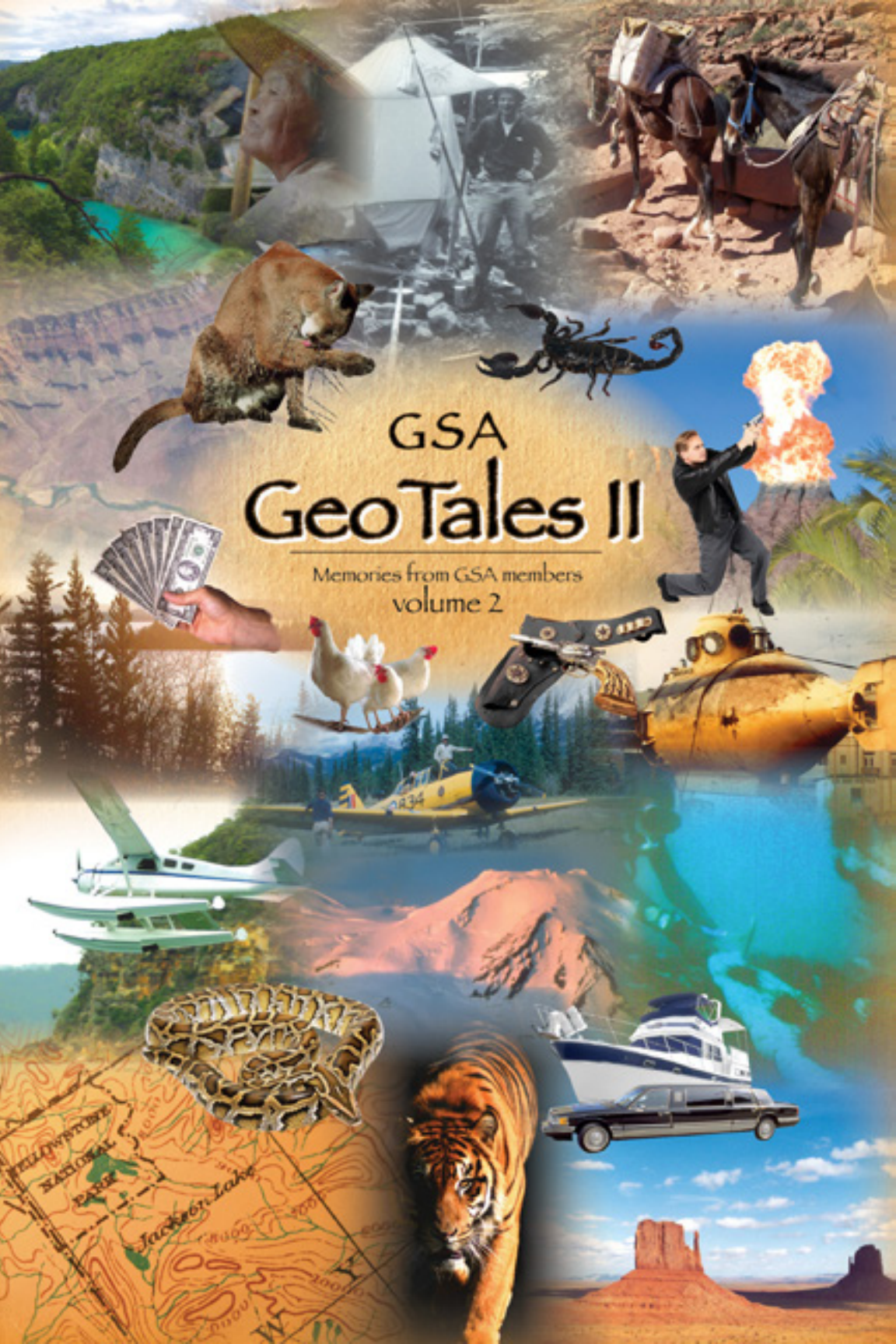
GSA
GeoTales II
Memories from GSA members
volume 2

Dedication

I would like to express my heartfelt appreciation to all the GSA members who shared their exciting tales and memorable stories with the Foundation for use in GSA GeoTales, Volume II. Thank you so much!

Donna L. Russell
Director of Operations
GSA Foundation
Spring 2005

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The Greenhorn

He was known as Hogan. That's all—just Hogan. He was something of a legend in the Quebec-Labrador wilderness where he was the chief bush pilot for Labrador Mining and Exploration Co., Ltd. He had rugged good looks, a self-confident swagger, and a colorful speaking style liberally spiced with pithy sayings, many of which wouldn't have passed muster in mixed company. He was universally respected as a man whose judgment and skills could be trusted to deal with the life-threatening challenges that a bush pilot inevitably encounters as part of his job. I was a tenderfoot geologist with a brand new B.S. in geology from St. Lawrence University. It was my first job as a graduate geologist, and I was half of a two-man geologic exploration team that summer of 1956. My mentor, Professor Robert O. Bloomer (known as "Rock Doc" on campus and in a feature story in Look magazine in the 1960s), had chosen me to be his field assistant that summer. We had just spent two or three weeks at our first fieldwork location—just the two of us, camped on the shore of a small lake in one of the few timbered areas in that part of Nouveau Quebec. We were near the Quebec-Labrador border, almost a thousand miles northeast of Montreal.

We had initially spent over a week at the base camp near Shefferville, P.Q., an isolated frontier town near the year-old iron mines at the north end of a new 312-mile railroad that took the ore to the Gulf of St. Lawrence at Sept Isles, P.Q. We had to wait there for the lakes to become ice-free in mid-June so the bush planes could move us and the other field parties out to our work sites.

Doc and I were ready to move to our second location on a different lake. We had packed our gear, taken down our tent, and were waiting for the reassuring sound of Hogan's Norseman, a workhorse airplane of 1930s vintage, used as a fighter plane by the RAF in the early stages of World War II. The Norseman's fuselage was canvas-covered, but it had a huge wing surface for a single-wing plane and its large radial engine was awesome. The high-winged plane had an impressive capacity for cargo and was equipped with floats in the summer that were replaced by skis in the winter. The company had other newer planes as well, but Hogan, and only Hogan, flew the Norseman. Most transportation in this remote bush country depended on the numerous lakes in this rocky and largely barren glaciated upland east of Hudson Bay with tundra and muskeg swamps with local patches of timber in some low areas.

Finally we heard the welcome and distinctive sound of the Norseman's engine, and we knew that all was well. Soon Hogan was circling the lake, noting the locations of possible hazards, and then he sat the big red canvas-covered machine smoothly down onto the lake surface. The shoreline by our campsite was unusually grassy and free of any visible rocks. Hogan brought the plane to the shore, we tied it to a tree, and he laid a plank that had been strapped to the float struts so that we could walk on it from the shore to the float as we carried our gear to him to stow. When the loading was done and we were on board, Hogan started the engine. As he tried to aim the plane out to deeper water and revved the engine, it didn't budge – the extra weight had apparently caused it to get hung up on some hidden obstacle, perhaps a buried log. He tried rocking the plane by revving and then cutting back on the engine, but it wouldn't break loose. Hogan then turned to me and said, "I've got a pair of hip waders and some rope here. You put the waders on and tie the ends of the rope to each float and pull from the front while I rock it."

I swallowed hard, recognizing immediately that this would put me only a matter of twenty feet or so from that big propeller, but I also knew that I couldn't question Hogan's judgment, so I dutifully obeyed. There I was, looking up at that intimidating view of the towering plane, standing in water up to my knees with my feet planted in the muck of the lake

bottom—they felt like they were encased in concrete! Hogan started revving the engine while I pulled on the rope, wondering if this might be my last day on Earth. Suddenly the plane surged forward—it had broken free! All the force with which I was pulling on the rope suddenly had no resistance, and I tumbled over backward into the water, propelled by adrenalin as well as by the sudden slackness of the rope. Hogan, in full control of the plane of course, immediately feathered the prop and cut the engine speed—the plane's forward movement was abruptly halted. As I raised my head out of the water, I could hear him laughing loudly, joined by Doc, as though they had just seen the funniest show of their lives. The greenhorn had been duly baptized! As I looked at them, and then at my situation, I had to join them in laughter. It was an experience I'll never forget, a milestone of sorts, and for the rest of that memorable summer I was no longer a greenhorn—I had paid my dues!

I'll never know, but could it be that the Norseman was never really hung up but Hogan had faked it by feathering the prop to neutral and gunning the engine? I didn't think of that possibility at the time. It's just as well!

- Bob Cassie

"In a 1963 field geology class, I was admiring the blooming California poppies instead of studying the rocks. Charles Gilbert, ever the practical geologist, said, poppies always grow on the basalt, you know."
– Michele Aldrich

It's Not All Work

The Yellowstone-Bighorn Research Association (YBRA) was, and is, a consortium of geology departments of numerous eastern colleges and universities. The YBRA owned and operated a field station-living quarters camp in southern Montana, near Yellowstone Park, just over the Wyoming border, and nearest the town of Red Lodge. During the summer months, the camp was used as a base station for many geologists of diverse interests; families were left behind in a common community (we affectionately knew it as our gentile kibbutz) while the professionals ranged far and wide with their geologist interests. I was from Emory University in Atlanta, Georgia, and my own interests were in southeastern Idaho, for instance.

The camp was also used as a base station for a summer field geology course. Students, then almost entirely boys, would enroll in a field geology course at the various universities, and the course was conducted by the professors who were otherwise using the camp. The professors from many different colleges conducted various parts of the course depending upon their interests and schedules.

It was our practice to bundle the students, perhaps as many as 30 of them – again I am not sure of the precise numbers – into 12 and 15-passenger vans that had been donated by the various colleges for their part of the summer course, to transport them to the location of the field problem that the professor would address. Typically we would leave camp in the morning after breakfast, carry lunches with us, drive to the study site, do our thing, and return to the camp for supper. All in all, it was a marvelous experience – even for those who may not have done well academically.

I recall most vividly an experience one summer – I am not certain any more of the precise date – but it was in the 1960s (1965 comes to mind), but in truth, I no longer am certain. That summer I was conducting that part of the field course, about 10 days, in which the students were

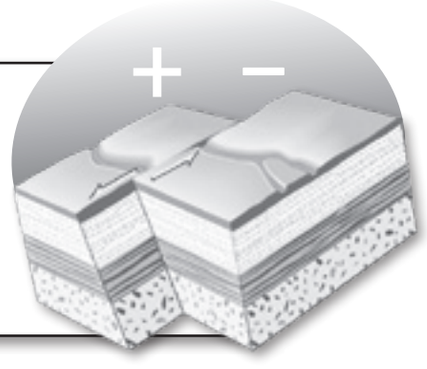
introduced to the plane table as a contour-mapping and section-measuring tool. We would go to the Elk Basin oil field in nearby Wyoming where the students could do their thing without interference from curious passersbys.

We were on the country road leading from Red Lodge to the Elk Basin in Wyoming where we came upon a rancher's truck off the road, lying on its side. Clearly the truck had been going too fast when it tipped over to the outside while turning a sharp curve. It was not a serious accident, other than tipping, as the driver was not there, and the three head of cattle the truck had been carrying were grazing nearby – at least we presumed they were being transported and simply left the bed of the truck when it tipped. No doubt the driver had hiked away seeking help.

It was an easy task, really, for three car-loads (about 30 healthy young boys) to turn the truck back on its wheels, install the ramp from the truck bed to the ground, and round up the cattle to get them back in the truck. I left a note saying "compliments of my elves" and signed it "S. Claus". There is no way of knowing the thoughts of the rancher when he returned with help, but the truck was gone when we returned on our way home. He may have become a believer.

- Howard R. Cramer

"Fascinating innovative research on active strike-slip fault zones within the Eurasian and circum-Pacific orogenic belts in 1960-1962, leading to the discovery of geotectonic bipolarity".
Nazario Pavoni



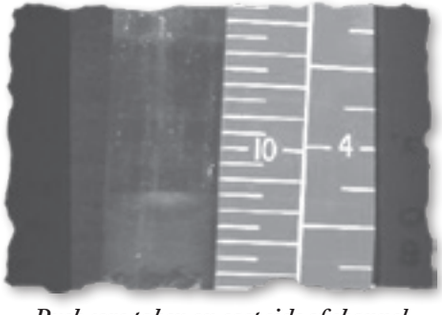
Adventures in Laguna Mandinga

In 1965, I was appointed as an Assistant Professor of Geology at Eastern New Mexico University (ENMU), Portales, New Mexico. With the aid of a Sigma Xi grant and a faculty development grant from ENMU, I initiated a coastal research program in the Laguna Mandinga south of the port city of Veracruz.

Small fishing boats at Laguna Mandinga, Veracruz, Mexico. June, 1966.

I had only primitive maps of the coastline near Veracruz, but in early July 1967, on our way through Mexico City, I stopped at the Instituto de Geología at UNAM (the National University of Mexico) and conferred with Dr. Agustín Ayala-Castañares, whom I had met back in 1961. Dr. Ayala, who was ultimately responsible for bringing Mexico's oceanographic program into the modern era (see Soto, 2003), was advising a botany student who was doing his thesis on the mangrove ecology of the Laguna Mandinga. The student had air photo stereo pairs of the Laguna and had started mapping the distribution of the red mangroves (Rhizophora mangle) bordering the lagoon. The Instituto had made preliminary maps with the aid of the air photos, and Dr. Ayala allowed us to borrow copies of them.

One of our goals was to collect the top 10 cm^3 of sediment from the sediment/water interface in the lagoon. Because we did not have a Push Corer that would enable us to collect our samples, we asked Dr. Ayala if we could borrow the Instituto's Push Corer. He consented, and we (Mr. Faroy Simnacher, an undergraduate student at ENMU, who was my field assistant) began collecting shallow push-cores from the floor of the lagoon. We made rapid progress with our sampling until July 8, 1967. Late that afternoon we attempted to take



Push core taken on east side of channel leading into Laguna Mandinga Grande.

a core at the mouth of the Río Jamapa, near the village of Boca del Río. There, where the Jamapa enters the Gulf of Mexico, the river channel is quite deep. As we plunged the corer downward, we exceeded its length capacity (~ 7 m). Being naïve, we had not secured the corer to our boat with a safety line. The corer and its accompanying line sank immediately to the bottom of the channel. I dove overboard immediately in an attempt to retrieve the corer. Unfortunately, the channel at this point was too deep for my free-diving ability. I came back to the surface completely exhausted and unable to swim back to the boat, since the current was moving seaward faster than I could swim against it. Faroy saw my dilemma, gunned the boat motor, and picked me up. Much to our embarrassment, we had lost Dr. Ayala's corer!

Bridge across the Rio Jamapa with thatch-roofed huts (left) of village of Boca del Rio.

The next day, I telegramed Dr. Ayala in Mexico City to tell him about our disaster. He was very sympathetic and, as I recall, said, "Don't worry about it; we'll have another one manufactured in our machine shop." I promised him I would have another one made to replace the one we had lost. ENMU sponsored the machining of a replacement corer the following year.

Since we had lost the corer, we came up with an innovative, but laborious method to finish our coring program. We still had many plastic core tubes that we usually mounted in the end of the bronze jacket at the end of the core tube. Since Laguna Mandinga averages ~1.5 m in depth, it was possible for my field assistant (Faroy Simnacher) to stand erect on the bottom of the lagoon with me standing on his shoulders to weight him down. Then Faroy leaned over and took a core from the bottom sediments! The results of this and related studies are documented in Krutak (1971, 1972, 1977, and 1980).

- Paul Krutak

I Am Not a Spy

In 1968, while on the geology faculty at the University of Georgia, I obtained a year-long U.S.-Soviet Academy of Sciences a Research Grant to the Palynology Section of the Geological Institute of the Soviet Academy of Sciences, Moscow. There is great similarity between the Late Cretaceous pollen and spore assemblages of the Western United States and those of Siberia, and this similarity was the basis for my research grant. It was agreed that my wife and two small children, ages 3 and 8, would accompany me. The grant was to start in September, but I received permission from the U.S. Academy to leave early to attend the XXII Geological Congress in Prague, Czechoslovakia. We arrived in Prague on Sunday, August 22, and that night, the Soviets invaded Czechoslovakia. But that is another story.

We arrived in Moscow in late September of 1968. We were given a two bedroom apartment in the Uzhnaya Hotel and our two children were put into Russian schools. We were limited to what we could purchase at the embassy commissary. Items like milk and fresh fruit were imported from Helsinki and not available to us. Therefore, my wife had to shop for these items locally, which meant standing in long lines. She prepared all of our meals for our year-long stay on a two-burner hotplate. I settled down to my research at the Geological Institute. The Lab Director was Professor Zaklinskava. Her specialty was Cretaceous-Tertiary palynology. The other palynologists in the lab were Drs. Bratzeva (Cretaceous) Gittermann (Pleistocene3), and Koreneva (marine).

Sometime in the following spring a man showed up one morning at the lab unannounced. He said that I was to go with him to take a tour of the Paleontological Museum on Leninsky Prospect. I and everyone else in the lab were surprised at this invitation inasmuch as, with my limited experience with the system, it is not the way things were usually done. Nevertheless, realizing that something was afoot, I went along with him.

At the museum we were met by the director, who gave both of

us a detailed tour of the fossils in the collection, which were mainly vertebrates. After about an hour of this tour, this man, whom I now knew as Boris, took me to a nearby restaurant where we talked, with much vodka, well into the early evening. He asked me many questions which I freely answered inasmuch as I had nothing to hide. His English was quite good, and he told me that he had been to the United States and I gathered that this was either before or during WWII. He told me that he had driven on the Pennsylvania Turnpike and how much he admired it. Having had some experience by now with the Russian highway systems, I understood his admiration. Before we parted, he invited me and my family to take a cruise on the Moscow River.

As promised, on Sunday morning, a black chauffeur-driven Volga limousine arrived and took us to the boat dock. There was Boris with a woman, who he said was his niece and who spoke excellent English, and the boat's captain. We cruised on the river till around noon when the boat pulled over to the shore. The captain got out, built a fire, spread a table cloth on the ground and cooked shish kebab. We had a delicious meal, after which we cruised back to the dock. Before we left the boat, Boris suggested that we attend the Moscow Circus. Tickets to the Circus were difficult to get, so I quickly agreed to his suggestion.

On the scheduled evening, Boris showed up with two chauffeur-driven black Volgas, Boris strongly suggested that the circus is mainly for children and that they, along with my wife, go to the circus while he and I go and have dinner. Again, this change in plans was unusual, but I went along with his suggestion. My wife and children went to the circus in one car, while Boris and I went in the other one ending up at the Prague Restaurant. We were seated not just at any table in the downstairs dining room, but in a private upstairs dining room served by a private waiter. We started off with much vodka and caviar before the main meal of chicken Kiev was served. During the meal, Boris said, "You know Ed, many of the scientists who come here are not scientists at all, but really are spies." I said "Boris, I am a scientist with an established reputation in my field, and my colleagues at the Geological Institute know me and of my work. Furthermore, I am not a spy, but if I were, I wouldn't tell you." The subject was dropped and we finished the dinner with small talk on other subjects followed by more vodka.

