

### Dedication

GSA GeoTales, Volume III is dedicated to the memory of James Edward Slosson. Jim's departure is an "end of an era" in California Engineering Geology, and a loss to his many professional colleagues. It was an honor to call him my friend.



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# Kidnapped in the Colombian Andes

At the onset of the rainy season in 1965 I was field checking mapping that had been carried out in the Central Andean Cordillera by Alfredo, a Colombian colleague. We were three, working out of a miniscule and isolated settlement graciously named La Floresta: Alfredo, a mule skinner, and me. The mule skinner was a local fellow; Alfredo and I stayed at the only "hotel" in town, a primitive place indeed. Early each day the three of us would ride out, usually two or three hours, to leave the horses tied at the house of a campesino and spend the day going from outcrop to outcrop

on foot. We'd return at day's end, usually arriving at La Floresta after dark, taking advantage of the wonderful night vision possessed by horses.

One morning we headed west, into an uninhabited area. When we got to where we wanted to begin the day's work, there was no house at which to leave the



horses. There was, however, a lonely corral. We unsaddled our animals and left them penned in the corral, having verified that its fencing was sound.

At four o'clock that afternoon we were back at the corral. The horses were gone! They'd not just escaped; they'd been rustled because the saddles were missing as well. Nothing to do but to hike back to La Floresta. This was tough because we were exhausted by a hard day's work and grueling heat. Night fell with celerity and we arrived at our "hotel" after dark. Our poor humor was not alleviated by also missing supper, the cook having finished for the day. We munched on cookies bought at a tienda and made the rounds of the cantinas to inquire about our purloined animals. No one seemed to know anything. Discouraged and worn, Alfredo and I went back to the hotel and turned in for the night.

Around midnight I was awakened by the owner of the hotel excitedly pounding on my door, "Meester, meester, una carta para Usted!" A folded scrap of paper was thrust into my hand. Scrawled and barely legible (in Spanish) was: "If you want your horses back, leave 150 Pesos (about US \$15

at the time) in bills in the square under the stone at the foot of the statue to motherhood". I left the hotel and, as inconspicuously as possible, glided across the narrow unpaved street to the square. There I placed the bills under the only stone anywhere near the silent young mother cast in concrete and returned to my room.



Still in darkness, a half hour or so before the roosters began their ritualistic announcement of dawn, someone banged so hard on the locked door of the hotel that it woke me, tired as I was. The hotel's owner, uttering curses at the Virgin Mary, shuffled off to respond. Moments later he was at my door, madder'n hell, "Meester, sus malditas bestias están amarradas en le puerta!" (translation: Mister, your damned animals are tied up at the door.)

Honor had prevailed and the kidnapping had come to a happy conclusion. The 150 Pesos were no longer under the stone, and the only witness, a silent lady cast in concrete, could add nothing to the caper.

- Tomas Feininger

1964: Realizing that unmapped Tertiary units in Hualapai Plateau paleochannels were extensive, repetitive, and might be correlated with geology of Basin and Range to the west of the Colorado Plateau in AZ using widespread Peach Spring Tuff as marker.

- Richard A. Young



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### Cold Swim

Bert Crary, my brotherin-law, was chosen to
be the Chief Scientist in
Antarctica during the IGY.
He was chosen because
of his experience while
working with the U.S. Air
Force, making geophysical
measurements on several of
the ice islands and on one of
the glaciers in the Arctic.



In the Antarctic one day, in his usual method to make every measurement possible, he went to the edge of the ice shelf and lowered a bathythermograph into the water to obtain a temperature-depth profile. Just then, the ice that he was standing on calved and Bert and tons of ice slid down the fifty foot high ice shelf into the sea. He told me that when he was at some depth he could see many blocks on the surface above him and he wondered if he could ever get back to the surface. He did, and quickly climbed onto a large block of ice. He stood up and started jumping up and down and fanning his arms to try to keep warm.

Fortunately there was a witness and he alerted the camp to Bert's dilemma. There was a rush to get the helicopter to lift Bert off the ice flow. Unfortunately, the helicopter was undergoing repairs and could not be put into service for a few hours. Bert on his ice platform was drifting

out to sea. Plan B was adopted and a rubber dinghy was inflated, launched into the sea and rowed in chase. The dinghy caught up to Bert on his ice flow after he was about a mile seaward from the ice shelf. He was helped into the dinghy and they started to row back to the ice shelf. That was when he really got cold, as



he could not exercise enough to keep from getting colder.

Finally after about an hour from the pick up, and about two hours from his immersion, they made a landing on the ice shelf. Bert was rushed into the lab, his wet clothes removed and he was put to bed with several blankets covering him and a bottle of whiskey to help him. After a while when he was recovering a bit, the camp padre came to him and asked what he had been thinking when he was deep in the water. The padre thought it would give him the basis for a good sermon.



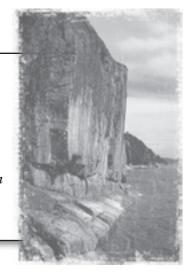
Bert told him that he didn't want to know, but he insisted. Finally Bert gave in and told him, "I was thinking 'god damn it, god damn it, I've done it now'." That was never used as the basis for a sermon.

A number of years later Bert was to present a paper on the Antarctic at a GSA meeting at which I was moderator, so I introduced him as the Australian Crawl Champion of the Antarctic. It is doubtful that many people in the audience understood the allusion.

#### - J. Lamar Worzel

I especially recall my first organized field trip hosted by the Institute and Lake Superior Geology in the very early 1970's, and a chance to sample the Gunflint Chest – then widely reputed to contain the worlds oldest micro-fossils. The experience made classroom teaching a more immediate, concrete thing.

- Gregory A. Ludvigson



## The Peanut Caper

Early in my career as a geologist with the Coop Program WRD, USGS, and later as State Geologist of Alabama, I learned vividly the importance of "grass roots" support from citizens, businesspersons, politicians, and the importance of communication with the public.

In the early days at the Tuscaloosa Office of the USGS, we maintained regular contact with Dr. Walter B. Jones, then state geologist, our Cooperator and the Director of the State Survey, Director of the State Health Department, Highway Department, Governors Folsom, Patterson, Wallace, Mrs. Wallace, and key Senators, particularly Vaughn Hill Robinson, Montgomery; Ed Eddins, Demopolis; Joe McCorkadale, Jackson; Ryan deGraffenreid, Tuscaloosa; and other key people like Fuller Kimbrell, Finance Director in Montgomery. We also maintained a regular key person list from around the state, and sent them letters and new publications of the Survey. At the university, we made regular contacts with the president, vice-president, deans, and presented hundreds of talks to school children, college classes, and civic clubs, Kiwanis, Rotary, Exchange, Civitans, etc. Later between 1961 and 1976 as State Geologist of Alabama, we expanded this "grass roots" communications.

One of our major thrusts after I became state geologist was to redesign the technical reports of the Survey. We took national leadership by designing attractive covers and graphics in our reports long before this was done by the USGS, other state surveys, scientific society journals, and other technical reports. We wanted every one to know the importance of geoscience to society.

Another program of the State Survey brought key business, industrial, and political leaders to visit our new Alabama Geological Survey Building of 1961. We were very proud of our new facility on the Alabama campus. On one occasion, we had a group of our key State Senators visit to meet our staff and learn about our new equipment, including a large highly instrumented oven for drying oil well cuttings. It was in a room on the ground floor near the entrance. It was an efficient well-organized facility under the leadership of Paleontologist/Stratigrapher, Charlie Copeland, and manned by senior technician, Emma.

The VIP visitors traveled en route along the corridors, main floors,

passing doors with industrious geologists and other scientists valiantly doing technical things at their desks. The Senators were impressed as they periodically stopped and chatted with the staff about their jobs.



Nearing the back door one of the senators remarked, "I smell roasting peanuts" — a rather traditional and well-known activity in the south.

The door to the drying oven was open, and Emma, our lab technician was just removing a batch of roasted peanuts from the sample drying oven. Charlie Copeland, chief paleontologist, took total responsibility saying he didn't want to waste that heat while the rock samples were drying.

Fortunately, "the peanut caper" didn't result in the loss of our appropriations. I did gain notoriety, however, among some of my distinguished citizens of the legislature.

Also, you will be pleased to know that from this visit onward, we were given high priority in our hearings before the House and Senate Appropriations Committees.

I recall the legislature fully recognizing the importance of identifying the resources of Alabama: minerals, water, energy, to the economy of the state particularly as it related to income that the legislature could appropriate. Thereafter, we received each of our legislative requests. We were aided materially by close friends in the Legislature.

The moral of this story is that "all's well that ends well" or "a good roasting never hurts."

#### - P. E. LaMoreaux

## Petroleum Exploration in China

In 1987 I was called to China to teach an exploration course titled, Principles of Petroleum Sedimentology, on the Pacific east shore southeast of Beijing. My wife, Sue, was part of our team. The organizer was a Japanese geologist.

The course used my textbook, Principles of Sedimentology (John Wiley & Sons, New York), and I carried fifty hardbound copies weighing about 5 pounds each.

I used an interpreter to communicate with my fifty students. This interpreter with good geologic training helped with my lectures, but all the students used a Chinese translation of my book.

On the first day while our program was getting organized, Sue and the



Japanese course principal visited a nearby store. One of my Chinese colleagues, using binoculars, sighted Sue at the store. As she entered the building all work stopped and everyone watched Sue. In fact when she handled books or merchandise everyone picked up her stuff, turned it over, and sniffed it. They had not ever seen a European person before. On more recent visits everything is now different. Americans and Europeans are taken for granted.

Recently I talked to my university Dean who is of Chinese origin. He read about the tremendous oil discoveries which my students succeeded in finding at the site of my activity.

