if it was getting ready to do it again or what, so we had people in the area actually
noting any rock fall that they heard, at what time of the night and day, and how big it seemed like, and so forth.

So, I’m up there maybe three or four days later, and there are three people with me. One was Fred Gerstner, and Fred had been there all night long, and I said, “What’s going on, Fred?” “Well, I heard a rock fall at about 2:30 this morning and haven’t heard anything since then,” and I had another one there, Benny McPherson. He was going to watch for the day, and Jack Trevethin and I were there. Jack, as I explained, that’s kind of his job up there. And so we’re standing there, and it’s time for somebody to go look and see what the hell’s going on, so I just took off and ran down, and looked in the cave, and it was all caved in, and so I kind of walked back, and everybody was amazed. Now, I want you to know I didn’t ask anybody else to do that. And so we all walked out of there and we said, “Well, it’s over,” and took care of it, but at some point in time, somebody has to do that as well, and the guy in charge has to do that, and I did that, and it was fine.

02-00:18:31
Burnett: But you have to move on, and press on, and hopefully, it’s something that filters out. Mine safety was a perennial problem. It was a labor problem, a labor issue.

02-00:18:49
Kendrick: And that little dissertation I just gave you maybe shouldn’t be in there. I don’t know.

02-00:18:54
Burnett: Well you can decide later, yeah, absolutely. I think it’s a human—because it’s an industry that has a face, it’s such a large-scale operation, and it involves these machines, and it involves moving 5.4 gigatons of earth worldwide every year. The scale of it is hard to imagine and it leaves its traces all over the world, and sometimes it helps to reduce it to an individual and an experience. There is loss, but there’s also, there’s something of value doing this kind of work. It’s not just work. It’s not just machines. It’s not just techniques. It is a way of life.

02-00:19:57
Kendrick: Yes. It is a way of life, and I have a question there for you, Paul, that I want to get into a little later in what we’re doing or maybe now. So the question is, at a point in time, I had a powder manufacturing plant go up in flames at Climax, and it was totally different situation, but it was handled totally differently as well, and the reason it was is because we had MSHA in there, and they immediately took over the responsibility and it was different, and so, I’m asking you, do you want me to fast forward to that now?
Burnett: Well, I think we are talking about safety, and catastrophe, and this is the ANFO factory that you’re talking about, and yeah, why don’t we? Is that in 1980, that that happens?

Kendrick: Probably.

Burnett: Yeah, at Climax, and that’s at the tail end of your time at Climax, so we can, let’s talk about it now, and let’s do it, and then we can return to our conversation about Henderson.

Kendrick: All right. Well, the situation at this point was that we were living in Frisco, Colorado, and I received a call in the evening. I think some of the kids were getting some ski awards. There was an assembly there at the high school, and I received a call that the ANFO factory was in flames up at Climax, and of course, this is miles away, and so it’s massive trauma because, as far as ANFO is concerned, I know that this ANFO, ammonium nitrate and fuel oil, will burn if it’s not contained, and it’ll just go away. Well I know that they had an accelerator in this one, which was powdered aluminum, which gave it another boost upward, and I felt that it, too, would simply burn. However, they had another secret ingredient in there that they never did tell me what it was, and so I didn’t know what that was. So now I’ve got a fire, and I’m not sure what’s in it, and so I’m talking to the guard. I said, “Now, have you sent people down to Leadville to try and find the Ireco guys so that you can find out all of this stuff?” and they said, “We have. We’ve been knocking on doors and we cannot find anybody.” I said, “Okay, well”—

Ireco is the company that makes the ANFO.

Yeah, Ireco is the company, from Salt Lake City, that made the product, and so I said, “Well I’m going to call Salt Lake City and see if I can’t get somebody.” So I called Salt Lake City—just, the building is all I had, I knew where they were—and I let that phone ring for a long time. Finally some janitor answered it, and I said, “Is there anybody there at all from the company that you can talk to? We have this fire up there, and I need to talk with someone.” He said, “No, there’s nobody here.” I said, “Do you have a phone number you can call anybody?” “No, I don’t have anything.”

So, everything’s dead ending, and so I call the guards back and I say, “How bad is the fire? Can you see it from the gatehouse?” and he said, “Oh yeah, the flames are coming through the roof.” Oh, and I said, “What are you doing?” He said, “Well, we got some people in there trying to get the trucks out,” and I said, “Get them out. Get them out right now. Evacuate. No more people in there. Get them out.” And so he did, and so the trucks burned up, and then I
jumped in the car and went up there, and here the thing is; it’s just a disaster. It’s a big fire and everything’s going away, and so the only thing left for me to do is set up a perimeter. It actually was very close to our haul road so it shut down our operation in the pit, and I put a periphery around there that was one that I felt was safe if something did blow. Everybody had to be outside of that radius so that they’re not going to get hurt. So, I set the parameters on that, and then we just backed off and let it burn, all right, shut down the pit; it’s down for three days.

Now, here we are three days later, and it’s still smoldering and all, but for the most part, it’s not a real entity, and we were sitting in one of the big rooms of the IR Building down there, and I have probably twenty-five or fifty of my key guys in there that are perfectly capable of making all kinds of decisions, and advising me, and so forth, but also MSHA is in there.

Burnett: And MSHA is—

Kendrick: MSHA [Mine Safety and Health Administration] is the government agency that put themselves in charge, okay? And so, it’s time, once again, for me to go over to the site, just like I did at Urad, and say, “Okay, we can go back now.” So I got out of my seat and I went to the door, and the MSHA guy hollered at me, “Where are you going?” and I said, “Well, I’m going to go down and look at the site and see if it’s time for us to go,” and he said, “You get over here and sit down. We’re in charge now.” Wow, is that ever massive trauma! Here’s all my people hearing this guy say I don’t have anything to say about when we go back to this, they’re in charge. Well, this really is massive trauma. I find this extremely difficult to take. I’m sure my people did as well. Here’s their boss, had been for five years, we have a great relationship. Everybody is able to say whatever it is they need to say and have their input, and get it done properly, and these guys have just jerked the rug out from all of us, and that’s how it went. They kept it. They’re the ones that went down there and said, “Okay, you can go back now,” and—

Burnett: How much later was that?

Kendrick: Not very much, a couple hours.

Burnett: Okay, right. Jesus.

Kendrick: Anyway, I wanted to make that point, because that kind of an aggressive approach to an entity that is actually a live entity. It is the entity that gets the muck out. It’s the entity that keeps everybody safe. It’s the entity that has a diversity of opinion and they can talk about it with the rest of the entity, and
it’s all gone away, and I know this is sounding like, boy, this is really against MSHA, and as far as I’m concerned, it is. From then on, it was never the same.

02-00:28:06 Burnett: Yeah, well, we’re beginning to see—this is 1980 now, so we’re going to be spending some time talking about the fragmentation of trust between industry, government, and the public. The public is less trustful of the government; the government is less trustful of industry; the public’s less trustful of everybody; and this is part of the social and political landscape of the 1960s going into the 1970s, and it affects the mining industry because there’s growing public concern about the damage from industrial operations, not just mining but steel manufacturing and so on, that causes pollution to the environment, to the air, to the water, and that becomes a part of your landscape in doing your work, and so this was a federal agency. OSHA is the Occupational Safety and Health Administration, and MSHA must be something, Industrial and Manufacturing—

02-00:29:17 Kendrick: It was Mine, Mine, MSHA—

02-00:29:20 Burnett: Oh, MSHA, okay. Mining Safety and Health, probably out of the Bureau of Mines [Ed. note: created in the Department of Labor in 1977]. So it’s federal, and there’s that.

02-00:29:30 Kendrick: And I suppose what I just did is throw down the gauntlet, but it needed to be thrown down and it doesn’t make any difference now because the whole thing has changed, but I sincerely believe that it should have been thrown down, and there it is, for whatever it’s worth.

02-00:29:54 Burnett: Right. Well this is a conversation that we’ve had with a number of narrators, including Paul Jones who’s talked about—

02-00:30:04 Kendrick: Paul Jones.

02-00:30:05 Burnett: —yeah, there was a disaster that was managed by the EPA in ’92 [Summitville Mine disaster], and in Colorado, and so the story is about, who knows better what’s going on in a particular site, in a particular geologic formation, than the people who’ve been working it for years, and the people who’ve been working on like things for years or decades, or people who are working across the country at a higher level thinking about safety and environmental degradation, that kind of thing. So that’s the gauntlet: “we know what we’re doing.” “We know what is going on in this area,” and so that’s something that you’re beginning to encounter as you’re doing your work. One of the things that Stan Dempsey talked about in his oral history
was that he wanted to dissolve the assumptions that, on one side, there were environmentalists and people with environmental concerns who operated through the government, and there was the industrial side that simply wanted to produce more of whatever they were producing, and the environment can go to hell, and he was building a story about how he and others were mining professionals who were also interested in the environment, and interested in environmental protection. So that’s something that we should come and talk about fairly soon.

Kendrick: I have a lot of words on that.

Burnett: I bet you do. So let’s go back now. Is there more you want to say about the—

Kendrick: No. I wanted to get that out, simply put it on the table, kick it around.

Burnett: It fits in our theme of safety and risk, that this is something that, this is dangerous work, and it’s a burden that the people—

Kendrick: And you need the best people possible to make that decision, and who better than the ones that work it?

Burnett: Right. Well, we were talking about Urad and the Urad cave; I wonder if we could talk a bit more about Henderson. Last session, we were talking about the extraordinary achievement of having a tunnel meet up within one inch of tolerance across 9.4 miles, and I wanted to ask you about the work at Henderson. This is a deposit that’s several thousand feet below Urad, and can you tell us some of the stories around doing that kind of work and making it a success?

Kendrick: Certainly. One of the things that we were able to use, and able to use perhaps Barry McMahon’s expertise, was to orient the potential cave on the Henderson deposit along the stress lines of where the major stresses in the rock were. In other words, you have major stresses. Obviously the one from surface down, that’s the major stress, but you get a lot of lateral stresses coming in there and so forth, and as a result, you’re looking at this deposit and you need to undercut it, and you need to get the cave going in a particular direction, oriented to the principal stresses on that rock, and we were able to determine the principal stresses and therefore say what the alignment of the drift should be in order to do the initial caving on Henderson. Does that all make sense?

Burnett: Yes.
Okay. And we were able to do that and we did that and it worked, and it’s been successful ever since, not only because of that, because there were a lot of good people on this thing, and they’ve kept the good work going, and it works. Now, Henderson, of course, was a totally different situation than Climax. Climax had a level every 300 feet, a cave level. In other words, it caved at the Phillipson Level, which was 300 feet above the Storke Level, which was 300 feet above the 600 Level, and we were locked into a 300-foot vertical, which was ridiculous because there’s no reason you can’t go a lot more than that, which we did at Henderson. The spacing between cave levels was a lot more and I can’t remember what it is, but it works with a lot more vertical in there than we ever had at Climax.

Was it risky to do only 300?

No, it wasn’t risky; it was a piece of cake, and it really wasn’t risky when we increased it to whatever it was, 500, 600. It wasn’t risky.

So when you’re—

It worked.

You’re talking about the spacing between the—

Cave level.

—the cave levels.

Yes. So anyway, that worked and it was thought out very well, and this whole thing was set up to be workable with eight-yard load-haul-dump units rather than slusher drifts, which was Climax. Climax was totally slusher drifts and trains, track equipment, and so forth, and all of this is obsolete now. Nobody ever thinks about stuff like that, even to the point of having load-haul-dump units in there doing your prep work, instead of rail equipment in there doing your prep work. That’s ancient history, and one of the things I think we’ve talked about over the length of and breadth of our mining and all is, it was mentioned that there was a lady that said we wouldn’t let her underground and so forth. That was the only incident that ever happened. Other than that, we had females underground all the time, and there was no problem with it.
Anyway, after I was over Henderson and Climax and so forth, I had a visit of a contingent of Japanese people that wanted to see the Henderson Mine in all its glory, because it was a glory. It was a very well-done thing, clean, well-kept, beautiful place, and they wanted to see it. So there were twenty or thirty Japanese gentlemen, and we went underground to show them exactly how it worked. Now, this is like a ballet, I'll tell you, it really is, because you have the level where you're doing your access to the cave. So, let's assume—can you see any of this?

Kendrick: Yeah.

I want to assume that we have a cave over here, and a draw point right here, and we'll take this thing, and this is the drift out here in front so, now—

Kendrick: That's the horizontal tunnel.

Okay now we're on a horizontal plane here, and we have this eight-yard load-haul-dump unit, which is a big unit. Eight yards is a lot of muck you're hauling in one dipper, all right? And so, this unit drives up the drift, and goes over and hits the muck pile in a single pass. It picks up a whole eight yards of material. It backs up, backs up the drift, goes down here and dumps it down an ore pass down here which goes down to the haulage level. Am I making sense?

Burnett: Yeah.

Okay. So here it goes, in there, goes in, backs up, ballet, down, drops it down the overpass, and it's just rhythm and almost mesmerizing, watching how this thing works. The operator is part of the machine, and everybody's watching, and finally the machine pulls up and stops, and the operator takes a little bow and everybody clapped—boy, what a beautiful piece of work was done there—and then, the operator takes the hardhat off and all this blonde hair falls down, and she's the operator, and Japanese like blonde ladies anyway you know, and I thought they were all going to pass out, I did. I thought, wow, [laughter] and she bowed to them, and they almost couldn't even clap on that one, but to me, then, I've just explained the epitome, and, the result of women working underground. Take a look at what I just explained to you. Perfect. Perfect. No complaints. No one could complain.

Burnett: Right. You were demonstrating several things at once, right?

Kendrick: I am.
Absolutely. And the Henderson Mine becomes a kind of model that other people imitate? Were there things being done there that had not been done as well in other places? So it was an example of modern—now this is also the importation of machines and expertise from South Africa, which had a reputation as one of, if not the center for deep, hard-rock mining.

Well certainly for deep, yeah.

And so there was a lot of “new” happening at Henderson for the first time: using the gyroscopic theodolite, using some of the machines, innovating some of your own equipment and some of your own techniques, so bringing the expertise of you, and McMahon, and a lot of other folks together with the machines and techniques and technologies from South Africa, with a new gender component as well, because the first graduates of the Colorado School of Mines, your alma mater, the women engineers were in the 1960s, right, and there were only two, I think—Betty Gibbs was one of them—and then, I think, after those pioneers, it begins to move—

I guess you always have to have pioneers, but the acceptability of these people was not in question ever, I don’t think. They were always accepted.

So it was a demonstration, and people came from Japan. Were there others from other countries who came to see the Henderson Mine?

Oh, absolutely yeah, Henderson was a showplace. It was a showplace, and it was clean, and it was well taken care of, and it was just about—in our shop areas and so forth, the ribs were all whitewashed. Hell, it was beautiful. They’re gleaming. They had individual bays for each piece of equipment that could go in there and it would be serviced or whatever was necessary in mechanical or electrical detail that it needed, and—

Was there training and education as well?

Absolutely. Absolutely.

So you had visitors to Henderson to see the work that you had put together, and they wanted to see this as an exemplar of modern mining.

Yes. Yes, and I have to say that all of the people that worked on Henderson were very exemplary people who put fantastic effort into making the
Henderson work as it did, and the planning that went on by the folks that initially came up with the concept was totally above reproach. This was pure thinking, and they did a beautiful job, and I was not involved in that. These are the people that actually came up with the concept of how they approached the muck pile, and how they used the big load-haul-dump units, and how that in fact was a good place to work so that you were not exposed to the cave coming in on you ever, such as climbing up a finger.

02-00:45:12
Burnett: Right, which you had experience with.

02-00:45:14
Kendrick: Yes.

02-00:45:15
Burnett: Just, I’m curious. Do you know a little bit about the history of load-haul-dump units? When were they first introduced, and they scale up; they get bigger over time.

02-00:45:30
Kendrick: Oh, I really don’t. I can tell you my history on it. Actually, we started using them at Urad, and those were small ones, two-yard things like this, and they started using them at Climax as well in some of the off-shoot places, but they didn’t really get into Climax in a big way until I moved up to Climax, because I took the concept more or less with me, and I’ll give you an example. One of the things that Climax had as an onus was the fact that Bartlett Mountain, the top of Bartlett Mountain, was hanging over almost like a cantilever and pressing down with tremendous weight on the 600 Level up there, and this had been in place for a long time, and it was a concept that maybe they had put the cave in the wrong place, in that here is the top of Bartlett hanging over like this, pushing down onto the 600 Level, and the weight is astronomical, and what they were trying to do was come in under this, so that they’re working under all of this weight when perhaps it shouldn’t have been that way. Perhaps they should have mined deeply in there and started the cave on the other side—

02-00:47:37
Burnett: And just leave that part alone.

02-00:47:37
Kendrick: —so they could move out from under it this way instead of trying to move into it this way. Now this is conceptual, but to prove a point, when I got up there, I took a bunch of load-haul-dump units with me, and Climax was putting in essentially one haulage drift a year in that area in order to advance over there, and I decided, well hell, I can put in five of them quicker than they can put in one in the old rail unit. So I just took a couple of load-haul-dump units there and I quickly put in five drifts down there, probably within three months—had five drifts instead of one in a year—and it gave the opportunity
to be able to think that maybe we had a chance coming over there and working the cave the other way. All right.

02-00:48:47
Burnett: And that was safer?

02-00:48:48
Kendrick: It would have been safer, but it never did work out. So as a result, we finally pretty much gave up on it and pulled out and moved away from it, but, we did have the opportunity to do some things, and the point is that we could put in five drifts quicker than the old railway of putting in one.

02-00:49:21
Burnett: Right, right, so this is a—

02-00:49:23
Kendrick: So this is a great big plus for load-haul-dump units.

02-00:49:27
Burnett: An innovation of scale, really, and throughput. So, let’s return to Henderson. You’re still there in the seventies, late sixties, and we talked in our last session—

02-00:49:46
Kendrick: Like last session, yeah.

02-00:49:47
Burnett: Yeah, our last session we talked about the Vasquez Fault, and we talked all about how difficult that was, but you crossed it four times, and so I’m wondering if there’s more you want to say about the Vasquez Fault as a problem that you were working on.

02-00:50:09
Kendrick: Well, the Vasquez, of course, was a 200-foot-thick shear zone, and it was a fault, but it wasn’t one fault. It was a massive bunch of faults, and this was a typical example of—what we wanted to do is go in there and map what that shear zone was, so we poked a bunch of diamond drill holes in there, and actually cored it so that we could plot what that 200-foot shear zone consisted, and we did, and this is a core that outstandingly has a story to tell, in that it’s right out of the Vasquez Fault, and it’s relatively intact. If you look, that core came out of a hole that was mostly core. It was not mostly anything else. There was only a single water course like this, and some water courses up here, and—

02-00:51:24
Burnett: So that’s that hole, if you turn it towards the camera, you can see there’s a hole there in the core, and that means that water was getting through.
Kendrick: And that water was under such a great pressure that it actually pushed the diamond drill right out of the hole, and it was only hitting it with vugs like this. It’s almost inconceivable the pressure that would have been on these small openings. In any case, that’s what part of the fault looks like. Other parts of the fault were just clay. It was already ground up to the point where it would just wash out immediately, and therefore grouting was the only way to handle that thing. Actually, I think we did consider doing some freezing, when it was time to put the shaft through the Vasquez. The last penetration of the Vasquez was when two shafts came down on top of it and had to go through it. However, we only considered freezing; we did not do freezing.

Burnett: Freezing?

Kendrick: Yeah, well what you do is, you freeze the ground around that, so that the water then is frozen and you’re able to drive, sink through it without too much more difficulty.

Burnett: How do you freeze it?

Kendrick: Well, you put in freezing cooling units. You drill holes and put in cooling units, and then freeze the ground.

Burnett: You freeze the rock around it.

Kendrick: Well, the water in the rock.

Burnett: Well I mean, the water is what you want frozen, obviously—

Kendrick: But it was something we considered, and we being Harrison Western, Al Provost. These guys are very professional, and it was considered to penetrate the fault in the shaft by freezing it; however, we didn’t do it. By then, we had penetrated the fault three other times. We figured we can do it one more time in the shaft and we did, and everything worked out very well, but each time we did it on the horizontal. The shaft was the last one, and it was a vertical thing, and it just went like clockwork and no problems with it, but the other three, each one was tough, and the one thing we proved initially is that a sixteen-foot-thick concrete bulkhead would stop and hold the weight of the fault. This was key to what we did with the rest of it. We knew that sixteen foot of solid concrete would hold the fault, so that every time we penetrated, we made sure we had sixteen-foot of concrete there to back us up. Make sense?
Burnett: It does, it does.

Kendrick: So, essentially, that is exactly what we did, and the first time we penetrated it was the disaster area. This is where everyone was running out of there, and panic and so forth, but they kept their head to the point where they were able to get down there and stop it with a bulkhead before it went up the next shaft, which would have been the end of accessibility into the head.

Burnett: So they were actually working to cap this as it was coming out?

Kendrick: As it was coming out. It was a moving entity, a monster, man. [whistles]

Burnett: How do you work on that while it’s—like how do you create—do you put a temporary cave? How do you do it so that you can—

Kendrick: No, no, no, we put in a half a bulkhead. We put in the lower half of the bulkhead, and then we put five or six ten-inch pipe on top of it so that when this massive thing hit there with water and all, it had some relief to go through these pipes which then went up the shaft, Number One Shaft, for 800 feet under their own pressure—there was no pumping there—800 feet up there and dumped into a sump so that we could pump it beyond that.

Burnett: So you had to retreat to a point where, you know it’s coming, and how much time do you have between that thing coming on and putting in the bulkhead?

Kendrick: We didn’t know. We didn’t know for sure, but we took whatever time we needed and we put in half a bulkhead, put the pipe in there, and then we thought, now we have at least a relief, you see, and we finished out the bulkhead and filled it up like this, but we still had these five or six ten-inch pipe going through there that would release the pressure on it.

Burnett: So when I think of mining, I think of planning, and plans of the maps, and then careful excavation, careful caving, careful blasting, but this is an emergency situation—

Kendrick: Total emergency.

Burnett: —and you have to act very fast.
Kendrick: Immediately.

Burnett: Right. So, in order to do that, was there a course at Mines on emergency—

Kendrick: [laughs] No.

Burnett: —how do you act fast—

Kendrick: No. [laughs]

Burnett: —how do you make decisions quickly?

Kendrick: No.

Burnett: So you have to have people who are not comfortable with emergencies, but familiar with emergencies, is that right?

Kendrick: Oh yes, but as far as people who had been to the Colorado School of Mines, at that point in time where that thing was happening, there wasn’t anybody there. I didn’t get there until the next week. I was on vacation, and I was the only one there.

Burnett: Right, right. So, one of the striking things: of course, today, I think there’s a lot of more public exposure to actually how mines work because there are documentaries now that show the scale—

Kendrick: It’s beautiful.

Burnett: —the tremendous scale of these operations, but especially with underground workings, it’s tighter—

Kendrick: Hard to do, it’s hard.

Burnett: It’s hard to do. It’s far underground. There is a lag time between getting something from the surface, or from a central base point to the edge of where you’re working, and then the scale of it. Even at that small scale, sixteen, how do you put a bulkhead that’s sixteen feet thick of concrete? That, to me,
sounds like that takes some time; it would take a large type of equipment to lay that much concrete that quickly.

Kendrick: No, not a lot of, no, because you just run it down the shaft. You run it down a pipe. The concrete comes down a pipe, and you run it over there, and you’ve got this thing put together, and you just fill it up with concrete.

Burnett: Okay, but where does the concrete come from?

Kendrick: From mixing it on the surface. You mix it on the surface, run it down an eight-inch pipe, and it just runs over and goes in there where you built the forms for the bulkhead.

Burnett: So, okay, so that, yeah, that’s kind of what I mean, is that there are systems in place for, I need to put x amount of concrete here, and if the pipe isn’t there, you put it, you get the pipes built, but they’re already there because you’re already using the concrete. You already had that. You were pushing across the Vasquez Fault by using concrete to push the unstable ground.

Kendrick: Well, that was grout. That’s different. That didn’t come down the pipe in the shaft, but you mix it over there.

Burnett: So, but concrete, I guess what I’m learning here, is that the use of concrete is part of the construction of the mine. It’s already there in place.

Kendrick: Yes, we used it, and I’ll give you some examples of using it that you’ve not thought of before, but we used the concrete, of course, to spiff up the areas that we were working on then, but one of the things, we had a few thousand feet of drift going over between One Shaft and Two Shaft. This is after we’ve got that thing under control, and it’s a major haulage way there. Load-haul-dump units are going up and down there, and it’s a rough road, a rough road. So what we want to do is put in a smooth road. This is hard on tires; you’re running it; so let’s do this, and our people got with a guy. His name was Warren Shriver. He used to run the concrete crews at Climax, and he knew more about concrete than anybody else in the company. And so, we said, “Hey Warren, we want to put a concrete floor down this drift.”

Now there’s 4,000 gallons a minute of water going down that drift too. So here you’ve got this going down there, water, and how do you do this? Now just, it’s interesting to think about. If this were dropped in your lap, what would you do? How would you concrete this floor of a drift that’s got 4,000 gallons of water running down it, and you want to pour it full of concrete, the
floor only? So what he did is, he went clear up here. We had to pour it all, so we started up here at the head of it, and he took two-by-twenties, which are big boards, two inches thick, and he had people holding the two-by-twenties, and they would hold it against the water so that the water would go over to one rib of the drift. So they’re holding this thing like this and it’s squeezing the water over here, so he’s catching it, squeezing it over here. That leaves this relatively free of water. There’s still water there, but relatively free of water, so then, you have your concrete coming in from this end down here, and you’re just laying all this concrete out here on this area that you’ve squeezed the water over there. Do you understand what I’m saying?

I do.

So you’ve got it over here and now you’re laying concrete here. You smooth it out as well as you can to make a nice roadway. You move the thing down like this, and you continue for a few thousand feet just that way, and what you’ve done then is you’ve laid this all in concrete, you have a nice roadway, the water is all over on this side of the drift, and it worked out so perfectly that it was hard to believe.

That must have taken forever.

No. In one weekend. We worked Saturday and Sunday, because it was a busy haulage way. No.

And the other piece of it is that you have to do calculations. As someone in charge of this operation, you have to think of, what’s the cost of the wear and tear on the tires versus the cost of the concrete and the labor, and you save this much money by doing it this way, and you’re doing that in real time.

In real time. Real time. Isn’t that fantastic, huh?

It’s—

This is how people think. They’re good people.

Yeah, it strikes me that you have a certain number of tools to do the construction work. When an emergency happens, you think, bulkhead, I need; I’m going to bring concrete down, and I’m going to create a partial bulkhead, and you’re dealing with several problems simultaneously: the sheer force of the muck and debris coming out, and then the worse force of the water that’s
coming out in a jet, and so, partial bulkhead for the dense matter, and pipes to push the water up, and divert it, and you’re thinking about both of those problems and you have two sets of materials, piping and concrete, and those, that’s your toolkit for that emergency, and you immediately think, the people I need: who is my concrete guy, who is my pipe person? And you put those together to get it going.

Kendrick: Well, this making the floor in there is separate from catching that with a sixteen-foot bulkhead, you know. You got that, yes—

Burnett: Yes, absolutely.

Kendrick: Yeah, because that’s separate and that happened a month later or something, but yes, other than that, you’re correct. You don’t think, “I got to go get a concrete guy.” Hell no. You just start pouring concrete down there and scatter it around, and you finally get it over there and it starts filling up behind there as this huge thing, that you know it’s a monster, coming down the drift at you. Wow, you know?

Burnett: Yeah. So, that day you go home and you have a scotch. [laughs]

Kendrick: I think at least.

Burnett: So, you can see why there’s a certain—I hadn’t thought about this so much, because there’s the risk and the danger, but the other piece of it, for the people you grew up with, growing up around risk, is, there’s a bit of a thrill, going up to go skiing, to go ski down, because your parents were worried sick. All the families were worried sick about these three guys going up the mountain to ski down it, and there’s a blizzard, and a snowstorm, but you were excited.

Kendrick: On Mount Elbert, yes, I don’t think they worried much. They had a lot of faith in it.

Burnett: Well, there’s that too, but I think what I’m trying to understand on behalf of the listeners and the viewers is, there’s an attraction and a calling, I think, to mining, that you get something out of it and you give something to it, and you get the excitement and the thrill, and you give the risk, you give the danger, and you give your exposure to danger, and that’s part of the calling, I guess, isn’t it?
Kendrick: Perhaps, yes, I think so. My mother was a pioneer, and my mother was very proud of her father, who was a risk-taker, and she didn’t encourage me to take risk, but she sure didn’t stop me from doing it either.

Burnett: Right, and that was understood. This is something that people do, and that’s not necessarily in our—we’re in a very safety-conscious world now and a very risk-averse world now. We don’t take a risk on a cluttered sidewalk. [laughs] We make sure that everything is perfectly safe all the time, and so this is something that needs to be explained and spelled out, and I’m grateful that you were able to illustrate that story. You probably weren’t even thinking that this needed to be explained, but I’m glad you did. So, another thing that changes in the Henderson years is, you change workforces. Now, who is working in those mines? These are mostly many generations of mining families. These are the—

Kendrick: That was true in Urad, and we took the Urad group, as a core group, and moved it into Henderson, so the core group in Henderson also were the same people. Now, the ones that I had driving that long drift so far so that we could get on top of the Henderson deposit with the big rigs and define the deposit, every one of those guys that worked that drift, when they came over to me, I moved them all over to Henderson. Every one of them became a shift boss, every one of them that worked on that.

Burnett: The Urad people were your people. You trusted them completely.

Kendrick: Yeah.

Burnett: So, is there a transition? Does the workforce change? Did they move to more contract, on a contract basis, moving from a permanent force?

Kendrick: No, they were not contract miners, no. No, this was all just mining. They were on wages.

Burnett: Yeah.

Kendrick: Motivated by that, they were happy to be.

Burnett: Yeah. And the composition, it’s mostly people of European descent? You mentioned Slovenians were in the mining area—
Kendrick: Oh yeah, well—

Burnett: —Cornish. There’s a story about the Cornish being overrepresented in mining communities, but people, there were Anglo folks who were working in the mines. Does that begin to change over time? Are there different folks from different backgrounds working in the mines?

Kendrick: Yeah, I think by now, you wouldn’t find that kind of commonality at all, no, not at all. Doesn’t exist anymore, no.

Burnett: And they had—I think there were stories about, in Arizona—this is I think in Phelps Dodge and those mines out there—they had people, I mean, there were eleven or fifteen different languages spoken, and down in the mines, but this is a bit more of common language, common culture, for getting the work done. Is that important, to be able to communicate clearly and effectively?

Kendrick: Absolutely.

Kendrick: In fact, the people down there in South Africa, they’ve developed their own language so they can talk to the natives that they bring in there. They call it Bantu, and—

Burnett: Well Bantu is a language—

Kendrick: Yes, it’s language—

Burnett: It’s a family of languages.

Kendrick: —for the miners to communicate with each other and tribal against tribal, you see, so that they can fall back on something that they can communicate with, Bantu, and that, I’m sure they still have that going down there, but no, out here in the rest of the world, we don’t do that, but perhaps you would have found some commonality like Bantu sometime, but—

Burnett: Well there is a common Bantu culture that they’re farming peoples who moved—

Kendrick: Oh, are there?
—yeah, and they have a common culture, as opposed to the Zulu and all the different sort of various tribes. So there maybe is something that they’re pulling from.

Sure.

I think it’s time that Bob remembered that he was the first one to promote a Latin American. In mining they weren’t welcome.

Can you talk a little bit about that?

Well I can, yes. I’ve never been prejudiced. I don’t know why. I grew up in Leadville. There are many types of folks in Leadville. They had their own divisions within the community. We had the Swedish people up on Chicken Hill, and we had the Finns over in Finntown, and we had the Italians in Tintown, and we had the Mexicans down in Stringtown, and we had the Slovenians on the west side, and it was a very cosmopolitan community of 3,000 people, three to five. It was never more than five, I’m sure, and they didn’t really intermarry that much either. They kept their ethnicity to themselves, and you had the Sixth Street Irish up there, and you had gangs and you had people that would fight with each other, and you wanted to be careful what part of town you were in when you went for a walk, because they’d get you for simply being there, and that was part of my younger hazard days.

Right, another type of risk.

Yeah, another type of risk, yeah, and anyway, we had a number of Mexicans, and these people came to work at Climax as well as other people, and I had one particular guy that I was working with. He was a hell of a hard worker. He knew mining. He knew more about mining than I did; however, I was still teaching him how to perhaps use more than just the six-hole burn cut that he used on his—I was trying to teach him how to use a baby V so he didn’t blow down the timber every time he shot a round.

So, Onie is up there and Onie is a very conscientious worker, and it was just natural, when I had a guy going on vacation, as a shift boss, and I said, “Well, what do you think of Onie?” He says, “He’s great.” I said, “Well let’s put him in there as your relief,” and so I did, and I was foreman, and as soon as that happened, everybody got upset, and they said, “You can’t do that,” and I said, “Why not? He’s perfectly qualified for the job, better than anybody else.” “No, he’s a Mexican,” and I was told to take him out, and I did. It was one of the worst things I ever had to do. And so when I left not too long after that and
went over to Urad, and I was gone for ten years, then I came back, and this guy’s name was Onie Duran. He lived in Red Cliff, Colorado, strictly a Mexican community, and when I came back, Onie was still there, and I thought, well I’m going to take care of Onie now, because I’m a big wheel.

02-01:16:47
Burnett: This was in ’65 when you came back.

02-01:16:49
Kendrick: Yeah, but there’s old Onie, he had his leg cut off, in the interim, and there was nothing I could do, and very sad, very sad.

02-01:17:01
Burnett: But those were the times and there was a civil rights movement that was happening in the United States and elsewhere, but the mining community there is small, and you could promote someone, but there might be consequences if you did. It’s a tough call, right?

02-01:17:26
Kendrick: It’s always a tough call, and there are consequences, and it’s hard to think of all of them, but really, if you just think of right and wrong, it pretty much should work out, but it doesn’t.

02-01:17:37
Burnett: Yeah. It’s not always so simple. So, I’m wondering if we should perhaps take a break, and then we can resume in our next session.

02-01:17:54
Kendrick: All right. So be— [break in audio]

02-01:17:59
Burnett: So while we’re on the subject of techniques, this incredible description of what goes on down in the mines, I’m wondering if you could talk about another field of techniques that you got involved in, in Miami, Arizona.

02-01:18:14
Kendrick: Absolutely, yes. Miami, Arizona, was a unique situation in that historically, Miami Copper Company and Inspiration Consolidated Copper Company staked out two copper sulfide deposits in the Miami area, and between those two copper sulfide deposits, there was a copper oxide deposit, which a fellow named Cleve Van Dyke staked, and thought that perhaps he could do something with the copper oxide and make a mine out of it, but, it was not to be. So what he did is, he made a town out of it. He put the town of Miami on top of this oxide deposit, and said, “Okay, now you guys in town own the first twenty-five feet below surface, and I own below that, and we’re going to make a town here,” and they did. It was a successful town. They lived there while the Miami and the Inspiration did their thing on the sulfide deposits, and everybody was fine, for a while. Anyway, they took over the oxide deposit, and wanted to see if they could develop that.
Now, this is where I come in. Marian and I were at a big function one night. It was a banquet, dance thing, and we are, it’s down in Denver, and all of the Climax people were there, and big AIME thing, and this guy named Ed Eisenach danced over by us, and he just said, “What have you got against Arizona?” That’s all he said. I said, “Nothing. Why?” He said, “Well, come down talk to me in the morning.” “Okay, I will.”