The next morning, I went to work in the lab and repeated Boris' conversation of the previous night to my colleagues. Professor Zaklinskaya immediately got on the telephone. Although I couldn't understand everything she was saying, she was yelling into the phone and she clearly was raising all sorts of hell with someone on the other end. I never saw or heard from Boris again after that night. In 1974 I went back to Moscow for four months under another U.S.-Soviet Academy Research Grant. And I have been back to Moscow several more times since then under other grants to continue my research. I never had any trouble with another Boris-type again.

- Ed Stanley

"Witnessing the eruption of Mt. St. Helens in 1980, One-half inch of ash covered everything in Portland."
– Robert L. Gamer

GSA Memories: 1948 and 1952

In 1948, my senior year at the City College of New York, I was a volunteer projectionist at the GSA Annual Meeting, assigned to the memorable symposium on Sedimentary facies in geologic history. The experience introduced me to GSA meetings, the facies concept and to impressive personages, including R. C. Moore, McKee the Elder, A. C. Lawson, P. B. King, Marshall Kay, and the firm of Sloss, Krumbein & Dapples. I remember John Rodger's famous aphorism: "...everyone attending this meeting is for facies in the same way that everyone while attending church is against sin, and I wonder just how far this allegiance would carry if we found ourselves faced with the stratigraphical equivalent of carnal temptation." Among comments excised from the published proceedings (Memoir 39), I remember one in a heavy Russian accent (P. D. Krynine?): "Your papper vos rrather longk and borringk, but at list it vos not as full off hot airr as vot ve hirrd from the privvious spikker."

In the program of the 1952 Cordilleran Section Meeting in Tucson, my name indelibly appeared on an abstract! The paper was actually presented by the coauthor, Hank Jicha; it covered the adjoining quadrangles we were mapping in southwestern New Mexico for our respective Columbia dissertations. The Great Granitization Controversy reared its head during a pre-meeting field trip to the Santa Catalina Mountains, now recognized as a metamorphic core complex. Before my eyes, names from reference lists turned into flesh and blood, among them Francis Turner and Jean Verhoogen (I had carried their new textbook into the field), Adolph Knopf, Frank Grout, and Peter Misch. In the migmatites that mantle the granite core, some professed to see injected magmas, others conjured up diffusing ions or oozing migmas. During a picnic lunch, a reporter from the Tucson paper picked on me, the youngest bystander in view: "What the hell are these guys arguing about?" My explanation elicited a headline on next day's front page: Geologists Baffled.

Riding with USGS Grand Old Man Tom Lovering during a post-meeting trip, I learned about the geology of southeastern Arizona, life of a World War I fighter pilot, and the USGS in the not-so-good old days (inspecting a field party during the '20's, the Director caught a man without a hand lens and fired him on the spot). During an overnight stop in Globe, I shared a room with up-and-coming Frank Press, who had preceded me from CCNY to Columbia. My indefeatigable roommate persuaded me to accompany him to a must-see double feature, Danny Kaye and Dean Martin and Jerry Lewis on one program!

How times change! In 1952, copper porphyries were booming and mining companies were actually wining-and-dining grad students as potential recruits. Invited to join a group entertained by Anaconda, I admitted to having accepted a job with Kennecott. "Never mind, come anyway." More lasting consequences resulted from skipping a session at that fateful Cordilleran Section meeting to buy a present for Lorraine, the girlfriend who was about to graduate from the Columbia School of Journalism. We were married later that year and stayed that way until death did us part, nearly 48 years later.

- Wolfgang E. (Wolf) Elston

Dwyer Quardrangle, Southwestern New Mexico 1950. Left to right: Henry L. (Hank) Jicha, Dr. Eugene (Pat) Callaghan, Prof. Charles H. Behre Jr., Wolf Elston, F. Donald (Don) Eckleman.

Hazardous Pay: 1940's Southeast USA

Few people could imagine how hazardous the simple-sounding task of "doing a well inventory" could be a task that could get one mugged, cross-examined by a tough landowner, shot, arrested, raped, beaten, demoralized, overfed, threatened, seduced, invited to skinny dip, and delayed in this seemingly simple task of collecting data.

My first well inventory assignment came in Fort Myers, Florida at the tender age of 24, as a highly paid ($1200 per year), big expense account ($5 per day for room and board) Geologist P-1 with the Water Resources Division, Ground Water Branch of the U.S. Geological Survey. I had a new wife, Bunnie, and soon to have our first child, Phil, Jr.

My field car was a Mercury Coup, obtained through the US ABC by confiscation. It had a white U.S. Shield on the door and a spotlight. That 's all I needed. The spotlight was shot out early on by an anti-fed moonshiner when I tried to measure a spring that discharged into an old limestone quarry. I did not know what all that paraphernalia at the spring -- coils, drums, gallon jars -- were at the time.

Driving down a red dirt country road on a hot August day in 1945, a bunch of chickens cackled out in front of me. I hit one and killed it. A big old farmer in overalls came out to inspect the damage. I gave him a big smile and told him I was mighty sorry. The federal shield didn't help any, but you know that old man told me to come back for dinner and we would eat that chicken. I did and that old man and I became good friends. Lesson – a big smile and contrition go a long way to mend problems.

Not long afterward, I passed a small frame house with a large front porch, and I could see a clean wash on the line and a wellhouse out back. No one responded to my knock on the front door; however, knowing that someone must be home, I walked around to the back porch and stepped up to the door about to knock. Looking up I saw the young lady of the house taking a shower. She was truly a redhead. I turned and beat a hasty retreat. Never did have the nerve to go back and get the information on the well. Thus, modesty is decidedly the best policy; however, it caused a blank spot in my data.

Some instances would make a story in themselves, others are best to summarize, and still others are best forgotten:

1. One young geologist was invited to go in skinny-dipping with a group of young people at a spring pond. However, he did get a spring water sample and temperature reading, despite the distraction!

2. A young engineer lost a tape down a well in Eutaw, Alabama, and a little old lady with a 30-0-6 stood over him and made him fish it out.

3. A hydrologist, while driving along a country road in Florida, encountered a nude young woman running out of the woods crying for help. He took her to the nearest County Sheriff, or at least he said he did!

4. An inventive geologist at a farmhouse ran face to face with a very large angry dog. It took him awhile to make friends, but he was able to do so and finally able to measure the well. The farmer was amazed. No one had ever been able to tame the dog. The farmer and geologist became good friends.

5. On hearing of an artesian flowing well near Jachin, Alabama, a newly recruited geologist from the North went to that small town to obtain information. On arriving, he asked a native about how to locate the well. Given directions, he was told to take this road yonder a piece to the colored church, then take a woods road and he would see the well. To be sure he got the directions right, he asked the man what color was the church!

6. One of our stream gauging stations on Little Yellow Creek, Tuscaloosa County, Alabama, was presenting a problem. It was constantly being shot up with a high caliber rifle. John Newton learned the recorder was in the area in which there was a powerful politician, moonshiner, and transvestite (bonnet, gown, the works) -- but with a gun strapped to his thigh. John found him and explained our problem. No one bothered the building or instrument again. Just as in the old adage, it pays to know the right people.

7. Snakes, black widow spiders, brown recluse spiders, and moonshiners are attracted to springs and flowing wells. The three "B's" are – be alert, be careful, and beware!

8. Then there was Moses who met Rebecca at the well. Dr. O.E. Meinzer, when Chief of the USGS Ground Water Branch, used to tell us that some chapters of the Bible read like a ground-water report.

9. From practical experience, I have found that young women geologists, or engineers, can inventory wells better than men. Women are not afraid, and men communicate better with them. Learned that from Dr. Steven Buchanan of the British Survey.

10. My granddad, AJ, was a carpenter, operated a sawmill, was a sheriff, and had a horse named Star, a dog Spot, and a grandson Bud. He was also a well driller and a water witch. He taught me how to witch a well. This did me a great service as it helped me to bridge the gap between being a hydrogeologist, well driller, and a water witch. Over the years, I have witched many wells.

11. Even public speaking can be dangerous. During a talk at a small country church in red-dirt Georgia, I stated that the Earth was 4.5 billion years old. All hell broke loose in this "Creationist" congregation. Thus, I found that as a hydrogeologist you don't talk about water-witching or Creationism because you are not going to change anyone's mind.

12. A final incident illustrates the dangers of geological fieldwork. Down South in Jackson, Alabama, there was a wooden frame hotel that created a wide variety of incidents involving field geologists. One example follows of how dangerous a situation can develop at the hotel that caused emotional stress, conflict between state and federal agencies, the termination of a cooperative program, and Lord only knows what else.

As the story goes... in the mid 1940s, Ms. Winnie McGlamery, paleontologist with the Geological Survey of Alabama, and Watson Munroe, geologist with the U.S. Geological Survey, were on a field trip to South Alabama to look at the Jackson fault, a 1500-foot displacement on the east side of the Mobile Bay. Arriving late from Tuscaloosa, they entered the old Jackson Hotel for rooms for that night. The State Survey paid $3/day whereas, the USGS travel expense was $5/day (that was for both room and board. The good 'ol days). Watson Monroe, in a magnanimous gesture, offered to share a bathroom between two bedrooms with Ms. Winnie. It would be a dollar cheaper that way. Unfortunately, Ms. Winnie misunderstood his intentions, and Watson became ostracized in the Alabama Survey. To say the least, Ms. Winnie was highly insulted.

Another similar problem was so great that it even impacted state appropriations for geologic research. The relationship between Sue Pradat (now Simpson) and Mary Claire Ryan, Dr. Jones' secretary, became strained because of the salary differential. Sue's annual salary was $980. Mary Claire's was less. Mary Claire complained. Sue advised her she could join the USGS. Mary Claire took offence, as federal agencies in those days were not held in high esteem by the state employees. This resulted in an actual cessation of the cooperative ground-water program, and Phil LaMoreaux was sent to Washington to work until the financial situation could be corrected!

Finally, (all names are withheld to protect the innocent) at the same hotel in Jackson, the custom – for a patron arriving late -- was that one walked the halls to find an open door and then checked in the next morning. In one instance, a high-ranking officer of the State Survey moved in and settled on one of the metal cots for the night. The next morning, he discovered his roommate, a large burly individual, at the washbasin using his toothbrush. Not indicating an immediate awreness, the Alabama officer feigned awaking, stretched and yawned, then went to the washbasin and began to furiously wash between his toes with his toothbrush. Wide-eyed, his unknown roommate asked if he always did that, to which he replied, "Oh, yes. I have an incurable disease."

Proof definitive, hazardous pay of $1200/year was well justified.

- Philip E. LaMoreaux

The Iraqi Attack

One of my favorite geologic terrains was that of the Persian or Arabian Gulf in the Middle East. I started my research there in the early 1960s when I visited the United Arab Emirates (Abu Dhabi) as Chair of a Committee of the American Association of Petroleum Geologists. My research was published in books and journals. In the 1980s geologists of the government of Kuwait invited me to join them in their evaluation of their geologic section. Kuwait has the largest oil reserves in the world.

For an extended period of time I flew once a month, and on occasion once per week, on a Concorde flight to London, England. From there I took the shuttle to Manchester and then to North Wales by taxi. Here my team of experienced geologists worked and I reviewed the previous week's or month's progress and accomplishments. After two years of work in the mid-1980s, I submitted our report to the Kuwait Oil Company.

Iraq invaded Kuwait in 1990. On the first day of the invasion, August 2, 1990, the U.N. Security Council issued resolution 660, which condemned the Iraqis' invasion of Kuwait and demanded that Iraq withdraw all its forces immediately and unconditionally. In that invasion, Iraqi forces stole our geologic report and took it to Baghdad. Please recall that this report reviewed one of the world's largest oil reserves. Now we had to prepare a new report. In those days making copies was not as efficient as today, especially those containing figures and photographs that required a lot of attention. It cost more than $25,000 to prepare a new copy for the Kuwait Oil Company—a costly affair.

- Gerald M. Friedman

Geology Is Not Always About Rocks

Following the rigors of several expeditions to Antarctica, I had to respond to my irate family's pleas to accept a desk job and settle down. So I accepted an offer to head the Cold Regions Bibliography Section at the Library of Congress and started the Antarctic Bibliography. Then I moved to the Science Policy Research Division of the Congressional Research Service (CRS), providing assistance to members of Congress and their staff in Earth Sciences, Energy, and Oceanography, where I quickly "matured politically on Capitol Hill," as my division chief put it.

While at CRS, I was asked by the House Foreign Relations Committee to investigate Canada's oil and gas assets and the possibilities of supplying petroleum products to the United States during the energy crisis. It was the summer of 1973, and I was flown on a private plane sponsored by Northern Natural Gas and some petroleum lobbyists seeking to build a pipeline from the Arctic and the Mackenzie Delta to our northern tier states.

The flight was great, and the service was first class, including two attractive stewardesses (now called flight attendants) in hot pants, fashionable in those days. We followed the proposed right-of-way along the Mackenzie River Valley, inspecting the stations, the oil fields at Prudhoe Bay in Alaska, and the test facilities where the environmental impact of the pipeline was being studied. Beyond the technical aspects, a sociopolitical picture emerged unexpectedly that was a great eye-opener and a serious deterrent to the whole prospect. It was the issue of Canada's natives.

The natives we saw, both in Yellowknife and Inuvik, were mostly Eskimos, Indians, and Metis (those of mixed background). They all seemed to be unemployed and on welfare, squatting on the sidewalks and drinking

heavily in the pubs. An inebriated native woman entered one pub wielding a broken bottle and threatening to attack whomever got in her way to another bottle. We hurried out of the place and were advised to talk to some sober natives about the project.

The natives had formed organizations such as the Committee for Original Peoples' Entitlement and a group called the Brotherhood Council, with whom we discussed the pipeline project. We learned that, unlike U.S. tribes that were given land areas with specific locations, Canada's natives were allotted one square mile per family, to be claimed anywhere. I was told, in no uncertain terms, that unless the Canadian government settled, by written agreements, the claims of these natives, each family would claim its square-mile area, 100 feet wide along the pipeline right of way, and squat there until their problems were solved.

I pointedly asked what would happen if the powers to be started building the pipeline without delaying the project for the sake of solving the native problems.

"We'll blow it up." The answer was shockingly calm, firm, and deliberate.

On the flight back to Washington, we discussed that shocking answer and accepted it as a fight for civil rights and the natives' struggle for freedom. My report was published later that year as an appendix in the House Committee's Hearings, no questions asked, and no pipeline yet.

As I reflect back on that statement, in today's security consciousness, it would be sufficient grounds for incarceration for terrorism, and I wonder where the difference between nationalism and terrorism becomes defined or remains blurred throughout the world. Food for thought.

- George A. Doumani

Sun-Kissed Geologist

In 1962, I was employed by the Desert Research Institute in Reno, Nevada. My project that summer was to map the Quaternary geology of an area that included FourMile Flat, EightMile Flat, the Sand Springs Range area, and Dixie/Fairview valleys—all as part of a hydrogeologic investigation relating to characterization of a planned Atomic Energy Commission offsite underground nuclear detonation. As it turned out, Roger Morrison of the USGS, the recognized expert on northern Nevada Quaternary geology, had mapped the Carson Sink and adjacent areas, immediately west of my map area. Roger agreed to spend time with me in his field area to explain the intricacies of desert soil formation and identification. At one point, we were joined by John Frye and others—but the Frye/Morrison in-the-field disagreements on Pleistocene stratigraphy are another story.

I had been cautioned ahead of time that Roger enjoyed the Nevada sun and I had heard many stories of his desert escapades. Nevertheless, I was not prepared when I met this delightful person in the field given his field attire: sandals and shorts.

After spending a full eight hours in the hot summer sun on the Carson Sink salt flats, and toward evening when the sun was lowering in the sky, I wanted to stop and ask a question. So, I just automatically stood so my shadow would shield Roger's face and he wouldn't have to squint at me. Immediately, Roger motioned for me to step aside while saying rather bluntly that I was blocking his sun.

- Dave Stephenson

Smart Fish

As manager of Geological Diving Consultants, Inc., in the early 1960s, I invited an oil company geologist, Tom Redin of Union Oil, to accompany me on a dive to map outcrops near Santa Cruz Island off Southern California.

In mid-afternoon he followed me to the seafloor into a kelp bed in 50 feet of water. He followed me around looking for outcrops. I found one and let him check my measurements and hammer out a sample.

As we continued snooping around looking for another outcrop I had a feeling I was being watched. I looked around. The only critter, besides Tom, was a gray and rose-colored fish about two feet long that I recognized as a sheepshead. I don't know why they have their name but I knew they have somewhat elongate buck teeth. He held a position ten feet to my right about even with my shoulders. His eyes moved methodically, inspecting me from faceplate to flippers. Where I went he followed, seeming to have some purpose. What might that be? Perhaps a budding geologist?

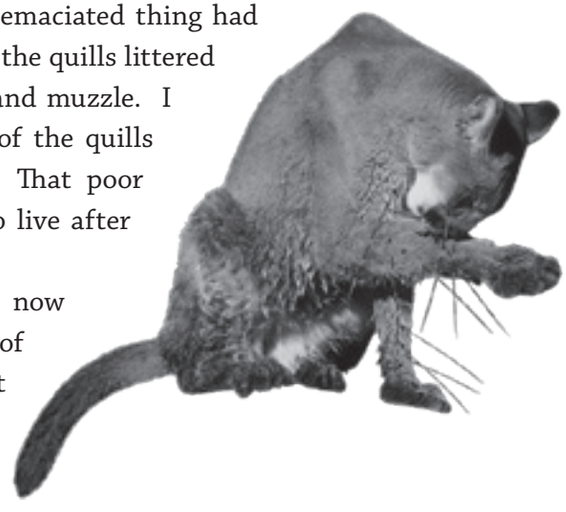
I checked another outcrop and considered ending the dive when I noticed an abalone clinging to the outcrop. I approached it cautiously, inserted my pick under its shell and pried it from the rock. Before I could slip my pick into my belt and pick up the abalone the sheepshead darted in and took two deep bites out of its exposed flesh. When I retrieved the abalone he astonished me by dashing in for yet another bite. I began to think of him as one smart fish. I speculated that he had seen abalone divers working and had learned they could be a source of snacks. Abalone divers were rare visitors to that place, which would say something good about fishy memory.

- James W. Vernon

Porcupine Quills, Machetes and a Puma

In the mid-1950s (exact year lost in a senior moment), my field partner, Don Kiser, and I were measuring a section of sedimentary rocks in the foothills of the Perija Mountains of Western Venezuela. Selecting a good site to set up the plane table for a turning point, we heard a muffled growling/yowling coming from a cave in the stream bank. In back of the cave was a puma in obvious distress. Don, bravely or foolishly, decided to shoot the cat with a shotgun but had to penetrate into the mouth of the low cave. I, and a couple of field hands, bravely or foolishly, crouched by him with machetes in hand just in case the job wasn't done with two shotgun blasts.