#### - Gerald Friedman

I went into Petroleum geology and the first well I "sat" on blew out and caught fire. For a while I thought I was in the wrong end of Geology. - Harrison L. Townes



### Fire in the Hole

After graduating from the University of New Mexico in 1953, I was offered employment by the U.S. Atomic Energy Commission (AEC) on the Navajo Indian Reservation in northeastern Arizona. It was difficult to refuse the offer since the AEC funded my thesis, a stratigraphic study of the Morrison Formation in west central New Mexico. One of my first assignments was to



map old vanadium mines now being operated for uranium and vanadium minerals in the northwestern Carrizo Mountains. The mines in this area were named Rattlesnake, not for the reptiles I later learned, but for the blotchy pattern of yellow uranium and black vanadium minerals in the ore that resembled a rattlesnake's back. My partner was a geology graduate from an eastern university with no experience in mines. The purpose of the mapping was to determine the size of the mine workings and trends of the ore bodies. The AEC was assisting private industry to locate uranium, and drilling behind mines had a good possibility of finding additional ore.

At mid-day we arrived at one of the Rattlesnake mines, lighted our carbide mine lights, picked up our equipment, and began to descend the incline into the mine. About half way down we met three Navajo miners leaving the mine. I began to wonder why they were leaving. A short time

later, one of the miners called out in broken English, "fire in the hole". My partner asked what that meant. I said, "Let's get the hell out of here". As we ran back to the surface we heard the explosion in the mine as the rock was blasted. When we emerged we were met by the laughing miners who just scared two white guys. After that we became friends with Earl Saltwater and his crew and finished the mapping with their assistance.



I continued to work on the Navajo Nation for 10 years. Not only did I find uranium but also the love of my life, a nurse at the Shiprock Indian Hospital. We will have been married 53 years in January, 2008.

# A Treasured Specimen

### Undersea Pinnacle

Morning sunshine followed us into the chill, into the silence, five and 20 fathom deep, to a pinnacle, like a king, standing stoically and alone, his subjects out of sight and silent far below.

Many-colored gems of life adorned his rocky crown.

Weightless, surrounded by such beauty,

I felt this must be the tip of paradise.

We tap-tapped samples from his rocky shoulders and fled, up through cold sea, back to our realm of air, we, our rocks and memories, now outcasts from that colorful cold kingdom.

Santa Rosa Island - John W. Vernon In 1953 I entered the University of Arizona (UA) at Tucson to start the Master's Degree in Geology. For several years before then, I had worked as a field geologist for the Atomic Energy Commission (AEC) in their Uranium Geology Division. My job was to help in understanding the stratigraphic and sedimentologic factors that controlled how and why uranium deposits accumulated in sedimentary rocks in and around the Colorado Plateau.

My job also included evaluating the site potential for citizens who said that they had located a place that had higher-than-background radiation. The group of geologists I worked with were in the field 12 months a year and I loved every minute of it. Naturally, I became quite experienced in uranium geology.



(Incidentally, at the same time, the USGS also had field geologists doing the same things. In fact, it had not been uncommon for me to come across a USGS geologist here or there while I was in the field, especially during the "summer" field season. However, a few years later, Congress mandated that the AEC transfer its geology operations to the USGS in order to avoid duplication of field work.)

When I started my graduate work at UA, I was on a Teaching Assistantship that required me to spend 20 hours a week working for the Geology Department. The remaining time, I could spend on my graduate studies and my thesis research. As you can imagine, I did not have time to do anything else, especially considering that I had been out of the academic environment for several years and I did not know how long it would take me to re-establish the kind of time-management required for graduate studies. Thus, I resolved to avoid anything that was not related to my triumvirate of priorities, namely, my teaching duties and my coursework and my thesis research.

But one day, after I had been at UA for several months, a faculty member (who had wished to remain anonymous) asked me if I would be interested in participating with him on a consulting job regarding a uranium prospect. I hesitated and told him that I did not have the time.

He replied that I should make the time because I had the experience, the locale was in southern Arizona, an area I had not been to before, and it would take only one field day for me as he would write the report. So I finally agreed to take the time to go with him.

In those days, many people from professional prospectors to ordinary folks were caught up in the quest to strike it rich by finding

a uranium bonanza. All that was necessary was to own a Geiger counter, which was inexpensive, and to have a bit of luck. Consequently, geological organizations, such as that within the AEC, the USGS, the State Geological Surveys, and consultants commonly heard from



citizens who claimed their Geiger counters showed high radioactivity in such places as the hill south of the house or in the valley along a particular creek, or the like. Most of the time, these claims were mis-readings or exaggerations, but each had to be checked out "just in case."

Arizona is a mining state and the faculty member had been doing consulting part-time on mining issues. A rancher in southern Arizona had contacted him to say that the rancher's Geiger counter had indicated higher-than-background radiation and he wanted someone to come out to see what was there. So, the following Saturday we went to evaluate the site for its uranium potential. The rancher took us to a low, flat-topped ridge. I don't remember the stratigraphic details now, but I recollect that it was mostly shale with thin sandstone interbeds, capped by a vesicular, aphanitic dacite lava flow. The radiation levels seemed to be higher than background, but only slightly (insignificantly) so for both the volcanic rock and the sedimentary rocks. Also, there were no signs of any of the usual uranium minerals that would be expected. The uranium potential was negative.

While the faculty member and the rancher were chatting, I went back to have another look at the volcanic rock. Many of the vesicles

contained amygdules of an opaque, milky-white mineral I thought was quartz. As I moved slowly along, I suddenly saw a flash of rainbow color coming from one of the amygdules. I looked at it more closely and I realized that I was looking at a fire opal. I was really thrilled at my discovery, and I felt as if I were having a "eureka-moment," as the storybooks would have it upon discovering the first gold nugget (or uranium mineral) that would result in the Homestake (or Jackpot) Mine. I looked

for more fire opals, but the amygdules were only opaque opals. I broke off the piece of volcanic rock for my sample and I went down to show it off. The rancher agreed that it was mine (it was not of gem quality so it had no commercial value) and that he would let me know if he found any others (but I never heard from him again).



In the years I have done geologic field work, I kept only four samples from among the many I collected. Most ended up in laboratory studies or collections or were given away to schools or to other people. But I kept four of the samples: one was a dinosaur bone; a second was a piece of fossil wood containing the yellow uranium mineral, carnotite; the third sample was a sandstone containing the yellow-green uranium mineral, tyuyamunite; and the fourth sample was the piece of volcanic rock with the fire opal amygdule. When I retired from the Department of Geology (now Earth Sciences) at Indiana University-Purdue University Indianapolis (IUPUI) in 1995, I gave the first three samples to add to the Department's collection. But I kept the fourth sample, the fire opal in the volcanic rock, which I have had with me since I found it in 1953. It has always been my most treasured specimen, because it was there when I had my "eurekamoment." I expect that that specimen will still be with me when I go to that big outcrop in the sky.

- Arthur Mirsky

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## Dogs and Cats and Sheep

October 1981

In northeast Spain, the sheep move down to drink along the west bank of the Rio Alcandre. The brown water is turbid with sediment and cool

in the evening shadows. It is a stream longing to become crystal clear, as it once was. Out beyond a straight reach, the little herd spreads out.

On the east bank, a field party of geologists stands along the road, some studying an ancient braided deposit,



others standing on the bridge taking pictures of the old Pertusa church and of the milling sheep drinking. Two leave the road to sit on the bank to watch sheep and river. The leader of the field party tries to gather them all, but they have worked hard and are tired. Their resistance is unspoken. Dusk covers pebbles and brush.

Across the river a small once-white mutt, smudged with silt and clay, pushes straggling sheep away from the water and up the bank toward the bridge. The dog runs ahead, crosses the bridge—as if to show the herd where to go—then he circles back and pushes the lead sheep on up the road. He fords the stream and comes up behind a small bunch not yet on the bridge. The mutt urges them along and they move, bawling, until they ripple and pile up in front of the geologists who are taking pictures. The sheep stop, back away; the geologists snap photos, inching forward. Six feet separate them. Seconds pass. The dog breaks through the herd and the geologists back away. The little bunch fills in its ranks, talking as they trot on up the road. Soon they are out of sight. Fine dust, violet in the air and carrying scents of the sheep, fall on the river and on the geologists. Responding finally to their leader's pleas, the geologists climb onto the bus.

The bus driver brakes and honks at two pretty girls. The old carriage, headed away from Caspe, gains speed and moves rapidly for twenty minutes. An old man beside the road, gaunt beneath his crimson beret, looks back over his shoulder at the oncoming bus. The thin dog at his feet, its ribs stark against short brown hair, resembles the man. Grease stains

spot both. As the bus passes, gravel flies toward the two, pelts them. The man cowers; the dog barks. The pebbles fall beyond the road on the pediment. Clouds of clay settle on the ghostly figures. The bus driver, a Frenchman from Muret, chose not to honk. All sounds of the bus soon leave the rocky plain.

The blue tom's tail begins to twitch. He lies on a weathered post, flat against it like a lion dozing on an acacia limb. There, he watches mice hauling home their lunch between bleached alfalfa stems and an old cottonwood. He slides forward.

A melancholy cat with a soul, an orange tom, stalks the empty bus. The streetlights of Huesca, once an important Roman settlement and throughout its history a turbulent town, shadow bus and cat.



The orange tom walks the length of the bus, keeping underneath it, before stopping at the luggage compartment

on the sidewalk side. He sniffs the compartment, rubbing his nose against the mauve metal. The bus had held two dozen geologists and a driver; their scent lingers. The cat sniffs again, but walks away, moving into the blackness between the rear wheels. As early-evening strollers come down the sidewalk—headed for the center of Huesca or to apartments along the tree-lined street—the cat crouches and watches, tail twitching. He moves out from under the bus and returns to the compartments. He sniffs and rubs.

There is little traffic. A thin line of strollers in a Sunday evening ceremony before dinner, pass the cat and bus, moving toward a bright street. The cat gives up. As he comes onto the sidewalk, he tosses his head and crosses to the corner, walking away from the center of the city down a side street.

- Dane Picard

### A Restaurant in Madrid

This story begins at the reception in 1969 of the Mayor of Madrid, who had invited all participants in the large biennial convention of the International Association of Geomagnetism and Aeronomy for drinks and some finger-food in a large garden on the northwest side of downtown Madrid. Attendants left the reception with mixed feelings; it was a well fuelled party and much fun was had; but it emerged that our host — the mayor — had much blood on his hands from his role in the Spanish Civil War and the subsequent regime of General Franco, so many felt somewhat rueful at having accepted such hospitality. Be that as

it may, the paleomagnetic community had been especially well represented at both the conference and the reception mainly because just a few years earlier the plate tectonic theory had been conceived and many scientists were busy documenting the evidence for plate movements in the geological past.



