

Oral Histories from the Grants Uranium District, New Mexico

By
Jane Bardal

The Grants Uranium District once held the title of being the “premier uranium mining district of the world,” as measured by the amount of production and the largest announced reserves.¹ Mining began in the 1950s with the discovery of uranium ore at Haystack Butte, a few miles west of Grants. At the height of employment in the late 1970s over seven thousand people worked in the exploration, mining, and milling of uranium. At least forty-two mines produced ore and five mills processed it into yellowcake. This paper will focus on the experiences of people who worked in the Grants Uranium District from the 1950s into the 1980s. The interviews took place from 2012 through 2015.²

The Early Years: The 1950s

Irving “Rusty” Rapaport worked as a geologist for the Atomic Energy Commission before exploring for uranium in Grants in the 1950s. He described his first big discovery:

There was a fellow named Oscar Manol. He wasn't a mining person, but he was a wonderful businessman. The two of us formed the Four Corners Exploration Company. For '52, '53, '54 we worked and received no money whatsoever. At the end of three years we had several properties. I took the money that I had earned in South America and Oscar took the money that he had made in various enterprises, and we bought a couple of [drilling] rigs over a period of time. We would contract the rigs out,

which was touch-and-go. There are down periods where you don't have any work available. And we would use that time to do our own exploration on properties that we acquired, either claims or leases or from the State of New Mexico. And a number of them I did the geology on were at that time sub-marginal economically. So we'd spent all this money to no avail.

And then in '55 we were drilling one of our properties and it was surrounded by dead land. I mean, it had no indication of uranium. I was there with a Geiger counter and the drill bit was going down and kicking out cuttings, and the cuttings turned from sort of reddish, to grey, to black. It was uraninite pouring out of the hole. And it was a high-grade. It wasn't a big deposit, because it was only a small chunk of land, but it was certainly a rich deposit. And I remember sitting there and almost tears coming to my eyes as I said to myself, "I'll never go to bed hungry at night again; I'll never have to work for a boss who's a real mean son-of-a-gun; I will be able to send my kids to private school, not have to deal with the New Mexico public schools system." It was a revelation.

The uranium industry was hot at the time and we sold that property and several other minor properties that had been sub economic, but as the price went up they became economic. We got about a million dollars for that—at this time it would have the purchasing power of maybe three, four million. It was a major find.

Leroy Hessler started working in the district in 1959 as a long-hole driller. The long holes allowed the water to drain from the ore body before the miner started drilling, blasting, and hauling the ore out. A prober measured uranium concentrations along the length of the long hole with a Geiger counter. Hessler discussed the early days

in the mines:

They would blast any time, without notice. The smoke would come by me. I'd stop at the mechanics' shop and get me a rag every morning. That was the best filter I had—the mechanic's rag. When they blasted, I put it over my mouth and nose, and started running in the smoke. You don't know what's laying on the track. I could've fallen over, and a train could have come along, I mean, I would've ruined that train! They do that two or three times, my lungs burned. They burned like they were on fire. After that went on for about four years, they got central blasting. That was a whole lot better. By the time we went back there [after lunch], it was kind of cleared out.

Central blasting refers to setting off the blasts all at the same time, after everyone is accounted for in the lunch room or between shifts.

Dick Cochran and Dana Gebel worked as grade control geologists. Cochran described his work:

the term 'prober' was used because we probed muck piles and waste piles underground with a Geiger counter. . . . It had a dial on the top of it and the direct readout, and you just turned it on and took a reading as to how much uranium was in that particular pile of rock or, in some cases, waste rock. You wanted to keep track of both.

Gebel said that the miner

would dig the ore out, and he'd be ready to drill his next round to drive the drift forward. He would drill the round, but then he had to drill two extra holes. He would

do an up hole, and a down hole. It was our job as probers to get in there and probe the up and the down. We wanted to stay on the bottom of the ore. We wanted virtually no radioactivity downstairs, and lots upstairs. The face had to be in the ore.

Practical Jokes

Several interviewees recalled practical jokes people played on each other. Cochran recalled one such incident of a

fellow that was afraid of working underground. And they [his coworkers] knew this. And so they concocted a scheme. This was at quitting time on the swing shift, which means the shift ended at twelve o'clock midnight. They were coming out of the mine, a lunchroom in the far back of the mine, and they had prearranged all this where one of the guys would get out there in front of him.