Fortunately, we were able to kill it and dragged it out of the cave. The poor emaciated thing had tangled with a porcupine and the quills littered on the festering front paws and muzzle. I was amazed at the tenacity of the quills in trying to remove them. That poor cat didn't have much hope to live after tangling with a porcupine.



Said section of rocks is now a large coal field and part of the same stratigraphy that provides the large Columbian coal mine on the other side of the Perija Mountains.

- Glenn Shepherd

"Junior year summer field camp included a week's reconnaissance in Glacier National Park by horseback – an exciting, and sore, experience for novice riders."
– Margaret Woyski

Rescue in the Mountains

Fifty years ago, geological field parties in the Front ranges of the Alberta Rockies traveled by horses, and field parties supported by helicopters were uncommon. Then I was head of a party consisting of four geologists, a cook, and two packers (to look after about 28 head of horses) for the purpose of measuring sections of Devonian rocks for Gulf Oil. By the end of August, when we were camped on Whiterabbit Creek, the weather turned wet, and all the streams were swollen with the incessant rain and snow. In assembling some horses for a trip to get supplies, one of the packers fell and was jumped on by a horse. He could have been killed but, when we got him to bed, he seemed more likely to have had serious internal injuries that required medical attention. In those days, we did not carry a radio transmitter, and satellite phones were far in the future; the only way to get medical aid was to take the patient out by horseback (at least 10 hours riding), or arrange for a medical evacuation by fixed-wing plane or helicopter. Our packer, who I will call Norm, was obviously incapable to riding out and, for all I knew, could be dying.

We decided to ask our head office in Calgary to try to arrange an evacuation by light aircraft either from a small meadow beside our camp on the Whiterabbit or on the Kootenai Flats, the wide plains along the North Saskatchewan River that were about 13 km down the creek. About noon on the day of the accident, the second packer (I will call Albert) and I set off to the nearest point from which we thought we could send a message, which was at the crossing of the North Saskatchewan River and the Banff-Jasper Highway. The day was clear for the first time in several weeks, and we, trailing our two pack horses, rode down the Whiterabbit valley, out on to the Kootenai plains where herds of wild horses startled at our approach, escaped across the swollen tributary streams and into the woods along the Saskatchewan River. About 10 p.m. that evening, it was so dark that the riders could not protect their faces from low branches across the trail, and we had to tie our horses to trees, roll out our sleeping bags, and sleep on the trail. Shortly after dawn the next day, we reached the ranger's cabin at the Saskatchewan Crossing and ravenously consumed breakfast at the small store.

Our message for help had to reach Calgary through a thin wire strung 160 km through the trees from the ranger's cabin to the railway station at Lake Louise where the station agent could send a telegram to the big city. By the time we had bought a few food items and eaten a meal, we received a message back that a light plane was prepared to take off from Calgary on the rescue mission. We started on the way back to camp with our little pack train, confident that we had done our best. [As it turned out, no aircraft was seen or heard that day at camp where it rained all that day.] We had hoped that, by riding 10 hours, we could reach camp on the Whiterabbit that night but again darkness overtook us accompanied by rain. Even with the help of a flashlight we were unable to make our way along the Whiterabbit trail and had to spend a second night under tarpaulins.

By the second day after the accident, Norm was much better: we found him, when we arrived in camp that morning, walking around, probably with broken ribs, but with no evidence of the severe internal injuries that I had feared. He thought that he would be able to ride out in a few days so we decided that Albert should turn around and ride back to the Saskatchewan Crossing to wire Calgary to cancel the request for a risky medical evacuation. However, the following evening, a light plane flew over the meadow beside the camp and dropped a stone around which was wrapped a message that we should lay out a landing strip on the Kootenai Flats the next day so that "the patient could be picked up." We were completely puzzled for we assumed that by then they had received Albert's cancellation message sent the day before. We had no way of asking questions; we could only obey the request to prepare for the landing.

The weather had finally cleared, and the following day an advance party rode the 13 km to the Flats and started clearing a meadow fringed by trees that seemed long enough (1500 ft. as they said) to accommodate a light aircraft. Norm made the trip more slowly and painfully, but by noon we were all waiting for the rescue from the sky. A light plane did fly over

but did not land. It dropped another note to say they had now received Albert's telegram and had decided not to land because Norm was better. At that point, we did not know what to do but then we heard a much deeper engine approaching.

Out of the sky and on to our "landing strip" came a large yellow aircraft with "NAVY 834" painted on the side, a Harvard trainer, piloted by an officer with aircraft-carrier training. He had heard at the Calgary airport that someone was in trouble in the mountains and decided to see if he could help. However, the Harvard had only two cockpits and he had brought a passenger; however, he agreed to take Norm back to Calgary and to send another friend in to pick up the passenger. Norm had never flown before and was obviously terrified at getting into a cockpit barely enclosed in plexiglass. The pilot instructed us to cut down some trees at the end of the airstrip and made a trial run along its length, aborting the takeoff at half-field. Then he was back in the far corner, roaring down the bumpy grass surface, and up over the treetops at the end with room to spare.

The Harvard trainer picks up Norm.

We still had his passenger left behind, and we waited all afternoon for him to be picked up. When his ride appeared, it was a much smaller aircraft with an engine the size of a large outboard motor that was refilled from a Jerry can. This pilot was very worried about getting off the ground on the short strip with a much less powerful motor than the Harvard. He spent what seemed to us like hours clearing debris and making a trial run. Eventually he bounced down the meadow, was off briefly at mid-way, knocked off his tail wheel at the three-quarter mark, and flew directly at the trees at the end of the meadow just above the ground. We were sure he would crash, but at the last moment, he was able to bring the nose up brushing the treetops and climb out of the valley. Norm got his broken ribs patched up at a Calgary hospital that night; the second plane must have had a rough landing without its tail wheel at the airport.

- Colin W. Stearn

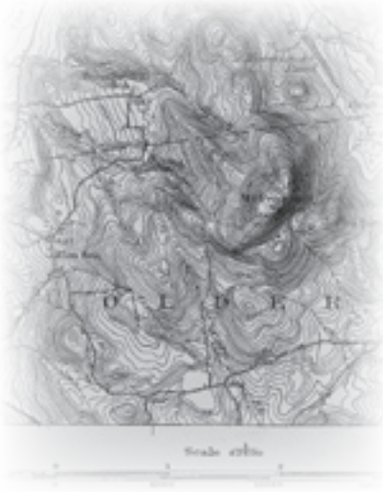
"Site: Near old Carlin, Nevada. Geologic objective: Review mine workings and geology, prepare map. Rainstorm stopped mapping; rain ceased and beautiful rainbow ended on mine dump. My comment: "There's gold at the rainbow's end!", but associate said "No way!" About two year's later, Newmont Gold began development nearby of great Carlin gold trend."
– Paul Dean Proctor

Nothing Beats a Good Map

In 1950 I went with three amateur prospectors from New Brunswick, New Jersey to evaluate their manganese prospect in the Marathon Basin of Trans-Pecos Texas. We traveled by plane, a sturdy Stinson Voyageur.

The second leg of our flight, from Roanoke to Knoxville, went well, and we decided to continue on to Chattanooga. Our calculations indicated that we had enough daylight and sufficient fuel for the needed extra hour of flying. The Knoxville tower gave us a heading and wind-drift data, and we continued on our way.

An hour went by with no sign of Chattanooga. Darkness was coming on, and a ground fog obscured our view of the ground. We knew we were in trouble.



In a few minutes our fuel gauge read EMPTY. I urged the pilot to land in a pasture which showed through a break in the fog. "No," he said, "the fuel tank still has a twenty-minute reserve after the needle says EMPTY". We had already used up half of that reserve!

I grabbed my copy of Erwin Raisz's map, Landform of the United States. I knew approximately where we were, and I compared actual skyline features in the Great Smokey Mountains east of us with their sketched representations on the map. "If that peak in the mountains is the one represented on Raisz's map," I said, "we need to turn to 90 degrees west, which should bring us to Chattanooga."

The pilot did just that, and in about four minutes we broke through the ground fog and found that we were practically lined up with the airport runway. The landing was perfect, but we ran out of gas before reaching the fueling ramp and had to be towed that last few hundred feet!

I knew then that nothing beats a good map when you really need one!

- John James Prucha

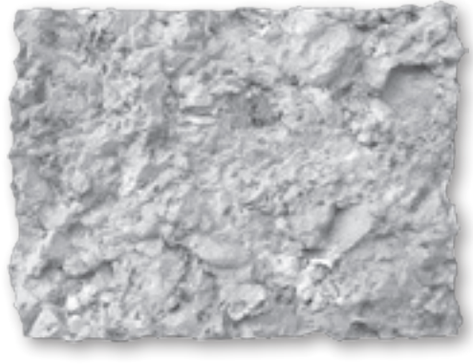
On Becoming a Geologist

The first rocks I remember picking up and keeping were from hills and valleys in the Wagon Bed Formation of Eocene age north of Copper Mountain in central Wyoming. Mostly the Wagon Bed is airfall material-volcaniclastic claystone and sandstone. The rocks I gathered were zeolitized ash-white, light gray, pale pink, and porcelanic, small enough pieces to go in a Bull Durham sack. I was seven years old.

We were living in a V-shaped ravine beside a spring between West Bridger and Bridger Creek. The draw sometimes flooded, swirling brown, brush-stuffed water against the cellar and the log cabin, and carrying green claystone and soil down the ravine and depositing it along the ephemeral stream and into West Bridger Creek. When it rained, the roads were impassable, the smectitic clays swelling and rolling up on tires. I remember the smell of the clay and all of us, except my mother, getting out and pushing the truck. Most of the time it was a dry land.

My father was running his older brother's ranch while he recovered in Worland from a badly broken leg suffered when his horse fell on a steep trail. Uncle Raymond went up in the air and flew behind the horse before hitting the ground.

Before she married and for several months afterward, my mother, an immigrant from Missouri, was the sole teacher at a one-room school situated on Triassic rocks-red beds, pale-orange sandstone, and the thin Alcova Limestone. Bridger Creek, north of the schoolhouse, was a small stream that meandered on the red beds. Prairie dogs lived there and rattlesnakes were inhabitants where the sandstone and sandy siltstone cropped out. It was cool on the mountain in the summer and in the fall my father took the cows to winter range on the Badwater place near Lysite. From the time I could, I crawled on, then walked and climbed and rode horseback through Triassic rocks. For me, the rock glowed with the warmth of deserts, as Jacquetta Hawkes said of Devonian red beds in Scottish valleys.

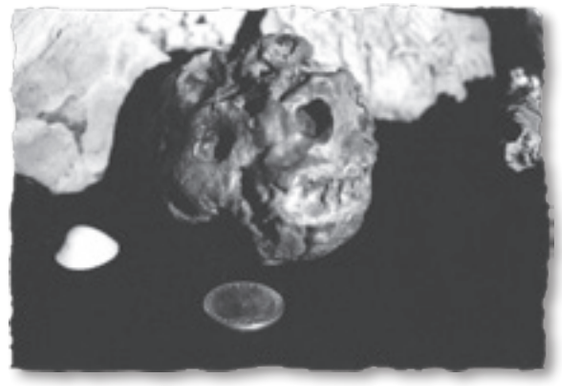


We lived in Worland in the Big Horn basin during the school years, grades one through twelve. Worland is the county seat of Washakie County, named for the Shoshone Chief Washakie. At various times, we lived on both sides of the north-flowing Big Horn River. On the east, the Big Horn mountains reach 13,165 feet. To the south, the relatively low-lying Owl Creeks border the basin. Far to the west, the dark, mysterious Absaroka Range bars the west margin; its highest peak, called Frank's, reaches 13,140 feet. The rocks I collected and mostly stored under my bed and in the garage were from the Willwood Formation of Eocene age, rocks of the Big Horn basin badlands. I still went to the Wagon Bed volcaniclastics on the ranch north of West Bridger Creek and to the red beds of the Chugwater Formation.

Summers I lugged jugs for seismic crews, carried rods for surveyors, and learned to run a transit and alidade. I made topographic maps of sugar-beet fields. My last year in high school I took an elementary course in geology, called general science. I was a senior among ninth and tenth graders. Very soon I had a great desire to be in class every day. Memories of the lectures, the trips to the field, and the work in the lab still return again and again.

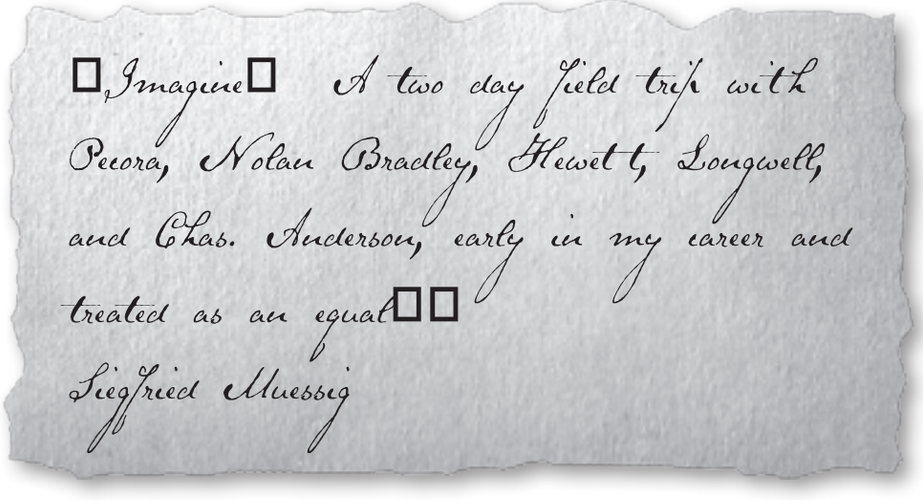
For Christmas in 1944, my folks gave me Outlines of Physical Geology by Longwell, Knopf, and Flint, which I then carried with me everywhere, even packing it on basketball trips. I began to collect minerals and rocks, putting together a collection for the high school. The science teacher, Mr. Brown, arranged for me to have a room "my lab", an unused custodian's closet. Though I knew little about what geologists did, there a demand for them, and I thought about becoming one.

In the spring in the general science course, I found what looked like an hominid skull. Brown suggested I send it to Horace D. "Bill" Thomas, professor at the University and State Geologist of Wyoming. He passed it around the geology department. "It looks like a skull," he wrote; "we don't think it is one." Disappointed, I accepted that. Professor Thomas kept the rock in Laramie-dark, yellowish-brown, weathered chert that looked like a skull.



In 1946, while I was stationed at the Bainbridge Navel Training Station in Maryland, I took a correspondence course in physical geology. The unknown teacher urged me to consider becoming a major. I was flattered. "I'm considering that," I said. In the fall of 1947, after matriculating in geology at the University of Wyoming, Bill Thomas called me into his office, got up, and walked to a shelf behind his desk. Smiling, he handed me the skull from Worland, from the gravels on the Big Horn River terrace. It was good to have it back.

- M. Dane Picard

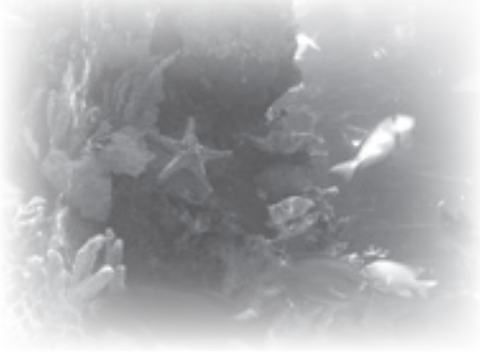


(Geo)Tales of the South Pacific

At the invitation of Drs. Bernard Salvat and Rene Galzin (Ecole Pratique des Hautes Etudes, France) and Francis Rougerie (Centre ORSTOM de Tahiti), I spent nearly eight weeks during 1989–1992 on the remote atolls of Takapoto and Tikihau, French Polynesia. The total population of Takapoto was about 450 and of Takihau about 250. Each atoll had a village with churches and one general store (that had a plentiful supply of warm beer) but no movies, banks, etc. Other inhabitants were scattered among the islands encircling the atoll rim.

The constant trade winds made the high temperature and humidity very tolerable. Freshwater was carefully conserved. The almost daily rains brought most of the scantily clad population out-of-doors for a very refreshing "shower." Rainwater was gathered from roofs and stored in tanks for other washing needs (but not for drinking; thus the availability of beer). The village at Takapoto had a gas-powered electric generator that ran only in the mornings and evenings; elsewhere electricity was solar-generated and stored in batteries (an earlier attempt at wind-powered generation was destroyed by hurricanes). Our refrigerator door was opened only after careful menu planning; ingredients were quickly removed and left-overs quickly returned.

Fin- and shell-fishing were important sources of employment for the men and women respectively; surpluses were air-lifted to Tahiti for sale in the open-air market. One day a fisherman speared a huge "Napoleon" (named for the shape of its "face") that was prepared by the local wives, cooked in the ashes of a bonfire, and eaten around the fire with great pleasure by their families, neighbors and the fortunate visiting scientists. Non-perishable foods and other supplies were unloaded onto the beach about once a month (needless to say, this became a big community party!).



My purpose for being there was to study the composition, structure and distribution of the pristine living reef communities and associated carbonate sediments/rocks from the upper reef crest (spurs, grooves, algal ridges, blow-holes, etc.), across the reef flat and along the shallow tidal channels connecting the sea to the central lagoon. To visit my study sites, a bicycle was loaned to me by one of the local children. The roads were unpaved so I struggled to these sites along winding sandy paths through extensive coconut groves that had been abandoned in the 1980s upon the collapse of the market for hi-cholesterol "palm oil" for whitening coffee. Injury from falling coconuts, loosened by the wind or by tree-climbing crabs, was of constant concern to natives and visitors alike; half my biking-time was spent looking upwards to avoid trunks/branches that overhung my path.

In summary, the ecology of both the human and coral-algal atoll communities was a completely new, absolutely delightful and scientifically rewarding experience for me. With rising sea-levels from global warming, I fear for the survival of many atoll communities (max. elevation = 1m) but would unhesitatingly repeat the experience should the occasion arise.

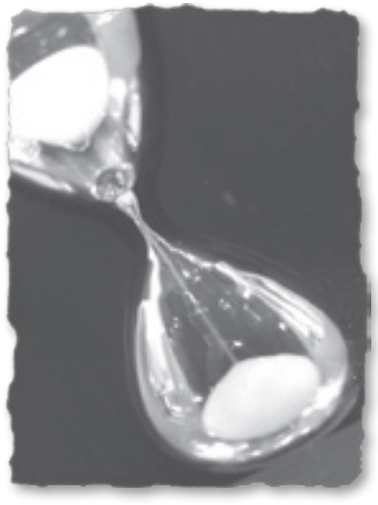
- Al Fagerstrom

"Opening 45 long-dead seal-lions on California beaches to learn from lithology of stomach stones at which island area they had been shot."
– Kenneth Emery

Value of Experience

In late August 1960, I was finishing field work for my PhD thesis on Ogallala Stratigraphy in south-western South Dakota. George White, my advisor at the University of Illinois, arranged for John C. Frye, then director of the Illinois Geological Survey, to field review my work. As a top authority on Ogallala Stratigraphy of the whole Great Plains, Frye was less than impressed that I had found no fossil grass seeds, the Pliocene Stratigraphic key.