The (slightly more) junior author of this narrative, Rob Van der Voo, was in the process of finishing his Ph.D. thesis at the University of Utrecht in the Netherlands. His thesis topic dealt with the paleomagnetic evidence for the rotation of the Iberian Peninsula. He had obtained results from Permian and Triassic rocks that showed the requisite 35 degrees counterclockwise rotation of Spain and Portugal needed for the opening of the Bay of Biscay. He had also collected some Cretaceous and early Tertiary rocks, and was arguing in his talk at Madrid that the results from these rocks showed that the Bay of Biscay was completely opened and that Iberia had already completed its rotation by earliest Tertiary time. The problem was that Professor Norman Watkins (then at Florida State University) had also collected some of the basaltic rocks near Lisbon and had concluded that the rotation of Iberia was still ongoing in early Tertiary times.

Van der Voo thought he had figured out why Watkins had come to this conclusion: The eminent paleomagnetist had not corrected for the dip of the basalt flows in the Lisbon area and his directions were, therefore, somewhat off the track! Needless to say, Professor Watkins was not pleased when he read the comment from the young pipsqueak Van der Voo to this effect and wrote immediately a rather dismissive reply.

Now, back to the reception, which was nearing its end and it was slowly getting dark. Van der Voo was walking to the exit of the park, when he spotted Professor Watkins; quickly he tried to duck behind some bushes, but it was too late. Watkins, slightly swaying back and forth, with a sizeable drink (not his first) in his hand and with the carnation in his buttonhole that always characterized his elegant style, beckoned Van der Voo to come on over. He was a rather tall and imposing fellow and, when Van der Voo had timidly approached, lifted his right arm and let it forcefully descend on Van der Voo's shoulder.

The younger guy cringed, especially when Watkins bellowed, "Van der Voo, uh, listen!"

"Yes, Dr. Watkins?"

"Van der Voo," Watkins continued, "I think you are right!"

Well, that was a relief. They started immediately discussing details, and pretty soon it was like they had been friends for years. A little later, they were joined by three other paleomagnetists, who were slowly moving to the exit and who enquired whether they were interested in having a dinner together in the city. The party, now consisting of Professors Keith Runcorn of the University of Newcastle-upon-Tyne, James Briden of Leeds University, and Hans Zijderveld of Utrecht University, in addition to the new Lisbon-basalt-buddies, marched out towards the small Renault Dauphine that Watkins had rented to get around in the city and into which he fitted his six-feet-five-inches tall frame with some difficulty. The famous Professor Runcorn, who more or less had started the discipline of paleomagnetism as applied to continental drift and plate tectonics, settled in next to the driver and pulled a city-map from his light-brown, bulging, leather briefcase. Zijderveld, Briden, and Van der Voo squeezed in together in the backseat and started an animated conversation, while Watkins

navigated the now darkening avenidas of Madrid. Traffic moved smoothly, though, aided by a traffic cop, wearing a white helmet like those worn in colonial times in the tropics. His hands, gloved in spotless white, waved the constant stream of cars along.

Through the mist of time, we remember some, but certainly not all, of our conversation topics. Undoubtedly, we talked about where in the Gondwana supercontinent Madagascar fitted best: Was it east of Kenya or farther south, adjacent to Mozambique? Periodically the topic of the Lisbon



Volcanics was reprised. Watkins developed a chant "Van der Voo is always right" — a dictum which, alas, has been fulfilled for us no more than for our colleagues in the intervening years.

The car made several turns, but still we were clearly moving right along. We zipped by another, similarly helmeted and white-gloved, policeman. At the time of this writing, we are unable to remember whether the eminent paleomagnetic scholars in the front seats were debating the traffic, the road map, or the happenings at the conference.

We do remember, however, our confidence sitting in the back of the car that we were heading for the agreed-upon outdoors restaurant at the eastern end of the Plaza Mayor. The nice thing about the Plaza Mayor was that it is remote from the traffic, surrounded by old colonnaded buildings on all sides.



Plaza Mayor in Madrid

Something was strangely wrong, though. We had already been riding for at least half-an hour, and yet we had thought that the distance between the Plaza Mayor and the park where the reception had been, would hardly be more than a few kilometers. Look, here was another policeman on a similar pedestal, but Watkins merrily drove on as it dawned on us that we

were perhaps not quite close yet to the restaurant. We remember thinking how all of the policemen looked alike with their helmets and white gloves! They even were the proud possessors of a similar moustache. "Yeah, wait a minute," one of us then screamed, as we took yet another set of turns, "It is the same policeman". Watkins turned and looked at us, somewhat embarrassed. Runcorn stared at the map and muttered something inaudible. Zijderveld suggested we ask for directions (O, horror!).

In the end, our growing appetite and a certain consequence of having consumed several glasses of refreshments at the reception, took the upper hand and we glided to a halt in front of the pedestal, with the helmeted, gloved and mustachioed man of the law.

This resulted in a trio of befuddled and gesticulating persons bent over the city-map provided by Runcorn, which was spread out on the hood (bonnet, as the Brits Watkins, Briden and Runcorn would have said) of the Renault. It was clear to those of us remaining behind in the backseat, that agreement was out of reach, for reasons having to do with the language barrier, a certain post-reception flippant gaiety on the part of our scientific colleagues, and a certain characteristically Spanish impatience on the part of our consultant. The emphatically spoken expressions of words like "izquierda" and "derecha" resounded in our ears. This rudimentary set of instructions did not, however, match the map with — how could that

be — its blue colors representing ... a harbor? In Madrid? Yes, readers, you guessed it. Professor Runcorn, who had almost single-handedly figured out how continents navigated across the globe during the Mesozoic and the Cenozoic, was less successful navigating in the Europe of 1969: The map he had pulled from his briefcase was of the city where he had been earlier in the week — the beautiful city of Copenhagen!



- Rob Van der Voo & James C. Briden

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### Peace Corps in Vemen

#### **Background**

This year is the beginning of the International Polar Year (IPY), which evokes memories of my discoveries in Antarctica during and after the International Geophysical Year (IGY) almost fifty years ago. Those discoveries were literally of global dimensions: they provided compelling field evidence that proved once and for all the theory of continental drift and reunited Gondwana.

At that time my focus was on southern hemisphere continents, and one of the index formations in Antarctica was the Buckeye Tillite, which correlated well with the tillites of South Africa and South America. A couple of decades later I stumbled onto a tillite in, of all places, the Arabian Peninsula where I was on an assignment that had nothing to do with geology. I was Director of Peace Corps in Yemen.

In the mid 1970s I led a group of Arab-American earth scientists on a research project to survey the mineral and water resources of North Yemen and South Yemen. It was mostly an academic exercise with no field work to speak of.

In 1984 I was approached by a friend who knew of my



previous work, and wanted to submit my name to the White House for the position of Country Director of Peace Corps in Yemen (North Yemen at that time). I thought it was a joke. I told him I was a geologist and knew nothing about the Peace Corps. He said that the officials in Yemen asked the United States not to send someone who just studied Arabic in school; they wanted an Arab-American familiar with the culture and the society in Yemen and with whom the people and officials of Yemen would communicate securely and effectively. And that was how my name was proposed.

Accepting the offer depended on two serious factors, personal and

professional. The personal factor was the fact that I had just gone through a divorce (the price of five expeditions to Antarctica) and was courting Anne Davenport, a southern belle from Tennessee. I showed Anne the slides from my previous work in Yemen so she would decide whether she would accompany me as my wife. Her answer was, "Are you trying to get out of this (our prospective marriage)?" "Of course not", I replied, "I just want you to know what to expect." The professional factor was also a problem. I knew nothing about Peace Corps, and was apprehensive about going into the Foreign Service and disconnecting with my profession as an earth scientist.

While contemplating those constraints, I heard the news that Hunt Oil Company discovered oil in Yemen. That was a deciding factor in my accepting the assignment in Yemen from June 1985 to December 1987.

#### **Geological Observations**

As Director of Peace Corps I was independent of the U.S. Embassy in Sanaa, and had no connections with or personal interest in any business company including Hunt Oil. The advantage of this status was Yemeni trust that provided me with free access to government offices and educational institutions, and the freedom to travel throughout the country especially when training the more than sixty new Peace Corps volunteers, and visiting villages where old volunteers were stationed.

To me as a geologist, freely making field observations was a joyful professional exercise. After showing my Antarctic slides at the University of Sanaa, I connected with members of the Geology Department, especially Dr. Hamed A. El-Nakhal, who started inviting me to join him on his field trips in my spare time. On one of those trips he showed me beds of glacial deposits that I immediately recognized as tillite.

In the heart of the Arabian Peninsula, it was as if I were back in Antarctica in unbearable weather, albeit in sweltering heat on this side, stepping on the Buckeye Tillite that matched the Dwyka Tillite in South Africa and the tillites of South America. The Yemeni tillite was replete with striated boulders and the polished pavement full of grooves properly oriented in the direction of the flowing ice. That was during the fasting

month of Ramadan, and Dr. El-Nakhal did not appreciate my spraying the precious bottled water on the pavement in order to clear the sand and get better pictures of the striations and grooves.

Although I was impressed by the spectacular basaltic columns of volcanic beds as well as other formations throughout the highlands of Yemen, the tillite was unique and exciting in adding one more compelling piece of evidence in the reconstruction of Gondwana.

#### **Petroleum Discoveries**

The discovery of oil in Yemen was the deciding factor in my accepting the Foreign Service assignment with the U.S. Peace Corps. The news of the discovery became known early in 1984, and was officially announced by Hunt Oil Company in July that year. Anne and I got married on June 14, 1985, and ten days later I was on the plane to Yemen and settled in Sanaa. By sheer coincidence, Jimmy Hyde, our neighbor in the apartment directly above ours, was the vice president of Esso (Exxon), which was interested in sharing the development of the oil field and participating in building a pipeline to the Red Sea. We became good friends and socialized often. He was interested in my previous experience with the Arabian American Oil Company (ARAMCO) in Saudi Arabia and Shell Oil Company in Bakersfield, California.