On the ore chutes that hung down into the main haulage drift they had these round orange reflectors about two inches in diameter. And one of the perpetrators of this had gotten a couple of these orange reflectors and had bent some wire around to hang these two orange reflectors off his safety glasses, and then had covered himself up in burlap bags. They had arranged things where this guy that was so afraid of working underground was in front of the others. There were about three or four other guys with him, of course all in on this joke that was going to be played on him. This is all pitch-black. There are no lights down there, other than your head light. And this guy in front that's pulling the trick has his light turned off. He jumps out in front of this guy there. All the guy sees is this great big huge shape with these orange eyes, screaming at him.

The guy turns around, immediately flattens everybody behind him, runs off in the back of the mine screaming his head off, just terrified out of his mind. They had to go back and get him. They finally found him back there, and it was four o'clock in the morning by the time they finally got out of that damn mine! You know, the joke had kind of backfired on them!

Jack Farley had worked at a coal mine in West Virginia before relocating to New Mexico. He described a joke someone played on him:

We had hangers that would drop down on the cable and we hung our clothes on them so they'd dry. And in the whole basket, about that big square [indicates size with his hands], was one big snake. Of course everybody was watching me, and you put your soap and wash rags and things in there, so I just reached over, and moved him over, and got my soap, and shoved him the other way, and got my wash rag and went on in to take a shower. When I come back he was gone. . . . Somebody got mad because it didn't scare me [laughs].

And then we had some people that was deathly scared of snakes. Old Ralph, he said, "Jack, don't let anybody come at me with a snake. I'll kill them." And he was serious. And I said, "Ralph, I'll make a deal with you. . . . If you see anybody with a spider you kill them before they get to me, because I can't stand spiders." So we had that pact. And if I saw anybody with a snake, don't get around Ralph, I said, or you're in trouble. And he did me the same with the spiders. Because if they knew you were scared of something, look out.

Safety Concerns and Accidents

Hal Whitaker worked for Kerr-McGee as a

geologist. He commented that

there were many things that changed over the years in the mining district, and one of them was safety. The companies pretty much had to develop their own safety rules and regulations because nobody had ever mined in this kind of ground before, like we had. So primarily, the companies developed safety rules and regulations that were adopted by the regulatory agencies. That was something that was ongoing through-

out the history of our mining district. But it got pretty good toward the end.

Rusty Rapaport said:

The big danger in the Grants area, and it took a long time to solve it, was that these were sediments: a layer of clay, a layer of sandstone, et cetera. And they were wet. When you got below the water table it was saturated with water and they had very little stability. We used to drill six-foot

*Rusty Rapaport at
the Hogan Mine.
(Courtesy of Rusty Rapaport.)*



holes into the back [roof] and put chain-link fence between those, and then we'd use expansion head bolts with a plate on them to hold that against the roof.

It was extremely dangerous. I had two miners killed. The area was cordoned off, but these people that worked in places like hard rock mines or there in the tri-state, there in Missouri, mining lead, and the ground was very stable, almost never had a rock fall. This place, for no reason, no particular reason at all, something the size of an automobile would fall out of the back. And yet where the ground was dry, like our Dog Mine, I operated that for seventeen years without a lost-time injury. But this wet ground was really a problem to be solved. And a lot of people paid with their lives to solve it.

According to State of New Mexico Mine Inspector records, in the years 1959 and 1960, fourteen workers died from rock falls in the Grants Uranium District.³ In the ensuing years, from 1961 through 1986, deaths from ground falls ranged from zero to four men per year. From 1953 through 1986, a total of 111 workers died from all types of accidents, with 48 of those deaths resulting from rock falls. Other types of fatal accidents included falling down a shaft or being crushed by machinery.

Jack Burgess worked as a special project engineer. One of the biggest changes he saw in his years of working in the district was improvement in ground support and safety.

It was the advent of the split-set bolt. Prior to that you're using point-anchor rock bolts. You'd put four foot in the rib [side] and six feet in the back. And a point anchor is, you drill a hole, and then that anchor is at the bottom of the hole, and you tighten it. You have to use an impact wrench to tighten and you have a plate

on the back and it pulls it together and holds it together. And the problem with that in the soft sandstone is that it loosens up, because that's not hard rock, and you were constantly having to go back and re-tighten all those bolts.