So I went down and talked to him in the morning, and he said, “Well, I don’t know if you know it or not, but I have taken over the leadership of the E and ME Division, which is Exploration and Mine Evaluation Division, and we’re going to move that division from Greenwich, Connecticut, to the Golden area here, and we’re very interested in getting into copper. Now we’ve gotten into molybdenum and coal and aluminum and so on, potash, and we want to get into copper. We have two opportunities to get into copper. One is the deposit just south of Tucson, and another is up in the Miami area where there is this oxide deposit that we feel may well be viable, and that’s where I would like you to take a look at this and see what you can do with it,” and he gave me some basic rudiments, and his going away words—well, I’ve always felt that people make mines, and they do, because you can screw it up with people, or you can make it work with people, and when you go back to the concept that a mine is made by people, then you have quite a bit of latitude to think about how this would be done.

So anyway, as I went out the door, he said, “Go down there and make a mine out of it.” Well, that’s big direction. Well, so I went down. I was just finishing up with shaft sinking up there at Henderson, and my shaft sinking group of engineers are available, and so I said, “Come on guys, go with me. We’ll go down there and make a mine out of this thing. It might be fun.”

Burnett: Now you’re at Amax at this point, and so you’re able then to go down in your capacity as an Amax employee?

Kendrick: Yes, and what it was is the Number Two shaft of the Henderson that we were finishing up, the last one that penetrated the fault, okay? And so I had three guys off of there that went with me, and I had another one that had worked for me before who was available. He was coming off a job in Nevada. And so I took those four people and we went down to Miami, Arizona, and the E and ME Division made a contribution. They gave me an office manager, from Canada, as a matter of fact. He lived up there, 150 Mile House, and hell of a guy. He’s still a really good friend of ours, and he had been in Ireland over there trying to make a mine out of something in Northern Ireland, and there was a lot of problems with people with machine guns and stuff like that. So he was glad—

Burnett: The Troubles.
Kendrick: —to get out of there, and he came over. His name was Sterritt, Neil Sterritt, and he was, in fact, a manager for different projects in the E and ME Division, and Neil was just a natural to fit in with my guys. They were all just a perfect group; they really were.

Burnett: And just to be clear, E-and-M-E, what does that stand for?

Kendrick: Exploration and Mine Evaluation. And so here we are, and of course, we have to establish offices, so we took over a lot of the rooms of the Copper Hills Motel, and just put our offices in there. You’d have to go out and you go in the front door of each one of them to change offices, but they were, my guys were in there doing things, drawing up pictures and so forth, and we’re trying to come up with a method of being able to mine this kind of a situation at that area there. Now, can you see this one all right?

Burnett: Oh yeah. I’m going to focus on it.

Kendrick: Okay, now what you’re seeing here is a core from the Pinal Schist that is prominent as the host rock for copper oxide that the town of Miami is built on. Now, going down in section, you would have 800 feet or thereabouts of Gila Conglomerate on top, and between the town and the Gila Conglomerate. So you would have 800 feet of this conglomerate on top of this, about 1,200 feet of Pinal Schist going below that, and the idea was to come up with a method of breaking up these fractures and making them then available to sulfuric acid for dissolution, and taking it out, and then re-deposited it on cathodes, and so it’s interesting to look at this because you have a three-dimensional fracture system. You have fractures going this way, fractures going that way, and then you have the schistosity, the natural schistosity in the rock that also has taken on copper oxide, and so, the problem then becomes one of breaking this up so that this, these areas of copper oxide, are then available to the sulfuric acid in order to be dissolved and picked up.

Now, there are various ways you can do this. You can go in there and you can cave it, and cave a big chunk of it, and then just force solution onto it so that it takes up the copper oxide, but obviously, that’s way too expensive to get this. This actually runs about .5 .5 copper, percentage of copper in the whole thing. So it’s not a high-grade deposit. It’s a low-grade deposit and you have to work within the confines of that. So, we’re playing with ways of mass fracturing so that, in other words, go in there and undercut it, and actually cave it so that it rubblizes on up through the column, and then you introduce sulfuric acid at the top of that column, let it filter on down picking up the copper as it comes through, pumping it out the bottom and extracting the electrolyte there. Once again, too expensive, can’t do that, so, we’re playing with other methods then
of, how can you do this, and one of them that comes up is, can we frack it in the situation that it’s in, break it up with a fracking process, for example, fracking it in place, pouring in the acid, and pumping it out the bottom?

Well, we decided we don’t know near enough about this to do it, so I made an appointment with the Dowell people in Tulsa. They were doing fracking on, of course, oil deposits, and they agreed to have me come over for a few days and chat about it. They were very open and aboveboard there and we had some great conversations, and it didn’t seem that it might be totally out of context that we could do that, so we came back and we played with various configurations on paper as to how this might work.

For example, you would take a five-hole concept, and put it into the Pinal Schist, and you would put down five holes into the schist, and so you’d have four corner holes and one in the center, and you would put it down through there, then you’d put another one by here. So pretty soon, you’ve got a hole every so often, and what you do then, is take, for example, the center hole, and you force the acid into the center hole until it comes out the corner holes, and you pump it out. Or, you do it on the corner holes and you do it in the center hole, so that you have total flexibility what holes you use, and you’re either pumping, or sucking on them, so that hopefully, something’s coming out of here and you’re able to recover it, and recover the copper, and it seems simple and it is, and it’s not that simple, but it seemed like maybe it might work, so we played with various concepts on paper as to how we could make it work, and quite frankly, I never felt comfortable that we could make it work.

So after the better part of a year, the company was really sincere in making a mine out of it, but they were doing better on the one south of Tucson, so they decided, well, they would put their efforts on it, and not so much on this one, so it was slowly kind of going to hell, but I did work for some very intelligent folks in the home office of Greenwich, and they still wanted us to play with it, which we did. But, on top of this here, we’ve got this 800 feet of Gila Conglomerate sitting down on it, which is an amorphous rock. Hell, it doesn’t do anything except sit there, distribute things in the wrong direction, and you can’t hardly cover an interface between the two, you see, Gila Conglomerate, and then you get down here in the Pinal Schist. So—

02-01:32:30
Burnett:
Except to remove the overburden which would be 800 feet deep.

02-01:32:33
Kendrick:
Except to remove the overburden which we could do because we were still in the process of buying the town. We were buying the town at a rate that was compatible to the people. They wanted to sell it and we wanted to buy it, and we had probably a quarter of a town purchased, so that we had that twenty-five feet, and therefore, the opportunity to do something below that, but, I could never get past the interface between the Gila, the conglomerate and the
schist. In other words, there’s an interface here, and how do you seal that off? How do you seal the damned thing off? I really put pressure on it, see, to get that out of there, and that seal isn’t going to hold there, and I never did solve that problem. We never did solve that problem, and so finally we just backed away from it. So that was a better part of a year used up. It was extremely interesting, and certainly added to the knowledge of all of us that were involved with the project, but did nothing toward getting the muck out, so to speak.

Burnett: There are descendants of that approach. What’s interesting here is that you’re borrowing from techniques used in the petro-chemical industry, or extraction industry, of pumping, fracking, and extracting, and is this somewhat related to in-situ leaching?

Kendrick: Well it certainly is, and the way it’s related is that you do the same thing there. You have to seal, though, the interfaces so that you contain it, because if you don’t, it starts coming out people’s sinks and so forth, so, you have to have absolute integrity within the system. It cannot be slopping over and coming out somebody’s faucet, and therein lies the fallacy with fracking, in that perhaps the regulations aren’t tight enough to be sure that the interface is sealed to the point where it doesn’t bother people, and it should be, and I think they can tighten that up. As far as I’m concerned, with petroleum dependency, that fracking is the answer, and they can tighten that up, and it’s just wonderful the way we’ve been able to go ahead and be a world leader then in production of fracking kind of petroleum. It’s great. It’s wonderful, and—

Burnett: So it’s an engineering challenge, the complaints about fracking, the earthquakes and that kind of stuff, it’s something that can be managed with engineering.

Kendrick: I think it can be managed. I really believe it can, and it’s worthwhile enough to really try to do it, because it puts us ahead of the whole group. It really does; it puts us out in front, and—

Burnett: That was a rapid change in history, wasn’t it?

Kendrick: Yeah.

Burnett: In about ten years, that all changed.

Kendrick: Oh yeah, yeah, and it’s still being done and a lot of it. All that Niobrara Formation to the east of the Front Range in Denver, that whole thing is a
frackable piece of rock, as well as the Bermad down in Texas, as well as the
one up in North Dakota, and these things are, they’re real, and they can be
solved, and I think they are being solved, and things should happen as a result
of it, and it will. I believe it will. So, Stanley then comes along and he said,
“Well, you’re ready to get out of here?” I said, “Yeah.”

Burnett: This is Stanley Dempsey.

Yeah, and he said, “I got a job for you. How would you like to be head of
managing the Environmental Service Group?” I said, “Love it. Let’s do it.”
And so he did that. He put me in there, and this then was not only a corporate
job, but it was a worldwide job. It was all over. Hell, I had a free hand
everywhere, and if it were any better than that, I don’t know how you’d find it,
because it was perfect, and as a result, I got to see all kinds of things that I
would not have been able to see, for example, went to Australia. Stanley and I
went to Australia.

Well, perhaps before you give us some of the details of the projects that you
were involved in, can you talk about why you were a good fit for the
Environmental Service Group?

Well I was a great fit for it because not only am I a mining guy, I’m an
environmentalist from the roots up, and as a result, I have the total interest of
both, and it’s just a natural fit. I’ve always been footloose and fancy free in
the mountains, and the environment, and it was just a fit, and—

And why was there an Environmental Service Group at Amax? Why was that
needed at the time?

Well, it was a come together of personalities, and one of the personalities was
Stan, of course, but another one was our chairman. Our chairman was a guy
that was a real thinker, and he thought that it was time that the mining industry
step up and make an account of themselves in being worthy to actually mine
the environment in the kind of situation that produced the most for the least
intervention. Does that make sense?

The maximum commercial benefit for the least environmental cost.

And his name was Ian McGregor, and Ian McGregor was key in the
Experiment in Ecology, in that at that point, we had the Henderson deposit. It
was a huge deposit. There’s no reason to think that it couldn’t supply the
entire molybdenum industry in the foreseeable future, so that Ian’s approach
to molybdenum and how it were to be used was, “Guys, we’re going to work with you.” These are our customers. “We’re going to work with you. We’re going to experiment with smaller quantities of molybdenum used in steelmaking that will give you the same kind of stainless steel you’d have if you had the full-blown thing, and we’re going to work with you on that, and hang loose. Don’t go off with somebody else, because we have this huge deposit coming on and we’re going to be able to take care of your needs in another two years or whatever it was,” and that’s about what it was, and this was a good thing, and he has his lab set up up there in Ann Arbor, Michigan, and these guys are extremely capable of doing just what he said, is coming up with different methods of less molybdenum usage but as good a product as you’re going to get. And so it went that way for a few years.

Then, Ian retired, and the world changed. We had another guy come in there as chairman, and he was equally as forceful as Ian, but he said, “Wait a minute. We have here a marketing situation where there’s going to be a deposit the size of Henderson come on every seven years,” I believe he said. “We have to have that in order to fulfill the marketing requirements of what the molybdenum industry is going to be.” Wow! That’s a total 180 degree change. So as a result, everybody that could possibly get into molybdenum got into molybdenum then, and the whole marketing changed, changed the whole approach to what happens, and even then, as far as Amax is concerned, we haul up all these guys, geologists, and we start moving into all kinds of molybdenum situations, and then it was at that time that I had this group of geologists working for me that were just crackerjack people. They were really good, and we started up Mount Tolman. We tried to do Crested Butte. We had a couple of deposits up in Montana. We had one in Nevada out of there. I can’t even remember them all, but we started moving on all of these, and everybody else did too. So it changed the whole industry.

Burnett: So, this one statement from the head of Amax created an oversupply problem? Or, he’s an example of a new way of thinking?

Kendrick: An example of a new way of thinking that could, in fact, create an oversupply problem, but it wasn’t yet—

Burnett: Did it set the stage?

Kendrick: —but it started out on that way. Now, back up to Ian McGregor. Ian McGregor was an environmentalist as well. [phone rings] Uh-oh.
Burnett: This is Paul Burnett interviewing Robert Kendrick for the Global Mining and Materials Research Project, and it is session three on February 26, 2019, and we were last talking about Ian MacGregor, who was an environmentalist, in your view, as well, so, and he is president or chairman of Amax?

Kendrick: Chairman.

Burnett: Chairman at that time. So, can you tell me a little bit about him and how he fits into this picture?

Kendrick: Yeah, well, as far as I know, he was a Scotsman, and a very intelligent man. He did all kinds of things. He worked closely with Mrs. Thatcher on solving the coal crisis at that time in England, and as well as being chairman of the Amax Corporation, and totally involved with them, and with that involvement he brought a very keen interest in the environment to the chairmanship of Amax, which meant that he was totally behind the Experiment in Ecology with Stan Dempsey and what was happening with the Henderson deposit, and was totally behind all of the involvement of the various agencies and so forth that were within the involvement of Amax with the experiment in ecology. Now, having said that, that meant that he also agreed with the way the organization was conceived and organized in order to maximize their input in the environment as well as maximize their input into what needed to be done in order to lead the charge, so to speak, in that, there was no other mining company in the same kind of situation with the environment than Amax was. Amax was way out in front of everyone, and they were in fact leading the charge when NEPA became a fact in the tail end of—let’s see. It was 1968, nine.

Burnett: I think, yeah, NE—

Kendrick: The National Environmental Policy Act, NEPA, came into being in December of 1969, I believe—

Burnett: I think you’re right.

Kendrick: —and at that point, with just very little more, there were three more acts that came into it: the Clean Water Act, the Clean Air Act, and the Antiquities Act, so that by 1972, all of the legislation necessary to control the environment, or even the development of whatever is going on industrially, could be under control of NEPA. So, here we are at that point in time, and Ian MacGregor is
the man in charge of Amax. His guy in the environment of course is Stan Dempsey, and I came into the picture under Stan as I finished up a project in Miami, Arizona, relative to rock mechanics.

And so here we are at that point in time, and I’m writing—well, first of all, I’m becoming totally involved with the Experiment in Ecology. This thing has all kinds of people in it. There’s the [United States] Forest Service. There’s the farmers over in that part of the extension of Amax on the Western Slope. There’s the Thorne Ecological Institute in Boulder under those people. We then decided that it would be a good thing to involve the University of Wyoming, in that it is becoming rapidly necessary to write an environmental impact statement on the Powder River Basin, which is where the 200-foot-high seams of coal are, and necessary in order to come up with some method to continue developing that area.

So, that places us now in the Powder River Basin. It places us under the tutelage of primarily our chairman, and also Stan, and then, I fall in there somewhere behind these guys, and it becomes my job then to recruit, first, the University of Wyoming into the organization so that we can utilize their various expertise in their various technical agencies within the university, such as all of them. Whenever an impact statement is actually put together, the hardest part of it is establishing the baseline. Now, the baseline part of an environmental impact statement is the part that says, “This is where we are at this point in time with this technology,” and therefore, it’s all spelled out in front of them. So, I had a big meeting with the university people. They were very pleased to be able to participate with us in this, they really were, and we had everyone from the athletic coaches, through the heads of departments of all of the technical departments, involved in the baseline study. We were doing soil sampling, soil studies, animal studies, studies on the weather and environment that way. We picked up what was going on with other agencies in the area, and made sure that we were coordinating with all of this, and it was going to take us a year to put the baseline study together, even with all of this help.

So at the end of the year, we intended to have the baseline, and we intended to have data from all of the baseline studies, and the best we could do was hypothesize that we’re going to have all of this in one room, and we’re going to have whomever necessary in that room, and we’re going to pull the whole thing together and come up with an EIS, environmental impact statement, and at that point, Fred Glover, who was heading up the Thorne Ecological Institute in Boulder, was my choice, and ultimately Stan’s choice in the one that would be the guy to pull all of these people, and all of this data together for completion of this study. Was a fantastic concept; it was a fantastic approach.
I've never really ever heard of anyone doing that with a university before or since. I'm not sure it ever happened again.

Burnett: Well, environmental impact studies and statements are part and parcel of every commercial, industrial, and land use planning element, now, right—

Kendrick: Oh, sure.

Burnett: —because of the EPA, because of NEPA and all the various acts, it is necessary, and it's also customary now, I think, to do a full year, because you need the four seasons, so it does take a year anyway, to this day, to do that kind of stuff, that kind of thorough research. So, is this an early instance, if not the first, environmental impact—

Kendrick: I think it was the first instance, and the thing that I was questioning was not that they're being done all the time and I understand that; it was that the total involvement of the university with the impact statement. I'm not sure they've been used before, per se.

Burnett: No, and I think a whole industry has grown around environmental impact assessment.

Kendrick: I'm sure it has.

Burnett: —yeah, that have, yeah. So this is done and I guess one of the dangers for industry is the baseline, because you want to get the baseline right.

Kendrick: Oh, you have to have it mitigated properly.

Burnett: Because if it turns out that, for example, you know, there are toxins naturally occurring in the rocks, you could be on the hook for that if you're developing a property.

Kendrick: Yeah, you have to do it right.

Burnett: So you have to do it right. So, the Powder River Basin, it was green lit and it went ahead? That was, they did the environmental impact statement, and what was the interaction with EPA and the various acts? Were people bringing lawsuits as soon as that was out of the gate, or did things take a while to—
Kendrick: Oh, it took a while. No, I’m not aware of any right out of the gate, at all. No, as a matter of fact, everybody was somewhat envious that we were first out of the gate and actually moving ahead, and a lot of them wanted to join in with us to participate in that, and as far as I know, none of them actually did, but they made motions like they would like to do that.

Burnett: Yeah, and you paved the way, and so, you learned things that the rest of the industry could learn from.

Kendrick: Sure, they learned from, and did, and there were a number of them that I’d say kind of shirt-tailed on with us in what we were doing there.

Burnett: So, was that the—I can’t remember now—was that the totality of the Experiment in Ecology, or was there something kind of more narrowly specific about—

Kendrick: Well, the big Experiment in Ecology was to find out a place to put the tails, the tailings, from the mill of the Henderson project. That’s essentially what this was all about, is siting that over there in that ranch country on the west side of the Continental Divide, yes.

Burnett: And so, the environmental impact statement was part of all of that to try and get a sense of—

Kendrick: Absolutely, yes—

Burnett: —yeah, of where that could go.

Kendrick: —and the star over all of it was the Henderson deposit, how we handle that relative to the environment.

Burnett: Right. So, let’s talk then about how this becomes part of the Environmental Service Group. In 1972, it’s put together, I think. Now this is something you’re working on with Stan and others, and is it kind of a crack team that goes around to different sites that Amax owns or is thinking of developing, and they do ecological research to figure out what the impact is going to be of siting a mine there?

Kendrick: Well, I guess you could say that, yes.
So we were talking about the Environmental Service Group, and what its mandate was, and tell me kind of where the first jobs were in that work.

Okay, well, one of the first things that showed up was the fact that the people in Mexico who were the Spanish at that time, at the time I’m speaking, not at that time, but the time I’m speaking, they came up with a concept of a finca or a quinta whereby they would give a Spanish land grant to someone who had this kind of thing and would locate it in a desirable place within the West, other country. They owned a good, sizable portion of the United States clear up through Wyoming, Colorado, Utah, Nevada, California—

This is who?

The Spanish.

Oh the Spanish, in history, back in the day.

Yeah, back in history, and so, one of these fincas, quintas, happened to be located in the Powder River Basin, which is the first one that I was aware of, and these folks were much more sophisticated in locating out-of-the-country type of things like that, rather than the Homestead Act which came up just during the Civil War a couple hundred years later, which they didn’t take care of their people at all. They were just basically failures, whereas the Spanish were not. They located these things and one of the things were requirements: there had to be some building material there that they could actually build a situation out of, cover it, live in it, some kind of material, and this one that we had in the Powder River Basin was made out of rock, and it had corrals and so forth, and the thing was out of rock, and it was well done, and of course, there was water there—Caballo Creek went through there—and they were able to be an entity, and when you realize that that was sited there in the late 1500s, probably, which was remarkable, and there it is out there in the Powder River Basin on our coal property, and it was a real pleasure to see it. It was a pleasure to see that people were able to get up there and make an entity or an impact on the environment at that point in time, like I say, which would have been the late 1500s. [Ed. note: Spanish settlement or claims in the Colorado/Wyoming area are not until the end of the 18th century.]

Anyway, it was there, and it was a highlight as far as the archeological end of what we were trying to do in the Powder River Basin. This little quinta was sitting there as a memorial to people and what they were able to do at that point in time, and I would hope that it’s still there. I’m not sure, but in—
Burnett: So it was a historic preservation, was under the mandate, archeological preservation, on property owned by the company, or possibly to be owned by the company.

Kendrick: I think we owned it, but yes.

Burnett: Yeah, or in cases when you’re prospecting and you’re looking for new properties to acquire.

Kendrick: Yeah.

Burnett: Okay. And, I understand that you went overseas in a number of these cases. Can you talk about, not overseas necessarily, but can you talk about some of the places that you went to, to do this kind of work for the Environmental Service Group?

Kendrick: Oh, I certainly can, yeah. One of them, which was a very interesting situation, was up in the Yukon, actually. It was at MacMillan Pass. MacMillan Pass is the pass on the range of mountains between, and the boundary line between, the Yukon and the Northwest Territories, so that MacMillan Pass sits there, and of course, Yellowknife heads up the one side and Whitehorse heads up the other side, as far as governmental regulations are concerned, and therefore, it was necessary to talk with both agencies to take care of the tungsten deposit on top of MacMillan Pass.

Now the way that came into being was that, this guy named Jim Allen, who was a, is a geologist for the company, he’s retired, but in any case, he wasn’t at this point. He was flying back in a fixed-wing, with a pilot, from Yellowknife to Whitehorse and as they went over MacMillan Pass, he looked down and he saw this huge mineralized zone there, showed up by oxides of iron up there, and he said, “Hey, can you set this down on this Cirque Lake there?” He had pontoons on it; the guy said, “Sure.” So they sat down and Jim went up and looked over this deposit, took some samples. Lo and behold, he discovered a scheelite tungsten deposit right on top of MacMillan Pass, yeah, so that it was under jurisdiction of both sides, but—

Burnett: Meaning the Canadian and the Americans?

Kendrick: No, meaning Yukon and Northwest Territories.

Burnett: Oh, I see, right on the border, okay.
And so he came back and did all of the necessary work, and it became a company property which was developable, and Neil Sterritt, coincidentally, the guy that I had working for me up at Miami Copper, became the kind of manager for that particular thing, and he was in charge of pulling the whole thing together to do, once again, baseline studies and so forth, so that we knew what should be working there. One of the big problems or one of the big, not a problem, one of the big studies you had to make is how you approach something as remote as that. Do you move your people in there and have them stay over for two weeks or a month and actually bring the mining in and they live there, or do you fly them in periodically and replace them so that you have a turnover, a natural turnover of people and are able to develop that deposit?

Well, that became one of the big problems, and the answer to solving that was to put people in the area for a winter, because we didn’t know what went on in the winter up there. It’s a remote area. There are no records. Nobody knows how much snow there is. Nobody knows how many days of fog there would be. Nobody knows what landing capabilities you might have as far as airplanes are concerned. Nobody knows any of these things, so we advertised to find—primarily, we wanted a couple to be there for the winter, just to settle in and enjoy it, and take all of these readings so we knew not only the temperature but the foggy days, and anything we needed to know, they would have records of it over that one winter, and lo and behold, we got this lovely young couple with a three-year-old girl that we decided, gee, yeah, she fits in just fine, and we put all three of them out there at MacMillan Pass on the west side. So they were on the Yukon side of MacMillan Pass and we built some buildings there. We brought in a dogsled team—he was a musher—and they had a couple of snowmobiles and a couple of radios so that hopefully, if one went out, the other one wouldn’t, and we ensconced them in there for the entire winter of that year.

Now the last people to see them happened to be Stan Dempsey, Jim Engelking, one of the geologists that I’ll have to think of his name, and me. We visited in there. We wanted to make sure they had everything they needed. We wanted to make sure that their supplies were impeccable and that they were going to be all right there for the winter, because they were going to be there for the winter. And so we flew in there on a helicopter, and landed, and here’s the little girl’s got her best dress on, and everybody’s all really expecting us, and they serve us a wonderful dinner, and we had a great time being with them. We checked out all their supplies. We felt comfortable that yes, these guys are good; they’re going to be fine until spring; and so we then took off and left, and as we left, they’re all down there waving, and it almost was extremely nostalgic watching these people, and then the damned old helicopter pilot lost his vision there and we damned near ran into mountain, but we didn’t, thank God, and we took off and went on back to, ultimately, Whitehorse, and those
guys stayed there then all winter long, and we couldn’t have asked for better data. It gave our planning people the opportunity to say, “Okay, well this is what we need to do, and this is why we need to do it, and this is what we can expect as far as clear days or something for aircraft,” and on and on and on, so a lot of decisions were made from the fact that those guys stayed there all winter long.

Then, I never did know what happened to that couple, and Neil Sterritt and I put on a get-together for the remnants of the E and ME Division very recently. Of course, it’s been fifteen years ago now, but we put this get-together for all of the people that were still with the E and M, not with the E and ME people, but had been with them in Carefree. Oh, I think we had seventy people in attendance to that three-day affair there. It was a great thing, and as we worked our way through that, I said to one of the guys—maybe it was Jim Allen—I said, “What ever happened to that couple that we left in there all winter long?” and he said, “Oh, didn’t you hear?” and I said, “No.” He said, “Well, the next year, they were living over at Bennett Lake or someplace, and he was a musher. He went out and he was traveling the river on the ice. The ice broke. He, the dogsled team, and everything went in and they never saw him again, and that was the end of that,” and I thought, my God, what an awful ending.

What a terrible ending, but that’s what happened, and anyway, that was the sequel and that was what we did there, and like I say, it was very successful, and it enabled us, us, the company, to go in there and mine that scheelite deposit, which became part of CanTung, Canada Tungsten, and it contributed to the supply of tungsten for Canada after that.

Yeah. And we’ll talk about this with respect to other projects, but it’s on top of a mountain in the middle of nowhere. How do you get the tungsten out?

How do you get it out?

Well, actually, what was going on there, they had what they call the Canol Road, which was put in just after the Alcan Highway, and the Canol Road was perpendicular to the Alcan Highway. It went north and south. Canol went to the east toward MacMillan Pass, and the idea to put that road over there was to connect Norman Wells on the other side of the pass, which was a petroleum situation, connect Norman Wells with the accoutrements necessary to get gas out. However, it was never completed. Canol Road only went very close to the pass, but it never ever got there, and it was abandoned. So, anytime you’d fly
in there, you’d fly up the Canol Road and there were all these old US Army trucks and graders and equipment and so forth still out there on the road as remnants of when they were trying to get in there on the war effort to—

Burnett: Oh, this is during World War II, that they—

Kendrick: Yes, that was during the war, just like the Alcan Highway was, and very poignant, very historical. I’m sure they’re all gone now, they’ve been salvaged out of there, but anyway, that road was available to get things out of, back over to the West Coast.

Burnett: And you went elsewhere. Now, where is the Minnamax situation?

Kendrick: Minnamax of course was in Minnesota, and it was up there on the Laurentian Divide. There are people that, this day, even believe that is the Continental Divide. It, I guess, can be construed as a particular continental divide up there near the Laurentian Glacier and all of that. However, it is not the Continental Divide. That is the divide that actually separates the US from the West Slope to the East Slope, and that is the Continental Divide. However, it is up there, and it’s in an area that has been mined. You’ve heard of Silver Bay Mining Company up there in Minnesota, and Silver Bay got its name from the silver particles in the bay, and what those particles were is they were asbestos-form particles. Now, an asbestos-form particle is a particle that comes out of the rock and it’s four times longer than it is wide, which defines an asbestos-form fiber, and so all these things were in there, and as a result of them being in Silver Bay, they shut that mining operation down, because they were asbestos-form fiber and they were concerned about contamination of people with these elongated things.

So, Minnamax was in that area, which is in the BWCA, the Boundary Waters Canoe Area, and like I said, the Laurentian Divide, and it’s just up out of Ely, Minnesota, and as I understand it, that thing seems to have—it was shut down for years, but it seems that under this presidency, he has allowed it to become alive again, and—

Burnett: Meaning Donald Trump.

Kendrick: Yeah.

Burnett: Okay, under this administration.
Kendrick: Yeah, it’s being re-permitted, as I understand it, right now. It’ll be interesting to see how that comes out.

Burnett: So the Environmental Service Group was brought in to Minnamax to determine or help write a report about the feasibility of an environmentally safe development of the mine property there?

Kendrick: I think, succinctly, that’s essentially what it was, and we had a guy named Malcolm who was the superintendent in charge up there, competent guy. A lot of our environmental group were up there on site doing what they do, taking measurements of the environment and so forth, and we found that it was difficult to do business with the people from Minnesota in that they were very—first of all, everybody thought that the Boundary Waters Canoe Area was their own private recreation area for the Twin Cities area, and as a result, they resented any industrial usage whatsoever around the place. So it was a hostile environment to be in, in the first place. I remember one time we were kind of hosting some of these people, and my wife invited this lady to have a cup of coffee with her, and she said, “Well only if I buy it!” and just not really neat at all. Anyway, that was the Minnamax thing, and like I say, it seems to have been resurrected now, and we’ll see what happens; I don’t know.

Burnett: Was the role of the ESG to make a recommendation about the mine?

Kendrick: Yes.

Burnett: Okay, and the recommendation was to go ahead, or the recommendation was not to develop the property?

Kendrick: No, I think the recommendation was go ahead, but you still had to get it through the various agencies, get the approval, and those were very difficult to get, and I don’t think it was ever really approved. It did not make it through the gauntlet.

Burnett: Right. And, you also went—I think this is part of the ESG work—you went to Fiji, is that right?

Kendrick: Fiji, yes.

Burnett: And you went to Bougainville, Papua New Guinea. So can you talk about the Fiji work a little bit?
Sure. I went to Fiji with a guy, and then, let’s see. He was an etymologist from the University of Georgia, very competent guy, and we went to Namosi, Fiji. Namosi was the name of a little village on Viti Levu. The Fijian Islands are multiple islands all over the place but the biggest island is one called Viti Levu.

Now, Viti Levu happens to be located in such a way that the southern part of the island is the rainy belt, and the northern part of the island is the sugarcane belt. So you have many people up here in the northern part that are just growing sugarcane, and really these people are folks from India. They’re East Indian, and they’re growing cane. That’s what they do, and the people on the south part of the island were down by Suva. Suva was one of the big cities on the island, and this is where we would come into and then go out to Mamosi there, and you would access Mamosi by going up the river. I can’t think of the name at the moment. We’d go up the river in dugouts that had a little outboard motor on the back end of it, and even when I took the etymologist up there, he had a big trunk full of equipment, and it fit in this dugout thing, and we took that up there, and we stayed for a week or two—I don’t know—and looked as much as possible at all of the aspects that it would take to put a mine in there.

We were looking at primarily water, because there were, like I indicated, that was on the wet side of the island and it rained like hell, and whenever it would really rain, there was a huge catchment area there that would kind of funnel all that stuff down very close to Mamosi and very close to where the mine site would be, and it became problematic of just how we’re going to be able to handle that water. [break in audio]

So, we were talking about Fiji, and the efforts you were undertaking to determine what the impact of a mine, a new mine in that area, would be.

Well this is a copper-gold situation there, and the big problem raised its head immediately, and that was that the amount of rainwater in the catchment area that would wash through there, and what impact it would have on the whole mining operation, but the big one was, of course, tailing deposition. What do you do with this? There’s no way you can keep tailing dammed up with this kind of impact of water. So, some other resolution has to be available or it’s simply not going to work, and the one that seemed to be of possibility is that on Bougainville, when those people moved in over there, Bougainville Copper, an Australian company. They made arrangements to take their tailings down a river. Went down a river from quite a few miles, and dumped into the ocean, which created a beach on the other side there, but it also created something that Stan and I wanted to see very badly, because it was a big step to put all your eggs in that kind of basket that says, “Yeah, we can handle a whole tailing deposition by dumping it in the ocean.”
So, we then, after Doctor Farnworth and I finished up in Fiji and came out with our report and so forth, the next thing to be done was to check out and see how we could handle that over there. Now, one thing that was of interest there, and this would be a little anecdotal type of thing, but when we came into Namosi, the tribe welcomed us into the area, and some of our people bought cartons of cigarettes, and this was our gift to the tribe, and they, in turn, put on a ceremony for us to welcome us into their home, and it was in the bigger of the houses there, and everybody sat around in more or less a circle, and they have what they call a *tanoa* bowl, that they mix *piper* root into, which is, it’s not really a hallucinogenic, but it is a drug—

03-00:42:29
Burnett: A stimulant, maybe?

03-00:42:30
Kendrick: Yeah, and what they do is they have what they call a *bilo*, which is a half a coconut shell, and they have this mixture in the *tanoa* bowl, and they dip it out of there and they hand it to you, and you drink it, and it’s more or less tasteless, but it’s pretty gritty and all. It’s not necessarily pleasant, either. And so, it kind of works on you, and makes you numb all over, yeah.

03-00:43:09
Burnett: That sounds pretty good. [laughter]

03-00:43:11
Kendrick: Well—

03-00:43:12
Burnett: Depending.

03-00:43:12
Kendrick: —it sure did. It makes you numb, and anyway, we were welcomed in with that ceremony. I thought, well, first of all, they gave it to me, because I’m the honcho, and so I drank it and I thought, well, now I’m done with that, but it didn’t work that way. It went all around the crowd and it came back to me again, [laughter] and again. It went on and on.

03-00:43:38
Burnett: Multiple rounds.

03-00:43:39
Kendrick: Yeah. So anyway, that was there, and the sequel, of course, was, let’s go, at our convenience, which meant we had to go back home, and find the time that we could go to Bougainville, and see what those guys were doing over there relative to tailing deposition in the ocean, and we went there, ultimately. Very interesting, actually. They were taking a Stone-Age people and bringing them up through the stages of development so that they could ultimately run those big trucks and computers and bulldozers, and they would bring them along through the steps. They’d take them out of the jungle, and they’d teach them that, this is a toilet, this is how to use the toilet, this is how you wash your
hands when you’re through, and this is this and that’s that, and pretty soon, they’d move into the next phase which is, these are eating utensils, and you use them this way and that way, and pretty soon you get to eat like that, and sequentially bring them up through the ages as to how a Stone-Age culture can, in fact, move through these things and contribute, and they did. They learned how to drive those big trucks and bulldozers.

The one problem here, and I’ll mention it because it was a women’s problem, in that the women got quite out of sorts. They couldn’t handle it. They didn’t like it at all, and the reason they didn’t is because, in their old culture, they would be down in the river beating the clothes on the rocks to clean them, but more importantly, they were talking to each other, and carrying rumors, and doing whatever it is they do, and they felt a real camaraderie for each other, and they didn’t have that environment within the camp of Bougainville. So, Bougainville recognized it. They went over and they established a place in one of the rivers there where the women could go and wash their clothes, communicate, and it seemed to take care of that.

However, as time went on, and even now, Stan and I are there, and we noticed that a lot of people stand around town looking nasty at you, and we sensed that they had some problems, but in any case, the people, the Australians who were living there, they actually hit Bougainville like they were going to war. They hit the beach with landing craft, and brought in bulldozers, and they jumped off the landing craft, their bulldozers, and bulldozed roads up to where they’re putting in the mine and so forth. It was fascinating the way all of this came together, because they obviously put all kinds of thought into it.