Again my position with Peace Corps and my dissociation from any oil company or any other private enterprise opened the oil folder freely

in our discussions. I renewed my contacts with government officials, visited the Alif oil field, witnessed the drilling operations and eventually the building of a small refinery with a capacity of 10,000 barrels per day. With great interest, I became



privy to the negotiations between the government and the companies competing for future involvement in this new source of income for Yemen. I maintained social contact with Dr. Abdulkarim Iriani, Minister of Foreign Affairs, who was Chairman of the National Planning Organization when I did the survey back in the 1970s.

In April, 1986, I became involved in the visit to Yemen of Vice President George W.H. Bush, the highest ranking U.S. official to ever visit Yemen. The story goes that Bush played golf with Ray Hunt and was invited to Yemen to dedicate the new refinery. Back in the late sixties, I had done some work for (then) Congressman George Bush when he was Chairman of the Task Force on Earth Resources and Population in the House of Representatives. So we renewed our acquaintance, and my wife Anne enjoyed partying with Barbara Bush, and renewing her old friendship with her since the years when Anne worked in the White House. I also arranged for George and Barbara to visit with the Peace Corps volunteers present in Sanaa at that time.

A short time later the negotiations for the pipeline ended, and its construction started from the Alif field in the desert to Salif, north of Hodaida on the Red Sea. The 24/26 inch pipeline was designed to transport 200,000 barrels per day. My assignment with Peace Corps in Yemen ended in November 1987. My wife and I left Sanaa the first week of December, and one week later the first oil tanker load was shipped from Salif.

#### **Coming Home**

My service with Peace Corps in rugged Yemen reflected the Peace Corps motto, "It's the toughest job you'll ever love!" But my geological activities and the knowledge I gained during those two and half years were highly informative and professionally very rewarding. Unfortunately, my wife did not share my professional excitement. Although our Embassy kept her busy socially, and we gained great friends in Sanna, she often refers sarcastically to her "two and a half year honeymoon" in Yemen.

- George A. Doumani

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## Trials and Tribulations of International Travel

John Harbaugh and I flew to England and hitchhiked a ride with Trevor Ford of Leicester University and John Neal of Hull University to Prague, Czechoslovakia, for the 23rd International Geological Congress. The trip across the channel and through western Europe was uneventful and we visited several interesting geological sites including Karlovy Vary, the famous Czech spa. We arrived in Prague and checked into the Vitkov Hotel which was on the western side of the city while Trevor and John stayed in a hotel on the east side.

The first day was uneventful and we toured the sights of the city. Monday night I awoke hearing low-flying airplanes droning overhead and the thought went through my head "the Russians are coming". The next morning was drab and dreary and there was no electricity so we walked downstairs to breakfast. Everyone was sober or crying; during the night

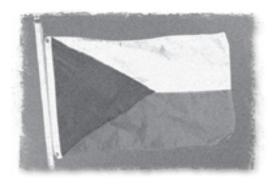
sure enough the Russians with troops from the Warsaw Pact had occupied the country.
Only one radio station was on the air and everyone gathered around to get the latest news while in the streets were Russian tanks and truck loads of Czechs with banners and flags. All the making of real



trouble; the situation was grave. Nothing could be done the rest of the day, but from a vantage point in our part of the city we could see the smoke rising from the city center and hear gun fire. One of our Czech colleagues came to the hotel to reassure John and I that everything was okay and that the Congress would reconvene the next day.

The next day we made our way to the Technical University where our sessions were to be held. Russian soldiers, armored cars, and tanks were everywhere and all traffic was strictly controlled. We tried to reconvene the Congress without much success. Delegates were discussing the situation and many countries decided they should leave, however the borders were closed. Rumors were rampant. Our Russian geology

colleagues were as surprised as we were with events and apparently the Russians were surprised as well to find a well-attended international congress in session. After a morning meeting 'officially' forming the International Association for Mathematical Geology



(IAMG) and electing a slate of officers, which was the main purpose of my attending, we adjourned and everyone looked for a way out and home.

Our colleagues, Trevor and John, deserted us (there was no way we could meet them) and drove west in a convoy headed by Shirley Temple, the U.S. Ambassador to Czechoslovakia; John Harbaugh and I were stranded. There was a rumor a train was waiting to evacuate delegates and we found our way to the station and sure enough there was a train

with no engine surrounded by Russian tanks. We managed to get loaded, an engine appeared and hooked up, and we headed for somewhere — east? In the middle of the night we ended up at the Czech-Austrian border. The lights went out briefly after we had been inspected by the



Czechs (and Russians) and approved for exiting the country. It turned out that some Czechs had boarded the train to make their way to the West and freedom. That somewhere turned out to be Vienna where we were met by news agencies and U.S. Embassy employees, who directed us to welcomed accommodations. The 23rd IGC was prematurely and permanently over and everyone at the Congress managed to return to their home safely much to the relief of the organizers and all the delegates.

- Dan Merriam

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### Hostile Environment

On a project in the Chalk Belt at Linden, Alabama, we had in training a young geologist from New York University, who had never been to the country. He didn't believe what our crew told him about poison ivy, but even worse, during a dark night while running a pumping test on a well in a



pasture, the campfire, built to kill the chill, attracted the cows. Much to the consternation of our city dweller, the cows came up to where he was reading water levels. He promptly left the test and hurried back to his motel room. All our coaxing didn't keep him in Alabama and shortly he left for home! He was still scratching his poison ivy and probably cussing us "d--n redneck Southerners" who were predominately d--n Yankees. After all, a cow with horns is a pretty vicious looking animal with the flames flickering on those huge flanks and rear ends!!

#### - P. E. LaMoreaux

Asking Tom Dibblee if it was true that he picked up his field lunch from vegetables that fell off produce trucks, Tom said "Yes, what am I supposed to do? It was fresh!"

- W. Gary Ernst





We went where none had dived before, in cold clear water, where dwelled the the largest sea lion clan, the Stellar.

We sank from light, warmth of sun, screeching gulls, barking sea lions, throbbing engines, to the silent embracing twilight deep where, spread below us a chaotic rocky city of mighty inclined and broken sandstone slabs, like fallen masonry, home to twisted kelp, spiky urchins, and timid fish.

A toothy sea lion pride skulked, like thugs on a darkened street.

They guarded treasure of geologic truth, like no other for tens of miles around.

From their treasure we plundered all that greedy hands and minds could carry.

Swam hard for the surface.

Gulf of Alaska - John W. Vernon



## Gone With the Wind

The field work in the Canadian High Arctic of myself and my graduate students was supported by helicopters and fixed wing aircraft provided by the Polar Continental Shelf Program. The aircraft were Twin Otters powered by two turboprops and equipped with balloon tires for gravelly terrain or skis for snow. In the late seventies we were studying the Blue Fiord reefs of Early Devonian age on southern Ellesmere Island at about latitude 77 degrees N. From Montreal we landed at the base at Resolute on Cornwallis I. at midnight of June 17th in the broad daylight of the arctic

night. The following day we were confined to the base by a blizzard that blanketed the airfield with wet snow, but we were able to fly the 200 miles to the field area south of Eids Fiord the following day. As we flew above the frozen surface of the fiord we saw that about 90 per cent of the ground



was snow covered but the crest of the line of cliffs formed by the Blue Fiord limestones was an exposed strip of wind-swept gravel and we asked the pilot to land us there. After several passes over the rough ground, he brought the plane down on a ridge that was scarcely wider than the wingspan. The three of us unloaded our camping equipment and the pilot took off in a surprisingly short distance into a strong headwind that roared down the ridge.

Any tents are difficult to set up in a wind of about 30 knots but the problems are made worse in the arctic because permafrost makes driving tent pegs like trying to penetrate glass with a blunt instrument. We secured the ropes around round stones strewn over the surface and the following morning discovered that many of these were pillow-shaped complete fossil corals weathered from the coralline limestone below.

When we started work on June 20<sup>th</sup> enough rock for us to measure was exposed in streams that cut through the cliff line but most of the surface

was covered with snow. In two weeks the only snow left was in gullies and the snowbank that supplied our water was rapidly shrinking. As the melt progressed narrow streamlets first appeared in the valleys and, from day to day, widened and ran faster. Streams that could be stepped over the first day, had to be cleared with a running leap the next, and on the third crossed with the aid of a large stepping stone tossed into mid-stream. Each day we feared that the stream we had crossed in the morning would be an impassable torrent by evening cutting us off from camp and radio contact with the outside world.

After two weeks at Eids Fiord the students wanted to move camp and I wanted to leave them to continue their research on the reefs. We called Resolute for a Twin Otter to take us off the ridge, move camp, and take me back to the base. It was a beautiful warm, calm, clear day and we lay in the sun on our packed tents waiting for the aircraft. The pilot made several passes along the ridge a few feet above the ground but did not land. When he did land it was on the flat ground below the cliffs about half a mile from where we waited. So we three took my clothes and bedding and walked through the snow drifts to the plane leaving the rest of the gear on the ridge. The pilot said he could not imagine how any one had been able to land on the ridge two weeks ago and that it would be madness to try now. When he learned we had the benefit then of a 30-knot wind, he understood; but the problem of the geologists stranded on the ridge waiting for a wind remained. The only solution was to call in a helicopter from Resolute to pluck them from the ridge and move them to

a new campsite. But without refuelling, a helicopter from Resolute could not make the return flight to Eids Fiord. A Twin Otter had to make an extra trip to place fuel along the flight path before the helicopter could pick up and move the students. The cost of all these flights made this a most expensive way to move a field camp.



- Colin W. Stearn

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No one likes to be the object of ridicule--even if it is done "just for fun."

The annual Christmas Party at the Harvard Geology Department in 1958 included good company, good food, appropriate beverages, and of course the presentation of goodnatured "skits" including amusing depictions of selected members of the faculty, staff, and



fellow students. All in the spirit of good fun, mind you.