Dusk approached as I drove the open jeep to quarters at the end of field review. John suddenly threw up his hands and said, "Stop!" He pointed to an obscure sand at the road side whose greenish-gray color was slightly different. "There," he said, "grass seeds." He was correct. I knew I had seen that same color elsewhere, but had not investigated it. I did so the next day.



The grass seeds that I collected subsequent to Frye's enlightening revelation changed no stratigraphy, but did add some authority to the thesis and extended, with certainty, the range of seed occurrence into South Dakota. However, the real lesson that I learned, and remembered throughout my career, was the value of experience. The best geologist is the one who has seen the most rocks.

- William D. Sevon (Pennsylvania Geological Survey, Retired)

Walking along a steep sided wash in New Mexico and spotting the tracks of a BIG cat at my feet. Little dribbles of sand were still falling into the track. Time to retreat!
– Joseph G. Wargo

Early Career Advice

While a graduate student, and during my first 10 years after earning my PhD, I benefited from a lot of sound career advice from some eminent geologists. I'd like to share the three pieces of advice that stood out:

1. *"If you want to become known and recognized, always go into an un-crowded field."*
   Raymond C. Moore – November 1956
   (This was offered during a class in "Geological Development of the World" at the Univ. of Kansas)
2. *"Always take a sabbatical leave, even if you have to go into debt for it. It will always pay off."*
   Aaron C. Waters – September 1961.
   (I had to attend a marine science meeting at Johns Hopkins University a month after I began teaching and briefly visited Waters whom I knew. When he heard I was teaching, he offered this advice).
3. *"There's nothing like looking at an old problem from a new point of view."* Paul E. Potter – December 1969.
   (When I accepted an offer to join the faculty at the University of Illinois, I wrote many Midwestern sedimentary geologists to find out what research they (and their students) were doing. All but one sent me a monographic letter about projects being done in their universities. Paul Potter wrote me a three-sentence letter and the above quote, which was extremely sound, proved invaluable for the rest of my life. One prominent geologist whom I know heard me open a colloquium with that quote and told me afterwards that it was a reminder to look at one's graduate school notes every ten years and see what was still unsolved.)

- George D. Klein

Middleton Island, Gulf of Alaska

Our reputation for collecting valuable geological information from the seafloor had long since spread through the oil industry to areas remote from California. A telephone call reminded me of that.

A geologist at Tenneco, based in Alaska for Tenneco, wanted to know if we were available to dive for a week or so in the Gulf of Alaska. A shot of icy water seemed to shot down my neck, I shook off that sensation and assured him that we were in the business of geological diving and what did he have in mind. The prospect of returning to Alaska made me think again of the overpowering charm of that place.

It turned out that he wanted to map submerged outcrops around Middleton Island. As described its location and what he believed to be the conditions around the island, I thumbed around my atlas and found the Island in the open sea about 110 miles southeast of Seward, a port on the Gulf of Alaska. This would be an unusual logistical problem but I assured him we would be pleased to work there. When I asked him about the availability of charter diving vessels he thought I could find one in Seward. He told me whom to call there. I told him I'd get back to him with a cost estimate.

I contacted my business associates in San Diego and determined who would be available to help with this job. At that time we had employed Larry Headlee, a young diving geologist I had known at USC. He and I would do that job along with the "always ready to go diving" pioneers Dave Moore and Bob Dill. I found a boat in Seward, established a schedule and reported the estimated cost, which included cold water and foreign service pay, to Tenneco. We all understood that everything costs more in Alaska.

To my proposal he said, "When can you start?" Our costs were miniscule compared with the overall costs of playing the oil-hunting game in such a place. On the scheduled day we met Tenneco's representative in Seward, stowed our gear aboard the boat, and in the late afternoon departed for Middleton Island, an overnight voyage.

A southeast wind raised an ugly chop through which we wallowed all night. The next morning Tenneco's geologist became seasick. We spent the day in the lee of Middleton Island, while he recuperated. Middleton Island lies low, only a few tens of feet above sea level. The only residents were government employees, who operate a radio facility to guide aircraft into Anchorage, and thousands of seabirds and feral rabbits.

The sea laid down and we began diving. As we expected, the water chilled us but good water visibility cheered us. The diving went well without any unusual incidents, except on one dive. As I rested on my knees on a massive outcrop making observations, Bob, who was on my right, tapped me on the shoulder and pointed to my left.

There on the bottom, twenty feet away, rested an enormous flat fish about six feet long, four feet wide, and a foot high – a halibut known in Alaska as a "barndoor". Its eyes rested on stalks that projected above its head. Those eyes moved searchingly from side-to-side, measuring us. We stared him down. With the disdain of a creature in his element, meeting clumsy unwanted intruders, he slowly moved his body and fins, turned and with the grace of dignity of a prima ballerina, exited stage left.

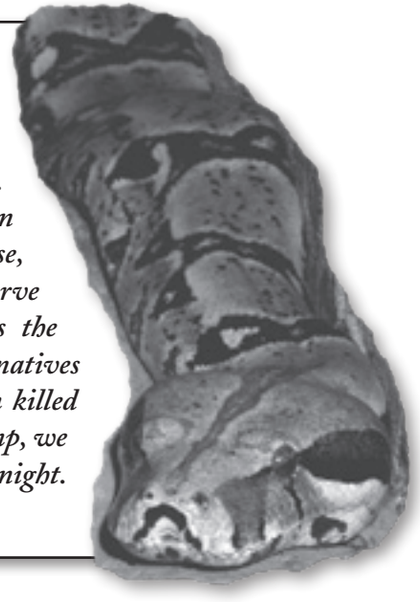
Diving at Wessels Reef

Several miles from Middleton Island, Wessels Reef rises to within 30 feet of the surface. Tenneco also wanted information there. Larry and I made a dive. I carried an underwater camera. On the seafloor we found a jumble of overhanging and fallen slabs of hard sandstone from which I found it simple to collect the needed information.

Around and over us swarmed dozens of Stellar sea lions, about twice the size of California sea lions. They didn't seem hostile, just interested, but their great size, magnified by about one third by a phenomenon of underwater optics, made me apprehensive, like strolling among thugs on a dimly lit street. We collected the information that satisfied Tenneco.

The following summer Tenneco would be drilling a well near the island and we would return to provide additional information by new techniques.

- James W. Vernon



While investigating a damsite on the Island of Salawesi, Indonesia in the 1980s, we had climbed the abutment that still was partially covered with dense vegetation. We were hot and tired and decided to rest on what appeared to be a log. To our surprise, the log moved, and we were shocked to observe a very large Boa snake, moving across the abutment. We reported this to the local natives clearing the abutment, and three of them killed that snake. When they arrived back at camp, we did not accept the offer to eat with them that night.
– Art Arnold

Pettijohn

In 1952, Francis J. Pettijohn, one of the great sedimentary geologists of the 20th century, moved from the University of Chicago to Johns Hopkins University. The last course he taught at the Uof C was a field geology course in the upper peninsula of Michigan. I was a "very green" student in that class, having completed only a single-year introductory course. Two memories stand out.

Francis J. Pettijohn

I remember his struggles in trying to get me to see the difference between a mildly metamorphose arkosic sandstone and a granite so that I would be able to map the contact between them. Being a teacher, he didn't give up easily; I learned to see.

I also remember that, after a week or so of instruction, he took us to a low outcrop in the woods. All of us dropped to our knees, got our noses close to the outcrop, to try to answer whatever question it was that Pettijohn had posed. What made this memorable was his pleased comment: "Now you look like Precambrian geologists!"

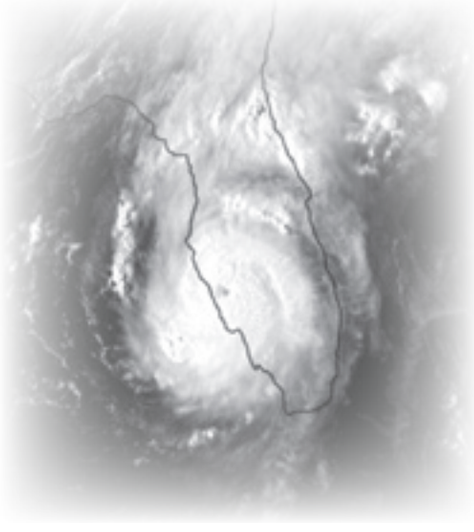
- Paul Reitan

Earning my PhD degree — fieldwork, theses and guidance — under Prof. Francis J. Pettijohn and my faculty advisor.
- Norman N. Greenman

Hurricane Charley

On Thursday, August 12, 2004, Shell Point issued an ultimatum to either go into the concrete garage shelter with 600 octogenarians, no A/C, and minimal potties, or leave. We had already chosen the latter and left home in Sanibel on Thursday morning, exercising our storm reciprocity rights with Jim and Betsy McGoogan on the east coast, at Palm City. The accommodations there were luxurious to say the least, complete with private cabana, cavorting manatees in their adjacent lagoon, and a personal orchid tour. Our cat, Perkins, had to compete for attention with the ruling cat Gooney. There was some hissing but no fighting, since they never got in the same room together.

Watching the Weather Channel was the principal activity on Friday. It looked for awhile that there would be a direct hit on Sanibel, followed by a path up the Caloosahachee River directly over our house. Jeanne produced a calamity prayer at 2 p.m. which worked beyond our wildest hopes, for shortly thereafter, the center shifted slightly to the left, entered the coast at Cayo Costa Island, which is the northernmost of the island chain starting at Sanibel, and proceeded up the inappropriately named Peace River toward Orlando. From that point on, the TV showed devastation non-stop.



Our belief was that we had lost roof and boat, which meant that most possessions would have been destroyed. We couldn't get through to anyone on this side of the state, so when we returned Saturday morning, it was with great trepidation.

Damage started appearing as we neared Alva and continued with increasing intensity as we progressed southwestward through Fort Myers. Mostly we saw foliage, signs, and line damage. Power was out everywhere, so all intersections were four-way stops. People were very good at handling this, and most of the larger crossings had deputies.

We arrived at our house, and low and behold, it was standing intact. Even more amazing, the boat was floating peacefully in the canal. Lots of leaves and branches were around, one panel in the pool screen was out, the garage door was open and the garage full of leaves, and of course all services were off except water and sewage. A week earlier we had asked the grounds supervisor to trim out the mahogany trees and remove some ugly Ti plants from the front. The storm took care of that, with admirable precision.

We had dinner with a friend out near the airport, since they were having a neighborhood cookout and we had left Perkins there on the way home. When we got back to the house at 8:30 pm the power was on. It obviously helped to live within a few hundred yards of a major nursing home. So we rapidly returned to pre-storm condition.

Conclusions:

- Someone higher up was watching over us.
- Don't leave your good silverware and backup disks in the house when you evacuate.
- Disconnect the garage door opener and lock the door down.
- Don't spend a lot of money at the summer sales before the hurricane season gets underway.
- Do take cash and keep the gas tanks filled.
- Be ready to go when they say it is time to evacuate; don't 'ride it out' like they did in the Punta Gorda mobile homes.
- Your material life can be wiped out in the space of a few hours. It is not necessarily the end of the world. As Monty Python used to say, "And now for something entirely different!"

We are very happy to be writing to you,
- Jeanne and Bob Fuchs

The Longest Day

As a consulting geologist in January 1968, I was given the assignment of assessing the zinc reserves of Bolivia. A party that grew to seven geologists set out in three jeeps from La Paz to visit every reported (and rumored) deposit and showing of zinc along the Alti Plano. On departure from La Paz, I was provided with a stack of 500 well used one Boliviano currency notes to pay for all field costs of the investigation. Apparently larger denomination notes were not available at the bank that morning. Trying to conceal a thick stack of crumpled notes on my person during the following days was a challenge. As we made our way south towards Tupeza, near the border with Argentina, the weather slowly deteriorated. The rainy season was approaching. Water was starting to flow in formerly dry creek beds. Road access to Tupeza was seasonal; since several kilometers of the road were along a river bed. To avoid being trapped, a hasty retreat north was in order.

The field portions of our investigation had been accomplished except for visiting a rumored zinc showing at a location southeast of Cochabamba. It was decided that three geologists, traveling in one jeep, would attempt to examine the showing on the way back to La Paz. The three comprised a Mexican, an Argentinean, and me, a Canadian. While en route, we refueled at Sucre at what we were told was the only gasoline pump in the city. North of Sucre, we were twice stopped by the military patrols looking for information on Che Guevara who had reportedly taken refuge on the Bolivian Andes.

After a fruitless search for the zinc showing, which included three fords across a river in headlight-deep water, we decided to head for Cochabamba, 20 miles to the northwest. Little did we realize that it would take about 36 hours to travel those 20 miles. The rains had come. We were barely one hour en route when we were stopped by a truck which had slipped sideways on a hilly section of the road. We slept in the open jeep as best we could. It was not until first light the next morning that the truck was unloaded and maneuvered to one side sufficiently to let us pass. Hungry and thirsty we proceeded on our way. But every mile or two (it seemed like every 100 yards), the jeep wheels would slip sideways into deep ruts left by trucks in the clay-based road. With extensive digging, pushing and cajoling the jeep would climb out of the ruts, and we would be underway again.

This was repeated throughout the day. In late afternoon, a man walked forward from a bus stuck 100 yards behind where we were currently stuck. He asked for the loan of our first aid scissors — a woman was giving birth on the bus. We were stuck again in the gumbo after dark when the truck which had blocked our passage the first night caught up with us and offered a tow. The only "rope" available for towing was a 20-foot long souvenir bull whip which the Mexican geologist had bought. It proved to be strong enough to move us into a hilly area where the road surface was much improved. Unfortunately, the whip was no longer a prized souvenir. We arrived in Cochabamba after midnight and succeeded in waking up a motel manager to give us lodging.

- Lisle T. Jory

One of my field "assistants" was a donkey named "Junior" that was obliging enough to carry the gear and talented enough to spit out the pits of the cherries we shared.
– Hugh White Dresser

Hugh Rogers

It was my custom during the summers of 1977 and '78 to leave our home in Clemson, South Carolina, on Monday mornings to drive to the field in the eastern Blue Ridge west of Franklin, North Carolina, and work for a half day. Usually this work involved collection of geologic data along roads or making a short foot traverse, because there was usually not enough time to get in a long traverse.

One Monday afternoon, I chose to fill in the data along a previously unmapped gravel road near Shooting Creek, North Carolina. As usual, I stopped wherever rocks were exposed to record the available rock types and structural data and to plot some of it on the topographic map. At one place I stopped beside some boulders on the roadside, but no bedrock was exposed, so I climbed to the top of the road bank to see if there was bedrock exposed in the adjacent woods. I saw none and was preparing to return to my jeep and continue along the road when someone shouted—actually screamed—from the porch of a house I had just passed, "Get out of there!"

I paused, took another step into the woods, and then returned to the road. In the meantime, the person who had shouted at me jumped into his pickup and drove hurriedly up the road, jumped out, and resumed shouting at me to stay off of his property. I tried to explain what I was doing there and that I meant no harm. He did not want to listen, but continued shouting at me. I managed to ask him why he was so upset, and he explained that people had trashed and tried to burn down another house on his property just up the road from where we were standing. I tried to convince him that I was sympathetic with his feelings, but he continued shouting at me this time saying, "If you are not careful, you will be carried out of here in a pine box."

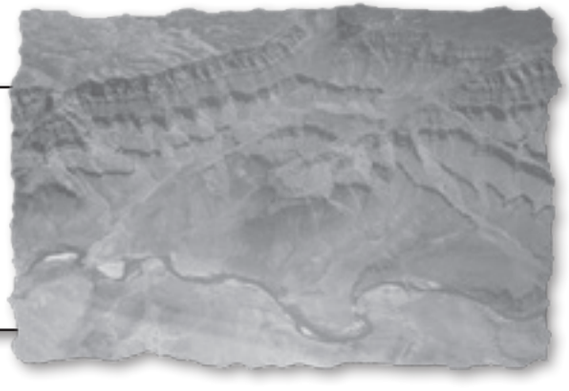
Having concluded early on that he was not carrying a gun and mentally noting that I had my rock hammer in hand and was quite a bit younger and larger than he, I responded that he was not the one who would be capable of doing that. I additionally promised him that in a few days I would return to his house, ask his permission to walk on his property, and expect to be given permission. I told him my name and asked his. He told me his name was Hugh Rogers as he stormed back to his pickup without saying much else and drove back to his house.

I felt that the best strategy for following up on my promise was to do other traverses for a couple of days, then return to his house. Following that strategy, on Thursday morning I drove to the house, parked my Jeep, and walked to the front porch. I had learned many years previous that it is best when calling on folks who live in the country to knock on a post on the porch or say "hello" in a loud but non-threatening manner. Following this protocol, I expected Mr. Rogers to come to the door, but instead a young woman in a University of North Carolina sweatshirt appeared at the door, and I asked if her father was there. She responded, "You mean my husband, and he's not here."

I immediately knew that the conversation had taken a turn for the worst before it began. She knew who I was and immediately started speaking to me about my experience with Mr. Rogers earlier that week in a strong tone, but was not shouted. As soon as I could get a word in, I explained my need to walk on their farm and that I was trying to keep the promise made earlier in the week to her husband. She began to calm down, and I pointed in the direction up the nearby mountain where I needed to go and explained that I would like to leave my Jeep at their house, because I felt that it would be safe there. She agreed, stepped to the front of the porch, pointed to a fence line that went up the mountain, and said, "You can go up that way, but don't cross the fence—the people who own the land on the other side will shoot you." My foot traverse was completed by late afternoon, I returned to my Jeep still parked safely in their front yard, and drove away.

- Bob Hatcher

"Geological boat trip, two months through the Grand Canyon in 1937 via wooden boats."
– Robert P. Sharp



Bangkok to Chang Mai

The trip to Chang Mai, Thailand, circa 1950 (sponsored by Jumchet for PEL to evaluate ground water in the area) was made by a narrow gauge, wood-burning railroad engine, pulling a string of passenger and freight cars. Phong Phan Na Chang Mai accompanied Bunnie and Phil on the trip to this northern village as guide and interpreter.

On arrival, Phong Phan presented to Bunnie and Phil each a silver-coin wash bowl that was to be used to dip water from a large Chang Mai jar for taking a bath. We were housed in a solid teak cabin that had hanging baskets of orchids around the porch. Below the porch was a stream, and in it on occasion we could see crocodiles about 50 yards away. Close enough. Elephants crossed at a small forge close by as well.