Okay, so we had a lovely dinner with these people, and then they introduced us to their environmental guy, and they had another one come in from Australia who was the first person to map the Alligator Rivers in Northern Australia. Now, those weren’t alligators; they were crocodiles, but they called them alligators, and they were big crocodiles. They were twenty-foot long crocodiles, meaner than snake. So, we met those two guys and the next day then, we flew in a helicopter down to where the river intersected the ocean, and the tails were actually being dumped there, and it looked, to begin with, very innocuous, no problems whatsoever. There was a lot of volunteer growth in the tails, jungle growth, palm trees and so forth, and it seemed to be taken care of very well, and we wandered around there. We saw a lot of crocodile tracks. They drag their tail, you know, as well as they have —

**Burnett:** Their paw prints, or not paw prints but *claw* prints. [laughter]

**Kendrick:** As we wandered around through this thing, the plan was then that later in the day, there was a landing barge coming down the island to pick us up to take us home that night, but it never got there, and so, we’re waiting for the landing
Oral History Center, The Bancroft Library, University of California Berkeley

barge, and we’re wandering around looking at this, and there’s a bunch of feral pigs, wild pigs, there that either were part of the culture before they moved the natives out, or not, I don’t know, but they were very aggressive, and frightening. You run; you jump up high—we were in a longhouse, you know, a longhouse the indigenes have, a long table and so forth, lots of old skulls up there and things. I took one down trying to chip a tooth out of there so I could give Marian one of those really nice snags, and make some jewelry out of it or something.

Anyway, we’re dodging the pigs and it’s raining, and we’re walking around on the mud, and lo and behold, Stan starts to go down. Pretty soon, he can’t get his feet up out of the mud, and this is not particularly alarming, but, we had a hell of a time, and pretty soon it got alarming because he couldn’t get his feet out of the mud. Oh, oh! Quicksand! And so we had him lay over on his front, but now, you’ve taken seven more holes—three of them are air holes—and you’ve exposed those to the mud, because you’ve got him face down. If he lets his face down, he gets his mouth and nose in it. Well, now, this is a little bit more of a hazard. You remember, we talk about hazard: it’s not a hazard until you introduce man into it and then, it becomes a hazard. So we got a hazard here. We got old Stan down there, holding his head up out of the mud, and stuck.

So we’re all trying to get Stan up on his feet, and it’s not happening, and I’m particularly concerned because of the extra exposure we’re giving him now with this, and finally, we were able to do it. If I were to do it again, I’ll tell you how I would do it and it would work. I would build a palm-frond pad to put under his head first so he could drop his head and it’d go on a palm frond rather than the mud, and then gradually push it down, and I think then we could get him out much easier, but we didn’t do it that way. We just manhandled it, and all I could think of is: “man, if a helicopter comes, maybe we can pull him out with a helicopter”, but I’m afraid to even try it, because we would disassemble his body. I can just see us pulling his arms off out the sockets, and his backbone out of his—

03-00:52:30
Burnett: He just wasn’t coming out.

03-00:52:31
Kendrick: No.

03-00:52:32
Burnett: It was just, he’s stuck in there, and was he sinking further?

03-00:52:35
Kendrick: Yes, sinking—

03-00:52:37
Burnett: So, it was quicksand.
Kendrick: —till we turned him over, and then he stopped sinking, but now he’s got this other problem of being there.

Burnett: Yeah, well the part of it with—it’s quicksand, effectively.

Kendrick: That’s what it was.

Burnett: Right, and when you introduce, it’s often people struggling, they’re pushing themselves deeper in as they as they struggle.

Kendrick: Yeah, well that’s what happens. As you struggle, it just goes down. That’s all it does. So anyway, we finally got him out, and we finally took him out in the ocean and washed him off. The whole time I thought, there’s a crocodile going to come out and eat all of us, but it didn’t.

Burnett: So this is stuff from the movies, right, and you always think, there’s always a quicksand scene from whatever adventure movie you can think of.

Kendrick: It was unbelievable, it was, and it was funny because later, after I was back at Climax, I got a phone call; it says—six o’clock in the morning, I’m usually at work at that time, trying to find out what’s happened the other shifts, and I answered the phone. They said, “We’ve got an elk stuck in the tailing pond.” I said, “You do?” “Yeah, can you get him out?” “Oh, I think so, yeah. Yeah, we’re going to be able to get him out.”

Burnett: You were talking about this.

Kendrick: Yeah, so I don’t need to go through it again, but we never did get that elk out. He died.

Burnett: Well, so, there was this environmental assessment and as far as you could tell, the tailings deposition was not an environmental problem because you could see that there was new jungle growth in the tailings?

Kendrick: Yes, but that didn’t necessarily solve all the problems, because it was a dangerous hazard, you see.

Burnett: What’s in the tailings?
Kendrick: Well, that would be everything that they washed out of the ore body, and there’d be a lot of mineralization. There’d be a lot of clay. There would be a lot of everything in there.

Burnett: So that could include like arsenic, and some of the things that you find in—

Kendrick: Oh yeah, but I don’t think that really per se was a problem. It would be more innocuous things than arsenic, that—

Burnett: Or just the fact of the volume of deposition altering the ecology of the river basin, for example, that could be a problem.

Kendrick: Maybe, yeah.

Burnett: So the other thing that comes to mind here is that there’s a lot of—so the 1960s is the United Nations Development Decade, so you were talking about the stages of development, and there’s a real push from developed industrialized nations, and it’s not even a business thing. It’s just government investment and cooperative agreements to develop education and health and economic projects, and loans to develop the economies of poorer countries, and there are also a lot of political conflicts in these areas, so, in Papua New Guinea. There is East Timor. There was a lot of killing. There was a lot of action, I’d say.

Kendrick: Well ultimately, it got that way at the property there. That was Papua New Guinea, Bougainville Copper, and what happened a few months after we left, they had a big uprising, and these guys that learned how to drive bulldozers and trucks and so forth just drove them into the buildings and tore them all up and just laid them all out, and then they just got back into their loincloths and disappeared into the jungle. That was the end of Bougainville Copper. It has never regenerated. It’s another deposit that was scrubbed clean. It’s another one that you put up there with the ones we’re saying no longer exist, and they’re no longer ore bodies because there’s no way in hell you’re going to ever mine them at a profit. That’ll be in their histograms forever about how they raised up and got all this under control and then destroyed it, and it’s not available anymore, and so therefore goes another copper deposit.

Burnett: And was there another area in Bougainville that got developed, because there was unrest in the nineties around—was there another property, like a Dutch concern or something that was—do you know anything about that? I mean, it’s way after the time you were there, so I don’t expect you to know anything about it but—
Kendrick: Well they were having problems on Papua New Guinea, over to the west as well, but that almost became Indonesia at that time, and I can’t speak to it. I don’t know.

Burnett: Right. So there’s another layer of challenges, so there is environmental challenges and there’s, in the states, and in other industrialized countries, there’s challenges over environmental degradation, contamination, public health risks, that kind of thing, and in developing countries, it can be over economic exploitation or perceptions of economic exploitation, so, in some of these cases they start working in these areas and they feel like, oh, they’re not getting enough, or they’re not getting the right cut, and so then there are labor disputes. Did you encounter those kinds of problems dealing with labor issues, labor disputes, strikes, work stoppages, that kind of thing?

Kendrick: Well of course, the whole thing was a work stoppage there.

Burnett: Well that one, yeah, that was as extreme as it gets, I suppose.

Kendrick: Yeah, that was extreme. As far as small ones, no, I don’t believe we ever encountered piddly things there, no.

Burnett: So, one other story, I don’t know if it’s connected to the Environmental Service Group, but it concerns the environment, and that was about the Snake River trout. So Bougainville, Fiji and Bougainville are ’73, ’74, I think, and then in 1977, there’s this plan to save the Snake River trout. Can you talk about that?

Kendrick: I certainly can, yeah. I was back at Climax at this time, and we were doing all kinds of construction and work on the west side of Fremont Pass. We were putting in water treatment plants. We were putting in a brand-new highway. We were putting in all kinds of ditch work, and one of the things we put in was Clinton Reservoir, which was in Clinton Gulch, and about that time I got a call from a guy. His name was Del Canty. Del Canty was known for his prowess as a fisherman, and his total and complete interest in fishing, and he came to us and said, “I don’t know if you know this or not, but there’s two kinds of native fish over here in this area. We have the Snake River native trout, and we have the Colorado River native trout, and the Colorado River native trout are all right but the others are on the endangered species list, and,” he says, “I’m thinking it would be really neat if we could take Clinton Reservoir as it is now—we’ve got it in there—and take the upper part where the stream runs into it, and turn it into spawning beds, and thereby spawn the fish, and perhaps really do them some good,” and I said, “That’s a great idea.
Do you know how to do it?” and he said, “Well, no, but we can get the Colorado Game and Fish to work with us, and we can do it.”

Well, I found out it’s not an easy thing to put in spawning beds. These are sequentially put in there. You put in big stuff. You put benthic in the bottom; you put in gravel; you put in sand; and ultimately, you’ve got a spawning bed here, but then you had to put in food. So what we did is, they would take bales of hay and put them in a big stock tank, and break up the bales, and then put freshwater shrimp in the bales of hay with it, and you’d lay that down the streambed so that they had a food supply. Right? Really sharp, yeah, these are pretty smart people.

Anyway, we did all that and got all that going. About that time, I got transferred again and I forgot all about it, didn’t think anything about it until forty years later. My son’s running Climax and he says, “Were you involved in putting in those spawning beds?” “Yeah, I put them in.” He said, “Well, the Snake River trout are alive and well.” He says, “Look at these pictures.” He had three pictures there of—they were about, oh, sixteen-, seventeen-inch trout, and they’d been down there fishing in the river, taking them out with nets, and here, forty years later, are these trout, and they’re no longer on the endangered species list, and I have pictures of them here that we’ll have to dig out and put them in your report.

Burnett: Yeah, that’s phenomenal.

Kendrick: Isn’t that phenomenal?

Burnett: It is. So you alluded to the fact that you spent about ten years at Amax. Was that roughly ’65 to ’75, something like that? I’m trying to think.

Kendrick: Well, I’ll tell you what I did. I was gone from Amax for ten years, and when I came back, there were a lot of changes, and I would prefer to look at it that way, in that there were things that had happened that were kind of earthshaking, and—

Burnett: You’d gone from Climax, you mean. You said Amax.

Kendrick: Pardon me?

Burnett: You were gone from Climax, which you were in the inner—

Kendrick: For ten years.
Burnett: —in the early sixties, mid-sixties.

Kendrick: Which would been Urad, Henderson, up at the—

Burnett: Miami.

Kendrick: —Miami—

Burnett: And Experiment in Ecology.

Kendrick: —an Experiment in Ecology, and then I came back, back to Climax, and Climax had a lot of changes during that time, and a lot of them not for the better, and are we ready to get into that, because—

Burnett: I think so, yeah.

Kendrick: —I have quite a laundry list of things that happened, and not the least of which, in fact, probably, the biggest thing is, we’ve still got that damned thing up there in Bartlett Mountain hanging over us, putting weight on there.

Burnett: Oh, you were talking about the mechanical stress on the—not mechanical, the weight stress.

Kendrick: So that’s there, and one of the things that became apparent is, they had built a new dry during that period of time, and given each of the foremen an office. Boy, that’s a no-no. You don’t want foremen sitting in the office. You want them out there moving and shaking and keeping things moving in the mine, not in the office. So, I immediately marked that down as we had to get rid of that.

Burnett: So you’re returning as the head of Climax?

Kendrick: Yes, I’m returning as the head of Climax, and another thing that was obvious is that they had started an open pit. Now, in starting the open pit, the ramifications were humungous, in that, all of the guys that had worked underground all these years at Amax had the first time opportunity to have a job outside, by bidding on one of the truck drivers or whatever in the pit. Well, this was very desirable for these guys. They wanted to do it, so you take all these old hands that know what they’ve been doing for years, and you lose

them. They’re out here now driving trucks, even though they don’t know how to do it. They’re learning that, and now, we have all kinds of people that we have to hire that have to be trained from scratch. Now, part of them are female; part of them are male. Doesn’t matter. They all have to be trained. Therefore, it doesn’t matter whether they’re women or men, but the workforce coming into the mine are untrained people. Are you with me?

Burnett: Yeah.

Kendrick: And so, here they come in there, so we’ve got untrained pit people, we’ve got untrained underground people, and we’re trying to make that thing work. All right. Well, I wanted people to know that there’s a new sheriff in town, and it’s going to be different now, so I went and hired an outfit to come in there and paint all of the industrial buildings into acceptable paint: gray, and blacks, and some browns, and so forth, but painted. They’re all being taken care of.

Burnett: Were they dilapidated? Were they—

Kendrick: Eh—

Burnett: They looked scruffy at the time?

Kendrick: Yeah, they looked scruffy, but primarily because of paint, but they looked pretty good after they were painted. All right, so that’s one thing I did, and the other thing—well, there are a number of things. I tried to kick all the foremen out of their cubbyholes in the dry. I—

Burnett: But you weren’t able to? There was resistance.

Kendrick: Pretty effective, they pretty much tried to do what I said, but had to be done, and we had an area up there in the main office, building called Mahogany Row. Well immediately, I started fixing up Mahogany Row, and I tore out all of the offices in there and the conference room; put in a new conference room, new conference table that would hold my whole operating force there; and had an office for me and one for my assistant if I ever had one, one for the comptroller, and it was a beautiful thing. We put a MacGregor plaid on the floor just in honor of our guy [Ian MacGregor?]. So we had nice carpeting in there and so forth, and we started having an operating meeting every Wednesday afternoon. No excuses, you had to be there; you had to be prepared to talk about anything that you’re asked, and you better know more about what’s going on underground than I do or I’m going to get you. And so, that started working very well also.
Burnett: Well, so, just to get a picture of what was wrong, like when you arrived, were people telling you that things were wrong, or you just noticed that people were out of touch? Did you interview the foreman and say, “Can you tell me what’s going on?” and they didn’t know what was going on in the mine?

Kendrick: Sometimes, yes, and sometimes that would have been in the operating meeting as well, but sometimes people would come to me and say, “Look, have you seen this, that, and the other?” as well. So, yes, I had help, and I acted on all of it that I could, and it all worked well. All of these things that I did really had an effect, positive effect, and so as a result of that, the next four years, we made more money on Climax Molybdenum than had ever been made before, and subsequently since. We hit those years running, and we really, really made it work, and it’s a thing that you can never be too proud about, because it all happened, and I can show you books where it says that, and I will. I want you to read the passage that said, “More money was made during that time than ever in the history of Amax.”

Burnett: So, a big part of it, as it sounds to me, is changing the culture and the spirit. The spirit is like the buildings, when you’re saying that people come to work, and the buildings are falling down, then you feel like this company is falling down, and so, for you, the impression that you get, as a worker, as a visitor, that you have to see the mine in tip-top condition, like a military ship. You get on that ship, and it’s, that floor had better be clean, that kind of thing. You have to have confidence in the operation, and that’s what the painting was about.

Kendrick: That’s what it was about. That’s what it was about, and things happened during that period of time. Let me give you a little anecdote there. They had put in a cafeteria while I was gone, which I didn’t bother. It was a good thing. We had a cafeteria there where people could eat lunch, and I’m eating lunch there one day, with a table full of guys, and somebody comes up and says, “Hi Bob, I want to say hello to you. How’s everything going?” I said, “Oh, great. How you doing?” and he says, “Fine,” and I said to the rest of the table, “This guy used to be a motorman on the Storke Level. I want you guys to meet—” He said, “Wait a minute, wait a minute. I wasn’t a motorman. I’m your legal representative in Greenwich.” “Oh, okay, he’s our main lawyer, see; he’s not a motorman.” Anyway, I think he kind of enjoyed being a motorman. Anyway, [laughter] years later, I decided to join IESC, and go to all these places, and the guy that became my mentor and took me under his wing was the same lawyer that I called a motorman.

Burnett: This is the International Executive Service Corps?
Kendrick: Yeah.

Burnett: Yeah, and we’re going to talk about that in another session.

Kendrick: But isn’t that something?

Burnett: It is something. So, what were some of the things that you did? I mean, getting the foremen to be actively in the mine, gathering information, leading the charge, that was important.

Kendrick: Well, I just about forbade them to go in their office.

Burnett: Yeah, and so, you’re improving communications within the whole operation, so that there’s a direct connection between the executive administration and the operations of the mine, and it sounds to me like you were also in amongst the employees. You were having lunch in the cafeteria, and you would go down into the mine. I think before, you said you were going in the mine every day. Did you continue to do that when you—

Kendrick: Pretty much. I pretty much had that as a thing that I did wherever I was, maybe not every day, but just about every day, and it’s important, and the reason it’s important is you have to know what the heck’s going on. You cannot depend on people telling you what you think you ought to know. So you had to see for yourself, and this meant, what’s going to hell? Now, there were a lot of things going to hell. We were getting hit with a lot of weight at this time, and we had fourteen-inch columns in there that were just useless, just broken all to hell, fourteen inches. These are great huge columns. So, for the most part, I got rid of all of the rigid steel underground, because it’s no good trying to hold up the mountain with rigid steel, and the reason is because steel will yield up to a point and then it’ll break. Timber will continue to disintegrate and get smaller and smaller, but steel will break, which causes an event, causes an event. So, I pretty much got rid of all the rigid steel, went with yieldable steel. Do you know yieldable steel?

Burnett: No.

Kendrick: Okay, well, yieldable steel is that it fits together kind of in a channel like this, and then you back pack it evenly behind it so you don’t get any point pressure, and as it takes weight, it just kind of comes in, gets smaller and smaller and smaller, but it doesn’t fail, so you still have protection clear around. So, we
replaced just an awful lot of our stuff with yieldable, but even that went to hell. We really had weight, very definitely intense weight.

03-01:16:29
Burnett: So this is that problem that you were describing in the earlier session about that tremendous overhang—

03-01:16:37
Kendrick: Piece of the mountain.

03-01:16:38
Burnett: Yeah, and that was, if you could have started over, you would have not mined underneath there at all. You would have gone around it somehow, and—

03-01:16:48
Kendrick: In retrospect, I feel we would have not gone around it, but gone in under it, and then moved out from under it with a cave, rather than moving the cave under it.

03-01:17:01
Burnett: Ok, I understand. So you come in as the head of Climax Molybdenum, and before, you were chief mine superintendent at Amax of the Henderson Mine, a specific mine. Are you head of this one particular mine, or were there other properties that you were responsible for in this period?

03-01:17:27
Kendrick: Okay well, I was responsible for Henderson and Climax and Urad and—

03-01:17:33
Burnett: So the whole—

03-01:17:33
Kendrick: —Crested Butte and the whole thing.

03-01:17:35
Burnett: —the whole shebang.

03-01:17:36
Kendrick: Yeah.

03-01:17:36
Burnett: Okay. Can you talk about how that’s different, instead of just being a mine superintendent?

03-01:17:41
Kendrick: Yeah, well, it was the next step beyond where we’re talking now. I came back and got Climax going well, and then it expanded into all this other stuff.

03-01:17:53
Burnett: Okay, so let’s stick with Climax for now. So you’re talking about a period of restoration, right? You want to rehabilitate the mine because it had fallen into decline, on a number of different levels.
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03-01:18:15
Kendrick: Yes.

03-01:18:18
Burnett: And you’re also thinking about changes in the industry in general, so, you mentioned replacing the steel with a more flexible steel, and mining is becoming more advanced and there’s new technologies coming in. Can you talk about how the changes in the industry were affecting how you were doing business at Climax?

03-01:18:53
Kendrick: Changes in industry.

03-01:18:55
Burnett: New technologies. Were you purchasing new equipment? Were there things that were obsolete?

03-01:19:01
Kendrick: Oh sure, I brought load-haul-dump units with me up there.

03-01:19:04
Burnett: So that was it?

03-01:19:05
Kendrick: Yeah, yeah.

03-01:19:05
Burnett: Okay, so that’s part of the story.

03-01:19:06
Kendrick: Oh yeah, you bet, and I showed them just how good it was by mining five drifts over there when they couldn’t get one.

03-01:19:17
Burnett: Okay. So those are some of the changes that are taking place. The larger context in the United States is, there’s a period of economic stagnation right at that time. So there’s the oil crisis in ’73, and there’s inflation, and there’s stagnant economic growth. So, how does that larger picture affect you, if at all?

03-01:19:51
Kendrick: I am not sure it did. Well it did in that, during the same period of time, we were having fuel shortages as well, and we put in a number of temporary tanks, whereby they were collapsible tanks and you’d fill them up with fuel oil. You had to have the same configuration around them in the case they leaked; you had to have a catchment area to get them, but we put in things like that to blunt whatever problems there were going to be with lack of fuel. It was right after that that I got sent to Harvard. That was in ’79.

03-01:20:37
Burnett: Right. Well, and so, just to be clear, when are you vice president of exploration for North America for Climax?
Kendrick: Right after that.

Burnett: Okay so this is the period, so ’75 to ’80 is your Climax management period. You’re managing that property and getting it back into shape, and by doing that, you prove to the higher-ups that you’re ready for something bigger.

Kendrick: Yeah, and I got all these fantastic geologists saying, “And Mike’s going to give us a report that you’ll be very proud of,” and these geologists were to be coveted because they were so good.

Burnett: In the period after or yeah—

Kendrick: Yeah, after.

Burnett: —in the eighties. Well, I wouldn’t mind talking about the Harvard experience. It’s at that point where Climax executives decide that you and others are to be trained up. Is that right?

Kendrick: No, I think I was trained up for years.

Burnett: I know, of course, yeah, you’ve proven yourself through all of these trials, but the idea was to give you some certification, and some new experiences there, so—

Kendrick: And maybe just a reward.

Burnett: —and maybe a reward. So can you talk about that? What was it called? What was this program called at Harvard?

Kendrick: It was called Advanced Management Program.

Burnett: The Advanced Management Program. So it’s like an early version—

Kendrick: AMP, and it was the eighty-second AMP, and that’s what it’ll always be known as. We were the eighty-second AMP. There were 164 people in it, worldwide. They came from everywhere. They’d get divided into can groups—you’ve heard of cans—and there were—
Burnett: What are the “can” groups?

Kendrick: Yeah, well “cans” means you shared a bathroom.

Burnett: Oh, okay.

Kendrick: Okay, and you had a living room, a common living room with ten people around it, and that’s your can. Well mine was Can Three, and within my can, I had a guy from Mississippi, I had a woman from Oregon, I had a Limey from England. My particular can mate was a Brazilian, hell of a fine guy, and then there was a guy from Petroleum, Mike, and then one Chinese fellow from Hong Kong, one Norwegian fellow, and we were a group, and—

Burnett: And you didn’t all work in mining.

Kendrick: Oh no.

Kendrick: I was the only one.

Burnett: Right, so you came from all of these different domains.

Kendrick: Oh yeah, each one had a different discipline. In fact, they deliberately mixed up the disciplines so you’d get some synergy, learn from someone else, yeah.

Burnett: Can you talk about the educational aspect of it? Were you given tasks, or exercises to do?

Kendrick: Oh, hell yes. We went to school every day. We’d start at seven o’clock in the morning, and we didn’t finish till about 4:00 in the afternoon, every day, Saturday included—

Burnett: Wow, so it’s really intense. How long was it in duration?

Kendrick: It was thirteen weeks.

Burnett: Thirteen weeks, wow.
Kendrick: It was well worthwhile, and like I say, the exposure worldwide was unbelievable because after it was over, I found myself in a situation where it’s time to move around, and I visited people everywhere: Japan, Tokyo, Hong Kong, Singapore, Australia, on and on, and it was just a great thing, you know?

Burnett: That’s wonderful. And, I think, do you keep in touch with—

Kendrick: Sure.

Burnett: They have reunions.

Kendrick: Sure, we just had a reunion here a couple of months ago that Marian and I put on. Yeah, we hosted the guys, and we had, I think we had thirty people here, and they really enjoyed it. They really did.

Burnett: So, it was, you did learn things from it by being broadened, by being pulled out of your domain, and they learned things from you.

Kendrick: Absolutely, yeah.

Burnett: Yeah. Can you talk about, are there some specific things that you took away, or maybe it’s more general, things that you took away from that experience?

Kendrick: Sure, I can talk about the fact that we’d go exercise. For example, my roommate and I started running at that time, and ultimately, we kept that up for years and years. I think he would still be running except he’s sick now, but he really got into it, and so did I. We ran lots of races, and we were pretty good at it, as a matter of fact, and—

Burnett: Do you find that physical exercise is beneficial for—

Kendrick: Well I found, yeah, under the constraints of Harvard, it was necessary to do it. You needed to get out, because you felt kind of cloistered, you know?

Burnett: Right. So, there was this kind of, as you say, it was a reward, in a sense, from the company, but it was executive training. It’s both preparation and inauguration for the next phase of your career, getting you ready to become—did you know you had a promotion coming after that, or was this a surprise to you?
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Kendrick: No, I didn’t know anything about it, got promoted two or three times after that.

Burnett: Okay. So, when you come back, so in around 1980, you become the Senior Vice President of Operations of North America for Climax, so I’m wondering if you could talk a little bit about that. That’s a pretty big transition, where you’re now in charge of operations of all of these properties, and can you talk about the range? It’s not just Colorado; it’s elsewhere. It’s exploration as well, so you also have to take on that responsibility.

Kendrick: Take on that responsibility, which was a good one. I’ve always enjoyed geology a lot, and I’ve always enjoyed geologists. I like the way they think. I like the way they’re kind of rummy you know, and—

Burnett: What do you mean, rummy?

Kendrick: Kind of rummy. They’re such deep thinkers that sometimes you had a hard time getting through to them. They think so deeply that I had at least two of them that could not walk and chew gum. For example, if they’re driving the car and we’re out there in the boonies, and I’ll ask them a geologic question, they stop the car, and think of the answer, and then give it to you. Yeah!

Burnett: So they’re not—

Kendrick: Can’t do both. [laughs]

Burnett: They’re not multitaskers.

Kendrick: No.

Burnett: No. So, I was surprised to learn that geology was not a big part of the training in mining engineering. It is perhaps now.

Kendrick: It was in mine.

Burnett: It was in yours, and so you had that broad exposure.

Kendrick: Oh yeah, I had, and I enjoyed every minute of it, except one: I had to take field geology once. I took it so I could get an A and I got a D.
Burnett: Oh goodness.

Kendrick: Ah, it’s terrible. [laughter]

Burnett: But so, it seems so fundamental, like the most fundamental science to mining, period, is, what are the rocks, why are they where they are, what are they made of, and all of that to help you think about how you can separate valuable material from them, right, in a way that’s safe?

Kendrick: Yeah.

Burnett: Right?

Kendrick: Well, that’s an oversimplification, but yes, that’s good. Basically it goes like this: You have mineralogy, which is minerals; and then you have petrology, which is rocks; and then you have crystallography, which is the crystal systems of the various minerals; and then you get into more. You get into structural geology. You get in and it just expands, expands, and it’s a funny thing. It expands to the point where it starts to shrink, and pretty soon, you know more and more about less and less. You’re coming down to a point. Does that make sense?

Burnett: Yes, you’re overspecializing, in a way, yeah.

Kendrick: It’s funny.

Burnett: So it’s hard to sometimes keep the big picture, and that’s where you need a broadly trained person in the executive position. It’s helpful to have a broadly trained person who can use the assets of the deeply trained geologists, for example, and then bring that together with other forms of knowledge to make useful decisions.

Kendrick: Yeah.

Burnett: And so, when you first started as the vice president of operations, what was on your plate, and what were the challenges? Did you learn—well, let me ask that as a question. How did you get up to speed on the operations that you were not immediately supervising, because you were supervising Climax, then you went to Harvard, and now you come back, and you’re supervising all of the operations of the company across North America: Mexico, Canada—
But see I had an intimate knowledge of all of them. Hell, I was ground up in Henderson. I was—by then, Urad no longer exists, but ground up in Climax, I mean all of it, and as far as geology is concerned, hell, all of that was ground up. By that, I mean from here to here, and it was not difficult. It was not difficult, and—

You were ready.

Yeah, and not only that, these guys were all so very good at what they did. It was like taking a, for example, with a geologist, like taking a very intensive course in graduate work, just being around those guys. It was.

So you’re just drinking in this new knowledge, and also taking advantage of your own expertise, so there’s that as well. What about exploration though, and this is in the eighties. Since you’re in charge of it, are you managing from afar? How did you approach the exploration work?

From afar. Well, really, it was more hands-on, and didn’t have to really approach it very much that way, because of course there’s some that you just don’t ever get to, but once again, we were more or less prioritized as to what we were looking for. We wanted more moly [molybdenum]; well, this came down from the chairman, and what we were doing was primarily fulfilling these obligations to the company, and it was not hard. It really wasn’t. It was easy to chat along those lines. It was easy to communicate with whomever, outside or inside the company.

So was Climax really a molybdenum company?

Yes.

They didn’t do any other mining?

Oh, they did. Sure, they had tungsten. They had pyrite. They had rare earths.

Oh, so Molycorp is part of Climax?

No.

No, okay.
Kendrick: But we did have rare earths like Molycorp had: cesium, thorium, cerium.

Burnett: Is that because, do the rare earths, are they co-located with molybdenum? Is that—

Kendrick: I guess you could say that, yes, to a degree, to a degree, yes.

Burnett: So, this is a period in the 1980s, and I’m wondering if there are particular sites or particular problems that you’d like to talk about during the 1980s period.

Kendrick: Well—

Burnett: Trying to think of other—yeah, go ahead.

Kendrick: One of them, of course, was Crested Butte. That was a real problem, and none of us wanted to lose that deposit, and things were not going well at all. So it was hanging over everybody’s head that, I don’t think we realized the extent it was going to go away, but it all went away, and it was very extensive. You see that included not only on the Crested Butte side of the mountain but over the mountain as well, and—

Burnett: So this is of course the deposit that is near an area that became a site that people were interested in developing for recreation purposes, so there would be skiing, and wildlife appreciation, and so, this is a result of a real sea change in the Colorado economy. There is more—

Kendrick: I would say so.

Burnett: Yeah, there’s more development of tourism, and ski culture, and people coming there, and high-end resorts like Aspen and Vail, those go back in time, but it accelerates in that period.

Kendrick: Yeah, Vail, it was ’62 is when that started.

Burnett: Right, right, and so this becomes more important, and you add the environmental piece into that—and now, in the Crested Butte situation, were people using environmental regulation as a tool to block the development of deposits, or did they have separate power and land use management and that kind of thing, separate strategies to oppose the development of the deposit?
Kendrick: That’s a good question. I don’t know.

Burnett: Yeah. So you’re faced with new, I think, actors in the economy, the tourist industry, so things are changing, but you’re also well situated. Not only did you have the Harvard training and executive training, you also had this period with the Environmental Service Group, understanding the ins and outs earlier than most people, the nature of environmental impact assessment, a grappling. You had to learn about the regulations, right? You had to learn the acts, the Clean Water Act, NEPA. You had to know this stuff inside and out, and that must have helped you in the eighties.

Kendrick: Yeah, there’s no question.

Burnett: So that’s when things start to ramp up with the EPA. The EPA is starting to file lawsuits, and Ronald Reagan is elected and he’s tried to—you know, Anne Burford sort of tried to de-claw the EPA a little bit. I don’t know if that worked or not, but it sounds like the industry still had to follow the rules that were established and follow the laws, and the Colorado state government is also a factor as well. So being an executive of a mining company required a good understanding of these laws in order to be able to do business.

Kendrick: Well, during that time, there was quite a bit of interactivity between me and the coal company when I was with Stan’s group there, because I would attend various sessions in Washington with them as they were being reviewed by associates within whatever agency.

Burnett: And which coal company was that?

Kendrick: Oh, that was the Amax Coal.

Burnett: Oh, Amax Coal, okay.

Kendrick: So there was quite a bit of crossover there, politically as well as actually, but at a little different period of time than we’re talking about.

Burnett: Right. So, maybe we should pause for a moment, and then we can pick up on the next session.

Kendrick: Okay. [break in audio]
So you work as a vice president of operations for North America for Climax Molybdenum, and you were managing exploration in the United States and in Canada, but you make a career transition toward the end of the 1980s. Can you talk about that, and how that comes about?

Mm, what was it?

Well you move from Climax to Monarch Resources.

Oh, okay. Yeah, that was a career transition. It was a total transition in that there was no remnants of Climax left at all; this was total. I was hired for a different company, Monarch Resources. It’s an English company; however, I was hired from, more or less, South Africa, and the way that came about is that, at Amax, I knew a man that ultimately went down to Jo’burg, and he and I had worked together in Mexico at a place called Opodepe, Sonora, which is clear out in the boonies of Northern Sonora, and he and I got along very well, laughed, joked, nice, neat relationship, and then he went down to Jo’burg. I, in the meantime, retired. I retired from Amax, and—

Or, from Climax?

From Climax, yeah, and let’s see. I’m kind of helping Marian with her business. She was making skiwear.

Really!

Oh yeah, she had quite a company there, and so, I’m working there and then I also took a job as a ski instructor over at Copper Mountain, and I—

Really!

Yeah.

Great.

I worked there for a couple of years, and now, this is where we are, and she’s always been rather spooky in that she’s quite insightful into what things are going to happen next. She has visions. Anyway, we’re out running in the Gore Range, and running trails, and it was after a rainstorm and it’s wet, and she
caught a toe on a little stob sticking up and she just fell face first into a kind of a mud puddle and skidded through it, and as she hit the other side, she says, “Come on, we got to go home and learn Spanish. We’re going to go to South America.” For goodness sake woman, get up out of the mud. Let’s go down to the crick and let me wash you off, which I did, and I got her and washed and she said, “No, I’m serious. We’re going to South America.” I said, “Okay, fine, but”—

03-01:44:10
Marian: “You go study Spanish,” you said.

03-01:44:12
Kendrick: What?

03-01:44:13
Marian: You said to me, “You go study Spanish.”

03-01:44:15
Burnett: [laughs]

03-01:44:17
Kendrick: So anyway, within the next week, I got a call from Jo’burg that’s offering me a job in South America, and it’s from this guy, John, that I had worked with in Opodepe, and I said, “This is remarkable. Do you think this is good?” and he said, “Oh yeah, you’ll love it. Hell, they’ll give you a penthouse, anything you want. You just go and ask for it, they’ll give it to you,” and I said, “Wow! What did you tell them about me?” He said, “I told them nothing but good, but the truth,” and he says, “I really believe that you can do them one hell of a job. They’ve got this thing going down there below the Orinoco in Venezuela, and it’s a company called Monarch Resources out of England, and they are teed up to take you on, and I have teed you up. They will take you.” So I said, “Jesus, John, okay, great. What do I do?” He says, “You’ll be getting a call from somebody,” and I got a call from a guy, and made an appointment to meet in Reno. He and another of the board of directors wanted to talk to me.

So we went to Reno, and I met with these guys. There was some kind of a doings going on, and we chatted about what was going on down there, and they told me that they had this property, which was south of the Orinoco, which, the Orinoco is kind of a division point in that part of South America, and they said, “It’s down by a place called El Dorado.” I said, “Well, that has a nice ring.” “Yeah, doesn’t it?” Anyway, we hit it off very well, and we made arrangements then to go to Caracas and meet some more people, and take it from there. So, long story short, we go to Caracas, and we are picked up at the airport by some people, and taken up to Monarch’s office in downtown Caracas. It’s in a bank building up on the floor. It was a very nice arrangement, and so we met everybody in the office building there, and they took Marian out shopping, and they were very nice to us. We made arrangements to meet
somebody the next morning to get on the airplane and go south, down to the property, which was down by El Dorado.

03-01:47:14
Marian: It’s a long ways. How far was it?