There was a mining professor out of Missouri School of Mines, Jim Scott. He was a rock mechanics expert guy. Good guy. And he had also been a classmate of Billy Stevens, who'd been manager out there at Kerr-McGee for years and years. He developed the split-set bolt, which is a metal tube and you've got a split all the way down. And you drill an undersized hole and then you jam it in there and it expands. And so then you're covering the entire length of the hole instead of just the point[s] at the end and the other [end]. Once you put that bolt in there you didn't have to worry about it anymore, and you didn't have to come back and re-bolt because every time you would blast you would loosen them up. That helped us in ground control. That was the biggest advance, I think, safety-wise and ground control-wise, that we really saw.

Jack Farley remembered one of his close calls:

We had blasted, and the muck pile was almost up to the back of the drift and I'd just dug a little tunnel back there to put a sheave block [pulley] so that I could slush it out, you know, to hang the cable. When I got back in there, there was a slab that fell on top of me. It was about, oh, four foot by four foot and almost a foot thick. It had me pinned down. I couldn't get out. I couldn't dig. The boss came through, and just seen my feet sticking out. He hollered at me, and I told him, "I'm doing okay." So they got another guy. They had to bust that rock. They couldn't pull

it off of me. So they broke it. They'd say, "take a deep breath," and they'd hit it with a double jack. They got it broke up. They got me out, and took me on the surface and covered my back with Merthiolate. And I went back underground, finished working that shift.

Reducing Radon Levels

Uranium ore contains radium, which decays into radon gas, which decays into radon daughters.⁴ The radon daughters cause health problems, such as cancer. Radon daughters are measured in the air, with 100 picocuries per liter called one working level. Adequate ventilation throughout the mine reduces the level of radon daughters. Jack Farley began working in the uranium mines in 1960.

They measured the radiation by—they call them radon daughters. Where I worked, when I was mining, sometimes they'd check it and it would be a thousand working levels. It was [in] '76, I became mine superintendent, and I had to get the ventilation down to three-tenths of one working level. They said that was the safe level. We'd been working in hundreds and thousands of working levels over the years.

Betsy Neuhaus worked as a safety officer, monitoring radon levels and designing ventilation systems to reduce radon. She explained her work:

We designed how the ventilation systems should work for each working area underground, and then we had crews that went in and actually built them. . . . We went to each working area every day to check them. I took readings with the working level meter to see what the exposure was.

Eight-tenths of a working level is where we shut down at. It wouldn't necessarily be the whole mine, it would just be that one area where that miner was working or maybe it would be several working places that we would shut down. They'd go back and sit in the lunchroom until we figured out what had to be done. . . . We hung tons and tons and miles of vent bag. And that's what they called us, affectionately—they called us vent bags because we were the ones that made them hang it.

Rusty Rapaport discussed a way to reduce the radon problem:

I had a drill foreman who really knew how to drill holes. And he mentioned this upside-down drilling, where you put the drill into the workings, say several hundred feet or maybe a thousand feet below the surface. . . . Instead of drilling down we'd drill up. Which means that the cuttings, instead of having to be all lifted up by water pressure or compressed air, would just naturally fall to the bottom of the hole. It would go much, much faster. And also, if the bit was under such pressure that it would twist off, it would fall to the bottom of the hole; no sweat. . . . If you kept enough ventilation holes there, put big fans on them, you could evacuate that radon gas.

Women in the Mines

Jack Farley recalled his initial reaction to hiring women: "That was one thing that I threw a fit about when they told me I was going to have to hire a woman. I said, 'no way. I'll quit.' . . . I didn't, because I knew I wouldn't when I said that. I just threatened them, maybe they wouldn't send her over." Farley said of one woman he hired:

I put her to trip riding, which is riding on the back of the locomotive to watch for anything that the train could hit because you had to have somebody back there to see where the train was going. But anyhow, we had a decline coming down, and she was on the back of the train, four loaded cars. The motorman got scared because he knew some people were working on the track down there, so he just jumped off the train, let it go. And she climbed over those four loaded cars and got that locomotive stopped before it got to where the men were working. . . . After that incident happened I fired the motorman, and I put her to run the motor.