I was not your typical first year doctoral student. I was married with two kids and had just finished a two-year tour as a combat ready SAC navigator. I also harbored some strange geologic notions, but geomorphologists were thought to be like that in the eyes of the "hardcore, mainstream real geologists" of the department. I was out of step with the orthodoxy of plunging geosynclinal troughs and the subsequent upwelling of massive sedimentary sequences. I had a different architecture in mind.

Not surprisingly when it was skit time, I saw myself up on the stage being depicted as "Old Drifter." Yes, I was guilty as charged! I believed in Continental Drift! I was not raised an agnostic. Couple of geology degrees from Michigan: short period as a field geologist with Standard of California



before being called into active Air Force duty. Hardly a flaming iconoclast; just a clean-cut Midwestern boy who had stumbled onto Wegener et.al. all by myself.

Too late--I was exposed as an "arts and crafts" geologist by the department's distinguished geophysicist whose oft-repeated anti-drift mantra, "no mechanism," stifled further discussion. In a recent conversation with a Harvard classmate, he told me this professor, who was his mentor--lived a long and productive life--but never did accept Plate Tectonics. He did live long enough for me to gingerly approach him at a

GSA meeting and gently imply the perhaps "Old Drifter" had not been that far off the mark after all.

It is very exciting to have lived through a major paradigm shift in our geologic concepts. My ten-year-old grandson recently shared with me the inside scoop, "Grandpa, everyone knows that the earth's crust is made up of big plates that keep moving around". Out of the mouths of babes!

- Lowell R. Satin

Going on class field trips with Dr. John M. Dennison, UNC Chapel Hill, and always taking a flashlight with me, John always had so much to show his students, he would run out of day light before he would run out of field trip stops.



- Katharine L. Avary

Dr. J.D. Thompson welcomed students to his Brodheadsville,

PA home for a weekend of Pennsylvania geology, including

invertebrate fossil collecting. At night he sang, "Mr. Froggie

went-a-courting"! This "Hooked" me on Geology.

- Jordan Makower

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# Gold Nugget Found...and Lost

During the summer of 1949 while staying in a cabin in Tolland, Colorado, my family made friends with the Moshes. When Mr. Moshe found out that I wanted to be a miner he suggested a visit to old man Mackey and his gold mines up the canyon near the trail head to James Peak. Mr. Moshe knew Mr. Mackey very well and offered to introduce us and maybe get a tour of his workings. I couldn't wait for the day to come and kept pestering my folks to go up the canyon to the mines. I had just turned eight years old and dreamed of hard rock mining and the quest for underground adventure. I was a Tom Sawyer kind of kid and had become familiar with the mines of Moon Gulch, Gamble Gulch, and Gilpin.

Finally the day arrived that Mr. Moshe came by to pick me up. I got to ride with him in his old pickup and my folks followed in our car. We met Mr. Mackey and he showed us around his mines (just one adit with assorted underground workings) but I was thrilled with it all. After touring around the mine we retired to Mr. Mackey's cabin. Mr. Moshe had to leave but left us in Mr. Mackey's good hands. Mr. Mackey offered us some cold drinks and we settled in for a visit.

"Hey, boy, how would you like to see how I found this mine?"

I was excited to learn how to find a gold mine of course and out the door we went and into the small creek near the mine entrance. With a very large gold pan in my hands and with water up to my knees Mr.



Mackey placed a shovel full of dirt from the creek bank into the pan.

"Here you go. Put some water in the pan and wash it back and forth. See how the dirt washes away? Pick out all of the big pieces of rock and keep washing until you have nothing but black sand in the pan. Be careful, not too fast."

I washed and washed the dirt until I could see a crescent of black sand collecting along the edge of the pan bottom. Mr. Mackey was helping me to

hold the pan and was directing the entire procedure. I spotted the treasure just as he exclaimed, "Looky there. You've found a dandy, a real dandy!"

A gold nugget as big as my thumb was resting in the black sand! I couldn't believe it, I'd found a real gold nugget! I don't remember exactly what happened next but I do remember putting that gold nugget into a glass of water and my mom placing the glass on the kitchen sink window sill of our little cabin. The nugget appeared much larger in the magnifying water-filled glass! Every once in a while I would pass by to gaze at the nugget, to be sure it was real, and to dream of how I might discover my own gold mine someday.

The next day I had gone down to Clear Creek to play and thought of the nugget. I ran back to the cabin to find the glass and nugget missing!

"Mom, Mom, where's my nugget? Where's the glass?"

"What glass? Oh, your gold nugget in the glass. I'm sorry I must have washed it down the sink when I did the dishes this morning. That's okay, you can find another one."

Boy, she just didn't understand! That was my first gold nugget! I ran out of the cabin. An hour or so later I was down a good foot or two when my mom came out and asked what I was doing.

"I am going to dig up my nugget."

"No, no. You can't do that. The sink drain is way too deep to dig up. We're leaving in the morning and you just don't have the time to dig that deep."

I really felt bad about losing my gold nugget.

I was sitting at the kitchen table in Amarillo, Texas, in 1956. I was fifteen years old and it had finally dawned on me what had transpired in Tolland those many years before. I had been sand-bagged! My mom laughed and admitted that Mr. Mackey had "salted" my pan of dirt and black sand with one of his own gold nuggets those many years before.

- Joe W. Fandrich

## Blueberry Break

My first job as a geologist involved quadrangle mapping for the USGS with George Snyder, who is probably the best field geologist I have ever known. Prior to my summers mapping with George in Connecticut I had no field experience and was a real rookie. I had just graduated from undergraduate school and planned to start graduate school at Wisconsin in the fall. So he had a lot of training to do before setting me loose to do any useful mapping. George taught me how to map in the field, how to identify plants, how to make notes in a field book, and how to function as a geologist and as a man. It was a real growing up experience for me!

Perhaps one of the funniest events we shared was a morning we were doing our usual separate traverses between roads to meet at noon back at the truck. When we met at noon he confessed that he had not done his traverse because he spent the morning in a blueberry patch eating.

This was a great comfort to me because I had done the same thing and was trying to figure out how I could explain this to the boss. George was always fair and helpful and probably what success I have had as a geologist is derived largely from my two summers working with him.



#### - Karl Seifert



I was doing reconnaissance on a landfill expansion and walked in an adjoining junk yard after hours. A large dog with exposed teeth chased me and fortunately was on a long cable which snapped him to a halt before catching up to me.

- Terry R. West

### International Problems

All didn't always go well as Jumchet, from Thailand, robbed a fish net of a local fisherman. We had a hard sell explaining the situation to the fisherman, who caught him red-handed in the act!

Later, on the same trip, another young, new geologist, John Newton, was along, and we had him pulling our boat over the shoals, running the rapids, bagging and labeling samples, until one afternoon a passing boat wave rocked our



boat while John was channel sampling, and he impaled his hand on the outcrop with his geologic pick. We were miles and hours from a doctor. It did disturb our daily routine until we could get John repaired and back to work. No sick leave then. John's comment, "This is geologic fieldwork?"

#### - Philip E. Lamoreaux



In the early 1960's while working in Spitsbergen in very low visibility, almost flying into the front of a glacier:
As our Norwegian helicopter pilot pulled up to just clear the wall of ice, Harold Kellogg and I truly had the fright of our lives.

- James D. Lowell

# An Important/Delightful Observation of Earth

#### MILITARY SERVICE IN THE PACIFIC DURING WWII

In 1943 just after finishing my first two years of college and with no training whatsoever in geology, I became a member of the 129<sup>th</sup> Naval Construction Battalion (the Seabees), and soon began nearly three years of military service, two of them in the Pacific theater. There I saw and became interested in parts of the world that I had not seen before. One particular observation during that period eventually stood out far above the others, and became part of an important event later in my career in earth science. This story focuses on that observation and the fortunate and exciting event that followed.

#### **BASKETBALL INTERVENES**

When the war ended in 1945, my military outfit was stationed on the island of Samar in the Philippines. For a few months we waited there anxiously for transportation back to the United States and for discharge from the service. However, a brief and pleasant task intervened. In addition to heavy construction activities in wartime, our outfit had had a basketball team that, when appropriate, competed against the basketball teams of various other military units in order to entertain the troops. The basketball team of our outfit, of which I was captain, had many fine players and so we had an exceptional win-loss record. Consequently, in the postwar period as we waited on Samar to go home, we received an invitation to travel to Manila to play in a special basketball tournament at Rizal Coliseum.

#### THE PHILIPPINES FROM ABOVE

A military plane was assigned to take us from our remote island location to Manila. The plane was a C-47 that flew low and slowly and so provided us with a beautiful and impressive view of the Philippine Islands along the route. Most



of the fellows whiled away the time by playing cards on the plane, but I thought this flight might be my only opportunity to see the Philippines so well from the air, so I sat near a window and absorbed and analyzed the view of the islands for the entire trip. Soon I made the delightful observation that would stay with me for life.

#### A "CRACK" IN THE EARTH

What I saw was a straight and narrow feature in the topography that could be traced across an island, then would disappear beneath the sea, and then reappear in the next island. I wondered what this strange feature could be. I knew nothing about geology at the time, but it occurred to me, since the earth appeared to be broken, that the feature might be described and thought of, by the term, "Crack in the Earth". I wondered if indeed the earth did crack like that, and if the parts of the earth on opposite sides could have moved relative to one another. Then I thought of expressions I knew like "solid as a rock", and "terra firma", and at that time concluded that I must be dreaming. But I couldn't dismiss that image of the cracked earth from my memory.

#### THE PHILIPPINE FAULT

Years later after I returned to college and began to learn a little geology during my final years of graduate study, I realized that geologists recognized and partially understood that feature, and called it the Philippine fault. Clarence Allen, a good friend of mine, a professor at Cal Tech,



and an outstanding expert on the San Andreas fault in California, had considerable knowledge of the Philippine fault as well, and he briefed me on it. He knew a great deal about the movements on the San Andreas fault, but if I recall correctly, he reported there was no such detailed knowledge of recent movements along the Philippine fault.