03-01:47:16
Kendrick: Yeah, it’s a long ways. So, we got up the next morning. We went to the airport. We’re supposed to meet somebody. There’s nobody there, and the telephones in Caracas don’t work, so, can’t call anybody, nothing, but the day before, in the office, I met this guy named Jaime, and Jaime said he was going to be moving down there to El Callao, because he had a job he was going to do for Monarch there, and lo and behold, here in the airport is this guy named Jaime. I said, “Hey Jaime!” He said, “Geez, what are you doing here?” and I said, “Well they were supposed to meet me and take me down to El Callao,” and he says, “Are they here?” I said, “No, nobody’s here,” and he said, “That’s weird,” and I said, “Yes, it is weird, because we are stranded,” and I said, “Are you going down there?” and he said, “Well yeah, I’m moving my furniture down there.” I said, “Take us with you.” He said, “Ah hell, I can’t; I got a truck; it’s full,” and I said, “We don’t mind riding on top of the luggage,” and he said, “Well, okay.” So, we used our tickets to go down to Puerto Ordaz, got off of the plane, got on old Jaime’s truck. He’s got this truckload of furniture and we sit in back there on top of the load and ride down. In the meantime, these guys are fixing the highway up between Puerto Ordaz and El Callao, and that’s almost a hundred miles, and it’s just one hell of a mess. If you didn’t know where you were going you would never find your way down there, because the road goes like this and like this and like this, and like this, and—

03-01:49:05
Burnett: Is it a narrow road, or is it—

03-01:49:07
Kendrick: Oh yeah. It’s a terrible road. It’s all detours, just one right after another.

03-01:49:12
Marian: And dirt.

03-01:49:12
Kendrick: There’s, yeah, dirt road. There’s no way you can find your way on this. Anyway, old Jaime takes us down there, and he deposited us at the Blue House, which is where the office is. Blue House, that’s pretty simple. I can remember that. So we go in with our suitcases and everybody, “What the hell is this? Who are you guys?” and they don’t expect us, and I told them what we were doing and they said, “Well, come in. Don’t put your suitcases there; somebody will steal them. Put them over there.” “Okay, fine.” And so just for the hell of it, they show us around there. Nobody knows what to do with us. Nobody’s been alerted at all that we’re coming. There’s nothing. And so, we get set up then, and they get us a room at this enclosed courtyard motel
whereby actually, you’re under lock and key for the night. You’re in there, and—

03-01:50:20
Burnett: For your protection, I suppose in some ways, yeah.

03-01:50:23
Kendrick: Yeah, or maybe they’re detaining us. Who knows? [laughs] Anyway, we’re there, and I said—well, let’s see. I’m not sure how we ate. Did we get anything to eat, Marian? Maybe not.

03-01:50:40
Marian: I don’t remember that we did.

03-01:50:41
Kendrick: Anyway, it’s time in the morning now to get up, and find something to eat. Well, there seems to be quite a bit of activity down the street, so we get up and walk down the street and there’s a kind of a restaurant-like place there, and we go in to find something to eat, but—

03-01:51:03
Marian: It was loaded with—

03-01:51:05
Kendrick: yeah, it’s full of men, and we don’t know the system, how to get through it. You have to go in and order, and then back off, and get your stuff, and then pick—you know, it’s one of those multiple things that people like me don’t do well. And so anyway, finally some guy’s nice to us and he said, “This is how you do it,” and so we got something to eat, and—

03-01:51:34
Marian: Tell him what it was.

03-01:51:35
Kendrick: It was probably a ham and cheese sandwich, because that’s what they eat for breakfast.

03-01:51:40
Burnett: That’s like the national breakfast. Can I just ask you, how long did it take you to take the—

03-01:51:47
Kendrick: The road down?

03-01:51:48
Burnett: —truck ride? Yeah.

03-01:51:49
Kendrick: Oh hell, hours, hours, three maybe.

03-01:51:53
Burnett: And what’s the distance?
Kendrick: Hundred miles.

Burnett: Hundred miles, yeah.

Kendrick: Hundred miles. So now—

Marian: Dusty and hot, and humid.

Kendrick: And so we find ourselves there. Now we have some food, and the guy that is the manager of the thing there is a big Dutchman out of South Africa. He’s one of the guys that came in with the Dutch into—

Burnett: So he’s a colonial vestige? He is a—

Kendrick: Yeah, and wears a funny hat and he looks funny. [laughs] And so we go with him, and he finds a geologist for us to go around and look at the property, but still, nobody has ever heard from the Caracas office that we’re even supposed to be there. It’s weird. So this geologist is a guy named Simon Catchpole. Old Simon Catchpole takes us in and shows us around various things out there, a nice young man, very polite, and we get an idea of what is going on, and we are there for two days, I guess, before it’s acknowledged that we’re there, yeah.

Burnett: Maybe that’s a good way to arrive.

Kendrick: Perhaps. I don’t know what the alternative was.

Burnett: Right, well, then they’re already and perhaps papering over things, but you get to sort of see how things are.

Kendrick: Yeah. So then, it gets a little bit more formal, and we see pretty much what they’re doing down there. They have quite a few people working in the area, mostly geologists doing their geological stuff, and they have contracts with the CVG, which is the local group that runs that end of—let’s see, what is that? That’s [pronounces as “ghee-yana”] Guayana, Guayana.

Marian: [pronounces as “gwi-yana”] Guayana.
Kendrick: Huh?

Marian: Guyana.

Kendrick: [pronounces as “gwi-yana”] Guayana, okay, they run Guayana, and we’re there and they’re showing us all this stuff, and ultimately, we get through down there, and then this is kind of hazy. I think we just kind of go back to Caracas.

Marian: Well, tell him about the different passports.

Kendrick: Well, there were a lot of passports, really.

Burnett: Well, just to orient ourselves a little bit, the context for your hiring, there had been previous CEOs operating—

Kendrick: Okay, I ought to pass through that, yeah, because—

Burnett: Can you talk about that, and—

Kendrick: I can. I’m the third CEO in two years, okay, and the first two disappeared, and so I’m the third one.

Burnett: But what did that mean? They just left because they— Why? Did they give a reason?

Kendrick: One of them was kind of the father of the company, and he kind of hung around. The other one, they fired, and I had the impression they would like to fire me as well. It seemed like that was what might happen, for no reason.

Burnett: So you were there; your friend had recommended you and said you’re the person for the job, and you get there and there’s no introduction, there’s no acclimation, and you went there on your own initiative to get started.

Kendrick: Yeah, yeah.

Burnett: And then the parent company in Monarch, are you in contact with them? Are you getting directions? Are you getting documents from them?
Kendrick: Oh no, no.

Burnett: No?

Kendrick: No connection whatsoever, no. Like I say, the phones don’t work, and it’s a word thing. You’re on your own down there, and okay, we can handle this. We went in the back of the truck by ourselves, you know, what the hell?

Burnett: Okay. So do things get clearer after awhile, or does it—

Kendrick: Well, we went back up to Caracas, and they got clearer in that they were ready to get rid of us by then, and they sent us to England. So, we went over there, and one of the first people we met was Eddie Shackleton. Now, Eddie is a Peer of the Realm, and really a neat guy. He’s fine, and he’s the first time that we felt that anybody really knew we were there.

Burnett: Is he related to the famous Shackleton?

Kendrick: Son, he’s the son.

Burnett: He’s the son of Shackleton the explorer.

Kendrick: Yeah, he’s the son, and he insisted on being called Eddie, okay, Eddie, and that’s what he always was. All the years we knew him, he was Eddie, and great guy, great guy; always met him at the Peerage entrance and always went in and had dinner with him in the place there, and this day, we had lunch with him there, right, Marian?

Marian: Mm-hmm.

Kendrick: Yeah, we went in and had lunch in the House of Lords, and people don’t do this every day—we were impressed, that’s very nice, and we met some more people, and they put us up in a little hotel there on Green Park, just around the corner from the Queen Mother’s house, and we stayed there for a couple of days, and kind of saw our way around there and met a lot more people, and kind of found out what was going on more, and at least it was organized much more so than it was over in El Callao.
Burnett: Did you ever find out why it happened the way that it did, because it seems so disorganized.

Kendrick: Totally.

Burnett: They sent you down there without any welcoming or any liaison or anything, and you had to figure it out yourself, and then they said, “Okay, forget it, just come back here, and we’ll fill you in on what happened”?

Kendrick: They didn’t even say, “Forget it.” They just—no.

Burnett: They just said, “Come to London. We want to talk to you.”

Kendrick: Yeah, yeah, “Let’s go to London.” So we went to London, and so by then, I’m getting filled in, and Eddie said, “Well, I like you. You’re on as far as I’m concerned.” “Well, okay, fine, Eddie. We’ll go with that.”

Burnett: So, like a gentleman’s handshake and you’re off.

Kendrick: Yeah, and it was kind of strange, but good people. The ones that weren’t good: there were some people in the office there that I could tell were displeased that we were there. They were not happy that—not in London, in Caracas.

Burnett: Right. Something else was going on.

Kendrick: Something else was going on—

Burnett: I think so.

Kendrick: —and you know what I finally figured out it was? I think they had various ways of getting money out of the company. One was stealing. One was ordering things that were not delivered. One was just warehousing in general. They didn’t keep track of anything, and they were afraid I was going to spoil the party, and I think that was what was behind most of it, and they wanted to get rid of me early, and I suppose they thought that if they could get rid of enough people coming down there that one of them would be the guy in charge and they’d have it made. I really don’t know, but the only one that was down there really doing anything was this one fellow that worked for an engineering company and he was doing construction on the plant, as well as
an assay lab, and then they had more construction on houses. They were making houses out of eight-inch steel-wound logs. It was real strange construction, really weird, and that’s because somebody got a deal on making these things, but, in any case, we built a hundred houses.

We built a hundred houses, and once I got control of the thing, we started moving. I built a hundred houses, finished up the assay lab, and got the plant going, and got all of these things working, but I could see that it was totally out of control. They were not keeping track of anything. They didn’t have any idea what was going on with the delivery of goods or what’s been ordered, and I went to this one guy. He was an extra—first of all, they hire two people every time they need one. If they hire a superintendent, they hire an assistant, because they don’t want those guys in Venezuela being the assistant. That’s out of the question. That’s not on.

03-02:02:44
Marian: Now this is the Brits and the South Africans.

03-02:02:46
Burnett: The British and the South Africans, they want their own people in place?

03-02:02:51
Kendrick: Yeah—

03-02:02:51
Marian: Oh yes.

03-02:02:51
Kendrick: Yeah, they don’t want any of the *Venezuelanos* in the situations that they might have any control whatsoever.

03-02:02:58
Burnett: So there’s a huge trust problem.

03-02:03:01
Kendrick: Huge trust problem, huge. So, here we are, and we’re supposed to have a big apartment up there in Caracas, but, there’s some people living in it, and they won’t get out, and I can’t make them get out, and I finally have a, she and I have a great big fit with them and we booted them out—

03-02:03:30
Kendrick: —and moved in ourselves, but—

03-02:03:33
Burnett: Wait, who? Sorry, who was living there?

03-02:03:35
Marian: The geologists, two of the them—

03-02:03:37
Kendrick: Well, I don’t know if he was a geologist. He was—
Marian: It was what’s her name.

Kendrick: Huh?

Marian: It was the head geologist and his wife.

Kendrick: No, it was a family of Indians, East Indians.

Marian: I don’t remember that. I remember Harvey and Agnes—

Kendrick: Well you’ve forgotten, because they were East Indians, and she wouldn’t get out, and he was living with another woman, and oh man, it was a hell of a mess, and anyway, we finally booted them out and took over the apartment so we had a place to live finally, but it took awhile.

And so now, we’re in Venezuela, and it’s a beautiful place. It’s a beautiful place. They have wonderful food. They have restaurants like you wouldn’t believe. Their restaurants were such that, you could go into a restaurant and be seated there and order a drink, and you’d order your meal. By the time you ordered your second drink, they would then take you in and seat you in the living room, or the dining room, and really high-type restaurants.

Burnett: Service.

Kendrick: Oh, yeah, and the Italians couldn’t do enough for you. The Italians are always the best cooks in the world, and geez, they were doing a hell of a job there, but—

Burnett: So there are people of Italian descent operating in Venezuela. That was part of the makeup of the population.

Kendrick: Yeah, it sure was.

Marian: Yes, it was a lot of—what do I want to say—Syrians?

Burnett: Mm-hmm.

Kendrick: There were a lot of Syrians, yeah.
Yeah, Lebanese, maybe. So, the question I have is—I’m a historian, in part, of international development, and so, a lot of the history of international development focuses on the international aid agencies and theories of development, like the stages of development that you were talking about that comes from universities that thought about these deep things, and then, historical narratives of political and industrial exploitation of developing countries, that resources are extracted and the wealth is extracted from these countries, so for every billion dollars invested in Chile, seven billion dollars left the country, this kind of capital-flight argument, and what you’re describing is kind of a reverse flow, where resources are coming into the country that are designated for the purchase of equipment used to get the mine going, or for various purposes—

Supposedly.

—and they’re being diverted—

Or for thievery as well.

Right, so someone marks down, “I need this item,” but the item is never ordered, so they get the money, and they say, “Oh, it was lost in shipment,” that kind of thing. So there’s corruption, and so, my question is, how did you manage that? There’s a cultural divide, there’s a language divide, there is a gap in trust between the Europeans, or in case of the South Africans, these white Europeans are operating in the country, and they’re operating remotely, and they’re dissatisfied with this trust gap and they don’t want to hire anybody local? How did you manage that situation?

Well, it was really difficult, and there was one guy that made himself available for everything. I used to call him “the one-man band.” Hell, he’d do anything, and usually, you’d prefer he didn’t do anything, and he was the CFO, so, he had a lot of control already, and the old guy was a thief—there’s no question about it—and he had it set up so that he was lining his pockets very well.

So this is not a native Venezuelan. This is an—

No, no—

—Anglo.
Kendrick: —this a Brit.

Burnett: This is a Brit who’s corrupt, and—

Kendrick: Yeah, it was a Brit, and he’s right out of Yorkshire, and I don’t know if you know Yorkshire people, but they’re acerbic as hell. They’re bitter, bitter people. They really are.

Burnett: Some Yorkshiremen will be upset about this characterization, I’m sure. [laughter]

Kendrick: I shouldn’t say that. Sorry! [laughter]

Burnett: Okay, so, he was on the take, or he was taking, and so, how did you handle the situation?

Kendrick: Well, I tried to circumvent it, but I couldn’t circumvent it, and at about that time, we had some people come visit us from Harvard, who, the guy was a CPA, and when he was there, I said, “Dick, I want you to take a look and see. I’m going to give you some data from the financial end of it, and see if you see anything at all that piques your interest.” So I gave him a bunch of stuff. He went through it seriously, and he said, “No, I don’t see anything that I could really put my finger on.”

Okay, well, that’s my first thing. The second thing was, since I didn’t get anything from there, after they had gone home, I decided to—Ernst & Young were our people down there. I went to Ernst & Young and I said, “Look, I got a hunch that things are not as they should be financially in this company. What I want to do is a quick and dirty audit, quick and dirty meaning you go in there on Friday night and you’re done by Monday morning, nobody knows you were there. Can you do that?” and they said, “Yeah, we can do that,” and I said, “Do it,” and I made it available to them down at the mine site and in Caracas. So, now they’ve got this and they’ve got that, and they’re looking at it, and they come back to me Monday morning and they say, “Well, I can’t really tell you anything definitive, but we think there’s at least five million dollars not accounted for.” Now this is not a very big thing. We’re only spending about fourteen million, and now here’s five million of it missing.

Burnett: So five million dollars out of a fourteen-million-dollar operation.
Kendrick: Yeah well, there would have been more than that, but yes, okay? So, I said, “Okay, now let’s go for the full audit, and Katy, bar the door, you just go in there and tear whatever you want to tear apart, and let me know what you got. Take a week,” which they did, and they came back and they said, “Well, it’s more like eight million, and you’ve got a problem,” and they couldn’t really put their finger on it, but it was all this nebulous stuff like we’ve already mentioned: ordering things and not taking delivery, and whatever. So, as that was going on—oh, I had asked this one mining engineer, who was redundant—they had a couple of them there that didn’t do a damned thing. There was nothing for them to do; there was no job. So anyway, he was redundant, and he had a girlfriend from Canada who was the financial person on that. The next thing I know, they’ve skipped town, with the books. They took the books with them and headed for Uswaya. [laughter]

Burnett: Right, as far as you knew.

Kendrick: Yeah. Yeah, and—

Marian: Never to be heard of again.

Burnett: They just disappeared.

Kendrick: Yes, and so by then, I’ve had enough and I get with some of the board of directors and I said, “Hell, we can’t live with this. I got to get rid of a bunch of these people,” and they said, “Do what you have to do.” So, I fired a whole bunch of them, and I thought that I had them all cleaned out, except for the CFO. I should have fired him, because I think he headed the whole thing up.

Marian: But you know what he said to me—because I had a fit. I didn’t ever like that CFO! He said, “He made the mess; he can clean it up.”

Burnett: Oh, yeah.

Kendrick: That’s what I said, but that was the wrong approach, and if I ever had it to do again, I’d get rid of him too. Yeah, it was wrong. He should have gone, but, I didn’t.

Burnett: But he covered his tracks well so much so that you were still trusting him.
Yeah. And, subsequently, she became friends with his wife, and his wife and he didn’t get along at all, and his wife told her that he had money stashed all over the world, that he’d absconded with from various places where he worked, and all we can do is take her word on that. We don’t know it, but by then, I’m off on going with him, and it was a great big mistake, but I did. So now we find ourselves in a kind of a situation whereby we can trust nobody, you see. They fill in some behind, but we have a hard time trusting anybody and by now, see, we started there in about November, and now it’s August, so we’ve come quite a ways down the pike, and we’ve made headway. By now, we’ve got the houses completed, we’ve got the lab completed, and the plant is about completed. We get the plant completed shortly thereafter. We have the president come down, and he pushes the button to make it work, and Eddie and all of us stand there and shake his hand. I got a bunch of pictures you can see of CAP, that’s the president. Pardon me?

Carlos Andrés Pérez.

Yeah, Carlos Andrés Pérez. He became a friend of ours, the president of the—I don’t know. Anyway—

The president of—

Of Venezuela.

Venezuela.

My goodness.

Yes. He was a friend of ours, and we were always invited to his functions, but we were considered to be Brits. We’re under the tutelage of the British ambassador, and there was nothing to do with the US at all. We don’t buy anything from the US. There’s no reciprocity on anything. It’s just, we lose all of that, and it’s just as well, because the embassy, the US Embassy is awful there. We couldn’t get anything out. Every now and then, we’d have to get more pages in our passport. Our passports are like an accordion: it goes out like this. We’d need more pages, and then you’d have to stand in line with all of the people in Venezuela to get it, but we had one thing happen there that changed all that, in that our chauffeur and the chauffeur for the embassy were friends.

Now, our chauffeur is a real dingdong, but the other guy wasn’t a dingdong, but they went out this one night and had a big car wreck, and the guy from the
embassy got put in jail because he was driving, and our chauffeur is all bound up in a pressure bandage and he’s in hell of a shape, and so, three o’clock in the morning. I’m going with him, driving in downtown Caracas in this crush of people, going from jail to jail trying to find this other guy, because they don’t feed them in jail. They don’t do anything for them. If they need any medical, they’re on their own. So we’re trying to find this guy so that we can take care of him. Basically, I wanted to try to bribe the jailer to get him out of there. So, we finally found him in the second jail we went to, and that’s before I learned how to bribe people, and I did a very lousy job and I didn’t bribe him. He wouldn’t go.

03-02:17:34
Burnett: —go for it.

03-02:17:34
Kendrick: So—

03-02:17:36
Burnett: So I feel like I want to amend what I said earlier, because I was going down this road of there being corruption of some of the local people. Everything you’re telling me is that this foreign company operation was corrupt, was stealing money from the country, and that capital was leaving the country, pretty much as the history books had been saying, but what you were talking about is there are these individuals, who knows how far up it went, if it was—

03-02:18:14
Kendrick: Well, I think it probably stopped at the CFO, but I’m not sure of that. I’m not sure of that at all, and the reason I’m not is because, our whole apartment was bugged. The conference room in the office was bugged, and those telephones were bugged, and the only place we could go to communicate was go down by the swimming pool, and we could communicate there. We felt relatively safe there, as far as speaking, and I said to my secretary, “Do you know anybody that can come in here and tell me what’s bugged and what isn’t?” and she said, “Yeah, I do.” So, she called up this outfit and they came in, and she did, but, those guys would come in and say, “Oh, this phone’s bugged; this is a phone bug, that, and there’s something in your conference room,” and so you say, “Fix it,” so they say, “Okay, it’s fixed.” Really, I think maybe you’re just changing money. You’re telling them, “Come in and fix something,” and they don’t do it. They just take money from you and then they take it from the next guy and leave it like it was and you have no idea whether it’s fixed or not. There’s no way to tell, you know? So you are a victim. I don’t care how you cut it, there’s no—

03-02:19:47
Burnett: There’s no way to win. There’s no way for you to come out okay in this situation.

03-02:19:52
Kendrick: No. Isn’t that weird?
Burnett: Well, so you wonder then, how does anyone—I can only talk from my second-hand experience with talking with other people who’ve worked in various countries in various ways, and so how can you do business in a situation like that, and where is the source of the corruption? Because if you’re thinking, if I could just get this person out or that person out, how do you replace them with people? Where do you find the people you can trust, and then, if they are trustworthy, if you fit them in, if you put trustworthy people into a corrupt system, how do they function? Because here you are, you’re bribing people, so you’re kind of in this situation where you’re an honest person trying to make the company function properly, and in order to do that you have to bribe officials to get the necessary work done.

Kendrick: Yes. Yes, that’s all true, and how do you do this? Well—

Marian: First of all, I don’t think we ever felt down about it.

Kendrick: Pardon me?

Marion: First of all, we didn’t feel down. We stood tall and laughed about a lot of it, because you might as well laugh.

Burnett: Right. Well, this is your career, because you are operating in this country. You don’t want there to be allegations that you acted improperly, or you’re associated with a company that goes—

Kendrick: Oh no, no, and there’s always this foreign corrupt act [Foreign Corrupt Practices Act of 1977] over your head, and you better be careful of that one because the US will prosecute you.

Burnett: So you’re talking about an act—

Kendrick: I’m talking about bribing people.

Burnett: Oh, you’re talking about the—

Kendrick: Now I’m talking about big bribes, hundreds of thousands of dollars, and I did have people that—I’m not going to say that. [makes sound effect]
Burnett: [laughs] But all this to say that people are making offers. You’re active in an area where money can disappear, and people are actively making money disappear, because a mine is a large investment. You’re taking millions of dollars from one set of countries and banks, and you’re moving it into a zone that has poor law enforcement, poor, in both senses of the word, so the laws are flexible, or nonexistent, and that money goes into that inter-zone, or gray space, or black market even, and the money can disappear, and you don’t know where it’s gone, and the question is, how does a company, a multinational company, operate in those zones, and turn a profit? Because at a certain point, you’re talking eight million dollars out of a—let’s say that it’s more than fourteen million dollars of the total, the total investment, but even if it’s twenty million or twenty-five million, that’s one third of the operating startup budget of this mine. You can’t turn a profit. You can’t turn anything around and get it off the ground if you don’t handle those problems. And so, you were in a bind.

Marian: One thing he did is—by then I could speak Spanish pretty fluently, but nobody knew it, so—

Burnett: Well, Marian, why don’t we save that dimension of this story, and we’ll bring you on camera, so we can talk about—because this gets into a question of how the family dealt with living in Venezuela in this system and coping with the unusual circumstances.

Kendrick: Yeah, yeah. Well I think you’re right. We should save that for then, and in the meantime, I think suffice it to say that there were various leaks going out of the company. None of them were going to the US. They were all going other places. We had power points with the British. We had power points with the Venezuelanos. We had power points with the people in South Africa.

Burnett: And what is a power point, just to be—

Kendrick: —your definition?

Burnett: —is a focal point where potential money was either won or lost, accounted for or not, and that brings us up to a point where, I’m very serious about putting a mine in. I’m not sure these other guys are, no, and the geologists aren’t finding a damned thing. They had all of this ground that they were looking at, and they had all of these geologists looking at it, and they’re not finding anything. We took on two other concessions that were, “Oh, by the way, why
don’t you take these?” One of them was the one that came out with the billion-ounce deposit.

03-02:25:49
Burnett: Let’s save all of that for tomorrow. Can we? We’re revving up to talk about a whole dimension.

03-02:25:58
Kendrick: All right, yeah. Yeah, I think that’s a good idea, because this entails bringing in a whole new element. I bring in people from the US now, low-level people, people who are miners, people who know what the hell they’re doing, and it puts a whole different tilt to what’s going on.
This is Paul Burnett interviewing Robert Kendrick for the Global Mining and Materials Research Project, and this is our fourth session, and it is February 27, 2019, and we are here in Sun City, Arizona. Welcome back, Mister Kendrick—

— and, last time we were talking about Venezuela, and we will come back to that, but first, we want to back fill another part of the Environmental Service Group work in the early 1970s, with respect to coal work, and there was a coal project that I understand you wanted to talk about. Can you tell us about that?

Okay. Well, the coal project that comes to mind right off the bat is the Belle Ayr function in the Powder River Basin of Wyoming, which is Eastern Wyoming on Caballo Creek, and it became necessary to do an environmental impact statement on that district early on, in that it was a very important district. There were many other coal mines moving into the area. This is the area of the 200-foot-high coal seams of low-ash, good-grade coal, and as a result, with the extensive coal that exists in that area up there, the United States becomes the Saudi Arabia of coal, relative to Saudi Arabia’s oil. In other words, we have more coal than anybody else in the world. We have coal under thirty-eight of our states. We have coal that is, like I say, low ash, high grade, high BTU, and it is enough to furnish the whole world forever, almost, and—

I heard 300 years at current levels of production, something like that. Oh, yeah, just fantastic and like I say, the coal exists under thirty-eight of our states, and it’s a tremendous resource, and it would be foolish to write that one off. It’ll never be written off. Keep it in there. Maybe you don’t use it for a while, but you need to know it’s there, and available for the whole world, and our allies over the years have been more or less dependent on coal from there as well, so that they’re able to take it and use it as a cheaper source of energy, and a lot of this is in the Powder River Basin, but a lot of it is spread out throughout the West as well as the Midwest, and this is where the Amax Coal Company functions in all of that area, and I, then, have subsequently been more or less associated with this, and I find that there are certain key aboriginal tribes, Indian tribes that have not only great coal reserves, but also great ability to manage their environment, and I will cite specifics.
I would say the Crow Nation up there in Sarpy Creek, which is Southeastern Montana, do a fantastic job of not only husbanding whatever it is they do in coal, but they are able to take care of their range management. They take care of their forest reserves. They take care of all of these things so that anyone can be proud of what the Crow Nation does up there, and it’s not hard then to move to the Northern Cheyenne which is a little bit east of that, and say more or less the same thing about them. They’re really good. They have great forests. They take care of them. They do it. Then as you come down south from there, you get into Arizona and you have the White Mountain Apaches, and those Apaches are the same ilk of people. They take tremendous care of their range management, of their forest management, and the first one coming south is the White Mountain Apaches. They have their own ski area. Their recreation, it’s great. Then you come down and you hit the middle Apache there which is called San Carlos Apaches, and they too have this talent for husbanding their natural resources. You even go down into Geronimo country, and to the Carasal, and they are the same thing.

So, to sum up what I’m saying is that there are very valuable people out there that are being used themselves to make everything work and be worthwhile, and we don’t want to lose sight of this. We want to realize that these guys know what they’re doing and they’re a valuable resource, and in the future, they should be perhaps given more responsibility for range management, forestry management and so forth —

04-00:06:38
Burnett: So just to—sorry to interrupt, but in the 1970s, I understand that there is, it’s either a discovery or an opening of these tremendous coal reserves of, as you say, low ash, low sulfur, that dwarf the Eastern production. People think of coal, they think of West Virginia coal mines, but I think one mine area there has more coal production than all of those middle states and eastern states put together. That’s what I’ve read, anyway. So it’s important. It’s an important supply.

04-00:07:15
Kendrick: It’s important supply and actually, I’d say that the guys that made the decision to move into coal made a good decision; however, it’s not in favor now, but it doesn’t have to be. It’s not going to go away. It can sit there forever, and still be there when you need it.

04-00:07:38
Burnett: Is it a strategic or, it is a national asset, so it’s kind of the ace in the hole of the American energy system, the American nation, that in a pinch, you can have that coal production?

04-00:07:54
Kendrick: I would say absolutely, yes. Yeah, that’s correct, and I wanted to be sure and call this, particularly with the aboriginals being involved in it, and what a
good job they do, and these guys are statesmen as well. They’re not just another pretty face. They—

Burnett: [laughs] Okay, yeah, so, but they have their own nations, right, within—

Kendrick: They do—

Burnett: —the United States.

Kendrick: —and they kind of get mixed up in their BIA [Bureau of Indian Affairs] and all that stuff, and they’ll have to sort that out. I don’t know, but they sometimes—

Burnett: That’s a whole other complicated story.

Kendrick: —get into counter purposes there, but it doesn’t matter. The point is, the coal isn’t going away. It’s going to be there, and you can count on it being there. The legislation is such that it will be there when you need it, and—

Burnett: Well tell me about the Environmental Service Group and the work that was being done. What was the goal of the involvement of the Environmental Service Group in the early seventies in the coal area?

Kendrick: Well the involvement was that it became increasingly important to do an EIS [environmental impact statement] in the coal district there so that it was recognized, and other people came in there as well, and they tailed on to the EIS that was being made, and the Environmental Service Group, basically what happened is, Amax took over, not only Amax Coal Company, but they took over Meadowlark Farms, which was the agency that took the coal mines after production and put them into producing grain and lake and recreation type of situations. So, that was all good, and should be recognized as such, and other than just noting it and getting it done on film, I think, if there are questions on it, we can expand on them, or not.

Burnett: Well, so I guess, I think one of the questions from 2019 is, I think the environmental concern is not about the production side of coal, in other words, getting the ore out. People are not as worried about that. I think the environmental concern is about burning the coal once you have it, but that’s outside of your area. That’s—
Kendrick: Well it is, it’s outside of what we were trying to do. Simply, we were proving that it was there and it was good and it’s available.

Burnett: Yeah, and it could be extracted safely with a minimal impact to the surrounding area.

Kendrick: Now in order to do that, of course, whenever you move into an area to do an EIS, it takes a lot of people as well as disciplines to prove what you’re trying to do, and as a result, we’ve already established that the University of Wyoming was one of the key bases for pulling the whole thing together, and it was interesting. These guys, they had never done that before. Who had? It’s the first EIS that was ever done, as far as I know, in the mining industry. And so here we have this group of technical, trained, technically trained folks sitting there at the university, and all of a sudden, they have one of these huge things dropped in their lap, and it was interesting because one of the first meetings we had with these guys, they indicated they really weren’t sure what they were supposed to be doing, and it became one of both of us feeling comfortable with the other, and being able to establish a base so that we could move forward from that, and that’s where then we moved into the tutelage of Fred Glover, Doctor Glover with the Thorne Ecological Institute in Boulder as he came into a leadership position there, and helped guide all these various disciplines in the direction they needed to go.

Burnett: Right, wonderful. So we were talking about going back to the 1980s, and you’re in Venezuela, and we talked last session about the politics, the corruption. You had discovered there was some funny business going on, and as far as you knew, you weren’t quite sure exactly what was going on, but let’s turn to the actual—you said you brought in US expertise, you brought in American miners that you knew and trusted. Can you talk a little bit about the technical side of actually developing a mine, and this is Southern Venezuela. Can you talk about where it is, how remote it is, and how difficult it was to get things in and out and get things going?

Kendrick: Okay well, it was, it was clear down in southern Venezuela, and actually, I guess you’d say it’s southeastern because it’s very close to Guyana on the east side, and then it was a little farther over to Colombia on the west side, and this is where we are, and there are other people in there mining as well, not necessarily controlled mining, but an awful lot of what they call garimpeiros [from Portuguese, which in the Venezuelan context means “illegal miner”] are illegal miners, and that means they are digging up the earth there without permission, and sometimes they get in trouble over this, but on the other hand, there are a number of them that are controlled.
So, you control a miner by giving him his own piece of ground and letting him mine it in the form of a concession. For example, a concession is usually plus-fifty hectares, but you can have little tiny plots of ground as well, which maybe is only fifty feet by fifty feet, and this miner and his brother and his wife and so forth will actually mine this fifty feet down. They can take it down ninety feet. They can go that far now, that’s something, and they’re just following the little vein and they hand cob the values out of that, hoist it up. They have a windlass, and that hoists the bucket up, and they dump it and pretty soon, they have a pile of hand-sorted gold ore. It becomes ore by then, because it will be at a profit. So they sack that up, and take it to a Brazilian mill, which is a custom mill. It’s a little thing. It’s a hammer mill about as big as the end of the table here, and that, they dump it in a hopper, and the mill then becomes their custom stuff, so they dump it in there and the hammers go around and they pulverize it. They don’t pulverize it, but they break it all up, and then it flows out onto an amalgam sheet.

Now an amalgam sheet is a metal sheet that’s covered with mercury, and it comes out onto this mercury sheet, and the gold and mercury, of course, have a real affinity, so it sticks to the amalgam sheet, but not all of it. Some of it goes on past that whereby they have riffles in this sluice box, and the gold then backs up behind the riffles, and they’re able to continue on down. Now, this is a family-run thing, and part of the system is such that the kids stand alongside both sides of the sluice box, and they look like they’re not really doing anything but they are. They’re watching for a little piece of gold they can actually pick up. So they’ll reach over and get that, and they’re beating the guy out of—the kids you know, they’re taking the gold. Anyway, this is how the system works. Ultimately, they make a cleanup, and all of this that they’ve got from this ninety-foot hole, they then pull it up and he gets this; actually what it is, it’s a shovel full of mercury with gold, and they put it in this shovel, and then they fume—

04-00:18:15
Burnett: Oh my God.

04-00:18:17
Kendrick: They fume now. Think about this: they fume the mercury. They put an acetylene torch to the shovel, and all of this mercury fumes out of there. Sooner or later, it knocked all their teeth out. They don’t have teeth.

04-00:18:30
Burnett: So they have mercury poisoning, severe mercury poisoning.

04-00:18:33
Kendrick: Yes, and then they’ll have a button, a button of gold in the shovel that’s the remainder of the fuming, and that is what the Brazilian mills do. That is what these guys earn their living on. They take that button in and they’re able to take it to the jewelry store or whatever, and sell it. They actually weigh it, and sell it, and they get money.
Oral History Center, The Bancroft Library, University of California Berkeley

04-00:19:06
Burnett: Well that tells us what was there existing before, that there is a kind of local, small-scale, family-scale production of gold near the surface, and Monarch Resources and other international companies get concessions in that area. Can you tell me how Monarch Resources got involved as far as you know, and then what your next steps were once you had established that there was problems with the money, once you decided, figure out—well we need to talk about how you dealt with that, but first, how far is this from the port where you might bring in equipment? How far from Caracas? How do you bring it in? How are the roads? What did you do to be able to get to the site when you found it?

04-00:20:12
Kendrick: This was all put together for us by an outfit in South Africa, and when I was interviewed, it was by these people, and what they had and what they were selling to me as well as to themselves and stockholders and so forth, is a resource of old tailings. What we put in was a tailing retreatment plant, and this was based on a resource of some, oh there were probably—it was difficult because it was out there in the jungle, there’s all kinds of growth—but dare I say a million tons of tails from not the small guys, but the big guys. There were some big mines in there and all of their tails went down this one gulch and more or less stopped, so this thing is full of tails that has supposedly an overall value based on what they have assayed throughout the area, and it was supposed to have assayed about four grams per ton, for a million ton out there, okay, and this is the resource then that founded building a tailing retreatment plant, which was to process that resource and everybody’s going to get rich.