Chang Mai was a delightful small village then. In a way, it's unfortunate that it has now lost its primitive charm to tourism. The local dome-shaped wats had border dragon eaves with tinkling hanging bells that rang in the gentle breeze. The paved streets of the village led off to dirt paths and roads into the jungle.

On Friday evenings, young girls with flowers in their hair and dressed in beautiful Thai silk sarongs danced along the streets to Thai music. Their fingers were ornamented with long false fingernails that they moved gracefully in rhythm with the music. Their long dark hair was brushed to a sheen, and their sparkling brown eyes beguiled everyone in their path.

Early morning at sun up, we saw the monks in orange robes parading from house to house to collect their breakfast. Wooden-wheeled carts pulled by gamoussa (water buffalo) and drivers wearing the typical broad brimmed Thai straw hats hauled farm vegetables and fruit to town.

Most spectacular was our return trip to Bangkok by train, which required many stops at small villages along the way. The train, narrow-gauged and fired by wood, had to stop and take on fuel at the small villages. The wood had been cut to proper length and stacked, and by the time the little "Puffer Billy" had stopped, the refueling and taking on water had begun. In traveling on this train, it was not wise to stick your head out the window, as you would immediately be covered by soot from the smoke stack. There were always cinders and sparks flying away from the engine. We eerily sped along periodically blowing the mournful sound of this steam monster as it plowed its way through jungle and over mountains and hills. It was like a toy train weaving its way clickety clack, clickety clack through the jungle.

At each village there were women peddlers and children bringing their wares, products from their small farms, or handicrafts, including knives with woven rope handles, carvings of teak elephants, woven baskets, sticky rice, fruit, and dolls. If I could only have brought baskets full of loot back to friends, I would have. All that was possible, however, was to bring back memories of these lovely, kind, generous people.

One of the most interesting experiences during the trip was created by Bunnie. We were traveling in a closed passenger car with an open stateroom that had double bunks. I wanted Bunnie to sleep in the upper bunk, but did not want to tell her why in front of the people crowded into the car. She balked at the situation. She wanted to sleep in the bottom bunk! My reason for wanting her in the upper bunk was that there had been a murder during the previous month of a person in a lower bunk, and I did not want to take any chances. Naturally, I got my way and she slept in the lower bunk!!!

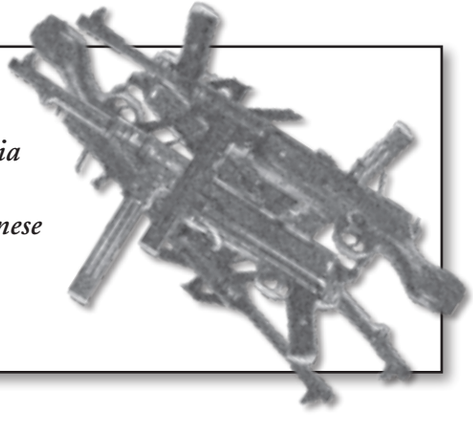
Finally, Bunnie in her nightgown and kimono went back through a couple of train cars to the ladies' restroom and toilet to get ready for bed. No one on the train could speak English; however, they knew her purpose and everyone pointed the way for her! This was the "first international toilet event" which Bunnie eventually became used to. Now, after many trips with me to wide-open spaces, she plans to write a book under the title

"Toilets I Have Used Internationally."

The trainload of Thais heading to Bangkok was something to behold. There were large baskets of clothing and agricultural products piled on the floor. Most of the passengers did not have sleeping compartments and sat on benches. There was a great variety of colorful dress of women in large, woven straw-brimmed hats, pajamas, blouses, and sandals. Nearly everyone was carrying food to eat along the way. Government police at a few stops along the way, patrolled with dogs, came aboard to check for opium being transported from the Burma-Thai border to Bangkok. This was a major opium route. People hanging out the windows bargained for food from local vendors, and the constant stream of smoke and ashes streaming out of the engine's smoke stack and the rhythmic clickety clack indicated that we were moving along the way.

- Phil E. LaMoreaux

Forming a Canadian company to explore gold prospects in Micronesia during the gold bubble of the mid-eighties. Found a lot of rusty Japanese machine guns. Not much gold.
– Joseph G. Wargo

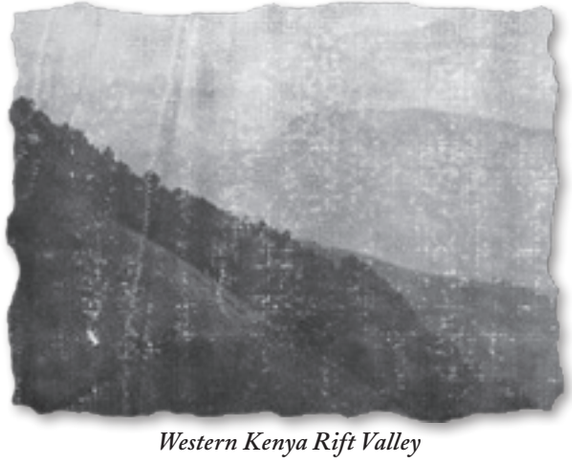


How the Rio Grande Rift got it's Name

Kirk Bryan was probably the first to recognize that, in its course through southern Colorado and New Mexico, the Rio Grande follows a series of linked down-dropped blocks bordered by uplifted blocks. He referred to this great linear regional feature as the Rio Grande depression. Arriving as a new young professor at the University of New Mexico in the late 1930s, Vincent C. Kelley picked up where Bryan and his students left off and devoted a large part of his life to a study of Rio Grande geology. Kelley, however, eventually began to refer to this feature as the "Rio Grande trough," and when I arrived at the University of New Mexico in 1959 as a graduate student in the Department of Geology, that name was beginning to be used.

From time to time, the concept of rift valleys (à la east Africa) would be discussed by Kelley, and he would often note the similarities between these features and the Rio Grand trough. However, he would never refer to the Rio Grande trough as a "rift," even though at times I thought he was on the verge of doing so. (Kelley did use the term "rift" in a 1952 New Mexico Geological Society guidebook article, but in this case he used it in the sense of strike-slip faults which he thought might bound the blocks.)

Why the reluctance to use the term "rift," I'm not sure. Perhaps he wasn't yet convinced that sufficient similarity existed, or perhaps "rift," with its Southern Hemisphere roots, might lead to connotations of "continental drift," a dangerous and controversial concept at the time. Well, what ever his reluctance, I believe I was a witness to the event that led to his conversion and to his finally uttering and writing the words "Rio Grande rift."



Western Kenya Rift Valley

It happened this way. By the mid-1960s, I had pretty well established my credentials as a graduate student geomorphologist and Rio Grande "old hand"

in the department. And, pertinent to this discussion, I had one other strength as well: I had read just about everything the great South African geomorphologist and continental-drift proponent, Lester C. King, had written. One day an announcement arrived from the American Geological Institute notifying us that our Visiting International Scientist for 1965 would be none other than…Lester C. King. The department buzzed! Small knots of graduate students gathered at ends of hallways discussing "continental drift" in hushed tones, quickly changing the subject if a faculty member approached. (I'm not exaggerating too much.) King's books were avidly read. Excitement and confusion reigned. Dr. Kelley, as head of the department, was responsible for arranging the details of Dr. King's visit, which would be March 3–6. There would be lectures, receptions, meetings with students, and, of course, a private field trip.

One day several weeks before the visit, Dr. Kelley came down to my cubicle in the graduate student room and quizzed me as to how much I knew about Dr. King's ideas. I gathered he was not very familiar with King's concepts, including the concept of continent-wide planation surfaces. I, on the other hand, was heady with such ideas, and was already on the lookout for any continent-wide planation surfaces that might be lurking in my area. He left my office seemingly relieved that someone had been identified who could have a knowledgeable conversation with Dr. King. A few days later, I was elated to find in my mailbox an invitation to accompany Drs. Kelley and King on the private field trip, just the three of us.

Finally, the day arrived. It was a beautiful New Mexico March day—bright sunshine, deep blue sky, and, unbelievably, no wind. We worked our way north up to Santa Fe and Espanola, Dr. Kelley and I alternately pointing out this or that feature. Dr. King, a somewhat portly distinguished gentleman with a wonderfully authoritative South African accent, would dutifully note how this or that feature would fit into his (true) concept of global geomorphology.

We arrived back in the vicinity of Albuquerque late in the day, stopping at a small hill on the east side of I-25 north of Bernalillo for one last look at the Rio Grande landscape. We climbed to the top of the hill just as the

Sandia Peak

sun was about to set. And then Dr. Kelley popped the question. "Dr. King," he said, "based upon what you have seen today and what we have discussed today, do you think this is a rift valley?" "Wow!" I thought.

Dr. King did not answer immediately. Fully sensing the gravity of the situation, he slowly turned in a circle. He looked to the northeast toward the distant Sangre de Cristos, to the northwest toward the Jemez and the slab-like Santa Ana Mesa, to the south down the valley, to the great Sandia wall—sifting and measuring these features in his mind. Finally completing his circle, he turned to Dr. Kelley and said, "Dr. Kelley, I have seen rift valleys on five continents, and this is a rift valley." Nothing more was said. We marched down the hill to the carryall and drove back to Albuquerque. And so, after that day, I noticed that Dr. Kelley began to more and more use the term "Rio Grande rift" in his writing and speaking. Of course, this probably isn't the whole story of how the Rio Grande trough came to be called a rift, but I've always felt that what happened at sunset on that small hill near Bernalillo on that beautiful March day helped Kelly validate his feelings about the trough as rift.

- Wayne Lambert

"Going to a GSA talk by a Penrose Medal winner, to see a famous person, not knowing he was my future father-in-law."
- Suzanne Mahlburg Kay

Border Crossing

A number of years ago, in the early morning, my wife and I were crossing from Israel into Jordan, on our way to Petra. We arrived at the border especially early because we wanted to avoid the rush of tourists and the resulting long waiting periods that ensue. And it worked: the place was deserted. It worked so well, in fact, that we felt very much alone and more than a little nervous. The taxi driver who delivered us to the border had told, in graphic detail, of attacks on tourists that had recently occurred, and he didn't understand at all our desire to visit Jordan.

Passing through the Israeli border station was a simple affair, and suddenly we were faced with this deserted stretch of pavement, about 100 meters long, bordered by high fences topped with barbed wire. Not a soul was in sight, and off in the distance we saw the Jordanian guards waiting. No way could we turn back now, as we slowly and nervously made our way across that no-man's land separating the two countries. Everything looked gray, and it felt like we were crossing from one world into another, into a culture about which we knew very little, and in which we felt extremely insecure.

It was like a scene from some grade-B movie, where the couple leaves the safety of the familiar and enters a hostile, threatening world filled with the unknown. Recognizing the drama of the moment, we (only half) jokingly repeated our love for each other with vows of devotion, as though we were on some stage set, being filmed. We could have been escaping from East to West Berlin before the Wall came down, expecting the guards to discover our presence at any moment, and start shooting. Carrying our bags and backpacks (the Israeli border guards made us leave the carts they had given us at the border), we slowly walked the lonely stretch of road in the sweltering heat, aware of the growing distance between us and the culture with which we were so familiar, and in which we felt so safe.

As we walked toward the Jordanian border, the distant hills beyond the border station came into focus, displacing the gray cinder block huts we were approaching. There I recognized the ridges and gullies of mountains actively being eroded by flash floods. Rounded knobs distinguished granitic peaks weathering in the desert heat. Red tinges in the landscape indicated iron-rich rocks, and thin jagged spines identified dikes or sills poking up through the plutons in this desert setting. This was a landscape that I had experienced before; this was terrain I knew, at another time and place, where I had traveled with classes, lecturing about the environment before us. It all came rushing back as I stood there, feeling the past memories replacing the present concerns.

With these realizations something very wonderful happened. The anxiety subsided as I paid more and more attention to the landscape. It may sound out of context, in the midst of this border crossing, to mention the hills and plains in this desert region, but landscape is a subject I teach and in which I'm very involved. Even when I don't know very much about the culture or language or history of the region that I'm in, the landscapes are often very familiar, and that immediately puts me more at ease. Understanding connects me to the Earth, and that connection always brings with it a greater sense of security and comfort.

These were the same hills and rocks and plains I had seen and understood at dozens of other locations on this planet. Suddenly this site was not so foreign and threatening. I felt a much deeper sense of belonging, and immediately began to relax. The warmth and friendliness of the Jordanians subsequently added to that sense of comfort, and the trip turned into one of the more memorable adventures I've had. But what I will remember most is how an awareness of my familiarity with the Earth immediately brought about a peace of mind that significantly enhanced

the total experience.

There is comfort in knowing the Earth; there is strength to be derived from familiarity with her form and ways. These were thoughts I had expressed to students before, but never had I experienced them quite so dramatically. I remembered talking to students about how, through our increasing dependence on technology, that we, as a society, were distancing ourselves from the Earth, and of the price we were paying for this loss. Our ancestors had much closer ties to the Earth on which they were more directly dependent for their very survival. Contrast walking barefoot on the Earth's surface with flying over her landscape at 30,000 feet, to realize the extent of our loss of contact. The intimacy and resultant strength they felt from a closer connection with our planet have been slowly eroded, to the point where more and more people visit artificial recreations of the Earth's magnificent landscapes and natural processes, than experience the real thing. Disneyland's Matterhorn and Las Vegas's erupting volcanoes are prime examples. It's passing on this awareness that I see as one of the major goals of my teaching.

- Raymond Pestrong, PhD

"Surface mapping in the Big Bend area on ranches where the cowboys still wore six-guns and the Mexican Border was drug free!"
– Frederick L. Stead

The Unknown Luncheon Guest

In the summer of 1945, in the waning months of World War II, I did geologic mapping for the Washington State Division of Geology. My job was to map and define large bodies of high-grade dolomite marble close to the Columbia River. My base of operations was the old smelter town of Northport with a population of about 150.

Eating in Northport was a problem. Because of wartime shortages, there simply wasn't enough food available to meet the needs of people doing hard physical labor. Even with the k-rations given to me by the forest ranger, there were nights I went to bed hungry after a long day in the field.

The summer was hot, and it was my custom to stash my lunch in the shade of my field vehicle to protect it from the heat build-up in the locked car. One day I returned to the car at midday to eat my lunch and was surprised to see that half of it had been eaten by someone else. One of two hard-boiled eggs was gone, as was one of two peanut butter sandwiches. My orange had been dissected and half removed, and a piece of chocolate cake had been neatly halved and shared with the unknown pilferer.

I laughed heartily at the situation and looked for clues without success. Someone walking along the road satisfied his own hunger by eating half of my lunch. I was delighted that he hadn't eaten all of it. His sense of fairness toward his involuntary benefactor made me feel good. I knew then that I wasn't the only one who sometimes went to bed hungry.

- John James Prucha

In the Beginning

There are three linked, most memorable geologic experiences that combined to influence my life's work as a geologist. **The first experience** occurred in 1948. As a World War II veteran, I took advantage of the GI Bill to enroll in college, but I didn't really know what I wanted to do. I had changed my major three times, from English Literature, to Sociology, to History, when, as a junior, I enrolled in Physical Geology to partially satisfy a science requirement for History majors. The course was taught by William Donne. He was the most enthusiastic professor in any of the courses I had taken in two years of college. He made the subject for each class meeting very interesting and easily understandable for non-science students. By mid-semester, I said "This is for me." I went to an academic advisor who laid out the course work I would need for a major in geology.

The second experience occurred in 1951. I had received my BA degree in geology from UCLA. I was now employed by the Atomic Energy Commission (AEC) as a stratigrapher-sedimentologist in their Uranium Geology Division (which a few years later was transferred to the USGS so as to avoid duplication of field work). Part of my job was to help in understanding the stratigraphic and sedimentologic factors that controlled why and how the uranium deposits accumulated in sedimentary rocks around the Colorado Plateau. The day my memorable experience occurred, still as a neophyte on his first job, I was mapping alone in a remote part of the extensive Navajo Reservation. I had not seen anyone all morning, and I was having lunch when I noticed a man on foot, carrying a rifle, coming down a dirt road towards me. I became frightened because I could see that he had a rifle, that he had long hair, that he seemed to be scowling, and that he was an Indian. Having grown up in big cities mostly on the East Coast, I had never seen a real Indian. What I had learned about Indians came from countless Western movies—Indians were to be feared. I remained frightened when he came up close and demanded to know what I was doing. I told him and added that I was working for the government and I pointed to the large AEC seal on the door of my jeep station wagon. He didn't seem impressed, so I told him that my work could lead to an extension of the mining activity that was ongoing elsewhere in the Navajo Country to the benefit of the Navajo people themselves. That idea seemed to soften his features a bit, so I invited him to share my lunch, which he did. During lunch, we talked about geology and the land. My comments were about how geologic processes formed and shaped the landscape (and something about uranium mineralization) and his comments were about how he (his people) had adapted to the vagaries of the land. I found that, although our comments came from different perspectives, our interests had much in common. And that incident began my interest in how geologic factors influence the development of societies.

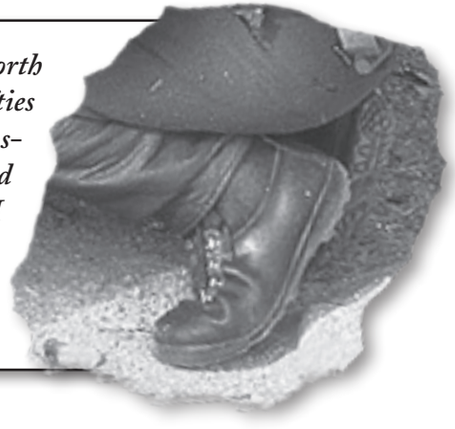
The third experience occurred in early summer 1953. I was now an experienced geologist and had even published a few reports on the geologic controls on uranium mineralization in sedimentary rocks. One day, I was assigned to escort Ed McKee, who was a consultant to the AEC geology program, to see the several mining operations in the area and the field work that we were doing to resolve the uranium problem. During the day, I gave Ed my observations and explanations for various geologic features. He asked me "follow-up" questions and added his perspectives. It was really quite enlightening for me as I learned a lot, but I was very surprised when, near the end of the day, Ed said that he was impressed with my work. He thought that I would benefit by going to his school, the University of Arizona, to undertake graduate studies towards a Master's degree. I responded that I very much enjoyed being a field geologist and that I had no interest in going back to school. He pointed out that graduate training would broaden and deepen my background when I approached a geologic problem. He said that he could get me financial support through a TA and that I should reconsider. I recalled the many questions he had raised about aspects of my fieldwork that I never even

considered because the BA degree apparently did not provide sufficient background. An hour later, as we were saying our "good-byes," I told him that I would take his advice and go for the masters. It turned out that I greatly enjoyed the research and, especially, the teaching as a graduate student. So I went on to earn a Ph.D. (at Ohio State University) and I became a part of academia as my life's work.