#### A PART OF PLATE TECTONICS

Then, in the late 1960's, a new way of thinking arose in earth science as the concept of plate tectonics began to come together. I was fortunate to play a part in the discovery of that great theory and so soon became aware that the Philippine fault was proposed to be part of the boundary between two of the very large plates in the model, and so the type of movement along the fault was specified in some detail as part of the overall concept of plate tectonics.



Then in 1971, a meeting on some other aspect of earth science was held in Taiwan and attended by, among others, Clarence Allen and me. Early one morning during the middle of the meeting, Clarence excitedly sought me out and told me that a large earthquake had just occurred on the Philippine fault. No fault motion had been reported as yet, so Clarence suggested that we leave immediately for the Philippines and try to see what ground motion had occurred, because that could be an important test of the new concept of plate tectonics. I agreed, and he and I left almost immediately for Manila.

#### SEARCHING FOR THE FAULT TRACE

In Manila, a geologist friend of Clarence's joined us and provided a four-wheel drive vehicle, and we set off to southern Luzon near where the earthquake had occurred to try to find places where we could reach the fault trace on foot. We searched some difficult terrain, but were unable to find the fault, at least partly because of the heavy jungle vegetation. Not wishing to give up the search because the matter seemed so important, when we reached the coast line, we hired a boat to take us along the coast hoping that we might be able to distinguish where the fault came to the coast. But that effort also failed. Finally we decided to go ashore at a very small village, and ask for further information. We found one man who told us that he had felt the earthquake, and then when asked if the ground had broken somewhere, he said, "Oh yes, right over here!" What luck! We might

just as well have chosen to go ashore miles from that location!

#### **EVIDENCE OF FAULT MOTION**

Incredibly, he took us to a place just a few hundred yards away where the ground clearly had broken, almost surely during the earthquake. We had indeed found what we were looking for. But also incredibly, the broken feature extended through a plantation of coconut trees that had been initially planted in straight lines. Now all the straight lines were offset consistently and in the left



lateral sense. The motion was all transcurrent with no significant vertical contribution. Furthermore, that motion was precisely what the great new theory of plate tectonics predicted! We had found one of the first, if not the first, observations that showed that not just ancient but also modern movements of the earth were consistent with the plate tectonic story.

#### **HAPPY EARTH SCIENTISTS**

We were, of course, extremely pleased. Our observation suggested that one could now sit in an office anywhere, and, when a large earthquake occurred elsewhere in the world, be fairly certain of the kind of ground motion involved by using the plate tectonics model. We left the Philippines in a happy mood of course, and Clarence used our observations in his presidential address to the Geological Society of America a short time after. We had been blessed with good timing and good fortune in a major way, and we had found and seen something that never before had been recognized so clearly. But indeed that is sometimes the way of an observational science, and certainly can be one of the great pleasures of working in study of the earth.

- Jack Oliver

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### Mama Bear

Prof. Robert Dreyer took ten University of Kansas geology students in University carryalls to Montana in 1948 to fulfill their requirement for field camp. Interesting mining camps were visited during the six week trip which culminated in the Big Belt Mountains near Helena, Montana for our mapping exercise.

On the way back to Lawrence, we went through Yellowstone National Park to see the volcanic features. We camped out as usual in one of the

designated camping areas. In the middle of the night John Harbaugh was awakened by a bear rummaging through the food stuff on the table. He let out a loud scream, "Now you get out of here bear!" The entire camp was awakened to see John hopping around in his sleeping bag and the mama bear and two cubs at the top of nearby trees.



- Daniel Merriam



An important IGC 1972 (Montreal)
Excursion

1) with John Rodgers across the
Appalachians
2) with Ray Price across the Rockies
Advice - join IGC 2008 in OSLO

- D.G. Gee

Shotguns and Watermelons

During the summer of 1948 I was hired by the Indiana Geological Survey as a field assistant to Professor Bill Thornbury to map the geology of the Wabash (Indiana) 7 % minute Quadrangle. At the same time, I was to start field work on the glacial geology of the entire Wabash County, which was to become my master's thesis. Dr. Thornbury and I spent the day, from 8 am ton 5 pm, mapping bedrock and glacial deposits of the quadrangle, then I grabbed a quick bite and headed out to spend the rest of the daylight hours working on the glacial deposits of the rest of the

county outside the boundaries of the quadrangle. Part of the project was to see if there was any difference in the depth of leaching in the Mississinewa Moraine and the till plain to the west of it. This meant I drilled a large number of soil auger holes to a depth of 30 to 40 inches and tested for the presence of calcium carbonate with HCl.



Because I worked at this until it became too dark to see what I was doing, nearly every day I was drilling a hole at the edge of a field at dusk. On one day I started what was to be my last hole of the day a little back from a county road, and along a fence. I was completely absorbed in what I was doing when suddenly I heard a voice call out, "Whatcha doin there?" I turned and saw an elderly lady standing about 20 feet away, holding a shotgun. I explained as quickly as I could why I was there and what I was doing. She listened, then laughed. Then she told me that her watermelon patch was on the other side of the fence (I hadn't seen it), that the melons were getting ripe, that a couple of days earlier she saw some local high school age boys stealing her watermelons about this time of day, and that she was sitting in her house about 200 feet down the road, watching and waiting for them to come back... After she put down her shotgun, we both had a good laugh.

- Bill Wayne

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## "An Hysterical Incident" in Mexico

In November 1968, just before the GSA Annual Meeting in Mexico City, I organized an excursion to review the geology of archaeologic sites at the Valsequillo Reservoir, near Puebla.

Our object was to examine the stratigraphy of volcanic deposits, some of which might have come from a nearby volcano called La Malinche. So, in three days, we climbed from 7,000 feet at the reservoir to about

14,000 feet on the volcano. It was a distinguished group, including several well-known figures in geo-archaeology (Vance Haynes, Donald Lee Johnson, Wayne Lambert, and Jim Benedict) and others who were leaders in geomorphology (John Hawley, Dwight Crandall, Leo Heindl, Roger Morrison, and Bob Black).



Except for being impeded by a riot staged by university students at the end of the third day, all went well until the following morning, a Sunday. At 6:30 AM there is a knock on my hotel door. It is George Williams telling me that Bob Jones (who had climbed La Malinche the day before) has an irregular and weak pulse at 108 counts. He evidently is suffering a heart attack. "What could I do?" Naturally, I will get the Land Rover, go to the Hospital Latino Americano, and bring a doctor as soon as possible. Of course, the hospital is a tomb on this early Sunday morning, but I find a nurse and explain the problem. She looks down a list for the cardiologist's home phone. The telephone line is dead, naturalmente, on Sunday. The address of his house? No problem, 1501 Av. Juarez, nearby. I find this to be an apartment with no names on the boxes. I ring three bells, and the third is answered by a sleepy but kind lady in a nightgown. She says that the doctor is at the next doorway, which has the same number. This part of the building does indeed have names, but none matches the cardiologist. Happily, a janitor is sweeping the street, so I ask him. Of course, the doctor has moved two or three blocks away. He gives long, explicit, and incomprehensible directions. Can he guide me? "Ah, no, señor; lastima." What is the number? A smile illuminates his face. From a packet of about

100 tattered business cards he produces the address. It is an unmarked privado (private street) at 17B Sur. I find the number, and a helpful señora in a pale blue negligee emerges. "A doctor here? No, it is the second privado." I go there—also not marked—and find the same number. This residence has an intercom, and the maid answers, sleepily. Many words follow, garbled by the intercom. No, the doctor is sleeping and can't be disturbed. A las once horas (11:00 o'clock). Is there another doctor? No se (Don't know). I have to give up and return to the hospital.

At the hospital, I ask for some doctor on duty who can tell whether it is safe to move the patient to the hospital. The doctor and I drive to the hotel, and he listens to Bob's heart with a stethoscope. He says if it is bad an injection is required. He can't give the injection. If it is not so bad, an oral medicine will do. We settle for that. Back at the hospital, the Farmacia is still closed, but it opens in 10 minutes. The attendant climbs a ladder to find the prescribed medicine, but it is all gone. I again track down the nurse who finds the doctor at breakfast. He writes a substitute prescription, which is the same product by a different manufacturer—digitalis. With this, I return to the hotel and wait for the cardiologist to appear at 11:30.

By noon, and then by 1:00, the cardiologist has not arrived. By phone, we learn that he will come at 4:30, which he indeed does. He takes an hour and does an EKG, with me standing by to help with questions. The diagnosis? Bob Jones is not having a heart attack. He's just tired, like the athletes in the Mexico City Olympics,



some of whom had similar symptoms from the high altitude. The doctor calls it an "hysterical" heart attack. So Bob can get up. The relief is almost overwhelming. His fear and ours' melts away, as we pay the bill: 250 pesos.

- Harold E. Malde

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### Musical Sand

Late in the afternoon of June 27, 1979, Bob Giegengack (University of Pennsylvania), Wolf Willman (Conoco Mid-Delta Petroleum Company), and I, working in the Western Desert of Egypt on the study of Libyan Desert glass, a high-silica natural glass of still-uncertain origin, parked our vehicles for the night near the west flank of a linear dune about 10 meters high. We clambered to the

summit of the dune to obtain a better view of our location, then after a few minutes came down the slip face toward the vehicles, taking giant strides in the soft sand and pushing sand ahead of us with each step. Suddenly, near the base of the dune a muffled low-frequency sound was clearly audible: woo...woo...



woo....

Startled, we climbed again to the summit of the dune and repeated the descent, each of us moving down independently of the others and each producing the same low-pitched sound. We repeated the process numerous times, with the same result. We realized that we were hearing the mysterious sound variously described as booming, singing, whispering, roaring, or humming sand.

Those working in the northeast Sahara are familiar with the work of the late Ralph A. Bagnold, British Army officer, scientist, and engineer who studied windblown sand both in the laboratory and the field. He described an experience in the Egyptian desert about 100 km south of our location as follows:

"...We were camped in the shelter of a big dune. Around midnight we were startled by a tremendous booming sound coming from the ground a few feet away; we could feel the sand vibrating beneath us. We had to shout to make ourselves heard. The dune had begun a spontaneous song. In the moonlight we saw an avalanche creeping slowly down the dune's slip face. The sound came from below, where the avalanche was slowing and the sand

accumulating. I had often heard this "singing" in previous years, but now after a minute there came an answering boom, and then another from dunes half a mile away. The vibrations from our dune must have started avalanches elsewhere. We had the eerie notion that these great beings were talking to one another in the stillness of the night" (Bagnold, 1990, p. 118).