Now, in addition to the resource of tailing retreatment, which was the justification for building the tailing retreatment plant, and justification for building part of the community as well—they wanted to build a hundred houses there, but in addition to that, the folks from South Africa had worked together with the folks from England and they had come together to the point where they took concessions from CVG [Corporación Venezolana de Guayana, a state-owned, regional mining conglomerate], which is the Guayana—

04-00:22:52
Marian: Regional managers—

04-00:22:53
Kendrick: Yeah, the regional control over placer mining, okay?

04-00:22:58
Burnett: And is Guyana the country, or is there a region within—

04-00:23:00
Kendrick: No, there were three states there.
Kendrick: In southern Venezuela and those three states made up this Guayanese body, and they had all kinds of far-reaching discussions with the people in Guayana and actually, they were successful gold miners. They had a successful gold mine that was functioning right there. It was a deep mine, and they had people in there that had been mining for years. So that then made two more parts of the equation that came together down there. We had this tailing retreatment plant, and are going to go after that resource. Now they have this mine over there, and they sold the poor old Venezuelans—the Venezuelans didn’t believe them anyway, but they sold them that the South Africans were the best miners in the world, and they were going to have access to these best miners in the world, and they were going to teach them how to get more gold out of the mine that they were already doing very well with. Confrontational, you see what I’m saying? They were setting themselves up for problems. All right, so that’s there, and two or three guys were assigned to that particular operation to watch and see what the Venezuelans were doing and to make positive statements that said, “You should do it another way, and do it this way; you’ll make more money,” etc., etc., but as I said, they simply set themselves up as in a confrontational situation.

Burnett: The South Africans did. They were coming in as a higher—

Kendrick: Yeah.

Burnett: So they were condescending, and they were—

Kendrick: They were very condescending. They’d write me a monthly report, and they’d say, “Yet again,” is how they’d start it off, just negative as hell. “Yet again they’ve done this and that in that mine. They have no idea what they should”—and it’s terrible to have to supervise something like this, because I would say to them, “Don’t write me a report like that. I don’t want to hear that. I want to hear positive things,” and so did the Venezuelanos, but it was not forthcoming, so we had that third. We’re down here now on that third of it, and the final third was bringing in geologists to find new deposits on the concessions that we picked up from these guys, and what they thought the CVG folks thought had very high potential to come up with gold on these concessions.

Now this is right in part of it, the town of El Callao. The old El Callao Mine was right in the baseball field, and it’s covered up, you can’t get into it, but everybody’s convinced that, gee, this is a real resource and we’re going to be able to work with it, and so they had concessions around the town, and we had
fourteen geologists in there, primarily from South Africa, but not totally. Actually, South Africa was not really welcome politically in Venezuela because of Apartheid, and as a result, all of these people that came into Venezuela from anywhere else had to have another passport. They got them from Zambia or they got them from Rhodesia; they got them from England. They got them from various places, and I think at one point, I had twenty-three different passports working in that area over there.

Burnett: Oh my God.

Kendrick: Yeah.

Burnett: I hadn’t thought about that, but of course, late 1980s, there was a lot of pressure on the South African government, and from countries such as Venezuela, even, right, so, that’s interesting.

Kendrick: So now we’ve got it broken into three parts. All of Gaul was divided in three but now we’ve got this in three parts, and the geologists are a very significant part. They are good geologists, but unfortunately, even though we worked it for a number of years, we never did find the resource that we could—well, we did. We found La Camorra, but La Camorra and Canaima were two concessions that were not included from the CVG. We got them on our own out there, and both of them had mineable quantities of resource. So, I have to say that all this [phone rings] information that was—[break in audio] I think I’m doing well. I’m giving you a reason for everything, right?

Burnett: Yeah, no, I think so. So, your geological team from Monarch, they found two other concessions, or two other mines, separately, independently of CVG and their recommendations.

Kendrick: Which none of the CVG things paid off.

Burnett: So, none of them did, eh? [phone rings]

Kendrick: No.

Burnett: Interesting.

[break in audio]
So, you did find something to mine there. That’s the important thing.

[Ed. note: The following was inserted at the request of the narrator — La Camorra was another gold property we’d found in Guayana; an interesting potential deposit but one of the later acquisitions. So Peter, Marian, and I were down there one day with Scotty and Don just to look around and evaluate the situation. After looking around and having lots of discussion about the place, things seemed to have reached a finale, so Marian and Peter wandered off to do some personal business. You see, Marian had developed a love of using “pretty gold-bearing rocks” as bookends at home, Peter had picked up on the idea for his own home, and being mining families, all this only seemed logical. Anyway, they picked up four large, lovely specimens of rose quartz to take home.

Back in camp at Santa Barbara, Bob went to discuss the project of La Camorra with the geologists. He was horrified to learn that they had done absolutely NO sampling of the outcropping at all or any other sort of geological studies, so he immediately went to find Peter and Marian and their “bookends.” He just grabbed all four and took them to the assay lab. They assayed out at 17 grams of gold per ton. In order to realize a profit, the plant at La Camorra was programmed to process gold ore worth 3.1 grams per ton.

There went the bookends, for the good of the future mine. Marian complained a lot about her loss, but . . .]

Yeah, actually on La Camorra, we found a resource that was 886,000 ounces which right at the million mark that the people become very interested in, so that was great. The one in Canaima was not nearly that good, but it was good enough that we could run it through the Revamín. Revamín was the name of the plant, the tailing retreatment plant. We could run it through that, and we actually made money on that one as well.

So that one was already built, that was there?

That’s the one that you saw the pictures of that we built.

Oh, you built that. Okay, so that’s another subject. So once you identify tailings that can be remined or reprocessed, can you talk about the process for bringing materials and equipment and labor into the area—to what extent did you use labor that was already there—and talk about the challenges of working in what is a really remote area, effectively?
Kendrick: I certainly can, and actually, it did not include the United States. We didn’t buy anything from the United States. This was all coming out of South Africa. We bought everything through them, the whole plant. In fact, at one time I got really mad at them, because one of the ball mill’s main shafts that they sent us was supposed to be brand new and it wasn’t. It broke, and you could see it had been welded together, and it caused massive trauma. This is not neat. This is cheating on us, and I don’t like that coming out of South Africa or wherever, and—

Burnett: And, how were you able to—was there anything you could say to them? Did you—

Kendrick: Well, I said enough so they replaced it, but that’s about all you can do.

Burnett: Well they replaced it, so that’s good, and then they learned from that that you were watching.

Kendrick: Oh yeah, yeah.

Burnett: So that seemed to be part of the story is that you were there watching what was going on, what was coming in, what was going out, and at this time, you had already done the audit, you had already done that kind of business?

Kendrick: Perhaps. Now let me think about that, and maybe not. I think the audit came after that. The audit came after that, and that of course was a lot more trauma, but—

Burnett: So you were already putting the plant together.

Kendrick: We were putting the plant together. We were already moving into the houses. We put in arguably the best lab situation in all of South America. In fact, we were looking at one point for a joint-venture partner to perhaps go in with us, and we were very proud of our lab situation, and their comment was, “Well why do you need a lab that that’s elaborate in a situation like this?” Oh, well. Anyway, it’s a negotiating thing, but—

Burnett: You liked to have the proper equipment for your work, and so you got something out of having an advanced lab. It was useful to you?
Kendrick: Oh yeah, it took care of all of our needs, and pretty soon, those needs became even greater than we’ve talked, in that we started buying now. Now as I’ve indicated, we had this big resource there of tailing that had been there for over a hundred years, okay, more than that, 150 years, and we’re working on that, but it’s not working out well. This runs about four grams per ton. The plant breaks even at about four grams per ton, and so as a result, we’re not making any money from this damn resource, because that’s the best the plant can do. And so this is rather traumatic as well because the main reason you put that whole thing in there was for this resource that is not, it’s not putting anything in your pocket. You run it through there for what?

And so we changed our thinking to the point where—you saw the picture of all the trucks pulling in there? What we did is we realized that people had been using these Brazilian mills for generations, and the Brazilian mill will get about 50 percent recovered, 50 percent, that’s all. So, right now the heads are going in there so that they’re marginal, but back 150 years ago, the heads going in there were probably twenty grams per ton, so 50 percent, that’s ten grams per ton that’s left in their tailings, and that’s a good number. That’s a good number. So we were able then—that’s what that whole line of trucks were—we made deals with these individual truck owners throughout the whole area there to bring us their tails which we would then assay and say, “Okay, they’re good; it’s a better feed than anything else we got.” So, we were running those through there for heads simply to make a profit. Does that make sense?

Burnett: Yeah, and so, I guess the question is, how dispersed were all of these Brazilian mines? They must have been all over.

Kendrick: Oh, they’re all over the jungle.

Burnett: Right. So, did they incur the cost of getting the ore to you?

Kendrick: Yeah, they have to get it up to us in their own trucks.

Burnett: Right, and then they get a cut of the—

Kendrick: And then they get a cut; however, when they bring their trucks up there, they throw everything in there to add to their weight: all the spare tires, the old toilets, whatever it is, and try to get them weighed as well, so you have to be on your toes, and even the guy behind them helps them. He’ll sneak up there and put front wheels of his truck on the scales so the guy in front of him gets a better cut. [laughs] Well, I have to make one overall statement. I’m sure
anyone that has ever mined gold anywhere in the last hundreds of years, have had theft problems that are almost impossible to control, and we did as well, and it becomes a battle of wits. Now, that’s where [Robert Kendrick’s son] Peter came in, o— [break in audio]

04-00:36:28
Burnett: So, Peter was helpful.

04-00:36:29
Kendrick: Yeah, see, Peter becomes my—

04-00:36:31
Burnett: He’s your son.

04-00:36:31
Kendrick: —token honest man. All right?

04-00:36:34
Burnett: He’d better be, because he’s your son.

04-00:36:36
Kendrick: Yeah, he better be, because that’s all there is, and one of the things that I finally had to do is put him in charge of the smelt house. In other words, he is the one—part of the process is that you precipitate your gold over onto steel wool so that you have the golden fleece. You have a gold wool, and that then becomes your feed into the furnace for the gold bars. So, that’s the product of all of this plant. You come out with this gold fleece that you make into bars of gold, and that became Peter’s job because I couldn’t trust anybody else on it. Anybody got in there, they stole the gold.

So, it became a battle of wits between Peter and the rest of them as well, because they were trying to steal the gold that he was trying to produce, and as a result, it was interesting to see how he would react to their theft and they would react to his counter theft, and it got bad enough I was concerned about his overall welfare, because he was shutting off these people that were stealing. Now who are these people? These people are members of the workforce. These people are headed up by the main guard who is supposed to be taking care of the gold, and he’s more or less allocating who gets to steal what, and like I say, this is not surprising. It happens, anywhere people mine gold, you have very serious problems with theft.

So, in any case, here’s Peter now and he’s doing that, and these guys in the meantime are trying to steal keys to the smelt house and get in there, and you have to have two keys to get in, and finally, the cableway comes into the smelt house. You have all these electrical cables coming from the floor above, and those buggers were sliding down the cableway and getting into the smelt house and stealing the fleece before it gets in the furnace, and they’re pretending they’re doing that as well to throw Peter off. [laughs] It—
Burnett: Wow.

Kendrick: It was a real battle of wits, belie—

Burnett: So they had a decoy? They’d send decoys to pretend to steal something to distract him?

Kendrick: Yes.

Burnett: And then, the real thieves would be over on the other side taking things.

Kendrick: Yeah. It was just unbelievable.

Burnett: Now, did you remove people? Did you fire people?

Kendrick: Oh yeah.

Burnett: Okay, and then, you’re placing the next guy, but the next guy was also—

Kendrick: They’re all crooks. [laughs]

Burnett: Okay. Yeah, so—

Kendrick: There were more four-wheel-drive vehicles in El Callao after we got started than you can even imagine. They just came out of the woodwork. Everybody was able to afford a four-wheel drive. Anyway—

Burnett: So there’s a kind of inadvertent economic development. [laughter] It’s kind of a—

Kendrick: It was good for the economy down there.

Burnett: Good for the economy, yes, but that’s a real stress, because you’re stuck paying the bills to keep the plant going. You have to have cash flow.

Kendrick: Have to have cash flow, and that’s why we went with a small mine, because so much better to have head grade of ten grams per ton, because 50 percent
recovery out of twenty, okay, than it is to have less than four grams, because it only breaks even at about four grams, so we got to get ahead of it. So we got ahead of it and we ran like that for quite a while. We were making some money, but it too runs out, and so this is just a little bit of how it works.

So now, we’ve got all these inputs in there. We’ve got the geologists out there inspecting areas that are supposed to be good, and we have them evaluating areas that we picked up ourselves, and are good. We do have a resource in Canaima, as well as La Camorra, and then we got another concession from the CVG clear over by Guayana on the east side of the country called Bochinche. Bochinche is sitting over there as a resource that we were able to tap into, and because we had the tailing retreatment plant, we were able to put transport in there from Bochinche, which is almost a hundred miles away, and transport it over and make some money on Bochinche in the plant, as well as the ones we’ve got going there.

Now in the meantime, the one at Canaima is big enough that we’re building that into a mine. We’re actually trying to put it together so that we can put in a mine, and either sell it to someone, or do it ourselves, but, we have the option of doing what we want there. So, in order to do that, I wanted to know a lot more about the deposit and what it was like down there. They did all vein deposits, okay, and so I wanted to actually put a decline underground and go down and look at it. I wanted to see it. I wanted to taste it. I wanted to run it through a series of tests and see how the metallurgy comes out, and bottle rolls, and absorption tests, as well as look at the rock and say, “Well, this is good, consolidated rock. We’re not going to need a lot of timber in here, if any. Maybe rock bolts will do.” Get a feel for everything relative to underground there.

Now, everybody thinks I’m nuts, so I go to my South Africans, and like I say, I’ve got the guy that is the general manager there, and he’s a mining engineer, and he has a redundant mining engineer because they like to have two, so there’s two mining engineers there and I said, “Guys, I want to get a small decline down into the vein area, and I want to be able to look at it and see what all of these parameters are going to be in order to make it work.” They said, “Okay.” I said, “Give me an idea how much that’s going to cost.” They said, “Well, would you give us a weekend?” I said, “Sure, take the weekend.” So they took the weekend and they came back and it was either three or five million dollars to do this. I’ve even forgotten the number, it was so ridiculous, and I said, “You guys are crazy. I’m not talking about that kind of thing. I’m talking about $200,000. I just want to get down there and visually touch it and look at it and sample it and process it,” and they say, “Well that’s our number,” and I said, “Well forget it.”

So I called up Scottie McQuade. You read about Scottie McQuade. He’s an old uranium miner out of the Colorado Plateau, and he’s got a buddy, and so I
say, “Scottie, can you put me a decline down there that would be this long and so forth for $200,000?” He said, “Oh, yeah, no sweat.” So, they lived in Grand Junction, Colorado, and I said, “Okay, let’s go for it. Get whatever you need.” He said, “Well I know where I can get a skajit?” Okay, well a skajit is simply a slusher that you set up and you’re able to drag the muck up this way. So you got jacklegs, skatjit, no big jumbos, none of this stuff that the visionaries out of South Africa see. And so, they send it all down there, and they come down themselves, and they’re the strangest looking people you ever saw. They—

Burnett: The South Africans?

Kendrick: No, these are my guys out of Grand Junction, Grand Junction. Old Scottie’s got one eye, you know. When he was a kid, he was pulling nails working for some guy and the nail go [makes sound effect], went right in his eye and he’s blind in one eye.

Kendrick: Anyway, these guys come down from Grand Junction, and they’ve never been to Venezuela or really anywhere, and the first thing they did is buy themselves big straw hats because they wanted people to recognize them, [laughs] and they have to go through an alcabala to get to the job, which, alcabala is a point where the government looks and sees who they’re letting into the country, so it’s a checkpoint, because we are very near the Brazilian border and so they had to go through that every day. So they’re living in Santa Bárbara up there which is the town we built, and every day they’d go down there and work in this decline.

Now they’re declining that thing down like this, and they’re doing a hell of a job. Now what? Not only are they giving me all of the things I want on the deposit, but they’re giving me a cadre of people who are now miners with modern equipment. They can run jacklegs and skajits and stuff like this, so, I’m coming out really in good shape, I think. So, it all works out. Every day they have to go in there and throw the snakes out, because the snakes go down the cool thing, and these guys are capable of doing just that, and they did that, and it’s really fun. We’re all having a good time.

Marian: Tell him how they spoke in Spanish.

Kendrick: Oh, yeah. They didn’t speak Spanish at all. Any English word that they could put an a on—what was it—an a on the end, that was Spanish to them.

Burnett: That was their technique. I see. [laughs]
Kendrick: But they’re such congenial people that they got along with everybody. There were no confrontational things from those guys. Man, everybody was a big happy family. Those two guys, they’d invite them [the local people] over for dinner. They never invited a South African over for dinner, I’ll guarantee you, and—

Burnett: Well so you brought in these people who got the job done, and you were able to see—did that help you see what you needed to see?

Kendrick: It did. It did. I was able not only to see all of the things we talked about but I was able to get a bulk sample for the met lab, and they could do all their bottle-roll tests and absorption tests and so forth so that we could get an idea of what the recovery was going to be, once you put in the mine.

Burnett: Right. So, was it better than you expected, or worse, or about the same? Or you didn’t know what to expect?

Kendrick: I didn’t have that much expectation. I expected we could make a mine out of it. I really did, and with the information I got, I knew we could. So, that was very positive. Now I set that aside as an example of how it should be done, and I call to your attention how it was done at the CVG mine there, where we had those people in there and say, “Ah, yet again, they spilled this or that” [expresses disgust] —

Burnett: That’s the Bochinche?

Kendrick: No, well it wasn’t Bochinche. It was the deep mine that they had themselves that the experts were supposed to make them better. It was all wrong. Anyway, as far as I’m concerned, we’ve really got a going concern there with all these guys coming in with their stuff, and we’re making money, and we were down pretty low there. We had Warburg as our bankers in England, and I think we were under $400,000 by the time I got some more coming in from—$400,000 isn’t very much in a situation like that.

Burnett: No, your reserve of cash was down to 400,000.

Kendrick: Yeah, and so, really, it’s going along well, and Eddie [Shackleton], then, decided he wanted to retire. Now, this is too bad, because Eddie’s a very key person in this whole scheme of things. And so, the German element decided well, they wanted to choose the next chairman, and it was with a company in the US and I can’t think of the name, but not only was he with them, he had a
sidekick with them that he wanted to bring with him, which is not uncommon. If I were to run an outfit, I would like to be able to have all my people in there. So, he wanted to bring this guy with him which displaced me. So, okay, I’ll go, fine. They bought out my contract. I had a good deal with them, and they bought it out and they took care of it, and so, I’m out of there after I’ve got it all set up for them, and all they did was blow it, but anyway, that’s some bitterness talking there.

Burnett: So the mine closed, or the mining operations ceased to be profitable, or—

Kendrick: Well, all of it closed except they’re concentrating now on the million-ounce deposit. I even had that; I had a deal with Cyprus Mining on that where they would pay us for that mine, and would keep us in business for whatever else we were doing with, what had some real potential, you see. So they shot themselves in the foot very badly, because they brought in two financial guys, no operating guys—they had no clue what operation was about—two financial guys now and they’re trying to run a mine, and they can’t do it, so they went over to Chile, hired a bunch of Chilean miners and company to come over to do it, but they deluded themselves to the point where, when they finally sold the whole thing, it was only worth twenty-five million dollars, and that was not the way it should have been.

Burnett: Yeah, it’s too bad.

Kendrick: And so I found myself connected with the thing to the point where I’m glad to be out of there. We moved. We enjoyed the four years. We were there almost four years, and it was great, but it was sad to pull out under those kinds of situations.

Burnett: Yeah. I have a question. I’m not sure it’s a good question. One of the things I think about with mines is the tremendous investment in road construction, just to get to the site, build a road, build houses for people to live in, build, often schools and health clinics; sometimes a whole hospital is built. So, there’s this sunk cost of starting a mine before any money is made.

Kendrick: That’s right, and I have done that. I have done that, and you have to be careful what you do. For example, I have numbers in my head that says, if you hire a person to go to work in your more-or-less remote area, really what you’re doing is hiring somewhere around seven people, because you’re hiring the worker, you’re hiring his wife, you got one and a half kids per, so now you’re up to this many people, and then you have to put in school systems and gas stations and grocery stores and police departments and hospitals and pretty soon, you’re somewhere between seven and ten people that you’re supporting
just for one job in your mine. So you’re absolutely correct. This is difficult. Now you can substitute and make it somewhat better by hiring the wife also. Now you’ve cut it in half. If you can get two workers out of a family, then you’ve cut it in half and boy, this helps to beat hell.

Burnett: So it’s another question about risk, right? We talked about personal risk in remote areas. Being in a remote area is a risk in and of itself, but this is the financial risk of starting a mine, exploring, starting, and so there’s this whole science, an actuarial science, an economic science of figuring out when a mine becomes profitable, whether a mine will ever be profitable, and that’s a huge risk, and you have to have experience, confidence, competence, and a willingness to undertake that kind of risk.

Kendrick: You’ve got it. You’ve got it, and one of the key things is, where do you site your workforce? Do you build a town for them over there by the plant, or do you come to the closest town and bus them over there, and absorb the cost of it that way, and that’s what you end up playing with: where the people are going to be living. Do you have to build a town so you have all these additional things, or do you accept a town and the fact that they have to ride a bus another hour in order to get to the job? You see what I’m saying?

Burnett: Yes.

Kendrick: Or, if you’re looking up there in the Yukon where we were before now, up there at MacMillan Pass, what do you do? Do you build a town over there that people can fly in to and stay two weeks and then go back someplace, to Whitehorse or something, and these then are your choices, your decisions. You have to be totally aware of what the ramifications of each one of these things are so that you come out, and, like I say, mines are made by people by these kinds of decisions.

Burnett: And so, you need to know the total predicted yield of an ore deposit, and say, “Okay, let’s say it’s a million ounces of gold, so, over this many years, it’s going to yield this much return, and so based on that, we could afford to put in a town.” So the problem can be the yield isn’t a million, so sometimes it’s inaccurate. Is that—

Kendrick: Yeah, well—

Burnett: —or is it usually pretty spot on?
Kendrick: This is almost pure science. You can pretty much predict what I’m telling you on this, yeah.

Burnett: And, what about the dividends for the community? So if you build a road in, for example, can you talk about how that—is there a permanent change? Even if the mine is closed, let’s say the one that you were working on down there, what were the consequences for the communities that you were involved in?

Kendrick: Well, they’re positive, I think. You’d have to say they are, because you have given access now to a whole bunch of people that did not have access before and would never have access. They can’t build roads. Now, you do have people that backpack in there, I suppose, and backpack out their gold but this is not too economic, you know, and so, the garimpeiros do exist. They are illegal and they’ll steal you blind if you let them, but that gets to be a concern too because in order to control them, you have to get the Guardia Nacional in there, and this gets sometimes nasty, and they’re running people off and so forth. There’s no easy way to do anything, in my opinion.

Burnett: It’s delicate.

Kendrick: In fact, my second mantra, right behind, we pride ourselves on our flexibility, as nothing’s ever easy.

Burnett: Right. That’s a good motto to have. Marian?

Marian: I think, the thing I would say that makes or breaks an organization are the people that you hire to go to a foreign situation. For instance, you can’t take somebody from the top of New York City’s financial place and ask him to move to the jungles of Venezuela and deal with it. They just can’t. They won’t get out of the car. They’re terrified. You need people that like people, and work with people—

Burnett: And like new experiences.

Marian: —yeah, who aren’t afraid, and you don’t find a lot of people in the United States who aren’t afraid. We don’t travel much. We don’t talk to immigrants. So we’re afraid, and it’s really hard to find the right people, is what I’m trying to say.
Burnett: And I guess well the people that we’re talking to right now are people who grew up in mountainous remote areas, and you were accustomed to risk and danger, and I’m guessing that that’s part of it.

Marian: I think a Western look at it, the people in the West [Western United States] are definitely different than the ones in the East. They are not so pampered. They’re terribly independent, and they make do.

Burnett: Well, I wanted to talk a little bit about environmental—I don’t know if this fits in the timeline, but you did some work on environmental in South America, is that right?

Kendrick: Yes.

Burnett: When was that?

Kendrick: Well, that was about the same time there when all of this is going on. Actually, I took Doctor Glover down there with me.

Burnett: And who is Doctor Glover?

Kendrick: Doctor Glover was at the Thorne Ecological Institute in Boulder and he was fantastic. He understands people. He understands indigenes. He understands anything he needs to understand. He knows why the growth along the fence line’s a lot better than if you don’t have a fence, and he knows all these kinds of things, and as a result, I invited him down to Venezuela to talk to the Venezuelanos primarily within their Chamber, and explain to them what it is he does and what it is that they should be looking for in the environment, and how it should be approached, and they were enamored enough with that that they recommended that he also talk to the Andean Pact as a subsequent source of information for them, which the Andean Pact, I have to say I think it’s Ecuador, and Colombia, and—

Marian: Peru?

Kendrick: Okay. Anyway, they’re a substantial group of people, and they too appreciated him and his recommendations, and a lot of his stuff was incorporated into their legislation subsequently.
Burnett: So there’s a lot of circulation of ideas. I’m out of my depth here, but I imagine through the United Nations, and OECD, and the Organization of American States, there’s probably a circulation of ideas about environmental regulation and people are learning and copying—

Kendrick: Oh, I think so, yes.

Burnett: —but there’s also this kind of personal touch. You were there on the ground and you knew someone from the Environmental Service Group at Amax from the seventies, and you brought him in, and so there’s that kind of circulation of ideas—

Kendrick: Plus whatever I had learned, was coming out as well, and—

Marian: And Peter.

Kendrick: And Peter.

Burnett: And Peter’s your son. How old was he when he was helping you in Venezuela?

Kendrick: Ah, he was a grown man. He went and got a degree in—

Burnett: Geophysical engineering, is that right?

Kendrick: No, he started in geophysical to get a master’s and decided no, he wanted to get a master’s in international business, so he went to the Thunderbird School here, and he’s stingy. It’s a two-year course, so he said, “To hell with this, I’m going to do it one year, because I’m paying for it,” himself, and he did. He did the whole thing in one year. Anyway, that’s his training. Now he’s a geophysical engineer as well as an international business person. He’s worked all over the world, and done very well, but—

Burnett: Well, let’s maybe pause right now, and I’d like to get Marian Kendrick into the shot, if we can. How do you feel about that?

Kendrick: Do you want to trade seats?
Burnett: Well, why don’t we bring you two together. Do you want to do that?

Marian: That’s fine.

Burnett: Okay. [break in audio] So, at this juncture, I’d like to welcome Marian Kendrick. You’re part of the story, and we’re still in Venezuela, this segment I want to be about families in mining, and so, the spouses of mining engineers, and people who are going around the world, to remote locations, and the reason I wanted to put it in here is because of how integral you and Peter were in the life down in Venezuela. So, I’m wondering if you could talk about your role in living down there. What was it like to live down there, and what did you do, both to contribute to the mine, and to contribute to the kind of community life around the mine in your time in Venezuela?

Marian: Well, gee. I think the biggest thing is probably social. You have to be relaxed. You have to like people. You have to be willing to learn.

Kendrick: Communicate.

Marian: And it helps to communicate, but if you’re relaxed and you like the people, everything is wonderful, and if you’re afraid and you don’t like the people, you won’t stay; it’s that simple. So, I think both Pete and I are the kind of people who like people, and we made all kinds of friends. We worked together in different ways. Mostly we were Bob’s two spies. The South Africans and Brits had a bunch of spies, but Bob had only two, and we worked really hard at it, we really did. Peter did a wonderful job finding thieves from the gold, he really did, and finding ways that people were trying to do us in, because from the very beginning, as the story goes, they were trying to do us in, and we just didn’t let them, because we were having a good time.

Burnett: And what do you mean by “do you in?”

Marian: Well I think they really didn’t want Bob there running the place because he might actually make a mine out of it and then they couldn’t steal as much, and so they didn’t really want a mine. They didn’t really want to spend the money on the mine. They wanted to steal the money, and it got really intricate, like, we didn’t tell anybody around for a while that I could speak Spanish, and so I simply listened, and it’s amazing what they thought I couldn’t understand, and they’d say and I could pick up and repeat to Bob, and prepare him for the next day, and it was kind of fun. It was kind of fun. I thought it was great.
Burnett: So these were the mine workers who were planning out a new way to steal some of the gold?

Marian: Yeah, and the office workers who were planning different ways to steal money from the company. I went in one day; one of my favorite young men, financial man, was Jorge Faran, and so I went in—he spoke English, he’d been educated at Wharton, so he was a sharp kid—and went in and just was talking to him in English because he didn’t know I spoke Spanish, and head gal, accountant gal, came in and told him all kinds of things that she wanted him to do that were not really good, in Spanish, and I could hardly wait to get out of the office and run and tell Bob what they were planning to do. Jorge I don’t think was in on it, but he nevertheless worked for her, and so there you are, just different circumstances like that.

Burnett: Now you had to be careful not to blow your cover, because if Bob, Mister Kendrick, acted immediately on that, then the—

Marian: Yeah, then they’d know.

Burnett: —the game was up and they knew it was you, and so you had to be somewhat careful about how you proceeded. This is kind of like a spy story, a little bit—

Marian: Oh, it is a spy story. [laughter]

Burnett: You’re in this area, so there’s direct theft in terms of stealing the stuff that you’re trying to produce out of the mine, the gold. That’s the classic form of theft, right, but there’s also fraud, and that was a foggy area that required the intervention of accountants, forensic accounting to determine if there was crimes that had taken place, but you had to make decisions about personnel, to move people out of the organization and then try to figure out whom you could trust to bring in, which is a huge problem. Can you talk about some of the techniques that you developed to communicate amongst the family to prevent people from understanding? I think we talked a little bit about that.

Marian: Oh yeah, we did.

Marian: Yeah, well Peter was down in the camp, running the smelter, and socializing with people, so he knew pretty much what’s going on. He had good vibes about some and not so good about others, and he’d want to report them to his dad, but his dad speaks English, and so he’d call me up, and tell me that he
had these things to say, and we just put the whole conversation into Double Dutch, sometimes in Spanish, sometimes in English, and we deliberately changed so we’d keep confusion in there, and we had many long talks in Double Dutch, and he really let us know a lot, and it was a very effective method —

Kendrick: On the telephone.

Marian: —on the telephone. Nobody, I don’t think anybody ever figured it out, which is really pretty good, and we both got so good at it, we were practically Double Dutch speakers more than anything else.

Burnett: And this went on for years?

Marian: Yeah.

Burnett: Or was this a particular moment?

Marian: The whole time.

Burnett: The whole time. So you’re there from ’89, ’90, ’91, and part of ’92.

Kendrick: And ’88.

Burnett: And ’88, so, around four years that you were there.

Marian: Uh-huh.

Burnett: Now, can you talk about other examples, other countries, how your role as a spouse of someone working in the mining community, how you worked to develop community or integrate yourself, or offer assistance to your husband and to the companies that your husband was working for?

Marian: Well, Bob and I had a saying that, he went to do the job and I went with my washboard and computer to serve him, [laughter] and it was pretty true.

Kendrick: It was, yeah.
Marian: It was pretty true, because everywhere you had to do wash by hand, for months on end.

Burnett: Oh my goodness.

Marian: And I never really lived quite like that in my life, but you learn. You learn.

Kendrick: You didn’t tell about the power going off.

Marian: Oh yeah. In Venezuela, they did things to make it uncomfortable, particularly for me, the guys did. The South Africans and the Brits too, they don’t really like women very much, and they don’t like women who seem to have any kind of power at all. And so Bob and I would go on these long trips with them, around Europe and everywhere, and all the Brits would take their mistresses, and they’d go, and—

Kendrick: Well, we were going to board meetings.

Marian: Okay. And, I’d go with Bob. Well I’m a wife and they don’t like me and I’m not really thrilled with mistresses. [laughs] So, it wasn’t really easy to do this. I tried, but they weren’t real sociable and I have to say that I wasn’t my true self either. So, that didn’t work too well.

Burnett: So you adapted to the situation—

Marian: Well I tried.

Burnett: —as best you could.

Marian: That, I think, was the hardest thing I ever had to adapt to, because they are real snobbish people, and they can be really bad, but anyway, that’s beside the point. That was probably the hardest job I ever had.

Burnett: Well, so, that reveals another side to this, is that your attitude was not hierarchical. When you went into a place, you wanted to understand everybody, and so that’s the local folks, and you would go and talk to people. Now you learned Spanish. When did you learn Spanish?
Marian: Well I’d had some in high school in Aspen, and then we had a refresher course in Phoenix with Berlitz, where we were supposed to speak only Spanish, but Bob was interviewing for the job, and all he could speak was English, because all these people were speaking English, and he never really got into the program the way he should have but couldn’t. And so, my Spanish was pretty good by the time we got down there. Besides, I have a little affinity, I think, for languages.

Kendrick: I was hoping you’d say something good by me that maybe I spoke Spanish by the time I left.

Marian: Yeah, [laughter] you did, a little bit, but it was better maybe that you didn’t, because I think if you don’t speak well enough to be on business level, sometimes you’re better off not to speak. I just really think that’s true.

Kendrick: Business-level of Spanish is difficult.

Burnett: Yeah. Well, there are subtleties in—

Marian: Oh yeah.

Burnett: —yeah, that, and you don’t want there to be any confusion—

Marian: That’s right and there’s more to it. The Spanish speak very much with corporeal language. Now the Mexicans don’t so much, but everybody else that I’ve been around that speaks Spanish, they do.

Burnett: The Latin Americans like in the south and South America.

Marian: Spain.

Burnett: Yeah, okay.

Kendrick: Corporeal, yeah.

Marian: Yeah, it’s all, it’s terrible, and Bob got into that pretty well. He could handle that, to the point that it was dangerous to be near him. [laughter]
He was gesturing, and—

Yeah, but Peter was up here after all that, and he got together with Jorge once again, because Jorge now lives in the United States, and Jorge called me up and he said, “I’m really disappointed in Peter. He’s lost all his Spanish. He’s got a terrible accent,” and I said, “I haven’t noticed it,” and he said, “Yes, he does. Listen to him,” and I couldn’t hear it. So I kept talking to Peter and trying to figure it out and finally it hit me that Peter was speaking Spanish with his hands in his lap, and Jorge took it as an accent, and it’s just amazing what a language is. It’s not just tones coming out of your vocal cords.

No, absolutely.

Show us.

What do you want me to say?

I think you should talk on the telephone and tell them whatever it is you want to say, and hang it up, and—

How would that be corporeal Spanish if she’s on the phone?

That can’t be. Oh yeah, let’s see. What did he say to me? He called Francisco. Jorge said, “I had called Francisco, and Francisco said that Peter couldn’t speak”—I can’t even do it anymore—“Spanish very well anymore.”

So he’s gesturing, it’s almost like a sign language to—

Almost totally.

—accompany the Spanish.

I mean it’s very much so in Venezuela, very much so, and so, we finally worked it out, because watching Jorge do all this, I realized Peter and I aren’t doing that anymore, and so it makes it sound like we have an accent—

It’s—[laughter]
Marian: —which is hilarious.

Burnett: Because you’re not moving your hands.

Marian: Yeah.

Burnett: That’s funny.

Marian: Or my body or ears or eyes, but—

Kendrick: Well it’s strange, now. I could interject there a little bit like working in an office, with the corporeal language. You walk up to a desk in the office, and whoever’s sitting at the desk looks up at you and they go like this [wrinkles nose]. That means, “what do you want?”

Burnett: Wow.

Kendrick: Yeah.

Burnett: That’s interesting.

Kendrick: Yeah, it is.

Marian: But if you didn’t know what it meant, you’d wonder what on earth is the matter with all these people that have a nose problem.