Hal Whitaker explained that when

the mines were set up, they were built for men only . . . so it was quite a change when we brought women in and had to change all the change rooms and set up facilities for them. And they fit in, most of them fit in with jobs that they could handle. I can only think of, only maybe a handful, five or so, that could actually break rock, drill and blast, because when they pick up a drill, they're looking at nearly two hundred pounds, and most women can't do that sort of thing. But there was a place for them. I think it was good for everybody that they came on board.

Betsy Neuhaus recounted how she got a job at a mine in the late 1970s:

I had lived there quite a few years, and I went through a lot of boom and busts. I owned a fabric store, and it had kind of gone down and it wasn't doing real well, and I was divorced and I had two children to feed at home, and one already gone. So a friend of mine said, "I can get you a

job at Kerr-McGee." So I went and filled out the paperwork. They called me to come to work. They took me on a tour underground. I said, "Oh my gosh, what am I doing?" Because I'm claustrophobic. I thought, "I can do this." The pay was good, and I would have benefits. There were four of us on the tour. Two of them were miners. Another gentleman was applying for the same type of job that I was doing. He went on the tour and he was a nervous wreck. I thought, "I'm tougher than men, I know I can do this." He came to work half the shift, went to the surface at lunch time and never was heard from again. So I was pretty proud of myself that I did that.

Of her experiences with her co-workers, Neuhaus said "I was never treated with anything but respect."

Mount Taylor Mine

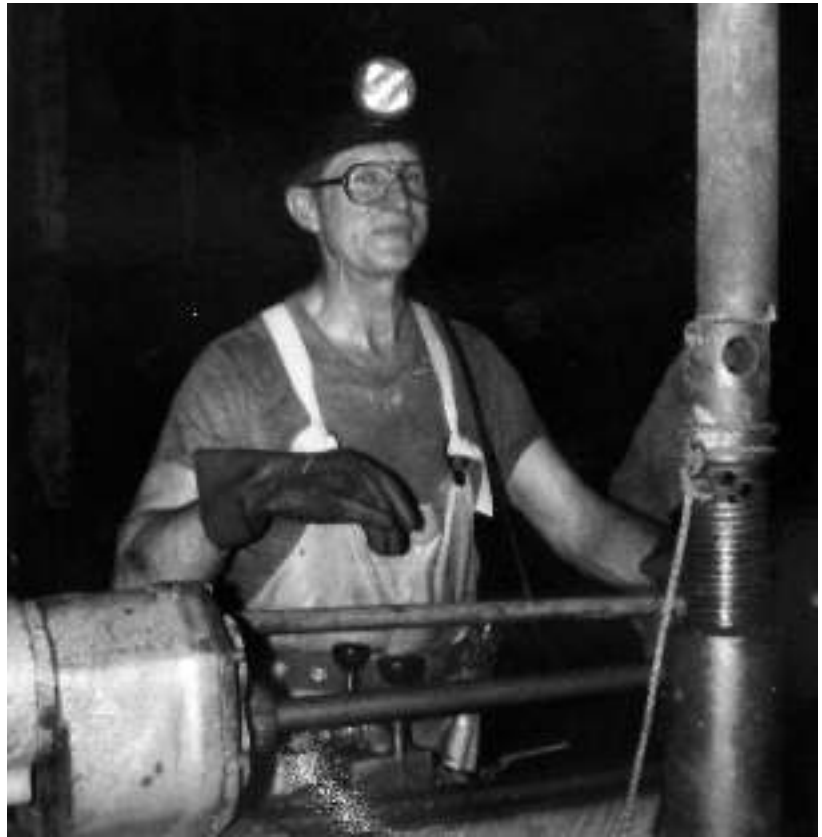
Jack Burgess first worked in the district in 1967. "Those were very exciting times," he said.

We were in the second boom of uranium, where the government decided it didn't need any more uranium. They had plenty for weapons programs, and they had just made the transition to where uranium then was needed for the power plants and the peace-time uses, so it revitalized the uranium mining ore production industry at the time, and Kerr-McGee, who had been in the foremost of that from day one, was expanding.

Burgess discussed what happened with the Mount Taylor Mine in the 1980s.

Chevron acquired Gulf, and at that time it was the largest corporate merger in

*Leroy Hessler working
underground at the
Mount Taylor Mine.
(Courtesy of Leroy Hessler.)*



business history. Along with that they acquired the Mount Taylor Mine. Now Gulf had gone in on the Mount Taylor Mine and it was going to be a 5,000-ton-a-day mine, and they spent \$425 million in the late '70s, sunk two shafts down, and tried to mine it. They had eight hundred employees at that mine, and the best they ever did was 375 tons a day. It was a mess.