- Arthur Mirsky

"Introduction to Arizona geology included rattlesnakes, scorpions, sullen bobcats, curious bears, and ornery mules. Ensuing stories entertained and amused the neighboring crusty but tolerant ranchers."
– Donald Peterson

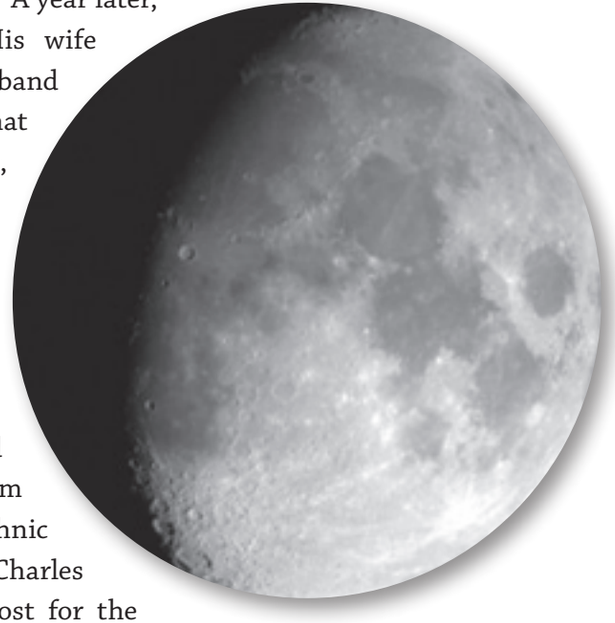
"Walking across a gravel pit near the north shore of Long Island, NY, in the late fifties or early sixties, looking for a Cretaceous–Pleistocene contact, Tom suddenly stopped and said. "Feels like clay under here." I thought, "A real field geologist! Even thinks with his feet!"
– Joseph Upson II



Friend of Astronaut Geologist's Father

My Ph.D. degree was in igneous and metamorphic petrology and economic geology at Columbia University. My advisor, Charles H. Behre (1896–1989) was a close friend of economic geologist Harrison A. Schmitt (1896–1966). Schmitt was chief geologist of the southwest division of New Jersey Zinc Corporation and exploration manager and consulting geologist for Duval Sulphur and Potash Company of New Mexico. Schmitt and I became friends. We studied ore deposits together in the field, especially in the tri-state area centering around Joplin, Missouri. This is not the greatest zinc district in the world, but it does yield low-grade zinc ores.

I mailed my reprints of published papers regularly to Harrison Schmitt. Once when I met him in Missouri he confessed to me "My son is crazy. He wants to go to the moon." A year later, I sent him reprints. His wife informed me that her husband had just died and asked that her son, also a geologist, continue to receive them. Her son, Harrison H. Schmitt, became an astronaut and is the only geologist who has visited the moon.



Schmitt has received an honorary degree from Rensselaer Polytechnic Institute and my student Charles Sternbach became his host for the Houston Geological Society.

- Gerald M. Friedman

Mapping Glacial Deposits

During the field season of 1953, while mapping glacial deposits for my PhD dissertation, I was attempting to determine if there was a thin cap of brown till overlying gray till a short distance beyond the distal edge of the St. Croix Moraine in northeastern Todd County, Minnesota. I suspected that such might be the case, but I could not be certain because the brown till was sufficiently thin that it was incorporated in the brown B soil horizon developed in the older gray till.

As I was digging in the road cut, an elderly farm gentleman (whose name I learned was Oldenberg) suddenly appeared beside me and asked what I was doing. I gave him the stock answer that I was studying the soil. "Oh no you're not," he said. "You're studying glacial deposits."

Astonished by his statement, I simply said "Well, yes sir, that is correct." Mr. Oldenberg then inquired, "Why are you doing that? Somebody just did that here recently."

That statement immediately alarmed me. Was someone else mapping in my thesis area? So I asked the old gentlemen if he knew the name of the individual. He replied that he could not recall. After some considerable thought and delay, I inquired if he would remember the name if I mentioned one. He answered that he might.

I knew that Warren Upham had mapped Todd County about 70 years ago and that Leverett had mapped the glacial deposits of Minnesota before World War I, about 40 years ago, but obviously neither was "recently." Nevertheless, I asked if the man's name was Leverett. "Yeah," he replied. "We called him Frank. He even stayed here with us for a couple of days." Needless to say, I was relieved and happy to know that someone else wasn't mapping in my thesis area.

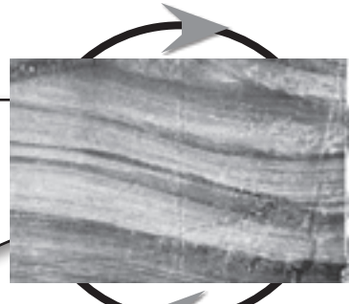
- Allan F. Schneider

TA Antics

In the Fall of 1958, I entered Washington State University (WSU) as a graduate student in geology and was awarded a teaching assistant (TA) assignment. The Department staff member in charge of TAs was Al Schneider. Now, as many of you know, Al is a stickler for detail and for proper procedure, a fact that at times was frustrating to TAs. He even earned the name among graduate students of SIAHA, which will not be translated here. As part of his research, Al conducted a series of graduated-cylinder sedimentation tests on Pleistocene soils. His cylinders were lined up on a bench that was firmly attached to a wall between the lab and a hallway. On one occasion, following some particularly unwelcome admonishment to TAs, one (unnamed) TA picked up a very heavy drainage tile that was serving as a hall ashtray and repeatedly banged it against the lab/hall wall, severely disrupting the sedimentation tests. I don't believe that Al ever discovered who did this dastardly deed, and I'll never tell.

Incidentally, I don't know of a single WSU TA during Al's time as advisor who didn't leave feeling that Al was a friend.

- Dave Stephenson



Showing Dr. R.C. Moore the Hoh formation type locality in Western Washington and discovering to everyone's shock that, "It had been described upside down!"
– Thomas D. Barron

Learning Outside the Classroom

Scientific achievements of the group that, under the brilliant leadership of Maurice Ewing, became the staff of the Lamont Geological Observatory in its earliest years are, of course, recorded in the scientific literature. Missing from those accounts are the tales of many incidents that gave a special flavor to the activities of that group. I report a few such incidents here.

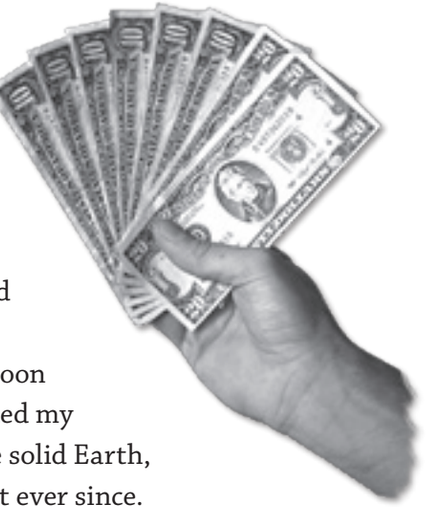
When I joined Ewing's group in those pre-Lamont days, it was quickly made clear to me that students shared fully in all activities, from the paperwork of pure earth science to the hard and dirty labor often involved in scientific observation of Earth. On one occasion I was asked to help move the components of the deep-sea coring device to another site. The weights were flattened donuts of lead weighing some 160 lb. with rough edges that made them awkward and uncomfortable to grasp and handle. However, as a retired football lineman who had recently played against the best team in the country, I was confident that I could carry out difficult physical labor at least as well as most any other student. So I struggled to pick up one of the weights, eventually got it into a position where I could carry it , and then asked a fellow student where it should be put. He said quickly, "Follow me and I'll show you."

Then he picked up not one but two of the 160 lb. weights, one in each hand(!), and led me away.

When we sought an explosive device to substitute for the TNT normally used to generate seismic waves, a fellow student filled a balloon with unignited acetylene from a welding torch, set it off in a trial, and discovered that without oxygen, it made a snowfall-like deposit of black carbon throughout the laboratory and the adjoining machine shop that had to be carefully removed inch by inch, by using a vacuum cleaner for many hours. What a job!

When the rather authoritative departmental secretary once asked a student to go out of his way to bring her a smoked herring from a nearby store for her lunch, and then was absent when he returned, she later found on her desk not the herring but a note directing her to a particular folder in one of the office filing cabinets. The herring was not there either, but there was another note directing her to yet another file folder and another cabinet, and so on, and so on, until she had made a lengthy search throughout the office, and finally found the herring, which, of course, had left some of its aroma in that particular file cabinet. It seemed to some of us that she became more cordial and more cautious in her treatment of Ph.D. candidates after that.

I spent the winter months of one year learning how to use the Geology Department's precision machine shop, and then designed and built, with considerable effort, a device to measure elevation changes of a supposedly constant level, huge, high-altitude balloon, flying where a low-velocity sound channel was postulated. The device recorded its information using a pen that scratched a record as a function of time on a rotating drum covered with smoked paper. After much effort, I got approval to test the device on a balloon that was launched from New Mexico and then landed on a farm in Texas. The farmer who found it was pleased to read the notice that said he would be given a cash reward if the device were returned in good condition. On inspection, he thought the condition was fine, except for the dirty smoke on that drum, so he quickly wiped off the smoke and with it the scientific record and all of my efforts for the year.



As opportunities to participate in balloon flights were very limited, after that I turned my attention back to wave propagation in the solid Earth, and have been an earthquake seismologist ever since.

Many incidents involving Ewing's uncanny ability to overcome adversity during fieldwork were instructive and stimulating

to our group. Here is one. During an oceanographic cruise to develop seismic techniques, a device consisting of a hydrophone, amplifier, and pen recorder was used to measure the precise time that an explosive wave arrived at the ship. One day the amplifier failed in unrepairable fashion, so it seemed that the ship would have to return to a distant port for replacements with consequent great delay and considerable added expense. However, once Ewing was made aware of the problem, he looked at the device, quickly removed some chewing gum from his mouth and stuck it to the pen. The weight of the gum destroyed the dynamic equilibrium that had been built into the pen, and so it began to respond to the explosive waves without the need for an amplifier. In a few seconds, Ewing had saved the cruise, avoided the financial loss, and pushed education beyond book learning for the students.

The activities of that pre-Lamont and early Lamont crowd were educational, fun to do, and fun to remember. Would I do it all again? You bet!

- Jack Oliver

"The entire Geologic experience has been outstanding, exciting, rewarding and memorable"
Robert Y. Grant

First Day Folly

I had always heard that the roughnecks on a drilling rig gave the geologists a hard time. The first rig I ever watched I could not get over how nice every one was. About 5:45 the first day one of them came into the doghouse and asked " Aren't you going into town to get somthing to eat?" When told no he said "See that brown bag up there in the rafters of the doghouse. That is my dinner. I don't feel to well so I am not going to eat. Help yourself". What a nice bunch of guys! About 30 minutes later I helped myself and ate what was in the bag. I had no sooner finished than the driller, about eight feet wide and ten feet tall, came in, looked up in the rafters and demanded "Who ate my diinner?" I went into town to get another one and bring it back to the drilling rig.

- Fred Haeberle

"The time I climbed partway up Mt. Rainier and saw off to the south, the great cluster of white Volcanoes rising above the wooded Cascades."
– Konrad Krauskopf

Rainfall— Rifle

In the early 1980s, I was working in Venezuela on a dam site investigation. A study of the aerial photographs disclosed a very deep ravine on the downstream right abutment. I convinced the young Venezuelan geologist to accompany me on an inspection of the ravine. (My Spanish was very limited, as was the field geologist's English). As we worked our way up the ravine, I spotted a rifle pointed across the ravine. I yelled to the geologist "'rifle"; I later learned he thought I said "rainfall." He continued and the rifle discharged .The shot went through his boot at calf level just grazing his skin. I awarded him the rifle and later bought the cervezas.

- Art Arnold

The 8th Annual Inter-Tribal Pow Wow at Mission San Luis Rey, Oceanside, CA, on June 12, 2004. Dr. James E. Slosson represented the World War II Veterans and carried the California flag; Dr. Roy J. Shlemon represented the Korean Veterans and carried the American flag. Both were guests of honor and were there to assist the Indian nations in geologic affairs. In past years, Dr. Slosson represented the Council of Energy Resource Tribe which included 13 different tribes related to energy resources such as petroleum, coal, and some related to siting of nuclear facilities.
– Mark Mojado (photo by)

Hidden Maps

When Eldridge did field work in Greece in 1973 (the time of the Colonels), he had me hide his (contraband) maps in our baby's diaper paid whenever we saw army troops approaching. And that was frequent because the army was doing maneuvers in his field area.

We say lights one evening and were sure that the army was coming to find us, and I hid the maps in the diaper pail. It turned out however, that it was a passel of Cambridge University students working on their Ph.D.'s under Alan G. Smith (a GSA Fellow). The students had heard that we were in the area and they had come to see us. There were as I remember 6-10 students. The problem was that they had no food and were hungry. We made pancakes the next morning and they "ate us out of house and home".

On a recent trip we found our old campsite, and the oak tree under which we had our camp was still there. The tree has changed a bit, but then, what do you expect after 41 years?

- Judy Moores

"Returning from Southwest Pacific, World War II, I thoroughly enjoyed first course in Petrography from wonderful Professor Frank Grout, University of Minnesota."
Douglas M. Sheridan

"How to Make an Impression"

On a second trip to northeast Thailand and the Khorat Plateau, Bunnie could not accompany me. We went to and headquartered in the large village of Khorat as we were doing work along the Phonon Dong Rek escarpment. Most of the area was covered by a jungle of vegetation, and the roads were very difficult to cover in our Dodge Power Wagon. Thus, we resorted to travel by elephant.

Amazingly, an elephant equipped with a hodda (covered seat) and controlled by a driver was the best way for travel for this part of the work, and we were able to hire the elephant and driver for the equivalent of 10 bhaat's per day (or 10 Thai dollars or 20 cents U.S. dollars). My responsibility on the trip was to procure a case of scotch from the U.S. Commissary for the two-week long trip. I must advise also that our elephant driver had educated toes. He sat on the elephant's head with a pointed wooden prod and with his toes and pressure on the elephant ear was able to slow down, speed up transportation, or change direction.

One of the most memorable things on this trip was an unplanned tiger hunt that came about quite by accident. Returning to one of our overnight stations in the jungle, we, while on elephant back, were intercepted by a tiger. The elephant moved rapidly to face the tiger, and Jumchet was thrown off into the vines. I could not use the ten-guage shotgun that we had for protection because of the tiger and Jumchet being in the vines together. Fortunately, the tiger was more scared than we were and bounded off into the jungle and Jumchet remounted the hodda.

While in the area working, we saw cobra, gao, barking deer, leopard, elephant, and many jungle chickens. We stayed at a jungle plantation (or I should say camped at a jungle plantation) surrounded by pointed logs as a barricade for the plantation owner's cattle that were driven in for safety at night. At night we could hear the tiger prowling around the perimeter of the fence and the next morning could determine his size by the size of his footprint. (We did not kill the tiger, but later the plantation owner did, and the skull was given to me as a memento of the occasion).

Later on we returned to Khorat where we remounted our trusty Land Rover, and Jumchet, Nopadon, Phong Phan continued on our geologic mapping and well inventory. Many interesting incidents evolved through our visits to small villages of huts that were thatched and on poles keeping the thatched huts above ground. Until eight years of age or thereabout, young boys wore little or nothing whereas the little girls wore a small chain belt with a small chain nail patch in front. Obviously, this was the most sanitary arrangement for the children until they came of age. Around the villages there were rice paddies where rice and vegetables were grown and the water supply was either from springs or dug wells.

At the larger villages there would be several stores along a dirt street. During the daytime, the barbers would bring their portable chairs out into the street so that they could better handle their trade. A haircut cost one bhaat (roughly 5 cents). The village main streets were fascinating places with all sorts of little stores handling vegetables, clothing, or other wares. Oftentimes there would be a crowd of Thais in town, and I would feel like a giant walking among them.

On one occasion, in the evening at Khoen Kaen, the headquarters for the government, we were staying at the local government house belonging to Shawn Batan or the irrigation department. During one of the evenings, the Governor and his wife came to visit. We were in one of the thatched huts on stilts, and they joined us, all sitting cross-legged around on a large woven mat. Generally, tea and a small pastry were served. Light was obtained by a kerosene lantern hanging from the ceiling, as there was no electricity in the village. Ginko lizards, with suction cup feet, would

travel along the ceiling to the light and eat the bugs that would accumulate around the lamps.

We had an interesting conversation with the Governor and his wife and other government officials who came to learn of the purpose of our ground-water studies and test drilling. Jumchet acted as our interpreter and provided an English translation. The Governor warned us to be careful in our travels that renegades and outlaws still existed and that a missionary group had recently been attacked and mutilated in the area recently. By this time, I had been in the northeast Thailand area for a long enough period to pick up some of the local language and could converse with regard to food, utensils and to bargain at stores for handicraft that I might be interested in. Thus, I felt that I could carry on a little conversation with the Governor's wife, who sat at my left. Also, I reflected back on the instructions from our State Department to ***make a good impression*** on my important visitors by speaking some of their language.

She asked about my wife and family and how many children that we had. My Thai language was not as fluent as I thought. The Thai language is phonetic and has many tones, with different meanings. I did not realize that I was saying in response to her inquiry about the number of our children (3). I used the right words, but I put the wrong tone to the words and, thus, advised the Governor's wife that I had three testicles! There was a dead silence. Thankfully, the Governor's wife began to giggle, and the rest of the crowd began to laugh. It was then that Jumchet told me that I had just told the Governor's wife that I had three testicles instead of three children. That was the end of my attempt to use the Thai language for several days. Fortunately, the Governor and his wife and the other Thais sitting cross-legged on the mat in a circle all had a sense of humor. I made the impression suggested by our State Department as they will probably never forget the American who came to visit them in their village.

The northeastern Thais were amazed at my size, though I explained that I was only an average-sized American. They finally believed me when an American working in the area came to visit when he heard I was there on assignment. He happened to be an ex-basketball player from the University of Illinois and was 7'2" tall.

As we passed through small towns in the northeast, we saw racks of rice spaghetti hanging out to dry. In Khoen Kaen, we visited the royal well that was dug hundreds of years ago and supplied water to the village. It also supplied a sample of water for the coronation ceremonies of each new king, along with water brought from three other wells from each corner of Thailand.

Our mission was accomplished: the people have more water, we made a geologic map and wrote a report, and the Governor's wife will never forget me. I will remember forever the tinkling bells from the temples, the monks in orange robes marching single-file with baskets collecting food, hunters in the forest with blow guns and curved swords, plus the friendliness and hospitality of the people. Oh yes, one other tribute -- a large concrete statue at the center of Khorat commemorates our Ground-Water Geologists on the project.

- Philip E. LaMoreaux

Field mapping in the Big Horn Mountains of Wyoming and Montana, and realizing I was being paid to enjoy that wonderful scenery!
– Henry D. Olson

Baptism

The summers of 1961 and 1962 provided me with a geologic education well beyond my formal undergraduate training, and the foundation for a career, although at the time I had no clue that that was happening. Both summers were spent working initially with Tennessee Division of Geology (the state geological survey) staff geologists Robert H. Barnes and John M. Colvin, Jr. At the beginning of the first summer, I was a deep shade of green in terms of field experience; at the beginning of the second, maybe the color had evolved to a lighter shade of green.