That afternoon in 1979, the three of us had experienced only a small sample of mysterious musical sand, but it was a thrill to have done so, especially since it was so unexpected. Furthermore, it gave us a feeling of kinship with Bagnold to have experienced even a few notes of music of the sand.

- James Underwood, Jr.

As the last geologist of the famous Franklin mine. I had many memorable experiences early in my career. Working in one of two adjacent mines with unique mineralogy taught me much about an intriguing suite of rare minerals (many fluorescent), pioneering mining techniques, (97 percent recovery of orebody

through top-slicing of pillars), an interesting blend of miners (shift bosses descended from Cornish tin miners and working-place miners from eastern Europe) and a beautiful rural area of N. I.

- Ranard J. Pickering



## The Village Hotel Caper

At the end of a field day in the Lombardy Alps of Italy studying Jurassic radiolarites in 1974, Bob "Luigi" Folk and I drove down to the foothills to find a village with a hotel. We were not high enough in the Alps to be in a tourist area, so we had a difficult time finding a place to stay. As our frustration grew, we eventually found a village that lacked a hotel or pensione, but which had a locanda. A locanda, or "place", is usually a few rooms above an Italian bar, and has the sparsest of amenities of

tourist accommodations in Italy. As the only overnight occupants of the locanda, we got the "best" of three rooms. The room was above the entrance to the bar and overlooked the noisy main street of the village. The beds were saggy, the commode was down the hall, and the room wasn't the cleanest, but it served.

After dinner and a Sambucca, Luigi and I did a few note-keeping chores and relaxed in our room. About 10 pm, several

men congregated in the chairs in front of the bar outside our widow and engaged in a lively discussion. One man dominated the discussion. He virtually shouted all the time, and usually stood up to vigorously gesture and make his points. He seemed determined to dominate the discussion either with debating skills of overwhelming volume. The vocal man stimulated his companions to raise their voices to also be heard. Luigi and I tried to sleep, but the din was unbelievable. How could three or four men make such noise? My Italian was not good enough to follow any of the conversation, but Luigi determined that the main topic seemed to be politics. He could understand only a little of the conversation because they were speaking in the dialect typical of the Lombardy region. Around 1 a.m. the discussion broke up and we got some sleep.

The next morning we checked out of the Locanda and returned to the field to finish examining spectacular outcrops of radiolarites near Sogno. We thought a few hours would be sufficient to complete our work, but we found lots of things that puzzled us and required careful observation. At 7:00 pm we realized that we needed another day of field time. We returned

to the locanda, got the same room, and hoped that the debate of the previous night was held only once a week. We were wrong. Same crowd, same time, same topics, same noise, same shouting guy. That night we were tired enough that it didn't matter what the noise level was. We slept.

The following summer we returned to the Sogno area to reexamine the exposures that we had studied the previous year. We couldn't complete our work in one day and, once again, sought a place to stay. There



was nothing in the vicinity but our familiar locanda. Luigi and I laughed about our experience in the locanda the previous summer, and thought that the odds were good that the mens' discussion group had disbanded, or at least the loudest guy had moved away, died, or had laryngitis. We went to the locanda and once again got our familiar room. At 10 pm the men's discussion group convened. Same crowd, same noise, same topic, same shouting guy.

-Earle McBride

Pete Flawn, Bruce Fox and I, in undergraduate field camp in 1948, were plane-tabling our assigned one-quarter of the Monterey, VA, Quadrangle. We had been mapping the Ordovician limestone/shale beds for days, when rod-man Bruce shouted: "What's this, guys?" A wall of black cordwood crossed our traverse at right angles. Pete said: "What's this stuff doing here? It looks like a basalt dike!" And so it was! The three of us now have, combined, over a century of geologic experience. The dike remains unexplained!

- John Dutro

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## Geologic Characters by the Name of John

John Newton was a former student of mine. I had him before and after the Korean War during which he lost one eye. John was one of our most talented characters and always ready to tell a good story. His best were about himself. He claimed to have several false eyes. One with red veins to

use after a night's dissipation, one blue, one brown, and a patch when he wore his Van Husen shirts. He also claimed he walked with his wife, Janet, on his left side so she wouldn't see him ogle the goodlooking women passing by on the side of his good eve!



John Scott, also a former student, a geologist from Sand Mountain, Alabama, used shape notes to sing. He could recite nursery rhymes and have everyone laughing in the aisles.

Our first engineer assigned to the Alabama District was Peterson. He was pretty high strung. Once he came back with a big dent in the hood of his federal car. When I asked about it, he advised it gave him a hydraulic lift when he was going 80 or more. I didn't challenge him, because he carried a pistol in his briefcase. One day he told my secretary, Sue Pradat, later married to geologist Tom Simpson, that she should wear pants instead of skirts to stop the dust from blowing up her legs. Sue politely told him what he could do! That, of course, was before harassment became an issue, and engineers were hard to obtain.

#### - Philip E. Lamoreaux

My first professional job was as a sampler in an underground gold mine, in Snow Lake, in Northern

Manitoba – I had to jump feet first down an inclined slope full of broken rock to grab samples as I slid down to the next level. I've never been as scared before or since.

– James G. Koenig



I graduated from the University of London with a Bachelor of Science degree in 1945 and attended my graduation at the Royal Albert Hall in London.

My interest was caught by my geology instructor, Dr. W.H. Fleet (1890-1966), who single-handedly taught excellent courses to geology students ranging from beginners to Ph.Ds. In fact a university appraisal found Fleet to be more effective than the entire Imperial College of Science, Technology, and Medicine, consisting of a large faculty of geologists. Colleagues in my program included Wally Pitcher (1919-2004), later chair of the University of Liverpool geology department; Douglas J. Shearman (1919-2004), later distinguished carbonate sedimentologist of Imperial College, and Robin Bathurst (1920-2006), later distinguished carbonate geologist of the University of Liverpool.

On field trips when other students stayed at a hotel, Robin Bathurst and I stayed at youth hostels. I especially liked fieldwork in Wales, United Kingdom. Robin and I stayed at the same youth hostel and enjoyed a 1 1/2-hour walk to and from the field, when



other students enjoyed the local bar. Fifteen years later, while working as a research sedimentologist and supervisor of research for Amoco (now British Petroleum) in Tulsa, Oklahoma, I read a short carbonate paper in The Liverpool and Manchester Geological Journal which I liked. I contacted the author whose name I did not recognize at the time and invited him to visit me in the Bahamas for some joint fieldwork. When he arrived in the Bahamas, I recognized him as my old friend Robin Bathurst, a colleague from the University of London. At the time he was a candidate for a position at the University of Liverpool, whose chair was Wally Pitcher. As in our earlier days, we shared a room in the Bahamas, but later he moved out because he could not tolerate the air conditioning.

### Peanut Butter Revenge

At the Twelfth Congress of the International Association of Sedimentologists in Canberra, Australia, in 1982, Robin G.C. Bathurst received the Sorby Medal. In his acceptance speech, Bathurst referred to the first meeting of Carbonate Sedimentologists in 1972 in Pau,



France. I was present at that meeting. Bathurst gave his talk in French, of which he was proud. A young French sedimentologist asked him a question of which Bathurst could not make sense. He answered in French that he did not understand the question, when the truth hit him: "the question posed by the young Frenchman had been spoken in flawless English".

I recognize Robin Bathurst as one of the two modern 'fathers' of world carbonate sedimentology and as the father of the Bathurst Conference, a meeting of carbonate geologists that takes place every four years in England. Bathurst died a few months ago which saddened me.

#### - Gerald Friedman

In 1969, my summer work with the US Geological Survey introduced me to the world of geology. I was able to work with world class geologists and geophysicists, notable among them were Gordon Eaton, Don Mabey, M. Dean Kleinkopf, and Adel Zobdy. I worked on gravity, magnetic and electrical resistivity surveys in Arizona, Idaho, and other states. From that work, my career was shaped.

— Charles E. Brown

Richard H. ("Dick") Jahns was an inveterate practical joker. He really got me one day in the summer of 1953 when we were mapping in the Hermosa Mining District, New Mexico. Being a graduate student (low man on the totem pole) I was responsible for making our lunches. That day there were three tomatoes left, so I brought all of them



along. At lunch we each ate one. Then came the problem of how to divide the third. Dick, a very convincing speaker, convinced me that he should eat his half first. He did an incredible job of nibbling until what looked like a perfect half was gone. He offered it to me saying "how's that". "Great!" and I reached for it, but he quickly put it to his mouth and sucked out the innards. He offered it again and I ate the remains. Arrrgh!

The next day we were going to map different areas. I made him a sandwich that looked like a sandwich, except it was all peanut butter. In

addition, he had left his canteen in camp and spent most of the day high on a hillside with very little shade. That evening, he was a bit grumpy after spending the day parched with only a peanut butter sandwich! Revenge!



- William R. (Bill) Muehlberger

Having been sponsored for membership by Hollis Hedberg, Melvin J. Hill and Georges Pardo of the Gulf Oil Corporation for whom I worked on a Research project at the Gulf Oil Corporation Research Development Lab in Harparville P.A.

- John W. Erickson

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## Helen and Al Weaver of Red Lodge

This is a story of subsidy of education at its best. In the mid-1950's Helen and Al Weaver, born and raised in or near Red Lodge, Montana, site of the YBRA "geology camp," befriended Don Wise when he was working on his thesis in the Beartooth Mountains. This led to a friendship and education for a generation of Franklin and Marshall College geology students. Al had worked as an electrician in the coal mines near Red Lodge, and had only escaped the explosion and disaster in the mine when he didn't work that day. In the depression of the 30's they had prospected for silver in their beloved Galena Creek at the head of Sunlight Creek in the Absaroka Mountains just east of Yellowstone. Helen taught elementary school in several one-room schoolhouses, despite the lack of a Bachelor's degree, which she finally obtained in the late 1950's.