Burgess became the mine's manager.

That was '83, '84, right in there. Now we were very fortunate because all the mines had closed, and so we put together a crew of 175 of the top people that were out there. And that includes the supervision and miners and everything. One of the things that we did not put in was that contract bonus. We paid higher wages. The problem was the heat. Gulf, when they

were working there, had the reputation of one [man] a day would go down from heat exhaustion. They had an ice room, and it was so common a guy would go down from heat exhaustion, and they'd put him in the bucket of an LHD [load-haul-dump loader] and take him to the station and dump him on the cage. They'd come out and they'd drag him into the ice room. . . . And we determined, you can't mine like that. There's no way, it has to be safe.

We devised a number of things to cool the mine down without doing an expensive South African refrigeration thing. We put cool air to the face. Gulf tried to cool the entire mine, and we didn't. We just want to put cool air to where the miners are working, and we gave everybody thermometers, and if it goes over 90 degrees with that humidity, then we're shutting it down. And that's what we did. In the four

or five years that I was there, we only had two cases of heat exhaustion.

We were successful. We were mining away and we were fulfilling the contract. I worked there till '89, so for five years. I was the mine manager. We had 175 employees, we were producing, and it was good times there. We mined 750 tons of ore per day.

Leroy Hessler discussed his work in the Mt. Taylor Mine.

Long time the thing was sitting empty. Here's now two big shafts, one big enough to put a cement truck on it. It also had a little bitty cage on it, a double-decker, it had to carry six men in an emergency. In the big one, it held about thirty people. [It was] 3,150 feet to the bottom.

But, the mine had sat, the wire broke, slabs were hanging. The wire broke with all the moisture and the water; it was a wet mine, the wire was hanging. I had to get the pump back there, the sump pump. They had hired Shorty Tafoya and I and a couple of electricians. Well, the electricians hooked up the electricity and gave me a sump pump, and I carried the sump pump knee deep, hip deep, the water was up to here [indicates neck], now that's far enough. The slabs were coming down, the slabs were falling in the water. No joke! I was holding on and letting the electric cord release as I was going. When I got there this deep, just held onto the cord and let the sump pump sink to the bottom, and made my way back, watching, watching, watching. I was all out of breath. There was no ventilation in there. I can't imagine how many working levels, because there was ore in there. It's a stinky smell.

So we started drilling. First we started cutting, cutting, cutting. Had the torch to

cut the wire. Bar down, torch, then drill, [and] put [in] the new wire. One day [a coworker] hit a bolt from the previous people that had worked there, and it [the drill] caught him, and spun him. I had the wrench laying there by the oiler, that's where the valve was to turn it off. I seen it, I run down, but already he made one turn—it would have killed him if he'd been alone. That happened to Tommy Bryant.

Thomas Bryant, age 23, died from an accident in which his clothing became caught in the rotating drill steel and he couldn't reach the controls to shut it off.⁵ "Before that there was no law," Hessler said. "But after that, all the laws came from blood. They were written in blood—accidents brought up a new law, a new rule." He continued:

We shut it off and got it unhooked, took a big eighteen-inch wrench, and turned it backwards, got it back down. He drilled beside [his previous hole], of course, turned the air back on, filled the oiler with oil, and went back to work.

Hessler had to contend with 130-degree water that poured out of the long holes, sometimes at a rate of a hundred gallons a minute. He drank two gallons of water and pineapple juice a day to stay hydrated. He said, "I'd raise up [my] boot, and dump the water out. A lot of it was sweat, too. I'd sweat so bad, my boots were full of sweat.