Our assignment the first summer was to locate and describe abandoned brown iron ore (limonite) mines and prospects in the western Highland Rim. While the descriptive part was quickly reduced into a format that today would land in a spreadsheet, the location part—navigating in deep forest by means of a topographic map and Brunton compass—was totally alien to me. Although my mentors exhibited great patience with my initial lack of ability to locate myself on a topo map, I felt they were also provided some amusement.

We generally began our search for abandoned mines with locations derived from state and USGS bulletins, but quickly discovered that these were imprecise and that the local, generally elderly, residents who either owned large tracts of land or had spent lots of time in the woods as loggers, hunters, or moonshiners (we never pursued their backgrounds) were frequently good sources of accurate locations. We never asked them to look at or read a map; they knew the woods from a lifetime of walking them, and we (initially Bob Barnes or Jack Colvin) took care of the locations.

Locating abandoned iron mines was not the most exciting or challenging work. There was really little science involved, except for the description of various limonite textures (botryoidal, reniform, mammalary, etc.), or the identification of an occasional odd mineral (e.g., hematite or maghemite), but still not very challenging. So, we employed random diversions to make our efforts more interesting, but to still efficiently accomplish our goals.

One day we were walking along a logging trail following an elderly gentleman toward some abandoned mines when he suddenly stopped, grabbed a sizable rock, and was about to hurl it at a snake lying in the trail. We asked him to not hurt the snake and he shouted, "This is a spreadin' adder—if he bites you, you are a goner." We saw that it was a nonpoisonous hognose snake that has a habit of coiling, hissing, and flattening its head whenever it senses danger. If that strategy does not work, they roll over, become limp, and "play dead," actually going into a kind of convulsion, but, if left alone, recover completely in a few minutes.

I would have been just as happy to continue toward the abandoned mines that our guide had agreed to show us. This particular snake was about 2½ ft long and, after convincing the gentleman to not dispatch it, Bob Barnes suggested we take the snake home to an acquaintance of his in Nashville who collects snakes. Because of their defense mechanism of playing dead, hognose snakes are no problem to transport, so Bob picked up the snake, we completed our mission of locating and describing the abandoned mines, and returned to the car. Bob suggested that I hold the snake while we drove to a nearby country store to ask for something to contain the snake, but I refused. We finally decided to place the snake in my old Stetson™ hat and place a legal pad on top of it. We placed the hat on the backseat beside me, and the elderly gentleman sat in the front passenger's seat, keeping a wary eye on my hat.

After we drove a couple of miles, I noticed out of the corner of my eye something moving near my hat. The snake had recovered consciousness, did not like its surroundings, and proceeded to exit the hat. I do not remember who, but either our guide or I shouted that the snake was loose. I do remember moving closer to the door as the snake crawled off of the back seat and under the driver's seat. Bob later remarked that he had never before seen a person as tall as myself (6 ft 2 in) stand totally upright on the back seat of a sedan, which I regard as a blatant exaggeration. Before Bob could safely stop the car on the shoulder of the road, the elderly gentleman was shouting something about all of us being doomed, and appeared close to having a heart attack. Bob recovered the snake from beneath the driver's seat, placed it again in my hat, replaced the legal pad on top, and gave me strict instructions to hold the pad down. We delivered our guide back to his home—much relieved to get out of our car without

being fatally bitten by a spreadin' adder—and we drove on to the country store that we frequented for soft drinks and lunches of Beanie Weenies™ and cheese crackers.

Bob carried the snake into the store, and we were immediately accused of not being geologists but snake-handling, "holy roller" preachers. So, in return Bob offered several bystanders the opportunity to hold the snake, creating a rapid exodus by some from the store, saying they wanted nothing to do with a spreadin' adder. A black teenager correctly identified the nonpoisonous snake, however, and said he would have no problem holding it. They gave us a burlap bag (a "toe sack"), which as I recall had a hole in it, but we managed to get the snake in the sack and tie it off below the hole. Additional fuel was added to the accusation that we were holy roller preachers when we returned that afternoon with a grass snake to add to our collection.

A week or so later, Bob suggested that it was time for me to begin locating and describing abandoned mines and prospects by myself to double the efficiency of our efforts. While I agreed, I was a bit apprehensive about the necessity of having to navigate and accurately locate both myself and the mines. We agreed on a straightforward assignment where some mines were actually shown on the topographic map, so all I had to do was correctly navigate myself to them, describe them, and return to the road to be picked up at an appointed time. The woods were open and walking was relatively easy along several logging trails, but the topography was relatively flat. The trails shortly began to crisscross, requiring me to read the compass more frequently. Then I committed one of the common beginners' errors: I did not believe the compass, despite having been told repeatedly that you must trust your compass. To make matters worse, the topography contained no diagnostic features that I could recognize on the map.

I continued walking in a direction that I thought was correct, but was uncertain of my location and grew more apprehensive with each step. A deadfall lay across the trail ahead and, instead of walking around, I thought I saw an easy way to get through it. I stepped over the tree trunk and almost where my foot was about to land was a large black or king snake. Normally, I would have stepped on past it and continued walking, but I was so startled by the snake that I jumped back across the deadfall and actually began running in the opposite direction. I had run not more than three or four steps when I looked at the ground beside me and there was the blacksnake moving along beside me at about my pace! Doubtlessly, I had startled it as much as it had startled me. The situation struck me as being so hilarious that I had to stop running because I was laughing so hard. Maybe that cleared my mind because when I stopped laughing and again began to think about the tasks at hand, both my map location and the direction I needed to go were obvious. After that incident, I had little difficulty with navigation using a map and compass, and ever since have been comfortable—even exhilarated—alone in isolated, heavily forested areas where I had to depend on my navigational abilities to get me in and out.

- Bob Hatcher

Looking up in awe at very large 35 foot single crystals of Spodumene at the Bob Ingersoll mine, Black Hills, SD.
– Albert C. Holler

I was past 50 when I began my most adventuresome geological work: Northern Canada by bush plane and a trip to Cameroon in West Africa.
– M.E. Bickford

Wine Tasting at Matélica

The last day of August we were at the end of the 2004 International Geological Congress excursion to the wine regions of central Italy. Our leader, Roberto Colacicchi, called it, "Geology Tasting and Wine Mapping." Our next to last stop was at Matélica in the Marche region. We had a translator with us, Natalie, an expert on enologic terminology and the dialects of mayors and wine growers.

In 664 B. C., Umbrian people founded the little town. For a while it flourished, a Roman "Municipio." After the Empire fell, however, Matélica was destroyed and rebuilt many times as the barbarians crossed and recrossed the peninsula. About half way between Perugia and Ancona, Matélica and the rolling hills it sits on and that surround it are magnificent. The central part of the valley, expressed in Miocene rocks of the Apennine Range, is a syncline oriented NNW-SSE. The soils, rich in minerals, are loose with little or no clay—great for grapes.

Oenophiles say the climate is "particular." Vines are sheltered from winds off the Adriatic Sea on the east and by the anticline on the west. Open to the cold winds of the north and northwest and to the southern sun, the climate is continental—cold winters and hot summers. On average, grapes grow best there on slopes from about 1,500 to 2,200 feet. The Verdicchio grape, said Colacicchi, "found the ideal environment for reaching its potential."

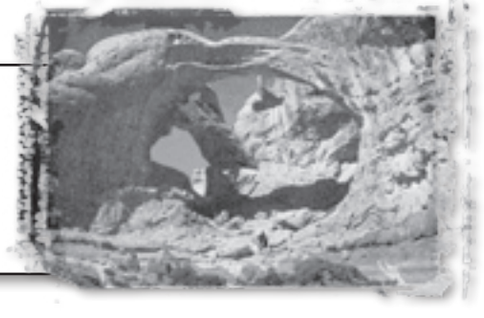
At a few vineyards southeast of Matélica, vines are "married," strung by lines to living trees, the Etruscan way. The Verdicchio grape in the syncline yields "a red wine dressed in white" claimed a grower. To the extent our palettes allowed, we agreed, later drinking the white wines at lunch with lasagna on the terrace of an austere restaurant. Personally, I enjoyed most the Verdicchio wines that were served with almond and little sugar cookies. I had no feeling for the high content of poliphenols that Colacicchi had earlier told us about. Our hosts served six distinct white wines during lunch; there was no end to the almond cookies.

On that last day of the field-trip we drove east from Bevagna—south of Assisi—became lost and ended up in Camerino where we had a caffe, then went on to Serrapetrona and Matélica. It was warm and cheerful before lunch standing in the grape fields of the Marche with the other "wine mappers" from around the world. As a kid I farmed the family garden, and when the pumpkins began to ripen they were the answer to the question of why I had spent hundreds of hours weeding and watering.

On our way to Ancona, almost everyone fell asleep—perhaps drowsy from the masquerading white wines or the poliphenols. We had every opportunity to see the Apennines, the people, and the soils and substrates the Marche grapes grow in.

- M. Dane Picard

Discovery of a new mineral: umohite, a hydrous uranyl molybdate from Marysvale, UT.
– Gerald P. Brophy



The Facilities from Timbuktu to Sinai

UML (Mrs. Bunnie LaMoreaux) told her roommate at the Denison University Coop House ("Gilpatrick Hall") that she wanted to marry a geologist so she could travel. Her roommate likewise had similar ambitions, and they agreed late one night down in the kitchen to meet after marriage on some high Andean Peak. The friend's husband was employed by Proctor and Gamble in Cincinnati. Bunnie, on the other hand, has been around the world several times, in Africa and Asia many times, and has visited Europe, Russia, the Balkans, and all over the USA. She has traveled in dugout canoes, all sorts of boats and airplanes, plus donkeys, horses, camels, Russian and Japanese jeeps, Land Rovers, trucks, buses, and about every imaginable kind of car. To give you an idea of the intensity of travel, not too long ago, we were leaving Lisbon for the USA and home. I asked her if she was finally satisfied. Her response: "Where do we go next? Just think of all there is yet to see!"

Bunnie's travels have run the gamut of experience from having little children among great throngs of people in India run their hands over her silk stockings, to her dynamic impact (because of her bright yellow polka-dot dress) on the workers in the lowest parts of the Egyptian High Dam in its early building stage while we were inspecting drainage tunnels in the deepest parts of the monstrous edifice with Hassni Mitwalli, Director of the High Dam and former student in the USA. While he was being so thoughtful of us, Hassni was keeping a group of highly agitated Russians waiting in his office (during the cold war no less).

Bunnie's experience with all types of toilet facilities has been no less exciting, being forced to use everything from the wide open Sahara Desert of Egypt – men on one side, women on the other side of our touring vehicle and strictly on the honor system, to the plush bathrooms – living-room size with showers, tubs, commodes, nice warm bath towels and plenty of them as well as all sorts of toiletries, plus a full-time maid at the Peninsula Hotel in Hong Kong. Beyond a doubt, however, the Brown in London, where we were served breakfast in bed by a Butler, the Occidental in Bangkok, and the Peninsula in Hong Kong have by far more "stars" than many others.

From the sublime to the ridiculous, the little motel at Saint Catherine's in the Sinai or the three-star hotel in Farafara in the Western Desert of Egypt cannot be beaten for their minimal facilities. The St. Catherine's Motel had small wire army cots, a ground open toilet, a malfunctioned sink, no toilet paper, flies galore, and a heavy front wooden door that would not shut. The desert sand had literally sealed it open. In Farafara Oasis, the Three Star Hotel – its name – was two stories of adobe brick, one toilet with an open stall, one toilet no seat and no cover, beds that were concrete block structures with palm fronds as mattresses (and bring your own linen or sleeping bag and mosquito net). The dining room had no windows, and facilities included a bench and tables. Fortunately we stayed at the government-boarding hotel. From there the facilities are all down hill to a hole in the ground with cement footrests. However, in the Oasis of the Western Desert, there is plenty of fresh, running, hot artesian water.

In Thailand we stayed at the Khorat Hotel in Khorat or in the religious temples (or Wats), -- three sides open and with wooden floors. We brought our own cots and mosquito netting, and our staff brought five-gallon cans of water, heated it, and put the cans on poles and often in front of the multitude we took our showers. The Thais were much more adept at keeping their bath sarongs on, whereas, I sometimes exhibited substantial exposure that created a giggling throng of watchers.

In China, during our visit to the Karst Institute arranged by Director Juan Dioxian, we originally stayed in government hotels that included small, small bathroom – one at a time – enter sideways, clean toilet, small bedroom with metal cot beds. The dining was an unusual experience for breakfast, lunch, and dinner – big bottle of beer, soup, chopsticks, noodles, vegetables and meat in a boiling hot pot. No one spoke English, but we had

no trouble except with fried eggs – they were really fried.

The fascinating and comfortable trip on the river Liu included good food, drink, and service. Our field trip was via Ford Station Wagon to small villages – rough and ready, but very interesting. Clothing and broad woven hats right out of a movie scene. The countryside was magnificent, karst pinnacles of limestone very picturesque. Our facilities on the trip to Southeast China included metal cots, small bathroom, but sanitary fixtures absent toilet seats or tank covers. Regular dining hours, and good food (rice, vegetables, beer).

It isn't right, however, to leave the impression of the impossible conditions of toilets in the Middle and Far East, as there were areas with fine hotels -- The Meridian, Sheraton, and Nile Hilton as fine as they come in China and southeast area the same. The Occidental in Bangkok and the Peninsula in Hong Kong are two of the finest in the world.

In the US, as a small child during visits to Aunt Mabel's and Uncle Ray's farm in Orwell, their drafty, cold, two holer with a lye spreader and a Sears and Roebuck catalog was a real trial on a cold, windy night. At Silas in Choctaw County, Alabama in the late 1940s, there was backyard plumbing, as in other rural areas of the state. In Silas, on one occasion, I was taking a shower, had just succeeded in getting all lathered good when the town's water well broke down, and the tank was empty. Have you ever tried to remove lather all over with no water?

On a trip to Ireland not too many years ago with old, old friend Bob Aldwell during a lecture tour, we were running late one afternoon for arriving for dinner at a Bed and Breakfast. The lady of the house was agitated, but holding our meal. Naturally, Bunnie had to go to the bathroom on arrival! Unfortunately, the door locked on her, and she couldn't get out. The owner's husband had to get a ladder, go out back, enter the bathroom through a small window, and save Bunnie from the lady's further wrath. Both ladies were very agitated.

These are a few of the experiences prompting Bunnie to start a book, Bathrooms I have Used Around the World.

- P. E. LaMoreaux

River of Salt

Working in Iran in 1975, my colleagues and I went to investigate a breached anticline, the Marun, to see what evidence we could find to shed light on recent tectonic activity. The search was to gather data related to siting a nuclear power plant in Kuzistan Province along the Karun River. The Marun anticline appeared to be the surface expression of a structure similar to much larger structures in the Zagros Mountains to the northeast.

Our driver took us as far as possible through the desert in a sedan until we could go no farther. Then, walking along a dry wash, we approached the central part of the anticline. First there was a strong smell of hydrogen sulfide, then an acrid smell of brine, and finally a flowing gusher of salt water and natural gas emanating from the rocks. Not a good place to light up a smoke! The flowing spring fed a river of salt water that flowed down the wash for a distance of about two miles before disappearing into the red sand. In the two miles, however, the salt crystals forming in the brine left a treasure for salt harvesters. Two were at work raking and bagging the salt. They had arrived on bicycles and were busily engaged on the edge of the salt river.

Exposures in the central part of the anticline revealed vertical beds of mid-Pleistocene sandstone, overlain by horizontal beds of late Pleistocene fluvial conglomerate. Talk about Quaternary tectonics! However, the tectonics in this case included a healthy dose of salt diapirism. Not all mind you, but in combination with plate collision folding and active faulting along the southwestern edge of the anticline, the site was a most remarkable and unforgettable geologic structure.

- John H. Peck

We Must Attack the Great World Problems

I was fortunate to be born on a farm in southern New Zealand. When I milked a cow, I looked at the Southern Alps. I was also fortunate to have a very intelligent, literate mother and grandmother. In those days, before TV, after dinner my mother read to me and my two brothers each evening, a chapter from a classic. There is no doubt that all this influenced my life.

I have been fortunate. Through my work in Earth Science and Environmental Science I have walked in at least 62 nations, in the Middle East, Africa, India, China, South America ... When you walk in their country and meet the local people, you know their situation. You also meet the local street children, who often have no mother or father, and needless to say, no school. A problem with most of our political leaders is that when they visit a country, they take a limousine from the airport to the five-star hotel. They don't meet the local people who live in the slums, or see or smell their situation with regard to food, education, or sanitation.

I have also been fortunate in my university jobs, in the USA, England, and Canada, to have worked with graduate students from at least 32 countries. Most of their projects were based in their home country (e.g., Saudi Arabia, Ethiopia, Brazil, India ...). I always say that students educate professors.

To obtain data on the world situation today, I recommend The Pocket World in Figures, published every two years by The Economist (Profile Books, Ltd., London, UK). The data collected is impressive and we should all be aware of it. For example, in the section on Population, matters of Human Fertility, we see, for example, that in Niger the average woman has 8 children; in Somalia,7.25; Afghanistan; 6.8... We also see that the lowest rates are in nations like Spain - 1.3; Italy - 1.2; and Sweden - 1.29. We see the balance between fertility and literacy (e.g. Niger 15.99% literate, Afghanistan 33.4%, Ethiopia 39.1%), and most of those who are literate are males. For example, a recent report in The Economist stressed that only 6% of girls in Afghanistan go to school.

I recently attended a wonderful lecture at a meeting of the Canadian Institute for Advanced Research (CIAR) given by a man who had studied the social life of our relatives, the monkeys and apes. He showed a remarkable movie and one thing was clear, the females take care of their society, not the males, and I agree!

My dream: We can spend billions on military actions in poor countries, but how much do we spend seeing that all children, both sexes, are educated? Why can Canada not adopt a poor country and build schools, train teachers there? I would be pleased to pay more taxes for such aid. It is interesting to note that the nations of northern Europe are the most generous in their donations as a percentage of the Gross Domestic Product (GDP). Thus Sweden (with 50% female population) gives 3 times the foreign aid we give in Canada, and seven times that of the U.S.A.

World data is clear. Quality of life is rooted in quality of education for every male and female. We must attack this global problem if the next generations will have a high quality of life. We never like using the term overpopulation, but half the world is overpopulated now, and that is why life expectancy is less than 40 years in many countries.

In 1993, Daniel Koshland, the former editor of the journal Science, discussing problems of the environment, wrote "First of all it is important to identify the main villain as overpopulation". He was wrong. The main villain in our world is lack of universal quality education. We all need high quality numeracy, and as the British now say, sciencey.

I hope that all who work in government will have a copy and study The Pocket World in Figures!