Burnett: Those are all cultural differences that you have to pick up, because it can be misunderstood, and that’s part of your adaptation to a particular country.

Marian: Fortunately, I had a very good instructor in Venezuela, so did Bob, and she really did help him a lot, but I was in her class with a bunch of people from Schlumberger, a French petroleum outfit, and they were wonderful ladies, and I really enjoyed them, and we were all learning so much, and one day the professora pulled me aside and she said, “Marian, I’m putting you out of the class.” I said, “Why?” and she said, “Well, you’re doing things I don’t like,” and I’ve never been thrown out of class ever, and it really hurt me, and she said, “What you’re doing is, you’re speaking far more French than you are
Spanish, and I’m here to teach you Spanish.” [laughter] So then I got private lessons, because I guess I’m—

04-01:20:30
Burnett: You were making too many friends.

04-01:20:31
Marian: Yeah.

04-01:20:31
Burnett: So it speaks to your sociability, that you’re very affable, you like to learn new things and meet—

04-01:20:37
Marian: It just happens.

04-01:20:38
Burnett: —new people, and it’s just a natural thing, but that’s a real asset, right, as part of this work. We’re going to talk about this in the next session, but I’d like to ask you about when Bob started working for the International Executive Service Corps. You went to places like Siberia. Can you talk about that, and how you—

04-01:21:03
Marian: Now?

04-01:21:04
Burnett: Yeah sure, sure, just as part of this story about family.

04-01:21:09
Marian: Okay. Well first of all, he did a bad thing. We had discussed the places we didn’t mind going, but the one place we were never going to go was Russia, and he came home one day and said, “Well, I’ve picked up a job in Siberia, in January.”

04-01:21:30
Burnett: Oh my goodness.

04-01:21:31
Marian: And it was really kind of a blow to me, but I didn’t want to say, “I won’t go.” You can’t do that. It’s an experience, and so I had to do it. Wasn’t really excited about it, not at all, but the kids bought us the right clothing, and we went, and it was a wonderful, wonderful experience. I’m so glad we did it, but once again, if you get with the people, and you talk to the people—and talking is not just verbal. We just said “corporeal language,” but you have to touch. Nowadays in the United States, they don’t want you to touch anybody. That’s not true. I learned that as a nurse. If you want somebody to understand you, you have to touch them, and it’s that simple. It’s a communication that nothing else equals. So I don’t know, but the other thing I really wanted to do
was contribute on all these things. I didn’t want to just be a wife at home in a penthouse. So, in Siberia—

Kendrick: You weren’t in a penthouse.

Marian: Not in Siberia, but I was in Caracas, but Siberia, no. We got with the people right away. First of all, the touch helped because the interpreter was a man. He was KGB, let’s put it that way, and we knew he was, and I think he knew we knew.

Kendrick: He told us he was.

Marian: Yeah, but he was very standoffish and so forth, but finally he came along, and he said, “Until I knew you two, I never had laughed, and now I laugh all the time,” and that, yeah, that’s really poignant, and like we were walking down a small hill, and it was so slippery. This poor lady was going down the hill just about to fall and sliding. Bob ran down to grab her and help her, and she said, “Nyet, nyet, nyet!” because she didn’t want him to touch her.

Kendrick: I’m glad.

Marian: Yeah, but that’s just the way they are, and—

Burnett: You have to learn what the customs are.

Marian: Yeah you do, and then you have to let them know what your customs are, and it’s—

Kendrick: Now they put in a restaurant just for us down those stairs that didn’t measure up. Go ahead.

Marian: And they were unlighted, yeah. It was really different, but I really enjoyed it. I got to know some of the women pretty well, to the point that—well the people in Russia, in fact, in all these countries, speak English as a second language, but they only speak to one another. They don’t speak to a native speaker. So sometimes they can’t really understand you, and sometimes you can’t really understand them, because the inflexions are just different, and it takes a while. For instance, [coughs] excuse me, I was teaching in the schools, in Svetlogorya, and I was talking to them every day. The teacher said, through the interpreter, “Just tell them about your life in the United States.” So I stand
up there and talk about my life for an hour or so, and they’d listen, but they weren’t getting it, you could just tell, and I didn’t know until one day, one little boy raised his hand like this, and so I pointed to him, and he said, “Tell me about 9/11”—

04-01:25:11
Burnett: Interesting.

04-01:25:11
Marian: —which really hit me. You know that’s funny, but that’s all they hear about, and so that’s what we did. We talked about 9/11, and then the kids began to understand and come in. If he could do it, then I can do it, and so forth, and even the teacher after that, would speak a little English to me.

04-01:25:31
Kendrick: Bubblegum.

04-01:25:32
Marian: I’m sorry?

04-01:25:33
Kendrick: Bubblegum.

04-01:25:34
Marian: Oh yes, and then everywhere we go, we take, usually, suckers—

04-01:25:41
Kendrick: In the world, yeah.

04-01:25:42
Marian: —yeah, in the world, to pass out to children, and it makes friends immediately.

04-01:25:49
Burnett: Sugar diplomacy.

04-01:25:51
Marian: Yes. [laughter] But we couldn’t find any before we raced off to Siberia, and so I just bought a whole packet of bubblegum, lots of bubblegum, and figured they might not have that in Russia, and they didn’t, and they’d never seen it. They do have a little gum, but it’s not much. So anyway, I took it out and chewed it up and showed them how to blow bubbles, and they got so excited, these kids, and they’d come and they’d stand in the hall. They must have kept that bubblegum for days. They’d come stand in the hall outside our apartment and you’d hear them say, “Americanskis, Americanskis,” and so we’d open the door and have them come in, and they’d come in with their bubblegum and blow bubbles and laugh. [laughter] There are lots of ways to communicate, but they have to be kind of human. Yeah, it doesn’t work to be dictatorial.

04-01:26:49
Kendrick: I have to add to that one. She’s forgetting the punch line. The punch line is that—
Marian: I didn’t want to say it.

Kendrick: —I thought these kids all ought to blow the same bubble at the same time, and so I said, “Okay now, one, two, three, blow,” and they’re all standing up there in the living room in front of us, and they all blew this really good bubble, except Marian. She didn’t get her damned bubble, and [laughter] I took a picture and everybody’s got a bubble except for her.

Marian: And all I’ve got is a face— [mimics struggling to blow a bubble, laughs]

Burnett: So, you talked about the hierarchical kind of snootiness of some of the other people in mining from other countries, or even from other companies or even within the same company. Is there a culture of advice? Did people ever say, “You can’t treat people the same; you have to show them that you’re the boss”? Did people tell you that? Bob, did they tell you that ever?

Kendrick: I don’t believe anybody ever did.

Burnett: No. It’s just, you just did the way that you did things, both of you.

Marian: It’s sort of, it was then. It’s not so bad now but it’s unheard of that people would go to another country and teach them something. It just was, people didn’t do that until Kennedy came along with the Peace Corps and so forth, but we, as US people, and I say that as opposed to Americans, we just don’t do that. We send money and aid and a lot of nice things, but it’s not personal, and so people really wonder about us, and they get to thinking that the view they get on television is what we are, and they do that particularly with women. They think you’re somebody that sits in a high-rise apartment and I don’t know—does what—eats goodies all day long or some—

Burnett: Right, the ladies who lunch, or something like that.

Marian: Yes. They just do, and the ladies, as I met them, they were cautious, but then in Venezuela, we had quite a bunch, and they were just great. They took me aside and they said they didn’t care how much Spanish I was learning from this instructor, that she was doing a good job, “but actually, if you’re going to speak Spanish in Venezuela, you had to learn to cuss.” [laughter] So, they took me aside and taught me a whole bunch of dirty words. I don’t think I even remember them, but I thought that was really funny, I did.
Burnett: So there’s an aspect of, when you’re going into different countries, it’s important to listen. It’s important to understand where people are coming from, and learn what’s happening on the ground, and that’s something that you communicated. As a family, you’re communicating about what’s going on. In the extreme case in Venezuela, there was spying and you were being spied on, and you were doing some spying yourself, and that was an extreme case, but more generally, there’s just communication about where you were living.

Marian: And you can’t just listen. You have to join in. You have to give your part, because communication is bilateral. It’s really important, and if you stand back, they think you’re being superior, and sometimes it’s just because you don’t understand, and you don’t know what to say, but you do it anyway. You just say it, make mistakes, and everybody laughs, and it’s kind of fun. It’s like I was showing you the man in the market, because I couldn’t read labels and there was no packaging that I was familiar with, and I didn’t know how to buy or even where to buy or how much money or anything, and the vegetable guy came over and pulled me to his stand and was showing me how he could juggle tomatoes, and I thought it was the sweetest thing anybody ever did, because that’s what he had to offer, and it was wonderful, but I think we’re not quite on that plane. I think we’re not, in this country at least, and I know the Brits aren’t. So, but—

Burnett: Well so, I want to leave you with the last word on family and mining, but it sounds like you’re talking about openness. You have to be open.

Marian: Everywhere, yeah, and particularly, when your husband’s the big boss, because they really tend to put you up on a pedestal. Now in US mining, it’s my judgment that miners don’t put themselves on pedestals. The petroleum people do, very much so. They have their own communities. They have their own parties. They don’t intermix, nothing, but US people, miners, live with the people, and they work with the people, and so we’re a different group, and I think that’s kind of hard on a lot of particularly women, because in this country we’re not allowed to step out and talk to foreign people and join into technical talks and so forth. We just haven’t been allowed. It’s getting better. It’s getting better, but it’s limiting, and to try to teach somebody—Bob brought down a really nice mine superintendent in Venezuela, and his wife, and their dog, and I don’t know. Elaine tried really hard to learn Spanish, and she finally got to the point where she was transferring her mind—you know, you go over a space when you learn—

Burnett: You switch, and you’re now thinking in Spanish.
Marian: Yeah, and it’s hard on your psyche, and so, I think she cried for a week, didn’t she?

Kendrick: Yeah, she had a hard time.

Marian: She had a really hard time, and afterward, she came to me and she said, “You know, I have to thank you, because I didn’t know that part of me,” and I thought that was beautiful. I didn’t know I had it either till I got there. You don’t until you’re there, but we don’t reach out like we should, as individuals, because the people in this country are nice people, and they have a lot to offer, but, the same with families. I watch our kids go places. They’re all world travelers and businessmen and so forth now. They just love it. Then we have grandchildren going into it with the same thing in mind. They want to work internationally, and I’m so pleased with them that they’re outgoing. I don’t know if it’ll be successful for them, but you never know about anything.

Burnett: Outgoing behavior is a good thing, I think.

Marian: Yeah, I think it is, as long as it’s not superiority or craziness, yeah.

Burnett: Marian, I want to thank you for joining us.

Marian: Oh, thank you.

Kendrick: I want to thank you as well.

Marian: Thank you.
Burnett: This is Paul Burnett interviewing Robert Kendrick for the Global Mining and Materials Research Project, and this is our fifth session, and it’s February 27, 2019, and we are here in Sun City, Arizona, and we were finishing up our conversation about your time in Venezuela, and we had talked about a number of properties that you developed there with your team, and the fact that the CVG [Corporación Venezolana de Guayana], or the Venezuelan agency responsible for mine development, had found and wanted to develop a couple of properties: Bochinche and the Mina El Callao, but that you had found your own properties, as a result of your prospecting and surveying.

Kendrick: That’s correct, yes.

Burnett: And so, part of this kind of work is, clearly, communication, so you have to communicate with the stakeholders who are involved, and make sure that they know what’s happening, what’s changing, what’s getting better, what’s getting worse, and so can you talk a little bit about that communication and how that was an important part of your role, as you were in charge of this operation, and for Monarch?

Kendrick: Well, the people that you are doing business with are kind of different; however, the ones that own concessions are interested in their concession, and what you can do for them, and it’s not too difficult to strike a balance so that you can have an agreement with them as to how these things transpire as the work progresses. Now, concessions are all kinds of sizes, but let’s just call a normal one fifty hectáreas, [50 hectares, or 135 acres] and that would cover what we just talked about. However, there are smaller concessions that are available to individual miners, individual families. The wife is normally a part of the team, and the family dog is part of the team, and they have their own setup there. They normally have a windlass. You know a windlass?

Burnett: Yes.

Kendrick: You pull a bucket up with the windlass; you send the old man down on the end, windlass, he chips out the ore and then ultimately, they have enough they can take to a person that has a Brazilian mill, and make a deal with him to separate the gold from what you’re giving him, on his hammer mill, on his Brazilian mill, which he does. For the most part, these things are relatively painless, even though they do cheat each other if they can. It’s part of the game. More than that, the government does have concessions that CVG, for example, pushes, and liked to have developed, for various reasons. One would
be simply to bring an undeveloped area in to a little bit of development with mining being the vehicle that brings other people in there.

**Burnett:** So it’s an avenue for economic development more generally.

**Kendrick:** Yeah, yeah, something like that, and one of the things that you have to have once you get going there is a road in there, and like Bochinche, this was hard. That was better part of a hundred-mile road to get over there, but with the road then you can get whatever your product is out, and over to the Revamín situation which was our plant there, and we did it on that. So we were able to use Revamín in all kinds of circumstances: one, in places like bigger concessions, and in places like smaller concessions, but also where it was such that multiple people worked there, and we’re able to move, be relatively mobile, and with the other folks down in that area.

**Burnett:** The labor that you used to build the road, do you just use the mine equipment to build the road? Is that part of it, or is it local labor? How does it work?

**Kendrick:** Well, a lot of times CVG is available to stick in a partial road there. It’s not elaborate in any way. We prefer to have a road sooner rather than later, and I’ll tell you why. You go out in the jungle in various conveyances: one is a fixed-wing aircraft; one is a helicopter. Now, when you’re out there in a multi-canopied jungle, a helicopter is particularly susceptible to danger, in that, if a helicopter decides to land by itself, it just kind of rotates around and goes down through the triple canopy, knocking the branches aside, and settles down there. It closes above. You never see a sign of it again. It’s closed off underneath the canopy. It’s gone. Where if a fixed-wing comes in, he skims down there and starts lopping off tree heads, and makes a path to where he is. You can find him, but helicopter, you have to be careful. So, with helicopters, it’s best after they get the road in there and you can follow the road, because then they can find you again, but this is just a safety precaution that everybody should be aware of, and probably isn’t.

**Burnett:** I was not aware that you could land a helicopter in a jungle at all. I thought you needed a clearing.

**Kendrick:** Yeah well, it settles in by itself. You know how it goes down. It just rotates and it goes down there—

**Burnett:** It’s a lawnmower.

**Kendrick:** —and it kicks the palm fronds away and goes under them.
Burnett: Okay, but you can see the danger in there, yeah. So you want to be able to move goods and people in and out, and—

Kendrick: Yeah, goods and people in and out, and sometimes it’s no big deal. You just move the goods which happen to be production, out in sacks, sacks, and pull them out and go. If you’re producing more than that, of course, you have to use bigger conveyances, but ultimately, you’d have trucks on there, yeah.

Burnett: So there’s multiple partnerships kind of locally, in deciding whom you’re going to purchase the tailings from, and the state government’s involvement, and keeping relationships going there. What about upwards to the company and the investors in the stocks of Monarch Resources? What kind of communication did you have to engage in at that level?

Kendrick: Well, you had tried to keep a communication all the time, either by phone or whatever, particularly if it’s a dynamic thing and things are happening. You owe it to your stockholders to keep them informed, and as such, from the jungle to the city, all you have is a telephone. Now, when we were there, the telephones were not that good, not that sophisticated. I had an awful time with people in Bochinche even keeping track of them, because we had no telephone that would work. There were phones in production at that time called radio phones, that people used in a situation like that, but very few people had them. They were not available. So as a result, the only access I had between me, say, and wherever I am, Caracas, and the mining area Bochinche, and the city over in London, was by communication going from one to the other and informing them. So as a result, we found ourselves in the London area frequently, because that was the major stock-selling area that we had. Now, at one point, they decided, see, that was stock selling more or less laterally, because that’s the way the world works. Now—

Burnett: Can you describe what a lateral sale of stocks is?

Kendrick: Yeah, I would say, Caracas is across from London, more or less, not really horizontally, but more horizontally than it is, say—

Burnett: North-south.

Kendrick: —north-south. And so there was an effort underway to attempt to make it north-south and change the latitude so that it was more amenable to the market in London, but that’s hard to do, and really was not successful while I was there. Hopefully they made it successful later, I don’t know. They’re trying to do it, but—
Burnett: You mean coordinating the markets, sort of, if they’re moving across time zones?

Kendrick: Yes.

Burnett: Is that—okay, so that’s the issue, so the longitudinal difference is what can cause the problems when the market opens in London. You want to be ready and that kind of thing.

Kendrick: But they were always on the phone to us and we were trying to bring them up to speed and they’re pissed, pissed. [laughs]

Burnett: Well, just the absence of regular communication is a problem, and if you’re going to London, you have to get from the bottom of Venezuela in the jungle, up to Caracas, and then on a plane to London, and you did that frequently.

Kendrick: We did that frequently and actually, we had access to the Concorde in that the Concorde flew to Port of Spain in Trinidad, and we could use that. It was available to us at the same price. However, none of us ever did, for whatever reason, and so we flew conventional, which happened to be local airlines of Venezuela. They had two or three airlines that were state owned and good, reliable airlines, as well as Pan Am which went that way, and in fact, we were on Pan Am when it went broke and we ended up in—where the hell were we? We were over in Mexico, yeah, and Pan Am went broke; had to get out of Mexico.

Burnett: So, you had to change airlines, because it was right in the middle of a bankruptcy. So, there’s a lot of communication, reassurance, explaining when problems or delays arise. Now Monarch Resources, did it have a number of other properties around the world? Was it a large company?

Kendrick: No.

Burnett: It wasn’t. It was a small—

Kendrick: That was it right there, yeah.

Burnett: —and yet, I find it odd, or maybe you can explain this—in the mining industry it might be different—that it’s a publicly traded company that is so small with a single set of properties.
Kendrick: Oh yeah, yeah, and single set of properties, and single set of stockholders, primarily. It sold publicly, of course, but really, the interest was not that broad.

Burnett: So it was actually a small number of investors—

Kendrick: Yes.

Burnett: —like you said there were Germans. There’s the South African group. Are they the investors or are they the actual mine contractors?

Kendrick: Yes, yes, and—

Burnett: Both, they’re both.

Kendrick: Both, they were both, and also we had the British. They were in there as a separate set of investors, yeah.

Burnett: So three groups from three different countries, each having a proportion of the shares, but it’s basically a few people.

Kendrick: Few people, yeah.

Burnett: Huh. That’s interesting.

Kendrick: Yeah, it really was, and—

Burnett: It’s more like a nineteenth-century stock company.

Kendrick: Very, yeah, very up and coming investors, very wealthy investors, and I don’t even want to speculate on that, why it was that way. I don’t know, but we had the sixth-most-wealthy guy in Europe as our major investor.

Burnett: Well, who knows? Let’s not speculate. Neither one of us is, [laughs] is a global investor on that scale, so we’ll leave it as a kind of mystery, but this was just to give the audience a sense of the full range. You’re dealing with people using an old system of resource extraction, this kind of Brazilian mining or milling technique, the hammer mill, and these miners who are effectively going down wells, tens of feet, not hundreds of feet or thousands.
of feet, and mining by hand, and bringing stuff up. So this is this other world, and all the way up to these investors who are suggesting and putting at your disposal a Concorde jet that would allow you to fly at supersonic speeds, and so, I find, for me, I think that might be—it’s a lot to take in, in one person to have that range of experience—

05-00:15:29 Kendrick: So how does it hit you? What’s your feedback?

05-00:15:32 Burnett: Ha! I think it would give you some perspective, but maybe only after you’ve been out of it for awhile. I think when you’re in it, I imagine it’s very dizzying to be—

05-00:15:47 Kendrick: Dizzying.

05-00:15:48 Burnett: Yeah, you’re in a complex world. There’s a lot of mystery. There’s a lot of intrigue, and at a certain point, my interpretation is that you put your head down and said, “I know how to make a mine work, and I think that’s what they want me to do, so I’m going to go do that, notwithstanding all the other methods and other people who think they know better. I know a couple of people who could help me from the United States and I’m bringing them in,” and you implemented that, and you implemented protocols around the control of information and the control of the movement of the gold from one place to another, in order to ensure that the gold stayed in the right hands until it left the country. That’s another question too, you could only guarantee the safety of the gold, but how do you get it out of the region?

05-00:16:47 Kendrick: Well, yeah, we do, and they had armored cars that would stop by and pick up from the mine, and take it to the central bank, and it was distributed from there, but—

05-00:16:59 Burnett: Okay, so the banks have their own methods and they deal with their own security, and are able to handle it that way. So that must have been an extraordinary learning experience, and somewhat of a disappointment, because, I think, all you wanted to do was make the mine function properly and produce a profit, and they wound that down and it had its own separate fate, but I think that’s something that will forever be opaque to you. You’re not going to be able to figure that out. So that finishes one chapter for you, and you decide at that point—was it sour for you? Did you feel like, “I’m done with mining,” at that point?
Kendrick: Oh no. No, they didn’t treat me shabbily or anything; it’s just one of those things the good lord, who is Lord Shackleton, [laughter] decided to quit, and it threw a bunch of intrigue in there which had ramifications for other people.

Burnett: Right. So, you’re done in 1992, and this opens up a new door. One door closes and another door opens, so can you talk about what’s next for you? How did you find out about the next thing?

Kendrick: What’s the next thing? Like I told you yesterday, I just went and taught skiing for a couple of years, maybe.

Burnett: Well, there’s that. I actually want to talk to you separately about skiing, but let’s put a pin in that for now, but I’m wondering if we could talk a little bit about Anglo American and Perez Companc, the work in Argentina.

Kendrick: That’s Argentine stuff, yeah.

Burnett: Okay. So you stay in South America, or you go back.

Kendrick: No, we didn’t stay; we went home and came back.

Burnett: Okay. So you went home, and home was in Colorado?

Kendrick: Yes.

Burnett: Okay. So, I imagine there was some mixed feelings about that, or—

Kendrick: Well I’d say—

Burnett: —relief.

Kendrick: —I’m not sure it was. I guess we were living in Phoenix.

Burnett: Okay. So you came back to Phoenix, at that point, okay, and, all your children are grown at that point.

Kendrick: Yes.
Burnett: Okay, and we’ll also come back to that. And so, did you get a call from someone about the next venture? How did you find out about Argentina?

Kendrick: I think I found out about IESC from Harvard. Harvard had some kind of a contact with them, and at a meeting we were in, I heard about it and I got a piece of paper and signed up for it, and I didn’t hear anything for a while, and then, I had to have references and so forth, so some of my buddies from Harvard said, “Oh hell yes, he’s a good guy, and he’s done all this stuff. He’d be a real asset.” So, it was a slam dunk, and pretty soon I heard from those guys.

Burnett: Can you talk about what the IESC is?

Kendrick: Yeah, it’s the International Executive Service Corps, which is kind of an offshoot of the Peace Corps, except it’s for executives, disciplined executives with particular skills. Mine was mining, and they got in touch with me and said, “Well, looks like that’s good to me. We’ve got this assignment over in Siberia. You want to go?” I said, “Let’s go,” and that’s when Marian fussed a bit, but we went, and enjoyed the hell out of it.

Burnett: So you went to Siberia first?

Kendrick: Oh no, no. I’m sorry; you’re right.

Burnett: Buenos—

Kendrick: —Buenos Aires, yeah, it was Buenos Aires, and it was with Perez Companc. I became their token mining guy to the second-largest petroleum producer in Argentina. Okay, so that’s where I am. I’m there, and they are joint venturing with Anglo American on these properties out in Patagonia, which is on the—

Burnett: Southern—

Kendrick: —west side of Argentina, but still on the east side of the Andes.

Burnett: Right, good, okay. And so, Anglo American is a huge mining—

Kendrick: Huge, huge mining company.
Burnett: —multinational mining company.

Kendrick: Yeah, and they’re all over the world, but the way it was set up is that, since Perez Companc had a mining guy, everything went through me. I had it all going through me, which was only as it should be, in that the other guys, they were going to be there anyway, and a lot of the decisions they made automatically. For example, they decided they needed in their skill set a mine that was good for fifteen years. They settled on fifteen years as a life of mine for that particular area. I really didn’t have any input into that, but I really didn’t care, either.

Burnett: Right. So your role is as an advisor, but you’re also the premier point of contact for the flow of information.

Kendrick: Well, as an advisor to Perez Companc but as a business companion with the other guys, we talked business. That’s what we talked about, and then I kept Perez Companc informed.

Burnett: Okay. Okay, and is it, you said it’s kind of the executive version of the Peace Corps. Did it come out of US Agency for International Development—

Kendrick: Yes—

Burnett: It did?

Kendrick: —comes out under USAID. It’s under USAID, and—

Burnett: Interesting.

Kendrick: —and it’s well thought of. These are good people.

Burnett: Yeah. Had it been going for a long time or was it new?

Kendrick: No, I don’t think very long, but for a time. [IESC was founded in 1964 by David Rockefeller, William S. Paley, and a number of other prominent business executives who were also active in US government panels and agencies promoting international cooperation after World War II.]
Burnett: Okay. And so, how were you able to assist them? What did you think you brought to the table?

Kendrick: Well, it was difficult, because one of the things everybody always talks about is bring democracy and all of that stuff, and it’s hard in a situation like that to even define what democracy is. I’m trying to help a people that want to get into mining that have not been in mining that have a very powerful advocate over here that that’s all they’ve been in is mining, and I need to be able to not compete, but to communicate across the board to those guys and bring their good words to the Argentines so that things go relatively smoothly.

Burnett: I see. So it was really Perez Companc’s need, as a petro-chemical company. They don’t have the mining experience, and they don’t want to be outgunned in their partnership with Anglo American.

Kendrick: That’s it. You’ve got it.

Burnett: Okay. So you’re there to level the field a little bit.

Kendrick: And I’m in Perez Companc’s office. They have a desk for me right in there. It’s all seamless. Everybody is compatible. They help me, and—

Burnett: Was it hands-on for you, or not as much?

Kendrick: Yeah, yeah—

Burnett: It was.

Kendrick: —total.

Burnett: So you went to the site. Did you find a site?

Kendrick: Oh yes.

Burnett: Tell me a little bit about that.

Kendrick: Well, the site was over there in, it was called, the mine site, was called Cerro Vanguardia, cerro meaning peak, “Peak” Vanguardia, and it was an actual
district over within that area, and it was very close to San Julián. San Julián was a beach community, a coastal community that was the staging area for the Falkland War, so—

05-00:26:14
Burnett: So it’s—

05-00:26:13
Kendrick: —all of the people that were out there bombing the British ships were leaving from San Julián, which was a couple of years before I was there. That was all over.

05-00:26:25
Burnett: Yeah, about ten years before, yeah, ’82.

05-00:26:28
Kendrick: And that’s where [Former Argentinian President Juan Carlos Menem] flew from. He was a pilot, as a matter of fact.

05-00:26:33
Burnett: I did not know that, yeah.

05-00:26:35
Kendrick: Well then, San Julián takes on a new relationship in people’s minds in that, I felt it was close enough to Cerro Vanguardia that we could use San Julián as home base. Rather than try to build a community over there, rather than trying to put people in there too temporarily, just bus them over there. It was about seventy miles, and it would have worked, but they didn’t elect to do that. That was something in the culture of the folks at Anglo American

05-00:27:23
Kendrick: And so, they didn’t really want to do that, but I still gathered all kinds of data and pushed it, and it didn’t quite come out that way, but it doesn’t matter. One way or another, it’ll work, and you apply all the parameters we were talking about this morning to skew it one way or another, but it came out that they didn’t want to bus out there. They wanted to be there on a more permanent basis, so, fine.

05-00:27:51
Burnett: Maybe there’re, who knows, there are other imperatives, because you’ve mentioned economic development as an imperative behind some of the work, so if the state is involved in any way, that might be part of it.

05-00:28:03
Kendrick: Yeah, and actually, it got up there to the point where Marian and I would stay out there from time to time, in the camp. It was little bit more than a camp. They had clean sheets on the beds.

05-00:28:19
Burnett: So they elected to build housing and schools and that kind of thing—
Kendrick: Yeah, well—

Burnett: —or—

Kendrick: —I’m not sure how far they went when it came down to it, because by then, I’m out of there—

Burnett: Oh, I see.

Kendrick: —but there was at least enough there that they could live out there for a period of time, and then come back into town.

Burnett: So, under the IESC, the idea is temporary assistance, like the Peace Corps, but it’s not years. The Peace Corps is, a couple of years you live in a place, right?

Kendrick: No. IESC is a lot smaller and less time than that. They look at three to six months, something like that, and really they don’t want you to stay any longer than that.

Burnett: Yeah. So it’s technical assistance.

Kendrick: Yeah, and it’s done so that everybody gets informed as to what’s going on as well. For example, there’s all kinds of resources available to an outfit like them, in Chile, in Brazil, in various parts of South America and as a result, Marian and I—it was part of the deal that she go with me. I don’t want to be out there alone. Whatever I’m going to do, she’s going to go. So she was there and we would go, for example, to Moralvelo in Brazil, and we’d stay in the ex-manager’s mansion up there, and it was a museum by then, but still, you could stay there, and—

Burnett: What is it like, Moralvelo?

Kendrick: Well, Moralvelo is a mining community up in Bello Horizonte. We spent a lot of the time there because we were doing the experiments on metallurgy and making things come out properly for the whole operation, keeping notes and so on. It was good. It was good. They were good to us. We liked them. It was a nice assignment to just even be there.

Burnett: And you traveled as well, didn’t you, because you were—
Kendrick: Well, we were living in Buenos Aires. We lived in what they called an apart-hotel, which is a two-room hotel thing with a little kitchen in a cubbyhole, and we lived there but we would travel from there up to Bello Horizonte. We would travel from there out to the mine site in Patagonia, and it all worked seamlessly.

Burnett: So you also got to enjoy another culture, another country, and—

Kendrick: And then the outcome of that was an aberration. The IESC people didn’t want you to take long-term contracts with them. However, I did, and it was supposedly mutually beneficial and at least it was approved by everybody, but I took a contract for a year more than the three-year, whatever-months it was, and so I went down there every month. We went down there every month for the next year, making it feasible so that everybody felt comfortable.

Burnett: So you felt you needed to have enough contact to make sure that it had wings.

Kendrick: Yeah, and I didn’t charge them very much. The most cost was taking us down there and bringing us back.

Burnett: So you’re disappointed when you put in work and you—we were talking about this off camera about, what’s the incentive for someone for whom mining is a calling—and you mentioned the guys at Urad who worked for free. They wanted to get it going. It’s not just the pay; everyone needs pay to live, but you want to see a project get off the ground. You want to see it bear fruit, and that’s important to you. So you had a number of different adventures as part of the IESC, International Executive Service Corps experience. Is there a big space in between? Are you going from one place to another? How does it work?

Kendrick: Well, there was a space in between. They weren’t consecutive at all, and actually with that year in there, nobody disturbed me while I was doing that, so I was not invited to another assignment. After that year was up, then they wanted me to go to Siberia, and there was a certain amount of prestige for the people on the site, for example, in Siberia, to say, “I’ve got a guy coming in from the United States, and he’s going to help us do all this stuff.” Then it was a big thing. It shouldn’t be, but it was. It was a big deal, and it became almost like a chess piece that you traded, “Well I’ve got this guy going on. What have you got?”

Burnett: Yeah, you’re a kind of prestige item, object, yeah.
Yes, yes, and they wanted me, or us, to be there. Geez, they wanted us to be there in November or something like that. I said, “That’s preposterous. You guys want me to look at the ground in Siberia in that time of the year?” And so they backed off, and they allowed us to come in, I think it was February or—same thing, sometimes in the middle of winter you can’t see anything but snow. In fact, one of the things that happened there: Marian wrote a little book about our experience, and called it “The View from the Kitchen Window,” and that’s all we had to look out, as they told us, “When you go there, you better take whatever entertainment you want, because it isn’t going to be there.” And so we did, and wasn’t much, but anyway, one of the things, the kitchen window was kind of an exotic place, in that the people—this is a six-story, Khrushchev-era, concrete, block-house thing and people live right above each other, and they hang their clothes out the window, in the winter, so they freeze, but they freeze in icicles coming down across your window, so that you’ve got blue, green, yellow, and red ice going across your window you could watch, [laughter] and—

Burnett: So the dye would run into the water.

Kendrick: Oh yeah, the dye would come down, and then you could also see out around that, to a degree, and there was a pile of snow out there, and then, as we got into spring, that pile of snow started melting, and we could see there was something in there, and so we’d watch every day to see what emerged out of the snow bank, and one day we see a dog down there and he’s digging, and the thing was a cat. He’s got a cat in there, but he doesn’t like the cat. He doesn’t like the smell of it, so he turns around and buries it again, and that’s our entertainment, man!

Burnett: Oh my God. [laughter] You’re watching the wildlife struggles for existence outside your window. That’s an interesting image. The larger context that anyone would be curious about is, this is really just after the fall of the Soviet Union—

Kendrick: It certainly is.

Burnett: —and so this is unspoiled, for the lack of a better word, Soviet-era, lifestyle living. Consumer goods are not in abundance, because you said that there’s not any entertainment.

Kendrick: Yes, and I started to explain it before when I got off base there, but essentially, they really wanted me to give them some idea of what democracy was. Well, what the hell is democracy? Is it capitalism? It’s really difficult to come up,
and what I finally settled for is that what I’m trying to do is take a centrally planned economy, and turn it into a situation where it’s an economy that they can actually use to make a living. And so what you have to do is, you have to turn their whole mindset around, because in a centrally planned economy, they don’t have anything to say about budgeting, marketing, how much they should be trying to sell, nothing. Somebody would come in there and say, “Give us this much on that date,” and they say, “Okay,” so they give them that much on that date. Nobody knows why or where it goes, what it’s used for.

05-00:38:09
Burnett: What about quality? Any idea of—

05-00:38:12
Kendrick: Well, that’s the problem, because quality control is controlled by what it is you’re really trying to do there, and so that got to be one of the major things for the whole marketing part of the thing. I didn’t know anything about bog iron. I didn’t know anything about phosphorous in bog iron, but I have a lot of friends that know a lot of things, and I got in touch with one who said, “Wait.” My buddy, that’s what he did all his career, down in Venezuela, as a matter of fact. Call him up and I did, I still keep in touch with old Carl, and Carl said, “Well, this is what happens with too much phosphate in bog iron. It makes vugs in the pigs, and nobody can use them, and you want”—

05-00:39:07
Burnett: This is bubbles, the vugs?

05-00:39:08
Kendrick: Bubbles, yeah, bubbles in the pigs, and therefore, you’ve got to keep your phosphate under whatever the threshold was, or nobody’s going to touch it. So, now I know what the problem is; it’s all laid out there. We’ve got to find a way to make what we have with that much phosphate available to people who have that much less phosphate so they can blend it in there, and everybody will be happy, and so that’s what the problem was, we just deduced, and it became one of marketing, because you have to be able to be assured that what you write down there as your product is, in fact, what’s in there. You don’t want them getting surprised. That’s the end of that. So, when you say, “We have this much phosphate and this much other stuff,” you better make damned sure that’s what you have.

05-00:40:10
Burnett: So that’s another value, transparency, and being honest about what it is your product is, so that you can build trust with your—

05-00:40:20
Kendrick: Well that’s what marketing’s all about, right? That is marketing. You have to have trust. People have to rely on your product for their livelihood. So if they can’t do that, it ain’t there.
Burnett: Right. So that’s all new for them. This is a cultural shift. It’s culture and technology mixed together, because they’re getting new techniques. Perhaps you could tell me if part of the story of that work was also introducing new technology or new techniques, or new machines, or not yet. Does that happen later?