Health Problems

Of his working conditions Hessler also said:

We had diesel motors to haul the muck and the ore. They had scrubbers on them, but it still produced black smoke. The wire mesh was black in front of the big vent bags. It was black! Inside of the vent

*Hot water pouring out of long holes.
(Courtesy of Leroy Hessler.)*



bags was black. They kept telling us, “oh, we got scrubbers on here. It’s not going to hurt you.” We asked at lunchtime, when we’d have a tailgate safety meeting, and I myself, and others asked, “is that radiation and smoke and blasting going to hurt us?” “Oh, no, it won’t hurt you.” They always said no, and guess what? Years later we found out our lungs were gone. It took a long time for it to do me in. I left the mine in ’88, went to the test site [Yucca Mountain]. I had a spot on my lungs that they discovered. We had a physical once a year. They were very concerned about it. Joe was working out there, too. He came to me one day and he said, “Leroy, I got a spot on my lung.” I said, “are you a veteran?” He said, “yes.” I said, “get yourself over to Tucson veterans’ hospital and get that checked out.” I visited Joe in the hospital. It was one of them fast working cancers. I went in and seen him. He was already thin, frail. I asked him if he loved the Lord. About six weeks he was gone from the time they spotted it.

For many people, their lungs started to deteriorate; they got cancers, they suffered an untimely death. Shortness of breath came along for me about four years after I was out of the mine. Out at the [Nevada] test site, I couldn’t pass the physical no more. After those four years, I couldn’t get a job no more. So I heard about this program [to provide a] professional case manager, and a benefit. But it took forever.

Remembering People Who Worked in the Grants Uranium District

The accident at the Three-Mile Island nuclear power plant in 1979, the availability of uranium from a number of other sources, and several other factors lowered the demand for western uranium. This led to the closure of the mines in the Grants Uranium District in the 1980s, although uranium was extracted from mine water recovery until 2002.⁶ Jack Burgess left his position at the Mount Taylor Mine in 1989 to work for Chevron Resources in Chile and then in Montana. Dick

Cochran stayed in Grants and worked as a field environmentalist for the New Mexico Environment Department.

Betsy Neuhaus owned a fabric and knitting supplies store in the Albuquerque area at the time of her interview. She reflected on her years in the mining industry:

I had no experience in engineering or mining when I went in there, but I learned pretty fast, and it was very interesting. I really learned to love it and the miners. I guess it's because every day at work we knew that at any moment we could either all die together or we could all save each other. And that makes a very different, special bond that I've never had anywhere else but underground."

Jack Farley leads tours for both kids and adults at the New Mexico Mining Museum in Grants. He asks them:

Did you know that there's nothing that we use or do that didn't come from mining

at one time? Look at your automobiles. The metal they're made out of comes from underground. Miners went down there and mined that iron ore, and they brought it up and run it through the mills and processed it. Then they learned to mix different metals with it, different chemicals with it to make it into steel. Aluminum and copper, everything comes from underground at one time. So when people start downing mining, just remind them that we wouldn't be here if it wasn't for mining.

Jane Bardal, author of Southwestern New Mexico Mining Towns (Arcadia Publishing, 2011), teaches psychology at Central New Mexico Community College in Albuquerque. She would like to thank Virginia T. McLemore, Jack Burgess, Rusty Rapaport, and Andrew Russell for reviewing this manuscript. Research was supported by a 2015 grant from the Mining History Association. As time allows, Bardal continues to interview people who worked in the Grants Uranium District. The New Mexico Mining Museum is compiling a list of people who worked in any type of mining in the Grants area. If you would like to be part of that registry, contact the museum at (505) 287-4802.

Notes:

1. Robert J. Wright, "Grants and World Uranium," in: Christopher A. Rautman (comp.), *Geology and Mineral Technology of the Grants Uranium Region*, 1979, Memoir 38 (Socorro: New Mexico Bureau of Mines and Mineral Resources, 1980), 22.
2. J. Bardal, "Jane Bardal Oral History Collection Relating to Mining in New Mexico, 1950-2011," Collection 2016-025, New Mexico State Archives, Santa Fe.
3. Figures derived from the annual reports by the State Inspector of Mines to the Governor of the State of New Mexico, 1953-77, and the annual reports by the Energy and Minerals Department, Bureau of Mine Inspection to the Governor of the State of New Mexico, 1978-86.
4. Raye C. Ringholz, *Uranium Frenzy: Saga of the Nuclear West* (Logan: Utah State University Press, 2002), 52-5, 98-9.
5. Fifty-Fourth Annual Report by the State Inspector of Mines to the Governor of the State of New Mexico for the year ending December 31, 1966, 37-8.
6. V. T. McLemore, "The Grants Uranium District: Update on Source, Deposition, Exploration," *Mountain Geologist* 48, no. 1 (Jan. 2011): 23-44.