- William S. Fyfe

Reflections

November 1977 - a letter to Mrs. Ian Campbell

Dear Catherine:

I received a letter from Professor Clifford Frondel at Harvard who has nearly completed a brief history of instruction in Geology at Harvard and is now writing a section dealing with the entrance of women into the Geology courses, beginning with the "Society for Collegiate Instruction of Women" in the 1870's and then extending to Radcliffe.

Cliff says that "one of the legends" in the department is that Professor Larson was unwilling to give separate lectures for women students, as was then required, and allowed one women student to sit in a chair in the doorway of the lecture room while he lectured to the men. He asks if I know who the woman was. His guess was either me or Ruth Terzaghi. She was at Harvard before I was, so I cannot answer for her.

In 1934-35, when I got my M.A. degree, I did sit in the office doorway for a short time in Larson's Optical Mineralogy class and then quietly moved into the lecture room (with no fuss about it). I also think I did the microscopic work in the lab with the men.

My reply to Frondel was that Harvard had a rule that at least six Radcliffe students should be enrolled in a course for a Harvard Professor to teach a separate section. I found Professor Larson, Jr. and his son, Esper, both friendly and cooperative.

I think the advisors at Radcliffe knew little about math and science and that very few if any undergraduates were encouraged to take Geology at Harvard.

I have an impression that Professor Palache was the only Geology faculty member who specifically would not teach women students. Mary Collins (Mrs. John Rabbit) could not finish a Geology major because of Palache, and so moved to Geophysics and went to the USGS where she has had a long and very successful career. I was fortunate to have Martin Peacock teach crystallography when Professor Palache was on leave of absence – then Peacock gave me a summer job drafting crystal structures for a new edition of "Dana's system".

I taught Geology at Wellesley to earn money to complete my Ph.D. at Harvard. I think that Louise Kingsley told me that one or more Harvard women taught part-time at Wellesley before I was there. Were you one of them, also Chalmer Roy's wife and maybe others?

I am interested in this information to refresh my memory as well as passing the Radcliffe data along to Frondel.

Quite aside from gathering data to help Frondel – I feel that President Horner at Radcliffe has made the wrong choice in deciding to remain totally independent of Harvard.

She is not helping her students to broaden their education beyond "Women's Studies". At GSA conventions and the Regional meetings, many women students ask me, "How hard did you have to fight for a job in a man's field like Geology"? They hardly believe me when I say there was no "fight", and that my college professors and especially fellow graduate students I had known at Harvard urged me to come to the USGS at the beginning of the "Uranium boom".

Does Russell Gibson live in San Francisco now? He taught part-time at Wellesley College long ago and might remember who the women geologists were before my time.

Many thanks for any information and best wishes to you and your husband,

- Alice M. Weeks

The Greatest Geologist

One of Gabriel Dengo's first jobs was consultation on the construction of the Caracas-Maiquetia highway. He had mapped the Venezuelan Coast Ranges through which the highway passed. During construction of the first tunnel, Gabriel told the engineers that they would eventually reach serpentine and that without shoring, the tunnel would probably collapse. The serpentine was reached where he predicted, and he was praised as a great geologist. But the engineers took no special precautions, and the tunnel collapsed.

Now they called Gabriel "the greatest geologist in Venezuela" because of the accuracy of his predictions. They tunneled on and Gabriel told them they would intersect another serpentine body. Again the engineers reached the serpentine, and again the tunnel collapsed. Now Gabriel was not only the greatest geologist in Venezuela, he was "the greatest geologist in the world". But, as Gabriel, with his wry humor, observed years later, "They never did pay any attention to me!"

- John J. Prucha – Memorial to Gabriel Dengo

First day of work, dressed in a skirt and heels, I was taken to a drill barge and introduced to black Pacific Muck.
– Joanne L. Stewart

Two Larry Sloss Stories

Can you help me out???

For the 1989 Annual Meeting in St. Louis, Larry Sloss had consented to talk about the early history of the geology department at the University of Chicago at our symposium The Legacy of T.C. Chamberlin. Prior to the start of the session, Larry asked me to look at his slides and asked if I would place them in my carousel tray. I, of course, readily agreed. But when he handed me the slides—all three of them—he remarked that they weren't very good. They were, in fact, terrible. So he asked if he could use some of mine, two of which duplicated two of his own. The slides were group photos of faculty members at Chicago, many of whom he had known personally. But when he started to give his paper, he couldn't identify most of the individuals in the pictures and turned to me for help (I was chairing the session). I believe I ended up giving at least a third of his paper. For the next several years, his presentation was the source of conversation and laughter between the two of us, as well as among several of the other speakers on the symposium.

Courtesy of Larry Sloss

At an annual meeting welcoming party several years ago—I think it was in Seattle—I found myself immediately behind Larry Sloss in the line of people waiting to buy additional drink tickets. When he reached the front of the line, Larry asked for two tickets. The young lady informed him that would be $3.50. As he reached for his wallet, I said to the gal in a serious voice, "You can't charge this man for those tickets. He's a Past President of GSA and Past Presidents get complimentary drink tickets." The young lady was both surprised and puzzled by my remark, hesitated for a moment or two, then tore

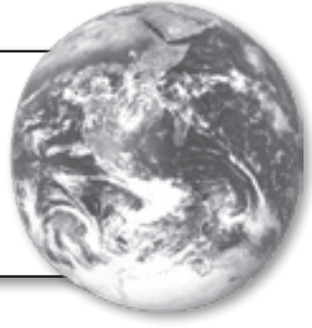
off at least a dozen tickets and handed them to Larry without charge. Larry tore off two of the tickets, turned and handed the rest of them to me. "Here, you take these damn things, Al, I can't use them all." I spent the next 15 minutes or so distributing drink tickets. No one would believe me when I told them the tickets were courtesy of Larry Sloss.

- James Schneider

Missing just one question on a freshman Geology quiz – by calling glacially transported boulders – "erotic boulders".
– Kenneth W. Ciriacks

1953: Just back from a USGS assignment in Cuba, and newly married, I had a short solo in the Pick and Hammer show… and forgot the words…on stage!!!
Ronald K. Sorem

In 1958, R.C. Moore's presidential address entitled, "Our Stable Earth", was punctuated by an earthquake felt by everyone in the audience.
– David E. Dunn



Timelessness

"Sedimentologist and Professor Gerald (Gerry) Friedman of Rensselaer Polytechnic Institute told the following story in 1991. One February he took about six graduate students with him to study the oolites forming offshore from the Bahama Islands. The boat he secured to take them to their working area resembled the one called The African Queen in the movie of the same name with Katherine Hepburn and Humphrey Bogart.

The boat was so dilapidated in fact, that the captain was steering it with his feet and the mate was watering the engine with a watering can to keep it from overheating. When they reached the first stop where Friedman and his students were to dive into the water, the captain stopped the engine. When their dive was complete and they were ready to continue their journey to the next stop, the captain was unable to start the engine. Nothing could get it started. When questioned by Friedman, the captain said that there wasn't much they could do about the situation but sit there and hope that another boat would come along and see them.

"Fortunately a seaplane with some geophysicists from the Shell Oil Company, which was taking the same general route as Friedman's party had been following, appeared later that day and rescued Friedman and his students. The captain and his mate were finally rescued nearly three weeks later, Friedman observed, adding that 'Time means nothing in the tropics.'" (J.M.S. Jenness, 2003)

- Gerald M. Friedman

The Trouble with Deep Quest

In the fall of 1970, David G. Moore and Joseph R. Curray (both GSA members) invited me to join them for an ad hoc director's meeting of our company, General Oceanographics, Inc., at some convenient place about halfway between Los Angeles and San Diego.

Our rendezvous went smoothly. Over a beer we settled into a brainstorming session. About 8 pm, a Highway Patrolman approached our table. He opened with, "I'm looking for James Vernon. Is he here?" After a moment of surprise and apprehension, I pleaded guilty.

"Your wife needs to talk to you right away," he said. "It's some kind of an emergency." I found a telephone, fearing the worst. "What's the problem, Doris?" I asked. "A submarine is in trouble off San Diego, Call Doug at his shop right away!"

In my call to Doug I learned that the Deep Quest, with four men aboard, was hung up in deep water off San Diego. "Is Nekton (our deep submersible) ready?" I asked.

"No, it's spread out all over the shop. Craig and I are putting her back together as fast as we can."

"Can Larry help you?"

"No, he's sharpening his hunting knife to cut the line that Deep Quest is snagged on. We'll tape it to our claw. We'll pick him up at his place then go to San Diego to meet a boat at the Submarine Base on Point Loma."

"When will you get there?"

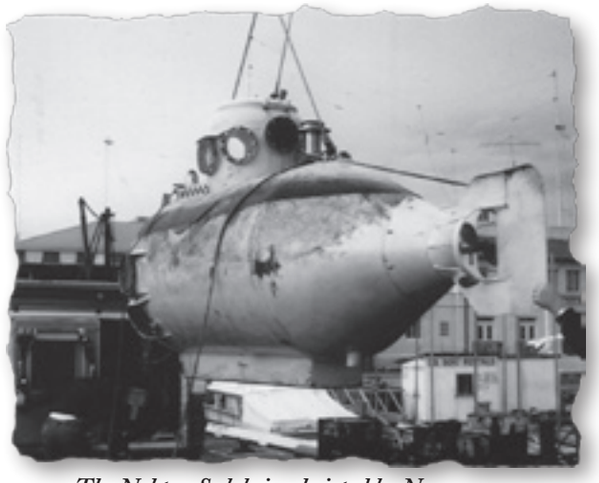
"I think we can make it before midnight. We'll see you there, got to get back to work."

I returned to our table where Dave and Joe waited expectantly. They took the news with great interest. Not a pair to miss a dramatic adventure at sea, they became enthusiastic spectators and advisers for this spooky, life or death, dead-of-night rescue mission.

At the submarine base the rescue effort assembled on a pier lighted by blinding overhead lights. Lockheed, the owner of Deep Quest persuaded the Navy to provide a forty-foot torpedo recovery vessel from which we could make the rescue effort. Doug, Craig, and Larry arrived before midnight, towing Nekton on its trailer. There we attached Larry's razor-sharp knife to Nekton's manipulator claw. A Navy crane dropped Nekton into the water and Doug drove it to the boat where we attached the towing lines. The boat cast off mooring lines and headed down the channel toward the open sea.

In addition to our crew, aboard were Navy boatmen and Lockheed representatives. We rounded Point Loma and headed across a moonless, quite sea toward a brightly-lighted ship five miles offshore, the MV Transquest, mother ship of Deep Quest. We had seen her earlier that year at Cousteau's "submarine jamboree". Transquest had been holding a position where Deep Quest lay, immobile on the seabed. Before 1 am we were near Transquest. They indicated where we should dive to find Deep Quest; sounded easy. We had made hundreds of dives to that water depth, 440 Feet. We pulled Nekton along the side of our boat and prepared to dive. A short delay occurred when Larry Shoemaker, a Lockheed employee, shouldered up to me and said, "I should go down in Nekton and cut her loose. I'm very familiar with Deep Quest!" Surprised by the untimeliness

of his proposition, I replied. "That won't work. You aren't familiar with Nekton and our manipulator. Our man Larry is familiar with both and is exceptionally skillful and strong. In addition, there are four others aboard this boat, including me, with long experience in Nekton. If we wanted someone else, one of us would go. Larry will make the dive with Doug Privitt, the builder of Nekton." He left, disappointed in his attempt to step into the limelight.



The Nekton Sub being hoisted by Navy crane.

With that settled, Doug and Larry climbed into Nekton, closed the hatch and pulled away from the boat a short distance, tested our radio communications and we cleared them to dive. I turned on our underwater communications system and clicked on the microphone. "Nekton, Nekton, this is support boat. How do you read me?"

"Loud and clear, present depth one, zero, zero feet, all systems are go."

...A few minutes later, "Support boat, this is Nekton on bottom of depth four, three, five feet. Deep Quest is not in sight. Need a steer."

That seemed to me to be an unusual state. I would have thought Transquest would have given us a more precise location. What now, a long search? A few seconds later I heard, "Nekton this is Deep Quest. How do you read me, over?"

"Deep Quest, this is Nekton. We can't see you. Turn on your lights."

"Stand by Nekton, lights are on. We will look for you on sonar. As Doug commented later, "I had no idea where I would have to start looking."

Then a welcomed transmission, "Nekton, this is Deep Quest, we have you on sonar at distance 400 yards. Take magnetic heading 245 degrees. Do you copy, over?"

"Roger that Deep Quest, taking heading 245 degrees, over."

After a long silence, "Nekton this is Deep Quest. Turn left to new course, 190 degrees, over."

Then Doug broke in, "Deep Quest, this is Nekton have you in sight."

"Roger Nekton, we see you. Hang up problem is portside aft. Line in screw attached to a large object."

Roger, we'll take a look." A long pause, "We see your hang-up, we will try to cut line." A long pause, then, " Deep Quest we can't cut line, too limp. Put some tension on it."

"Roger Nekton, tensing on line coming up."

"You're getting there, give it a little more. That's just right. Hold that while we make another try." Time dragged for several minutes. Then, "Deep Quest, line is cut. You are free, Nekton out."

"Roger Nekton. Good work, thanks."

"Support boat, this is Nekton. Am I cleared to surface, over?"

I responded, "Nekton cleared to surface. Good job."

We watched for Nekton. Doug had the lights on, and 100 feet from the surface, a finale, with Nekton in the spotlight, taking bows, while Deep Quest, dead in the water, waited for Transquest's crew to take her to safety.

Transquest returned to her pier in San Diego, shortly after sunrise. We could see a snarl of blue synthetic fiber line in the port screw. The pilot of Deep Quest, a retired Navy Captain, was among the first ashore. He saw us with Nekton in its trailer. He made a point of avoiding the media, us and the reporters, and disappeared into a parking lot. Another crewman came right over to us and thanked us for our successful effort. He said, "You provided an elegant solution to our problem."

Newspaper and television reporters and cameramen swarmed around us doing their job. They interviewed Larry for a television news program. He had done a good job, but the real hero was Doug whose years of work had built and equipped Nekton. The rest of us were concerned friends and business partners.

It's not clear to me exactly how Deep Quest snagged itself on the bottom, but this is my understanding of the events. Understandably, this subject was not a favorite of the Deep Quest organization.

Deep Quest intended to demonstrate its ability to retrieve heavy

DRAMA IN SUBS!

Craft Rescued 432 Feet Down

FINAL LATE SPORTS

San Gabriel Valley Daily TRIBUNE

Sonar Aids In San Diego Emergency

2 GOP Senators Drop Haynsworth

Kennedy Counsel Argues for Closed Rapedrine Inquest

Griffin, Smith Pull Back

Tunisia Asks Flood Help; 500 Dead

objects, such as a torpedo, from the seafloor. Its support vessel, Transquest, lowered to the seafloor a cylindrical metal tube, like a corrugated culvert, filled with concrete. Deep Quest would find it and bring it up.

Transquest lowered the cylinder by a one-half inch polypropylene line. When the cylinder was on the bottom they planned to retrieve the line. Apparently they were unable to pull the line loose because it became snarled at the cylinder. Deep Quest attempted to pickup the cylinder with the line still snagged. While maneuvering, a propeller sucked the line in, tying Deep Quest to the cylinder. After considering their limited options, they reluctantly called us for help.

- James W. Vernon

The Spring House and the Fossils

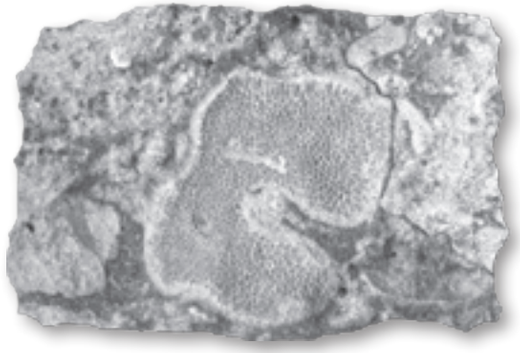
Geology discovered me more than 60 years ago when I was nine or ten years of age. It was on a hillside underlain by limestone where my maternal grandparents' thin-soiled farm was situated not far from Louisville, Kentucky. Near the farmhouse was a spring house. As long as I had been aware of anything, the spring house had been a magical place to a small boy. Even in mid-summer, it was cool inside the spring house. At the foot of limestone steps, a hemispherical basin for drinking water had been carved from the limestone. Into the basin flowed the spring. At times, a crawdad (a.k.a. crayfish) or colorful water dog (newt) might be found in the basin. From there the water overflowed into a wide, shallow area where cans of milk were kept cool. Shelves on the walls held food grown and "put up" on the farm. It was a place a Hobbit might have enjoyed.

The water from the spring house and a nearby well contained so much calcium carbonate that the insides of teakettles rapidly developed limestone scale. Water left the spring house through a gap in the limestone-block foundation, and only a tiny bog outside gave a clue to what was inside. Farther downhill was a sinkhole with a cedar tree beside it and assorted junk in it. I was told that the junk was there to protect the livestock, because a cow had once fallen into the sinkhole. I was warned to stay clear of it.

At the foot of the hill ran the small stream or branch (as in bourbon and branch water) where I spent summer days pursuing crayfish, minnows, and small fish. One day as I waded upstream, I noticed a steady flow of water running through a broom-handle sized channel in a thin sandstone layer, and into the branch. As I stood marveling at this discovery I looked uphill, and made another. The place where I stood, the sinkhole, and the spring house were aligned. The alignment surely must be significant. Geology had found me.

My paternal grandfather lived far away in Casey County, and he too

had a branch. This one was a tributary to the Green River and was rich in crawdads and crinoid columnals. Almost every pass I made with a tin can at a crayfish brought up a columnal or two. Nobody could tell me what they were. Eventually, I made my way along the narrow blacktop that ran in front of my grandfather's house to a hill where the road had been cut through limestone. The outcrop was packed with columnals and amazingly complex features that surely had to mean something beyond ordinary rock. I was looking at corals, crinoids, bryozoans and other critters common to Carboniferous reefs.



I can't recall exactly when and how I found out about fossils, but I believe I was in the fifth grade when I finally matched my collection with pictures in the Carnegie Library. Fossils—that's what they were. So, I would be a paleontologist. Many years later, recently discharged from the U.S. Navy, I enrolled as a geology major at the University of Texas. My faculty advisor was Keith Young, a paleontologist of course. Although Dr. Young was a fine advisor and teacher, I eventually made a career of sorts in economic geology and mineral deposits.

Not many years ago, I returned to the scene of my first geological awakening, and found the spring house fallen down. No matter, the spring had dried up. Pumping by residential developments had lowered the water table, and the branch at the foot of the hill was also dry. Because septic tanks had polluted the groundwater, my aged uncle, who now owned the old farmhouse, had been warned by the health department to boil the water from his well. So I close with this example of the kind of geologic change that results from human activities.

This short story has been about a geological journey instead of an adventure, but along the way I had a few of those.

- John Trammell

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