Kendrick: We did do that, yes, in that, that particular pit had trolley locomotives, and therefore haulage, and as an addendum to the future, but the future is unidentified: “Don’t do it now; you don’t have the capital—but once you ever get the capital, you should convert this system into some other form of haulage with trucks and so forth, rather than locomotives.”

Burnett: So yeah, you’re preparing the way—

Kendrick: That’s right, don’t even think about this other stuff, but it is in your future someday.

Burnett: How did you build the confidence, because it sounds to me like there was a bit of uncertainty. They didn’t know what to do or how to do it, in this new way. How did you build confidence so that they felt they could do it?

Kendrick: Well, you heard one way there. I gave them a come-to-Jesus meeting, for one thing.

Burnett: Yeah, well tell me about it, because we didn’t talk about it.

Kendrick: Oh, okay well, basically, the problem almost was reduced to the fact that, anytime you mentioned marketing or business terms, anytime you mentioned budgeting, or whatever—our interpreter had three old books that he claimed were economic books. Hell, you can’t tell, I don’t—and it had come up in a meeting, and he’d panic and he’d grab the books and start going through them like this. Well hell, he’s not going to find anything in there that’s going to do him any good, but that’s where they were at that point in time. They didn’t know any of those terms, or things necessary in order to make a profit. They didn’t, and so you had to work with them through that.

Now these are very intelligent people and they’re very well trained technically, but if you think about it, marketing and what you’re trying to put together as product, and politics, such as what kind of system you’re running under, and so forth, that’s not technical. That’s totally without precedence in their background. It’s not there.
Burnett: So you had to—

Kendrick: How do you build confidence? Well, it’s hard. It’s very difficult, because one thing we did have, in that assignment was, we had a kind of commissar. Now in the old Soviet era, they had commissars who looked after everything and was a bad guy, and made sure people suffered as well as got the job done and so forth. So, this guy, his name was Alexander, and Alexander was kind of in love with himself, wanted to be a tough Russian. For example, they have packages of food, and when we were there, they weren’t used to freeze-dried packages of food, and they couldn’t get them open; they’d finally go, “Rawwrr,” and tear the thing apart, eating the plastic and all.

Burnett: So there was an adjustment.

Kendrick: —and he’d even joke about it himself, “Well I open like a Russian, blarrrawrra.”

Burnett: [laughs] So there was a top-down, hierarchical way of doing things, and you’re trying to unlock the initiative of the technical people.

Kendrick: And it gets a little bit complicated in that the number one guy that runs that area is not there all the time. He went—they always used to say Moscow. I’m not sure that’s where he went. I don’t know, but he’s required somewhere else. Now, one of the things I noticed: in most of those assignments over there, there was always a TV right on the desk of the number one guy, and he didn’t watch it—it was just cartoons—but it made noise, so that nobody could bug him or his conversations, and so as a result, all important people hid behind that TV noise, and things happened in there. That’s fine.

Burnett: So this was, there were two projects in Siberia, is that right? Or—

Kendrick: Well, there were—

Burnett: One, were they in sequence, or concurrent?

Kendrick: Well, there were two. The second one would have been trying to sell the first one.

Burnett: And this is the problem of bog iron with phosphates that need to be either—you can’t separate them. It’s not economic to separate them.
Kendrick: No. There was a lady there who was out of the Moscow district that insisted there was a way to do it, and I just didn’t know it. Hell, okay, fine, but if you know it, you better do it, because that’s what you need, and she couldn’t do it either, but there were an awful lot of big, hairy-chested women there too.

Burnett: There was a lot of pride, of national—well, this is something that’s coming up in recent years, this sense that there’s a tremendous nationalism in the former Soviet Union, and part of that has to do with a perceived humiliation of the loss of empire, the loss of a great empire that then shifted to a market society that a lot of people didn’t do too well in, but part of that is this pride, that they were told over and over again that the Soviet Union is a great place, and of course, there is tremendous achievement in the Soviet Union, science- and otherwise.

Kendrick: Absolutely, yeah.

Burnett: And so, did you interact with the—did you go out and talk to people, or—

Kendrick: Oh sure.

Burnett: —through interpreters and—

Kendrick: Yeah, well, one of the things they did on our behalf is they put in a restaurant, first one they ever had in town, just for us.

Burnett: There were no restaurants.

Kendrick: No, so we could eat there in the evening. It was not there for breakfast or lunch, but in the evening, we would always go over there primarily with the big guy, the manager, and he would always bring someone else, expose his staff to us during these times so that hopefully, there was some synergy between us and his group, and he was always, and his wife, they were always perfect ladies and gentlemen, except one time, and it’s one time worth it to tell you this little anecdote, in that we are sitting there having dinner—great, they always fed us very well. We had blinis. We had any kind of thing you want, just beautiful, and he said, “Well, you guys used the dirty bomb to disperse the riots in Los Angeles when they happened.” I said, “What are you talking about?” and he said, “Yes, yes, I know that’s true. The KGB told me that,” and I said, “It’s not true.” He said, “How can you say that?” and you know, I had to think about it. So I thought. I thought, well, how can I say that? So I got it. I said, “Because we have freedom of the press. If anything like that had
happened, the whole world would have known it within twenty-four hours,”
and so he tended to back down, but it was a very interesting argument. You
see what I’m saying?

Burnett: Mm-hmm.

Kendrick: Yeah, very interesting.

Burnett: Well of course, they had their own problem with radioactivity in many places,
right, but so, we’re seeing this, the accusing others of that which you are most
guilty, part of that.

Kendrick: Don’t know what the motivation was.

Burnett: Yeah. So, you had a couple of projects there, and people were adjusting as
best they could to the collapse of communism, and switching to a market
society, and the advice that was coming from the West was, do it all at once,
all of a sudden. You’ve got to change your culture completely; go from zero
to sixty; do it! Was that what you were encountering?

Kendrick: This was, it was hard, yeah.

Burnett: Yeah, they were having a hard time adjusting, yeah. So you were also in
another part of the former Soviet Union.

Kendrick: Yes, we were over in Kazakhstan. Now, this was a different situation, totally,
in that it’s out there in the Steppes, one more time. It’s clear over in a town
called Lisakovsk, and Lisakovsk is the northwest corner of Kazakhstan. The
guy, when they picked us up—we came in on an Aeroflot. Aeroflot is awful,
terrible. It’s dirty. The windows are all fly-specked. You can’t get the dirty old
piece of cloth up to even look out the window. It’s terrible, terrible.

Marian: They had pigs and chickens on our flight — right in the main cabin!

Burnett: On the plane.

Kendrick: So, we pulled in there, and they held everybody up in the plane except us, and
so we went out and there’s a big old Lincoln parked at the bottom of the stairs,
brand new. “Well, that’s for you!” So we went down and got in it, and they
said, we had an interpreter, a lady, and she says, “Put”—
Marian: Russian.

Kendrick: Pardon me?

Marian: Russian. Irina was Russian.

Kendrick: All right. And so I said, “How about our luggage?” and she says, “Oh, they’ll take care of it; there’s another car.” All right. So, Marian and I got in the back seat with Irena, and the front seat was full of this guy with a Cossack beard, a short guy, and his about twelve-year-old son sat beside him, and I swear the guy had never driven a car before in his life. So here we are, in the back seat, with a guy driving the car that’s never driven one before, and we’re pulling out onto this roadway that’s full of people as well as burros, carts, and all, and we go like this: [makes lurching sound effect] brakes, [makes sound effect], for 200 miles. My God, I thought, we’re going to get killed out here in the middle of the Steppes by some nut that doesn’t even know how to drive, and—

Burnett: So he’s lurching forward into the crowd, and then slamming on the breaks.

Kendrick: It just was a horrible situation. Finally, we get to Lisakovsk, and he just pulls right on up over the lawn, and right up to the front stairs, parks, and it’s what they call a “sanitarium”, and so we’re on the second floor of the sanitarium, I was never so glad to find a place in my life, and then we go in there, and our luggage pulls up the same time. So they’re bringing the luggage in there, and I’m thinking, my God, finally, I can go to the potty, and I can go wash my hands, after that Aeroflot. Oh, it was terrible. Anyway—

Marian: There must have been forty people out there to greet us.

Kendrick: Yeah, and they all greet us, and take us in to our apartment, and I finally get them shooed out of the room, and I’m ready to go in and wash and wee-wee, and there’s a knock on the door. And so I go to the door and open it, and it’s our interpreter, and she says, “You’re welcome upstairs for dinner,” and I said, “Well, we’ve eaten on the airplane. We’re not going to eat dinner tonight. We’re just going to stay home, kind of unwind,” and she says, “You are welcome now!” Well, okay. So, [laughs] this is all different now. Now we’re in our grubby clothes after riding this grubby airplane; however, we had noticed a lot of people in white shirts on the airplane, and they are upstairs in the banquet hall.
So we have a real Committee welcoming to this place, and we go upstairs and they give me a place to sit. Marian was sitting beside me; the interpreter was next to her. The guy that drove the car is the head guy at the table. He is the total host; not only is that, he’s the dictator of that whole area there, that guy, and I’m properly humbled. I don’t know what the hell’s going on. And so as we sat there, they came out with platters that big, with wide noodles on them, just full of wide noodles, and then they drag out a boiled sheep, and they open the sheep up, and the sheep is full of fat, so two guys hold the sheep; another guy pulls out slabs of the fat and puts it on the noodles. We got two of these big sheep—it’s a big table—and they just load the noodles with the fat.

05-00:56:21
Marian: And they’d wring it out.

05-00:56:24
Kendrick: And so, here we are, and then they pick up a sheep’s head, and they set it right in front of me. I have my own sheep’s head, right here. It’s there with his tongue hanging out, and Irina says, “Cut off a piece, and eat it.” I said, “What should I cut off?” She said, “Whatever you want,” and, what the hell would you cut off of a sheep’s head sitting there looking at you? Some people used to, I guess—I watched them later—they’d poke an eye out, or cut off a piece of nose or something, but I finally cut a little-bitty strip off the forehead here. It was about that long and it had three hairs in it. I remember it very clearly, and there’s that. So she said, “Eat it. It won’t kill you. Eat it.” I was afraid I couldn’t keep it down if I swallowed it, but I did. I managed to do it. She [Marian] is sitting over there laughing. That’s funnier than hell. Well then they took the sheep’s head and put it in front of her. That, not so funny anymore. [laughter]

05-00:57:36
Burnett: In front of Marian. Yeah.

05-00:57:39
Kendrick: Anyway, long story short, we were able to survive and get through that. While we were in Kazakhstan, we had it happen to us two more times. Three times we ate sheep’s head, and—

05-00:57:50
Burnett: Did you figure out which were the good parts to eat?

05-00:57:53
Kendrick: Well, I watched other people, and they, like I say, they had it that the tongue was, it’d stick out a little bit. You could pull it out and cut off its piece. Ear, they took ears. They poked out eyes. They had their favorite parts. None of them would have been my favorite part.

05-00:58:13
Burnett: Fair enough.
Marian: This was always a celebration for celebrities. Once it was for an Oligarch from Chechnya.

Burnett: So you were celebrities. You were VIPs. You were visiting the area.

Kendrick: Oh, so much so you wouldn’t believe it. That guy made sure we were on TV frequently, made sure that I didn’t say anything at all about a free trade zone. Other than that, I could say whatever I wanted to, even though nobody understands what I was saying. [laughter] So I never did mention “free trade zone.” I don’t know why that was a big deal, but—

Burnett: So, what was your role there? What were you there to do?

Kendrick: I was there to save those people. I was there to set it up so that they could function in a marketing situation, in a free situation whereby they had to be competitive.

Marian: They had no money, none.

Burnett: So they had no capital.

Kendrick: They would go down to the—they had every weekend a kind of a—what do you call them when they just sell everything down there?

Marian: Farmer’s market.

Burnett: Oh, like a bazaar?

Kendrick: Yeah, yeah, and they would sell burnt-out light bulbs, and people would buy burnt-out light bulbs. Why did they—why ever? So they explained it to me. They could take that burned-out light bulb, and go to any public place and trade it for a good one that was plugged in somewhere. Screw that one in, take the good one out, and now is that not a convoluted way to look at things?

Burnett: Yeah.

Kendrick: But it works, and they did it, and anyway, that was what that was all about.
Burnett: So was there a mining project there—

Kendrick: Sure.

Burnett: —that you were involved in, and what type was it?

Kendrick: Well, that was the bog iron. That was the bog iron, and they were continuing to produce while we were there, and it worked. I don’t know. It’s all very humbling. I mean, here are sincere, well-trained, intelligent people, and they have nothing, nothing.

Marian: We have not gotten into, as far as I can tell, their dachas.

Kendrick: No. We tried to help them with the budget, and—

Marian: Dachas.

Kendrick: Pardon me?

Marian: Dachas—

Burnett: Their country homes?

Marian: —their farms.

Kendrick: Oh dachas, dachas, yeah. No, everybody had a dacha in Siberia as well as there. They had a dacha and they would raise their own stuff, and I don’t know how they did this, because it’s cold there, and it would freeze, but on each landing of the building, they had this big bin, and somehow they kept track of whoever was there, but they would fill it with cabbages and potatoes and stuff, and they ate that all winter long. I don’t know how they did that. And each apartment had a balcony where they hung meat to keep it frozen.

Burnett: Well, it sounds like the market system such as it was under the command economy was challenging, especially as time wore on, and so if you couldn’t get things in the shops, you had to get it—

Kendrick: There were no shops.
Burnett: —you had to make—

Marian: There were no shops.

Burnett: Yeah, you had to make it yourself. So, it was a barter system. If you made something, you could trade it to someone else for something, for a service.

Kendrick: They did. They would make their own fur hats and coats and stuff like that, and it was all bartered, yeah.

Burnett: Right.

Marian: In Siberia, the interpreter bought me some black-market toilet paper, because they don’t have toilet paper in Russia.

Kendrick: They don’t have toilet seats!

Burnett: All right, so it was like a Turkish-toilet type situation, where you squat.

Kendrick: Yeah, well, but it was even less than that, I think. There was a porcelain portion that came up, but there was no seat on it.

Burnett: Right. So it was a learning experience for you, going to these different places, and you learned that. That was tremendous.

Kendrick: Can’t you see? I’m a better person.

Burnett: Yes, yes, of course. So, those were the types of projects under the IESC. When was the last one? Was that Kazakhstan?

Kendrick: Yes, it was. Actually, we were still working on trying to sell Siberia, and one of them who was interested was Stan [Stanley Dempsey]. I got Stan, and he’s a friend, and he tried real hard, and all I had to give him was a geologic report in Russian, because they insisted their computer would take that geologic report in Russian and convert it to English, and I knew damned well there’s no way in hell they could do that, but clear to the end, they’re saying they can,
and then they couldn’t, but Stan was a rescuer and he got it put into English for us, and then, it was somewhat marketable to him but he’s afraid to take the leap. And so this outfit out of Vancouver, that I told you I was on their board before, he took the leap, and tried to make the whole thing work, and he was up in Khabarovsk. Khabarovsk is right on the Amur River, and the Amur is a great big river. It’s a couple miles across.

Burnett: Were they able to get it going?

Kendrick: No. No, they didn’t. He kind of went off his rocker and started trying to convert the people in Khabarovsk. The Russians said, “Hey, we can’t put up with you. Somebody better come get you,” and they called up Canada. Luckily, they must have had his coordinates.

Burnett: So he was trying to convert them to Christianity or something?

Kendrick: Damned if I know. Who knows?

Burnett: He became a religious fanatic of some kind.

Kendrick: He was a fanatic and he was not wanted at all: “Get him out of here,” but I wasn’t there, but his company came and got him.

Burnett: Hmm, that’s interesting. So that was the last, and this is over a period of years. It’s from 1992, three, up until—when was the last project that you did, roughly?

Kendrick: I think it was ’94.

Burnett: ’Ninety-four, okay.

Kendrick: Was it, Marian?


Burnett: So, that’s your service for IESC, yeah, and then, are you into retirement at this point? Do you decide to return to the US?
Kendrick: Pretty much, but I wanted to mention one other thing that you and I did talk about at one point, and that was that my mentor in the IESC, and that was clear through all of the projects, happened to be the same guy that I introduced as the Storke Level motorman who turned out to be the gentleman lawyer from Greenwich.

Burnett: This was when you were back at Climax, right—

Kendrick: Yeah, and it was really kind of fun, but he took good care of us all the time. We always had the best travel arrangements available — but sometimes “the best” is “not so good” by U.S. standards.

Burnett: So you were a mentor to the people that you were advising for the IESC, wherever you were, around the world—

Kendrick: Yeah, and they got a full report on each of these, yes.

Burnett: —and then you had a mentor, someone who was managing your travel and giving you advice.

Kendrick: Well, and my reports would have gone to him as well.

Burnett: Right, and so they relied on you as an agent in a particular industry, and if you needed help for something, you had your contacts. You had your experience to draw from.

Kendrick: Well that’s true. That’s true; however, there were people on site, like down in Vladivostok, that we could get in touch with, but that was a long ways from where we were up there, because we rode the Trans-Siberian Railroad for nine hours before we got off the train there.

Burnett: From Vladivostok?

Kendrick: From Vladivostok, yeah, and—

Marian: Then we had a long car ride.
Kendrick: —and they let us off at three o’clock in the morning there, in a snowstorm—it wasn’t a blizzard—the snow was coming down—finally, and there was one light there, and the railroad track, no buildings, no cars, no shops, no nothing, and the train stops were only three minutes, and you had to be ready to throw all your luggage off, and jump off before it starts again, because it’s on its way to Moscow. It doesn’t know what you’re doing. You better be off of there. So we threw everything off and we’re standing there. We had this guy named Valeria, a real nice young guy, and he didn’t speak English at all, but he told us to stay where we were and he was going to get a car, and he’d be back to get us. Well, fine, don’t forget us. [laughs]

Burnett: Seriously. So how long did you wait in the middle of the night?

Kendrick: I don’t know, fifteen, twenty minutes. It took a—

Burnett: That was a long fifteen minutes I bet.

Kendrick: —long time in the snow, in the dark, and no—

Marian: And in Russia.

Burnett: And in Russia, right, wow.

Kendrick: Yeah, it was a real experience, but then, there we were. We were at a little town, I guess, called Bekin, and he got a car and picked us up, and Bekin is right over on this side of the road where, China’s right here. China is right there, and Bekin and China are all one, mixed up, but then, we go off here into the Primorsky Krai, which is the same as a state. Primorsky Krai is a state in the ocean area—

Marian: Far East.

Kendrick: —per se. And so we went down this way and ended up at this little town in the Khrushchev building.

Burnett: Right, right. So, you return to the United States, and you said you took up ski instruction?

Kendrick: Oh, I didn’t take it up. I’d been skiing my whole life.
Burnett: I know, I meant, skiing instruction, like you resumed that, because you had been a ski instructor for some time, right?

Kendrick: Yeah, oh yeah. No, I held every ski job there was from mountain manager to parking lot attendant.

Burnett: So this is something you had been doing your whole life, yeah.

Marian: I would like to add a little anecdote, if I could, about Svetlogorsk, where I was teaching at the school, and then they took us on a marvelous picnic that almost killed us. [break in audio]

Burnett: So Marian, you wanted to recount one anecdote from your time in Siberia? Okay, go ahead.

Marian: Well, I was teaching school, at most of the grades for about an hour a day, but they’d sometimes be condensed, so I’d do two or three classes at the same time, trying to get them to really use the English they already knew, but every day, every day, and this one little boy, who must have been twelve or fourteen, turned out to be the son of our commissar, and he was a cute little guy, but not overly friendly, kind of like his dad, and when we were on the big picnic they took us on out in the taiga, his wife or the little boy’s mother and I had to cook everything. I couldn’t keep up with her with peeling potatoes, because I wasn’t good with a paring knife, and I worried a lot about washing the dishes in the creek without soap and things, but we did it, and as we’re working together, she said to me, “You really are from the United States,” and I said, “Oh yeah,” and she said, “Well, I don’t know.” She said, “My little boy,” and I can’t remember his name, “came home and told me that, at school, they had a new teacher come from somewhere else. He didn’t know where, but down in Russia somewhere, to fool them all, because it was nearly April Fool’s Day, and she pretends to be an Americanski, and she’s trying to talk English to us. Her English isn’t very good,” and he’s telling her all these things about me, and she said, “You must be the woman,” and I said, “Yeah I am, but I really am an Americanski,” and she said, “Well he said he thought this was all just one big April Fool’s joke for the whole school, [laughs] and there weren’t any Americanskis there to teach them anything.” I thought that was really cute.

Burnett: So you were a novelty, to say the least—

Marian: Oh yeah.
Burnett: —there, and I think we, I talked about bubblegum and the bubblegum diplomacy that you undertook there, yeah.

Marian: So, but I wasn’t an April Fool’s joke.

Burnett: No, you were the real thing.

Marian: I was the real thing.

Burnett: That’s right.

Marian: Okay.

Burnett: So, after those rich experiences, both you and Marian, in Siberia and in Argentina and in Kazakhstan, and then before that in Venezuela, you return to the United States. Now, do you return to Colorado or to Phoenix area?

Kendrick: I think we returned to Phoenix.

Burnett: Okay. And so, that’s now the 1990s, so what were you doing in the 1990s period then?

Kendrick: Okay, well, we had a home in Cactus Gates, and we decided, okay, it’s time to settle down. We’re going to build our dream home in Scottsdale, and kind of be there. So we got all the plans and the architect and all this stuff and we built a home over in Sincuidados, which means carefree, of course, and we moved in there and we’re going to live there forever, and pretty soon it caught up with us, and we decided hell, let’s sell the place and go to Reno, make lots of money in real estate.

So, that’s what we did, and then, after that, Peter, in the meantime, has got a set up with a couple of mining companies out of Vancouver, Canadian juniors, and we’ve been invited to become part of their business, and work in Mexico then. I’m telling you I’m both sides of the quarter here down about the latitude of Sinaloa and Mazatlán, and so we did that, and we did a lot of exploration there. We did a lot of work there. We did, to the point where we had a resource. We had a resource that was exploitable, that was an old, previously used pit, and it was full of water, and we emptied it out and did some diamond drilling on it and found there were quite a few reserves left there, and we made the decision to go ahead and put it into production.
Now this was kind of interesting too, because I think we’ve seen all the way through my career, just because of what my career was, we had very definite ideas on the environment. It was instilled in us. This is also how I was raised. So now, we’ve got a pit down here, Sinaloa. It’s in one of the deserts there. It isn’t a desert; it isn’t a jungle. They call it a dry jungle, and what it is, there are a lot of sharp brush in there, but people live there, and they have a lot of burros. There are burros running wild all over the place, and there’re little-bitty core towns, very small, few dozen families. And so we’re going to do this pit and we realize that all these guys scattered out here are going to be our employees. We want to treat them well. And so, one of the bigger communities, there might have been fifty or sixty people lived there. I had a guy. His name was Alfonso, and Alfonso’s job was to coordinate with the folks in the area, and not only coordinate, but kind of defer to what their wants and thoughts and ideas for the future happened to be. And so we told him, “Tell them that we’ll go ahead and put in a water system for them in this town if they want it, or a sewer system,” and he said, “Okay.”

So he told them. They thought about that and they took some time to think about that, and they waited awhile, and pretty soon—the women kind of run the hole there—the women came to him and said, “No, we don’t want that. We want to have a chapel.” And so, we said, “Well, okay, that’s fine, we’ll build you a chapel, but be sure and think it over, because there’s a lot here,” and they came back to us, said, “chapel.” So we built them a chapel, and every day, you could go down there, and here would be two or three women with their brooms cleaning the chapel, and everybody is just happier than hell. They forfeited going for water, for goodness sake, you know. Well, that says something in depth, in my opinion, about how these people are thinking, these, quite deep thinkers you know.

Anyway, we move on from there, and we decide then that we want to take care of these little guys out there in this dry jungle, and we want to give them—Alfonso, in the meantime, has put in a hole of a big area, there over by the office, of seed plants. He’s growing plants. So he and I talk. What are we going to grow here, and the idea is to give the seeds to the people that live in that area, to enhance their quality of life. So we put a priority on these seeds. What should they be? Well, first of all, we should give them seeds that will provide them food, for the people. Secondly, maybe there’s, number two is shelter. You put in palms, palm fronds, bamboo, whatever. So, third then, you put in animal food. That’s your third priority. You’ve got animal food now, and fourth, you say, “Well, how can we enhance their life going forward? Let’s give them some kind of trash wood that they can build pallets out of, for example.” Well, there is a real little subculture pallet industry in the area, so we give them pallet wood now, and the last one, I can’t remember what the last one was.
Anyway, doesn’t matter, but the point is, we looked at it priority-wise, and gave them what we thought was best, and for them, and boy, this was all very well received, and I was very proud of it, because here we are as a big old, superior group of people, moving in on their neighborhood, and how nice it is to be able to give them a method of taking care of themselves over the next number of years, all because of the background that the mining industry has picked up in the meantime about taking care of the neighborhood, about taking care of the environment, and it worked.

So, a byword that gets going in those years and the decades leading up to that is “sustainability,” sustainability of communities, and for the longest time, mines would get going and they’d run for fifteen years; they’d deposit a whole bunch of tailings and then go, or dissolve and disappear, and the community is left with nothing, except poisonous stuff. So, this is a shift in operations, and a remarkable piece of it is, you know there was the suggestion of, here’s what we think you need, is this water supply, clean water supply, or a sewer system, or sanitation, because these are the powerful Western techniques for extending life, and they said, “We want a chapel,” and you said, “Okay,” and so, asking people what they want is sometimes better than telling them what they need.

Yeah. Well it is. You’re fulfilling a real need, or at least desire. Now, maybe it’s not the best for them, but maybe you’re taking care of them with the seeds, I don’t know.

Right, well it was part of a package. And so you assisted—this is 2007, right?

Probably.

Yeah, this is the Oro Gold period. Now this is a Vancouver company, and this is Zacatecas?

Mm-hmm.

Zacatecas, on the other side of their Cordillera.

Of the Cordillera, and then Rosario was on that side.

Yeah, on the west side.
Burnett: Okay, and this is in this area of the dry jungle which I’m so curious about. And so, and BC Gold, was that part of the same—

Kendrick: Well, but that was in British Columbia. It wasn’t in Mexico.

Burnett: Okay. So what were you doing for BC Gold?

Kendrick: Same thing. Well, not the same thing. Actually, we had the—do you know Atlin, Atlin Lake, Atlin town?

Mm-hmm.

Atlin is the northernmost town in BC, and across the lake, the northern end of the lake, there’s a mine over there called the Engineer Mine. We had the Engineer Mine, which was a gold producer a generation before, and it produced good gold, but, it was right on the edge of Atlin Lake, and sooner or later the lake broke in so that water had filled all the lower levels below the lake level, and there was still mine sticking above there that was mineable, but not near as much as there was when they had that on the bottom. So we had kind of a mess there in that they said, “Well, we’ll pump it down.” You know, I’m too practical to realize you’re going to pump out Atlin Lake out of this—

Marian: It’s a huge lake.

Kendrick: —mine. It ain’t going to happen, but there were people and they were going to conventions, and they have some real nice gold that they’re showing, and people are interested in that. This is BC Gold, and as far as I’m concerned, it’s not really legal, because we don’t have all that stuff down below there.

Burnett: Oh, you don’t have the mineral rights to it.

Kendrick: Oh sure, but how are you going to get it out of a place that’s—

Burnett: Oh it’s not feasible to get it—

Kendrick: It’s full of water, and you’re not going to pump it out. So anyway, that existed as such, and every now and then, the guy was a geologist that was running it, and he’d put his gang together and they’d go over to Toronto and meet them at their mining sessions there and say, “Look what we got,” and they’d sell
some stock. It was not feasible. It was not feasible, but I think they still have—I’m not part of it, thank God, but they still have— [laughs]

05-01:25:20
Burnett: So it seemed a bit shady to you.

05-01:25:22
Kendrick: Yes.

05-01:25:25
Burnett: And so, there was one, with respect to the Oro Gold, there was a discovery of a deposit. Is there a story about that, or you came in after the deposit was discovered, in the Oro Gold? Am I thinking of something else?

05-01:25:46
Kendrick: Yeah, Oro Gold?

05-01:25:49
Burnett: Yeah, the mine that you were working at, and this is, for Oro Gold, that’s the Zacatecas Mine.

05-01:26:00
Kendrick: Did we call it Oro Gold? Maybe, I don’t know.

05-01:26:03
Burnett: I don’t know, so—

05-01:26:06
Kendrick: Maybe so.

05-01:26:07
Burnett: Oro Gold is one of the BC companies that you were involved in.

05-01:26:11
Kendrick: Yeah, okay, that’s what.

05-01:26:13
Burnett: And that’s in 2007 to 2013.

05-01:26:15
Kendrick: Okay, well, there is a mine there. It’s been mined, and in the meantime, the town of Zacatecas is encroaching. As they build out, it’s encroaching on that whole entity there, and pretty soon, it’s right up to the portal of the mine. It’s not in production, but definitely there’s interference there. Now, theoretically, you could do this and come around from in behind. The town’s still here. It’s not up here; it’s across here. You could come around and drive a drift over and get in there, and we played around with doing that. It was an awful lot of work to get in there for not very much satisfaction, so we never did do it.

05-01:27:12
Burnett: What about the management? You’re on the board of directors, and then you were the chairman of Oro Gold, and Oro Mining, and can you talk about—
you made some changes, didn’t you, to the personnel, or the board? There was a shakeup at some point.

Well, there was a shakeup, and actually, the way that worked and all: back up clear over to Kazakhstan. We’re in Kazakhstan, and I get a phone call from a guy that used to work for me in Venezuela, John Brownlie, and John is on a project for Newmont Mining in Uzbekistan. So here I am up there and he says, “Hey, I’m your neighbor.” I said, “Yep, how does this work?” He said, “Well, I’m going to come up and see you.” “Fine, come on up, John. I’d like to see you,” but he doesn’t. In any case, John was the last guy that I promoted over in Venezuela, because he worked for Bateman Engineering and he was the only one I had any confidence in that was going to do anything. He did a lot of things. Some of them were bad, but he did it. So he’s down there in Uzbekistan now, putting this five-year plan together for Newmont on bringing in an operation there. They’re just in the tail end of doing it, and he needs a whole bunch of stuff, and I’m going to tell you about this simply because I think you need it for your background, which is that the Russians built a huge cargo plane, much bigger than anything the US had, and I’ve forgotten the configuration on it, a big old thing. It was maneuverable. They could bring that in and land it anywhere. It was just remarkable. You could buy one for a million dollars, and go land it out there wherever you wanted to land it, and unload it. You got your million dollars back. You just left the airplane there. This is the kind of operation it was. Does that make sense?

Okay so, John, now, needs a whole bunch of materials to finish up the Newmont operation over in Uzbekistan, so he takes two guys and gives them a laundry list that goes from here to infinity, and tells them to buy all of this stuff and place it there. They’re down in Houston. So they get this great huge area and they just fill it up with all the stuff they need to finish up that project, and all of it will fit on this airplane. I mean, it’s things like ambulances and ball mills and huge equipment.

Yeah. So anyway, this airplane, they load it all up and they fly it over to Uzbekistan and they finish up that project. Well, he signed off on it. It cost, I don’t know, a few hundred thousand dollars just to lease it to do that, and he gets a call. To show you how people think, he gets a call from the financial guys at Newmont, and they say, “Hey, you don’t have that kind of a signing authority. What makes you think you can sign that much money off on an airplane?” and old John, he’s a salty, mean guy, and he says, “You know, I
don’t know you, and you don’t know me,” he said, “but I know your boss, and I know your other boss. If you have a problem with my signing authority, you ask them.” That’s the last he heard about it. Now, how do you like that, huh? [laughter] That’s a good way to take care of things, I guess.

Burnett: Well, he knew people at the right level, I’d say.

Kendrick: Yes he did.

Burnett: So, what was your experience with Oro Gold then?

Kendrick: Now he’s down there, and we’ve got to go back to Zacatecas. He’s down there and he’s kind of joining our group, and no matter where John is, he makes waves, and he made waves there, and there were a lot of waves. I don’t think there were any really earthshaking things happening, but yes, there were things that happened there after John got there, and changes made.

Burnett: Okay. And, there is a discovery of a deposit there? There’s gold, somewhere in this story, right? There’s—

Kendrick: Yes, here’s gold in the old Zacatecas Mine.

Burnett: Right, and like 300,000 ounces. This is something I read.

Kendrick: Maybe.

Burnett: Okay. But it’s a nice achievement. For someone who’s retired, I think that’s a pretty nice achievement.

Kendrick: Yeah, and it is, but you see, it’s in a problem area. There are lots of problems in mining in Mexico, and one of them is in Zacatecas, and our partner in Zacatecas was an old gentleman that had an old mining operation there. He had two sons, and the bad guys kidnapped one son and killed him, and it was a real shame because they were all friends of ours, but that’s what was happening in those days, at that time, in that part of the country and that part of the world.

Burnett: Well, and rural Mexico is run by drug gangs, and there’s a whole kidnapping operation associated therewith. So, you’d had enough risk, I think, for several lifetimes, at that point, but I want to ask you about the thrill side of things, and
talk to you a little bit about skiing, and about ski instruction. This is something
that was part of your life. You talked about your childhood with skiing and
learning how to ski, but you became an instructor fairly early on. Can you talk
about that passion for skiing?

Oh no problem at all. I held every job, like I said, in the ski area from
mountain manager to the parking lot attendant, but I was also a very
accomplished racer, citizen racer, came in second, and third, and in fact, I was
ranked number two in Colorado in my age group for quite a while. Anyway,
this is in cross-country skiing, but I, as such, used to race against the guys at
Copper Mountain, as well, and we all respected each other, and pretty soon
they said, “Geez, why don’t you come over and go to work for us? We’ve got
this job here, and we’d love to have you be part of the group,” so why not?
Marian’s making ski uniforms for the world, and she said, “Sure, go for it.” So,
I took a job with those guys for a couple of years, and it was based on my
accomplishments up to that point. There was no qualification. Obviously, I’m
qualified, and what I taught was cross-country skiing and Telemarking. Those
were my two bags, and hell, it was fun. It was just another adventure.

And, finally, I’m interested in mining education and outreach, so, teaching
people about mining, the history of mining. Can you talk about your
involvement in that?

You know, I think you’re doing a wonderful job doing exactly what you’re
doing and getting to the heart of things in mining accomplishments, as well as
the background in people and what it took for them to be able to participate in
the kind of thing you’re interested in, because you’re able to bring them out
and make them more alive and real, with the things that you do, and I think
that’s fantastic. I think it’s a necessary thing that’s happening, and I’m very
proud to have been able to take part in it. I really am.

Well I’m very happy that you could participate in that as well. Were you
involved in the Mining Hall of Fame, or the museum in Leadville?

Oh yeah, I was on the original board, yeah and I’m the one that got them into
Leadville, yes. I got them to Leadville, I can say that. We had three different
sites for the Hall of Fame when Leadville was chosen. We had one in Lead,
South Dakota; we had one in Butte, Montana; we had one in Golden,
Colorado; and we had the one in Leadville. Now, they all had their own
attributes. They all had reasons for being where they are, the ones I named.
Hell, Butte’s a great place. Lead’s a great place. Golden, by the university and
so forth, was a great place. So, when it came time to do this, I was chosen as
the guy to make the presentation to the board to sell Leadville to them.
Well, it was almost a slam dunk, because one of our friends, Kerrigan, was the superintendent of schools and they were through with the old high school, which was a beautiful building, and annex, so here is this site. Now these other places had sites as well, and probably some of them equally as good as that one, but when you talk about mining, and how it has worked its way into the West and is part of the culture, you have the copper queen, and the silver kings, and things of this nature, where, Leadville, you have Leadville and eleven different metals that it mined. There's gold, silver, lead, zinc, molybdenum, copper, and manganese, eleven of them. Now how can a silver queen or a gold king or any of these guys compete with that? So that's what I hit them with, and who could say no? Besides that, here's a hell of a building all ready to go.

05-01:38:58
Marian: An historical building.

05-01:38:59
Kendrick: Piece of cake, and that's where it is now.

05-01:39:02
Burnett: And that's the museum, and it's got a physical space, and hopefully soon a virtual space online and so forth, and did you ever do any teaching at Mines? Did you return to your alma mater?

05-01:39:20
Kendrick: I did. I taught high school teachers in Colorado that would meet annually at the Colorado School of Mines. I taught them all stoping methods, historical as well as modern stoping methods for mining, to these teachers so they could take that and reinvent the whole thing for their students, and I did that in Golden and I did that at the University of Reno in Nevada, or University of Nevada at Reno, and anyway, it was very well received. These teachers were very amenable to new ideas. We'd sit there and bat back and forth various concepts of how to get down; and how you had to use timber to support this, that, and the other; and how in other methods, you just caved it, on and on; and I did that for a number of years, mostly, so I could say yes, I did do some teaching that way.

05-01:40:34
Burnett: So it helps bring the practice of mining alive for students, and it's also, I guess, it's a heritage issue for Coloradans, Californians and for Nevadans, and here in Arizona. It's part of the history of those states, and a history of the nation, and so it's part of American history, as well as educating people about mining practices today, and the place of mining in the American economy. And it is primarily why the Far West was settled.

05-01:41:08
Kendrick: Well, it was really a neat thing to be able to do because I am an expert at it, and here are these expert teachers who want to take that expertise and present
it to someone else, and you could get a real synergy going between these things, so that the right stuff, then, went to the teachers.

05-01:41:27
Burnett: That’s right. That’s right. Well, I want to thank you for speaking about all of this “right stuff” in your life. It’s been a real pleasure and privilege to hear your stories and to hear Marian’s stories about your life in mining.

05-01:41:44
Kendrick: Well, I appreciate that, and I could say, igualmente para ti. [laughter]

05-01:41:50
Burnett: Thank you so much.

05-01:41:51
Kendrick: Yes.

05-01:41:51
Marian: Yes. [break in audio]

05-01:41:59
Burnett: This is Paul Burnett interviewing Bob Kendrick on the morning of February 28, and this is an addendum to our fifth session, to give a bit of background context to the research and design prior to the construction and including the construction of the Henderson Mine. So I understand that there’s a whole universe that goes into planning and designing a mine, and there are a couple of people you wanted to talk about with respect to the Henderson Mine in particular.

05-01:42:43
Kendrick: Yes, there certainly are. The two people who were more responsible and reliable to bring in on the Henderson deposit were Bill Distler of the Climax organization, and Harold Wright of the Climax organization. Bill was a senior man, and he had extensive background in caving before he came to work at Climax in 1953. He was a member of the management group in the Miami Copper Corporation in Miami, Arizona, which was involved in caving throughout his career there, and he brought that expertise with him to Climax then, and continued in caving at Climax. So, essentially, he had quite a background that people could draw on, and in order to work on the Henderson deposit, and it was a great example of expertise that he brought then to Henderson.

05-01:43:56
Kendrick: Harold, on the other hand, was a product of the Climax organization from pretty much beginning to end, and he was involved in caving on the Storke Level as well as the 600 Level of the Climax operation. He had experience in pre-splitting as well as undercutting, and actually, did some of the design work on the Urud deposit, along with Bill Distler. So those two guys then now are in a position to step up and make the decisions necessary in order to have a comprehensive approach to caving the huge Henderson deposit, which gave
them the opportunity to have input into not only the level spacing, which was increased greatly over what we were using at Climax—it was 300 feet there; we went on over 500 feet with the Henderson—and draw point spacing, which is critical as well because you must undercut the area in order to get a spontaneous cave.

So, the choice of draw-point spacing, as well as what the angle of approach is for a brand-new concept, which was using load-haul-dump units rather than slushers or grizzlies or whatever other system people had been using in mass caving operations, so that you had a ground level, a level of load-haul-dump unit approaching the cave on the same level that it was on, rather than dropping it down, or approaching at an angle. That angle of approach into the cave was extremely critical, because it was a safety angle as well. So you must approach the muck pile, and ideally, you would get a full dipper of muck, rather than approaching it twice, and take it out, and that angle, that the load-haul-dump unit hit the draw point spacing, was very critical, and they laid that out perfectly. It worked just great, which agitated the cave. They were able to move the dipper, agitate the cave, come down with no exposure to the operator, then they would back that up and take it and dump it down the ore path, so that this expertise was totally responsible for making this a viable production.

So, they then expanded their background by visiting existing operations throughout the world, prior to actually doing the Henderson. It was all down on paper first, and they did, they looked at extensive haulage operations. For example, the Swedes had the trains and so forth, which was eventually adopted at Henderson, whereby the 9.4 mile tunnel—actually, it was over ten miles to get to the mill from the deposit—was put together with a more or less pantograph train system, and worked well for a few years and then it was converted to belts, and muck haulage on belts rather than in trains.

And it’s a pantograph? What was the name?

The pantograph is the—well, it sounds complex. It’s not really. It’s simply the contact between the locomotive and the trolley. That’s the pantograph. It fits across there.

So they changed from that system to a belt system. I think I understand the angle-of-approach concept. With the load-haul-dump units, which is the new technology that you’re bringing in to the Henderson Mine, the angle of approach is critical because you want to have enough room for the scoop on the end that brings the caved material out of the mine. You want to be able to wiggle that, and then it slides the—
Kendrick: Fills it up.

Burnett: caved material onto the scoop, and then you can pull it out. But if it’s not at the right angle, the load-haul-dump unit can be down from the cave, and the cave can slide over the operator and kill him or a person.

Kendrick: Well yes, but no. The draw point was designed so it could not do that. There was a brow there that stopped the cave from coming in on the equipment.

Burnett: Right, but that’s part of the design that you were talking about and the contribution—

Kendrick: That’s very critical.

Burnett: —of Distler and—

Kendrick: Wright.

Burnett: So this is part of careful planning, and a combination of established best practices, and—

Kendrick: Recognizing it.

Burnett: —and recognizing them, and then some new things that were tried, right, so new combinations of existing best practices around the world.

Kendrick: And the only way you can recognize the good way is with experience, you know?

Burnett: Mm-hmm.

Kendrick: It does not come naturally.

Burnett: Right, and practice, I think, there’s that, when you’ve got the experience, it means that you are applying these different elements that you’ve learned the hard way, from these different experiences, and every mine is different, isn’t it?
Kendrick: Oh, every mine is different. Every mine has their own innuendos and excitement and so forth, but the good people can sort that out.

Burnett: Right, and they made the right decisions to make Henderson a model to be imitated around the world.

Kendrick: Yes, and they were, fortunately, in a position to have total control over the thing, total control over what they’re trying to do, with nobody else bothering them for their time or effort on anything. They had the world, literally, out there waiting for them to pick the eyes out of it so they could use it in the Henderson.

Burnett: And that was to the credit of the senior people at Amax.

Kendrick: Yeah, that was to the credit of perhaps Mister Henderson.

Burnett: Yeah, and he had the wisdom to let the good people do what they do, and do the best they can, and that’s something that you learned as well in your management practice.

Kendrick: Absolutely.

Burnett: Get the right people, and good things will happen.

Kendrick: Yeah, and so, this report [the oral history], this entire thing that Paul and I have been doing would not be credible without recognizing these gentlemen, and the effort that they put into it, and the credit they deserve for having brought in a state-of-the-art type of operation.

Burnett: That’s wonderful. Thank you.

[End of Interview]
CV OF ROBERT KENDRICK

Education:

1954, Colorado School of Mines Professional Mining Engineering Degree

Harvard Business School, 82\textsuperscript{nd} AMP (Advanced Management Program) while Vice President and Manager of Climax Mine.

Career History:

Board of Directors and Chairman, of Oro Gold-Oro Mining.

- Discovered 300,000 ounce gold deposit.
- Personally put together a dynamic production team.
- Streamlined the total Board of Directors
- On track for production second half of 2013.

IESC (International Executive Service Corps, under the State Department, USA) 4 projects

- Russian Far East (Siberia): Helped to bring a centrally planned economy into Capitalistic system. Two mining projects in Primorski Krai.
- Khazakstan. Bog-iron deposit near Lisakov in northwest Khazakstan; same as above.
- Argentina. Feasibility study on Cerro Vanguardia as representative of Perez Companc with Anglo American as partner.

President and CEO, Monarch Resources, a British Company in Venezuela with offices in Caracas and London.

- Southeast Venezuela near El Callao. Built 100-house community, CIP retreatment plant and lab.
- Aggressive gold exploration program. Discovered three mineable deposits: La Camorra, Canaima, Bochinchi.
- Numerous Boards of Directors in Venezuela and London.
- Consulted with Andean Pact on environmental regulations.

AMAX:

- Last position was Senior Vice President of Operations, North America.
- Vice President of Exploration for North America. Projects in U.S., Mexico and Canada.
- Vice President and General Manager of the Climax Mine, Colorado. Thirty-three hundred people employed; it was both underground and open pit operation. While I was in that position, the Climax Mine made more money for corporate, than either before or since.
- Manager of Environmental Service Group, AMAX Corporation, worldwide.
- Project Manager, Copper deposit under the town of Miami, AZ. Developed a feasible leaching method to remove copper without disturbing the town---untested.
- Mine Superintendent, Henderson Mine, Colorado. Sunk 2 major shafts, 30,000 feet of drifting, started production haulage tunnel from 3,000 feet underground, changed work force from contractor to company personnel.
- Mine Superintendent, Urad Mine, Colorado. Developed and brought into production at 7,000 tpd, developed new caving method.

- Founder and on the Board of Directors, National Mining Hall of Fame and Museum, Leadville, Colorado.
- Colorado School of Mines Alumni Board of Directors.
- Published numerous technical papers.
Bibliography


Supplementary descriptive material from Robert Kendrick

MacMillan Pass, MacTung Tungsten Deposit---- Fall, 1973

This tungsten deposit was found by Jim Allen, an AMAX geologist. He was flying over MacMillan Pass from Yellow Knife to White Horse and observed a highly mineralized zone on top of MacMillan Pass. There was a cirque lake nearby and he asked the pilot if they could set down there since they were in a float-plane. They did set down and, with the sampling, he was able to discover an unknown deposit of scheelite. This is a very wild and remote part of the Yukon. After extensive testing it was concluded that this was a mineable deposit. One of the unknown questions on the location in planning the mine development was whether or not we should opt to build a camp on site or locate it as far away as White Horse and bring manpower and supplies by air.

During WWII, the Alaskan Highway was built by the Army Corps of Engineers under extremely difficult conditions such as weather, muskeg and permafrost. The Army, used all the local help they could find. The Alaskans and Canadians in that area, because of their lifestyle, were very adept at operating and maintaining equipment. The entire Alaskan Highway, a distance of 1700 miles, was built in 1942 and took only six months. It goes from Dawson Creek, B.C. to Delta Junction, Alaska, via White Horse, Yukon. The reason the highway was built was to help defend strategic Alaska and the Aleutians during their early battle with the Japanese.

At about the same time as the Alaskan Highway (called the “Alcan Highway”, Alaska/Canadian) was being built, a road was constructed towards MacMillan Pass from the west side. It was called the Canal Highway. The plan was to access Norman Wells, which was over the Pass in Northwest Territories. Norman Wells was a known but undeveloped source of crude oil. The army planned to complete the road, drill out an oil field, build a pipeline to the Pacific Coast and exploit that oil for the war effort. The effort was not completed by the time the war ended, but a few hundred miles of road were built toward MacMillan Pass.

Therefore, one of the first things that needed to be done to develop MacTung was to find out the proportion of flyable days into MacTung and whether or not it was practical to rely on supply by air.

We advertised for, preferably, an adventuresome couple, who would be willing to live on-site over the winter. We found one; they also had a 3-year-old girl. So a camp was built on the west side of MacMillan Pass on the valley floor. The camp consisted of living accommodations, a dog sled and a team of dogs, two snow mobiles, two radios and all the equipment necessary to record and assess weather conditions for supply by air, ie: fog-free days, days without blizzard conditions, temperature and wind confirmation, as well as complete weather reporting station. A large warehouse was constructed to hold this stuff as well as winter supplies.
In November four of us helicoptered in to assure ourselves that all was ready for the long winter. We four were Stan Dempsey, Robert Kendrick, Tim Godfrey, and Jim Engleking. We followed the Canal Road part of the way and noticed the large quantity of U.S. Army road-building equipment discarded all along the way. When we landed in this snow-covered place we found the family happily anticipating our arrival with a well-prepared dinner. The little girl was even dressed in a long dress and was perfectly charming.

We studied everything for continuity and agreed with them that they were ready for the long winter. When we took off, it was in a snow storm, we circled above the three of them on the ground, waving goodbye, knowing that they wouldn’t see another human being for at least seven months, was a particularly poignant moment for all of us in the helicopter. As we followed the road out, the storm worsened and the temperature dropped; as it dropped, the windshield glass bubble began to ice up outside making it necessary to drop in altitude each time. We watched this indicator very closely all the way to our base in the Yukon, periodically dropping in altitude so the margin of flight altitude had become very thin by the time we reached our destination. On landing we were only about 50 feet above ground.

The whole operation was a success and MacTung became a prominent, producing tungsten mine. All the necessary data was acquired and the decision was made to complete the Canal Road rather than full air support for the project. The family had an especially adventurous winter to remember for the rest of their lives, in fact they were written up in Readers’ Digest.

Years later, we hosted an AMAX exploration geologists get together in Carefree, AZ. It was attended by approximately 40 geologists plus wives. Jim Allen, the discoverer of MacTung, attended. I asked him what had happened to the young couple that had done the data collecting for us at MacTung. He was surprised that I didn’t know that the following winter after their stay at MacTung, the father had taken dog sled and team out for a run down one of the frozen rivers in the Yukon and man, sled and team disappeared when the ice broke and they were never recovered.

The Plan to Save the Snake River Trout

In the spring of 1977, Del Canty, an employee of the mill department came to me with a plan to save the Snake River Native Trout. Del was a well-known, top fisherman in Colorado with several trophy-fish to his credit. He explained that there were two species of Native Trout in the middle Colorado Mountain area: the Colorado River Native and the Snake River Native. The Snake River Trout was in our area, Ten-Mile Creek, and was on the endangered species list.

The Company was building a new tailing area, water treatment plant, a new route for Colorado Highway 91, and a new fresh-water reservoir in Clinton Gulch. Del Canty’s
plan was to build spawning beds at the intake of Clinton Reservoir at the East end of the lake and introduce spawning Snake River Trout at that point.

It was easy to convince me of the validity of the plan, being not only an environmentalist, but an ardent fisherman, myself. The timing was perfect to fit into our construction plans. I gave the job to Warren Alloway, a young engineer; we contacted the Colorado Game and Fish Department and relied on Del Canty for guidance in general. The spawning bed configurations are dictated very specifically by nature. For example, the gradient for water-flow must be just right with, first, a layer of sand and then a couple layers of gravel with a few larger rocks and boulders, and on and on.

The whole thing was done very professionally and was working well when I was transferred, three years later. I forgot about it until you sent me the pictures of the Snake River Native Trout. They look great: robust and healthy and, I assume, off the Endangered Species list. The spawning beds are, even after 41 years, continuing to preserve a species.

**Vasquez Fault Penetration**

The extensive high grade molybdenum deposit was found as a direct result of the decision by AMAX to produce from the Urad deposit. That decision was made at a time of molybdenum short supply worldwide. Urad was designed to produce 7000 TPD maximum.

Geologically it looked as if there could be additional MoS2 to be found as much as 5000 feet below the Urad deposit. At that time U.S. diamond drilling depth was around 2000 feet. This necessitated importing diamond drill rigs from South Africa that were capable of drilling plus 5000 feet.

Drill stations were made on the valley floor as well as underground on the bottom level of the Urad mine. This level was at valley floor elevation. The Henderson deposit was found, delineated, developed, and exploited. It was named for Robert Henderson who was Vice President of Western Operations at that time.

The first access to the deposit was # 1 Shaft which was over 2000 feet beneath the valley floor and plus 5500 feet below Red Mountain. This shaft and 10,000 feet of drifting was awarded to Boyles Brothers Mine Development Company. Part of the drifting necessitated penetrating the Vasquez Fault (a 200 foot thick shear zone.) This shear zone was between # 1 Shaft and #2 Shaft. Number 2 Shaft was being sunk by Harrison Western. The zone was about 1500 feet from #1 Shaft. On striking the shear zone, a round was drilled and it became immediately apparent that the rock was extremely incompetent and very wet, and great care would have to be taken to penetrate it.
As I remember it, the drift was 15x7 feet in cross-section and being driven by a 2-boomjumbo and five-cubic yard LHD's. On striking the fault, the drift was immediately scaled down and a 5x7 foot round was drilled and only the bum was shot-no relievers.

Only the bum was shot, and it started squirting water and mud and became calamitous right away. The thought of the rescue of equipment was abandoned and escape for personnel foremost. One man, while running, tripped but continued running on his knees (Whitey Williams.)

A plan was made to construct a concrete bulkhead 1500 feet down the drift and only 150 feet from the #1 Shaft station to contain the onslaught. It was constructed in two vertical tiers, 16 feet thick. Ten, 10-inch pipes were laid in to allow the water to bypass the bulkhead. The bottom half was poured with concrete, then the top half was poured and the water was carried by the 10-inch pipes through the bulkhead.

Number 1 Shaft had a progressive pumping system with a pump station every 400 feet up the shaft. Two of the 10-inch pipes were extended up the shaft 800 feet to the second pump station. The pressure was great enough to push the water up to there.

We had 400 GPM [gallons-per-minute] pumping capacity which proved to be adequate even though at times the water would surge to over 2000 GPM. Fortunately the bulkheaded drift was filling with muck, which slowed the water flood. No one knew if the 16-foot bulkhead would hold so we drilled many holes around the periphery of the bulkhead and grouted in 2-inch rebar. Several very good men quit at this time.

Eventually the water slowed way down (perhaps one month?). It became time to reenter the development.

We moved up the drift and started a new entry into the #2 Shaft entryway. We probed with long holes and left 16 feet of solid rock before breaking through. At that point we constructed a fall-back partial bulkhead, one that we could close relatively fast.

Then we broke into the drift. It was completely closed with muck. All 1500 feet of it were packed full of muck. We started removing it with 5-yard LHD’s but no one knew when the next bucket full would start the whole thing moving again. So a large portion of the drift was left full of muck and a 16 foot bulkhead was built with relief pipes in it. The remainder of the drift was driven new, up to the Vasquez Fault.

A penetration plan was conceived utilizing a pre-grouting approach: Probe holes were always used. The full 200 feet of shear zone was not all broken rock. There were zones of semi-competent rock interspersed within the shear zone, so the grout pattern was put in place with a maximum of 16-foot sections. Sixteen feet was the magical number because it had held from the beginning. That meant that each grouting advance was anchored in semi-competent rock.
Some of the probe holes had enough pressure in them to move the diamond drill off station. A "very scientific" measurement of water was employed. The water would shoot down the drift and a 55-gallon drum would be placed near the end of it and a stop watch would time the filling of the drum. As much as 1500 GPM was recorded using this method.

The grout pattern was designed to squeeze the water from the center of the drift to the periphery. Grout holes were drilled on 3-foot centers on the face and 1.5 feet center-to-center on the periphery. The pressure was applied in the middle with the final sealing all around the drift. The drift was supported with either timber or steel all the way through. By this method the entire shear zone was penetrated with no serious mishap. Number 2 Shaft penetrated the Vasquez Fault, also, and a similar grout pattern was used.

I don't believe any record was kept of our successful penetration of the Vasquez Fault. So, as such, I am recording from memory this description made about 40 years after the fact.

**Rock Mechanics Program**

There was a successful rock mechanics program made on the Henderson deposit. As far as I know there was no record of the program, so, now, 40 years after the fact, I am recording from memory of what this program consisted.

It was conducted by Dr. Barry McMahon, an Australian, under the supervision of Robert Kendrick, Mine Superintendent. The program was initiated to discover a number of facts about the rock of the Henderson deposit in order to orient the drifts and caving size and sequence to their optimum.

First an RQD (rock quality designation) made from the diamond drill core was established-(8.5-9) on a scale of 1-10. Then extensive overcoring was done to evaluate the principle stresses in the rock. It was found that the vertical component even with about 5000 feet of rock above the deposit was less than lateral tectonic stresses which were caused partially by intrusives and possibly by faulting.

It was learned early on that if the geometry of the mine plan could be altered to conform with the stresses, a much cleaner drift could be driven with less support. For example, if the drift could be driven more or less parallel to the lateral principle stress, it could cut down or eliminate spalling of the drift cross section. Then, using some smooth-wall blasting techniques, a self-supporting opening would be the result. At the worst, it could be supported by shotcreting.

One large opening on the ventilation level at #1 Shaft was taking weight because the span across the turnout intersection was too great for self-support. This level was driven with track equipment. On seeing the magnitude of the weight —rock bursts — it was decided to try a quick shotcrete fix. A shotcrete,
rubber-tired machine was taken down and transported with some difficulty back to the problem area. Flats with side boards were rigged and the shotcreting began. The whole setup procedure was half a day. By end of the shift, with just one layer of shotcrete, the rock bursting stopped.

The entire initial stoping and caving size and sequence was laid out according to the rock-mechanic information obtained. This proved to be a very successful cave and probably an optimal one.

Robert Kendrick, EM, AMP, PE
August 21, 2009
Induction Caving of the Urad Mine,
Climax Molybdenum Company

Robert Kendrick

Climax Molybdenum Company, USA
Robert Kendrick

This statement was made after only three stopes had been blasted.

Production was increased during the summer of 1967, so that by November ten stopes had been shot and the production was 2,800 tons per day. In November it was first realised there was a problem with caving. With ten stopes shot, there was an open area of 250 feet by 250 feet, or 62,500 square feet. At the 1941 AIME meeting, Al Eaton stated the Alaska Juno Mine caved with 50,000 square feet of ground opened. This was worth a comment because most ground was caving, at that time, with from 20,000 to 30,000 feet undercut.

During the following month, December 1967, it became necessary to shoot a powder tee on "M" level, 120 feet above the slushing level. The 60 feet of shrink line had terminated at "M" level so that from "M" level down there was a five foot wide boundary cut-off. The significant point here is the necessity of shooting a powder tee from the "M" level elevation. This meant that the arch was of such magnitude dimensionally, that it wasn't affected by the shrink boundary cut-off. (Fig. 3). This shot was successful and dropped rock into the open hole. The configuration of the cave at this time, however, was still such that it had only propagated a slight distance above "M" level.

Following is a time table of events finally leading to the collapse of the arch.

**January 1968**
- **Cave area - 250 x 300 feet**
- Production - 4300 tons per day
- Powder factor for secondary blasting - one lb/ton of ore
- Remarks - fingers started opening into the open arch.
- Work done to induce caving - holes were drilled upward from the "M" level elevation, 200 feet deep, three inches in diameter and blasted with ammonium nitrate.
- Results - enough ore blasted down to fill open fingers and continue production. (Fig. 4).

**February 1968**
- **Cave area - increased by 2 stopes or total of 87,500 square feet**
- Production - 5000 tons per day
- Powder factor for secondary blasting - 1.3 lbs/ton of ore
- Remarks - 24 draw points opened to arch and again closed. Hangups were all of large rocks. Some secondary shots requiring up to 100 cases of powder. Excessive damage being caused to workings because of heavy shots.
- Work done - "insurance" raise driven to "N" level or 250 feet. Longhole pattern drilled into the arch. Nine thousand linear feet of three inch longholes completed in March. Some holes drilled into the back of the arch to outline contour, had as much as 30 feet of burden. Holes loaded with ANFO stemmed with sand and loaded with 20,000 pounds of ammonium nitrate.
- Results - blast knocked down estimated one half million tons of ore. Much in open fingers was not enough to reduce air blast and some damage was done. (Fig. 566).
Robert Kendrick

April - July 1968

Cave area - 300 by 450 feet, 135,000 square feet

Production - 5000 tons per day

Powder factor for secondary blasting = 1.3 lbs/ton of ore

Remarks - 200 feet of broken ore lying on just above seven feet of rock was used in this period. Advancing cave to the east or along long dimension of ore body had no effect on breaking the arch.

Work done - re-entered the 'insurance' raise and drilled 20,000 linear feet of three inch holes. Blast consisted of 41,000 pounds of ANFO. Work was stopped on account of rolling with machinery. Work was then stopped on account of rolling with machinery. No work was done on account of rolling with machinery. No work was done on account of rolling with machinery.

Results - 150,000 tons of ore broken. (Fig. 7).

August 1968

Work done - raise driven 300 feet high on north side of ore body. 300 foot drift driven on south side of ore body at 'N' level. Three-so thousand pounds of ANFO loaded into holes 150 feet long on the north side of the ore body and shot.

Results - 150,000 tons of ore broken

Later in August 23,000 pounds of ANFO was shot from 'N' level drift in three inch diameter longholes 200 feet long. (Fig. 9 & 8).

Results - 150,000 tons of ore broken

September 1968

Cave area - 300 x 450

Production - 5000 tons per day

Surface - 80 feet from arch

Work done - 'N' level drifts on south side of ore body 22 longholes drilled, loaded with 3500 pounds of ANFO and blasted.

Results - broke only the area that had been drilled.

October 1968

No cave activity. Arch was stable and no rock was spalling.

Drilling was again in progress when cave became active. Men were called from drilling stations and that afternoon a substantial air blast was felt throughout the mine. The air blast penetrated 250 to 325 feet of broken mine and was strong enough to knock people down. Some said whole back came in and broke through to surface.

The 'gloryhole' that appeared at the surface measured approximately 500 feet in both directions and varied from 100 to 350 feet in depth. By December the powder factor had been reduced to 0.63 pounds of powder per ton of ore. (Fig. 9).

It should be noted that no sophisticated instrumentation was operable when the back fell in. Prior to production, bore hole pressure cells (BPC) were installed in the hanging wall of the ore body. These were flat cells and were installed in arrays of three for 3-dimensional control. Unfor-
A-13

Robert Kendrick

7

A-13

Robert Kendrick

6

1. Boundary conditions developed below the top of the five-foot side shrunk.

2. Boundary conditions developed below the top of the five-foot side shrunk.

3. Boundary conditions developed below the top of the five-foot side shrunk.

4. Boundary conditions developed below the top of the five-foot side shrunk.

REFERENCES


**Sayings of Robert Kendrick**

Commentary by son Mike Kendrick and daughter Melissa Kendrick.

“Always do your best.”

This was a foundational quote for the family. Our parents did not care if you received an A or an F, if you won or lost, those things were and are not really that important, what they really cared about, was if you gave it your best. You should do everything you could to learn or accomplish the task at hand. If you gave it your utmost, you could be proud of yourself no matter what the outcome.

“Nothing is ever easy.”

This was something Dad always said and it had many nuances. It could mean that you should prepare well even for things that you thought would be “easy.” It could mean that even if something looked like it would be hard to accomplish, it was still worthwhile trying to do it. It could mean that we should not disparage someone else’s accomplishment because it was “easy”. (It used to really bother Dad when people would make fun of someone’s accomplishment by diminishing the difficulty of it.)

“You are a citizen of the world.”

This thought was from the closing of John F. Kennedy’s inaugural speech (excerpted below). Dad really wanted us to view ourselves as citizens of the world, to have a world view, to read and study about the world, and to feel comfortable in any culture, anywhere. He and Mom went to great lengths to ensure that we all traveled even when travel was not so easy, that we learned from our travels, and that we saw all people as part of our world.

> The energy, the faith, the devotion which we bring to this endeavor will light our country and all who serve it—and the glow from that fire can truly light the world. And so, my fellow Americans: ask not what your country can do for you—ask what you can do for your country.

> My fellow citizens of the world: ask not what America will do for you, but what together we can do for the freedom of man.

> Finally, whether you are citizens of America or citizens of the world, ask of us here the same high standards of strength and sacrifice which we ask of you. With a good conscience our only sure reward, with history the final judge of our deeds, let us go forth to lead the land we love, asking His blessing and His help, but knowing that here on Earth God’s work must truly be our own.
‘On the plains of hesitation, lie the bones of countless millions, who on the verge of victory paused, and in pausing—died.’

John F. Kennedy

Dad believed in moving forward all the time. It is that simple. The original quote is from George W. Cecil: “On the Plains of Hesitation bleach the bones of countless millions, who, at the Dawn of Victory, sat down to wait, and waiting—died.”

Adlai Stevens used it as well, but Dad personified it.

“Be a tiger.”

Dad would tell us this when he knew we were a little scared or intimidated, for example, at the start of a downhill race. When you do hard things you need to do them with confidence and aggressiveness. The difference between success and failure in many difficult situations comes down to your own attitude and your ability to “own the situation” or to personify “a tiger.”

“Never let the weather dictate your plans.”

Dad believed that you should do what you set out to do when you planned on doing it. So rain or snow or a little heat should not discourage you. If we wait for the perfect conditions, we won’t do anything.

“To whom much is given, much is expected.”

Dad believed that you were not “better than others;” so while you may have an education that you worked hard to receive or other privileges you may have “earned,” these were simply advantages and that bestowed upon you an obligation to help others.

“But for the grace of God, there go I.”

Dad was aware that except for good luck, life could be very different for all of us, that the grace of God is real and we should have compassion for others as their circumstances could be ours. Personally, I cannot tell you how many times in my life I have found this to be true. My life, starting with the fact that Robert Kendrick was my father, is just one continuous example of this.

“Don’t eat yellow snow!”

His sense of humor was irreverent and this is a good example of how he liked to tease for a reaction. This was play for Dad. Long before water bottles were a thing, we definitely ate snow
while out skiing for the day. It felt like part of the process of learning to ski and be in the snow, which we spent a lot of time doing. I believe he took great delight in shocking us with this statement as our little minds worked to put together what he was saying and then responded with shock, disgust and dismay. How could he say that? He never actually stopped using it so the play continued throughout our lives. -Melissa

Though he did not raise us with these, there are two other quotes from later in Dad’s life that are worth noting.

“The only regrets I have are the things I did not do.”

In his later years, Dad talked to me about regret. Though he felt bad about his mistakes and failures, he did not regret them. What he regretted were the things he had not tried to do. For instance, we used to drive by Arkansas Peak in the spring and say we were going to climb it and ski it together, but we never did. We both regretted that.

Finally, Dad loved this Theodore Roosevelt quote:

It is not the critic who counts; not the man who points out how the strong man stumbles, or where the doer of deeds could have done them better. The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood; who strives valiantly; who errs, and comes short again and again, because there is no effort without error and shortcoming; but who does actually strive to do the deeds; who knows the great enthusiasms, the great devotions; who spends himself in a worthy cause; who at the best knows in the end the triumph of high achievement, and who at the worst, if he fails, at least fails while daring greatly, so that his place shall never be with those cold and timid souls who know neither victory nor defeat.
Jack Roberts, Frank E. Kendrick III, and a very young Bob Kendrick at the Little Johnny Mine near Leadville, CO, circa 1936
Bob Kendrick skiing at Camp Hale, 1943
Bob Kendrick backpacking with friends, 1945
MAKE CLIMB UP
ELBERT BY NIGHT

Another ski trek on the Continental Divide is planned by a group of hardy Leadvillites. Den Davidson, Adolph Kuss, Jr. and Adolph Kuss Sr., Bud Brinsky, Al Zack Jr., Tom Schroeder, Bob Kendrick, Norman Nelson, Bud Diemer and Kenny McElroy will try to reach the top of Mt. Elbert.

They will make the trip by night, leaving a point above Twin Lakes at 10 o'clock Saturday night. The skiers expect to reach the summit of Elbert about dawn and then ski down to Twin Lakes.

On April 11 this same group made a trip on skis up onto Mt. Elbert but didn't quite get to the summit.

George Arnis, who accompanied the group on the previous trip, will be unable to make this one. He is recuperating at his home with a fractured leg and ankle sprains, which he incurred while skiing at Glen Cove, Colorado Springs, last weekend.
Bob Kendrick, parade for 23-mile Burro Race over Mosquito Pass, 1951
Churn Drill in East Tennessee Gulch, circa 1949
Bob Kendrick in Colorado School of Mines letterman sweater, early 1950s
Marian and Bob Kendrick, wedding photo, 1954
Bob, Mike, and Marian Kendrick, 1961
Bob and Mike Kendrick in Colorado, early 1960s
Jim Irwin; Bob Kendrick on right, Urad Mine, late 1960s
Urad mine slusher, circa 1970
Urad Mine cave breakthrough, late 1960s
Pipe network constructed to take water pressure off the Vasquez Fault traversal.
Henderson Mine, Colorado, Vasquez Fault, circa 1971
Long-Hole Drill unit, Henderson, circa 1972
Down into the sinking bucket.
Henderson Mine, 1970s
Bob Kendrick on in-situ leaching project in Miami, AZ, 1973
Bob Kendrick inspecting plant growth in tailings,
Environmental Services Group, AMAX, Bougainville, circa 1973

Ecological test site, Bougainville, 1973
Mine housing, Bougainville, 1973

Housing, Bougainville, 1973
Evaluating new growth, Ed, Environmental Service Group, New Caledonia, 1973

Bougainville mine, 1974
Kendrick family, ski race at Sunlight, CO, 1974
Checking on replenished fish stocks in remediated stream, Colorado, circa 1975
Kendrick family featured in *Mine* magazine – right to left: Mike, Peter, Rob, Gina, and Melissa, 1980
FOR IMMEDIATE RELEASE

Monarch Resources Limited
Appointment of Chief Executive

Robert Kendrick has been appointed Chief Executive of
Monarch Resources Limited, the holding company which was
formed to invest in a number of mining projects in
Venezuela.

Commenting on his appointment Bob Kendrick said:

"Monarch Resources has a number of exciting projects
in Venezuela and I am looking forward to working
with the excellent team of people that is already
in place."

- ends -

BIOGRAPHICAL NOTE

Robert Kendrick has spent all of his working life in the
mining industry having obtained a professional degree in
mining engineering from the Colorado School of Mines. He is
a graduate of the Harvard Business School Advanced Management
Programme. He spent 32 years at AMAX Inc. where he was
Senior Vice President of Operations with responsibility for
exploration in North America including Mexico. During his
time at AMAX he brought two mines into full production.
Bob Kendrick as CEO in office of Monarch Resources, Ltd., Caracas, Venezuela, early 1990s
Edward Shackleton, Chairman, Monarch Resources, Ltd., Venezuela, 1991
President of Venezuela, Carlos-Andres Perez, meeting local dignitaries at opening of mine near El Callao, Venezuela.
Bob Kendrick in background. Early 1990s.
Windlass for local mine operation, Guayana, southern Venezuela, 1990
Scotty McQuaid at mine site, southern Venezuela, 1991
Mine entrance on a decline, Scotty McQuaid’s design, La Camorra, southern Venezuela, 1990
Bob and Peter Kendrick with bar of dore, El Callao Mine, Venezuela, early 1990s
Living quarters at mine site, La Camorra, southern Venezuela, 1991
Local family mine pit entrance, near town of Kilometer 77, southern Venezuela, 1991
Marian and Bob Kendrick in Vladivostok, 1996
Kazakh official, Marian and Robert Kendrick, Almaty, Kazakhstan, 1997
Robert Kendrick (founder and board member, Mining Hall of Fame and Museum), Marian Kendrick, and Stanley Dempsey, Mining Hall of Fame Banquet, Denver, Colorado, 2014
Bob Kendrick in Miami office, Arizona, 1973