I probably met Al and Helen when I attended the YBRA field course in 1958, but my first memory of them is from the next year, Summer 1959, when I was heading west as a field assistant to Dick Sheppard, who had met the Weavers when he worked with Don Wise. We stopped in Red Lodge and stayed with the Weavers. We were immediately pressed into service to move a piano (pronounced "PIE-ana" by Al) 2 blocks to their cabin near the post office. We rolled it down the sidewalk. We were invited to stay in Al's shop just down the street, where there was one bed and a bathroom. This visit cemented a relationship with the Weavers.

In 1959 and 1960 when Ted Gard and I worked with Mary Kauffman, we stayed at the "shop." We could've stayed up on the hill at YBRA, but that cost money, and there was no rent at the Weavers. Helen and Al literally became a stepmother and stepfather to me while I worked out of Red Lodge. They subsidized my education and research in subtle and simple ways. They taught me most of what I know about camping, living in the mountains, and being prepared for almost any problem with a vehicle in the back country. Helen and Al even introduced me to the place where I would do my doctoral thesis in Galena Creek.

In 1960 Helen and Al begged Marv Kauffman, Ted Gard, and me to "go to Sunlight" with them. We packed up, Helen and Al in that old blue WWII jeep with the car top welded on, and the rest of us in John Moss' Dodge Power Wagon, and made the long trek to Galena Creek. In those days the



road over Dead Indian Hill to Sunlight Basin was steep, covered with loose gravel, dusty, and rough. Now a fine paved road over Dead Indian Hill has become a major entrance to Yellowstone. We camped in "the Smokehole" along Sunlight Creek near where one begins the steep climb into Galena Creek. Next day we piled in and onto the hood of Al's jeep for the steep climb into Galena Creek.

We hiked up to about 10,500 feet to the Evening Star mine to prospect for silver. The previous year I had read the now-classic paper by Wahrhaftig and Cox (1959) on rock glaciers in the Alaska Range. On the way up the trail, Al pointed out the "sliderock," as he called it, coming from Galena Creek cirque, and I recognized it as a rock glacier. I probably liked the scenery as much as the rock glacier, but I became fascinated with rock glaciers.

From 1962 to 1966 I returned to Galena Creek to work on Galena Creek rock glacier, eventually for my doctoral dissertation. Whenever I went to what was then a quite remote location, 80 miles from the nearest hospital and 15 miles via a jeep road with 3 unbridged creek crossings from the nearest ranch, the Weavers knew where I was and when I was

due back in Red Lodge. I knew that if I didn't show up, someone would come and look for me. Helen and Al usually came to camp with us for a week or two, and at that time research went to the back burner while we helped carry a generator, electric drill, coring bits, etc. up the steep trail to the Evening Star mine adit. We became prospectors for a while and were steeped in their lore. We delighted in magnificent views, eating lunch in a sleet storm, the 10 cm-diameter hoar frost crystals that grew in the mine, and sourdough pancakes for breakfast. We didn't get as much research done, but we learned, continued a wonderful friendship, and had a free place to stay in town.

Now, several decades later, rock glaciers are still one of my passions. In the 1990's several young colleagues returned with me to Galena Creek rock glacier to continue work there. Now a second Ph.D. thesis and a Masters thesis have been done on the rock glacier and some dozen or so papers have been published about it.

Not bad for helping move a piano. I owe a tremendous debt of gratitude to the Weavers. Over the years a number of other students from Franklin and Marshall also stayed in the Weavers' shop while they worked in the area. Al passed away some years ago, but every time I go to Galena Creek, I can hear him shouting to Helen, "G-d d---n it Squaw, I need some condensed milk for these sourdough pancakes." Helen died in 2005 at the age of 103.

Helen and Al introduced me to the colorful history of Red Lodge. There was no shower at the Weaver's shop, so we went to the steam

bath, complete with fresh-cut willow switches to beat one self, a legacy of the Finnish settlers among the coal miners. It was one of the best places to meet the locals. On Saturday night Al took us on a tour of the bars (13 then, I think) in Red Lodge. Many were associated with various of the ethnic groups who had come to mine coal. So, for example, at the Italian "Blue Ribbon" an older lady played the accordion while everyone

(well almost) sang in Italian. At the Yugoslav "Senate" you could hear a tamburitzan band. The "Swinging Doors" was just a cowboy bar, and a favorite of the folks from the YBRA camp. It had a trough with running water behind the foot rail. I never did figure out whether this was a spittoon or a urinal, probably both on occasion.

The Fourth of July was a special occasion in Red Lodge. The Weavers often put on a big breakfast with sourdough pancakes or a dinner for their geology friends Sometimes there were 10 to a dozen people at these events, invariably with a "show and tell," complete with photos, of the "old days" mining in Sunlight. The Fourth was an occasion for ranchers from miles around to whoop it up. There was a rodeo in the afternoon, and the street and bars were packed. Some got uproariously drunk, and the next morning the street in places was literally filled with empty beer cans to the top of the curb.

- Noel Potter

Mapping and estimating ore reserves in abandoned quicksilver
(mercury) mines during World War II in central California.
- Donald S. Everhart

MIT Geology Field Camp at Crystal (Gypsum) Cliffs near Antigonish Nova Scotia in 1958 with A. J. Boucot and others.

- Thomas E. Pickett



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### Gator Bait

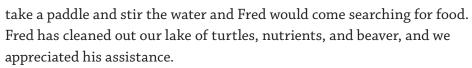
Tommy LaMoreaux, my little grandson, 6 feet 300 pounds with the strength of an ox is the principal character in this saga, supported by Phil LaMoreaux II. It's LaMoreaux and Son vs. Fred Gator.

Fred came to us a  $\frac{1}{2}$  mile through pine forest from Mr. Terry's lake. Mr. Terry had acquired Fred as a relatively small gator to clean up renderings

from his chicken operation. Mr. Terry's pond is small and Fred tired of this environment and came to our cabin lake, which is substantially larger.

We were not terribly concerned, because Fred was a relatively small gator at the time.

At first, all we had to do was



A couple of years went by and Fred has now grown. He has become shy, but we would see him coasting along slowly with a gentle movement of his tail and his two red eyes and nose just above the water line.

Now we began recognizing that Fred had grown substantially as our turtle and beaver were delicate meals for him. We became concerned for the safety of our dogs, turkey, and deer, and decided Fred had to go. He was far north of his natural habitat anyhow.

Well we called the State Fish and Wildlife Agency because gators were protected. No results. Finally in total exasperation, Tommy and his dad baited a large hook with a chicken. They tied it to a steel wire and in turn tied it to a gallon jug (milk jug) container. The chicken was dead.

It took a few days, but they then observed that the white bottle was bobbing along. Fred was hooked!

Now how do you get a mad, snapping, clawing gator on land so you can tape him up, roll him in a tarpaulin and move him safely to another pond? Fred was not happy with this situation, but we had no alternative. Tommy wrestled the gator and taped his mouth and claws. He then rolled him in a

large blue tarpaulin and placed him into the back of his SUV. Off they went to another of our ponds ½ mile away, across a busy five-lane highway.

Fred liked the smell of our Cabin Lake and three days later following instinct and his nose; he crawled over the new five-lane highway, across  $\frac{1}{2}$  mile of pine forests, back to our cabin lake. There he was with his two red eyes sticking out of the water like burning orbs with his round snout and nostrils taking in the air.

During our everglade trip, we learned that temperature controlled the sex of the alligator babies. Thank goodness we did not have to worry because there were no Freds or Freddies within miles. We hoped. But we were right back where we started, with a 7 foot 150+ pound alligator. Our next step will require catching Fred again and depositing him in the Warrior River, 5 miles away, giving Fred water passages to the large wetlands near Mobile.

Finally, how did Fred get his name? Actually, he is Fred2. Fred1 was a pet brought to me as a small boy in Chardon, Ohio, by my father on one of his trips to Florida. We fed him fish from a pond near home, using chumming and a throw net.

We kept Fred1 alive during two winters of snow and ice in a homemade pond in a heated garage. He became about 2 feet long and we gave him to the Cleveland Zoo. Unfortunately there are no zoos that want Fred2, so into the river he goes, hopefully, to find a mate to keep him happy in a new swampy environment somewhere along the Warrior-Tombigbee Rivers.

#### - Philip E. Lamoreaux

I'll never forget one Friday morning in late July 1974, in Butte Montana, when Bill Kelly and Rob Van der Voo, masterfully convinced George Brimhall, then with Anaconda, to support my M.S. research and launch a career in Academia.

– John W. Geissman

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### Halibut



Side by side we studied that dusky seabed, a stage lit for dramatic action. My partner nudged me, pointed stage right. A fathom-long flatfish, on tutu fins, glided to center stage. Disdainful eyes scanned its gawky audience.

Awed, we cringed under that haughty gaze, riveted to our front-row seats. With a star's timing, it undulated body and fins. With the grace and confidence befitting a prima ballerina, without a backward glance, exited stage left, as our hearts pounded in admiring applause for an encore.



Middleton Island, Gulf of Alaska - James W. Vernon

### Pedro's Quid Pro Quo

During a 37-year career with the U.S. Geological Survey, I spent a number of years in the field doing geologic mapping. This brought me in contact with many land owners and provided a variety of experiences. I was run out of pastures by bulls, chased by dogs, accused of surreptitiously scouting for oil companies, and suspected of being a government agent looking for stills. One land owner conditioned entry approval on the promise that I would stop by on the way out and tell him how much oil was on this property.

A field experience unique in my career occurred while mapping in Puerto Rico in the late 1950's. During a joint project with the Puerto Rican Government, I was working in the mountainous Jajome district in the southeastern part of the island, assisted by Pedro Gelabert, a young Puerto Rican geologist. This was a coffee-growing area, and I asked the owner of the largest plantation for permission to enter his land. He asked me several questions about the purpose and nature of the work, directed mostly through Pedro, as my Spanish was halting. After cogitating, he stated, "Permission is granted on one condition — that you come back tomorrow and explain the geology of my land an adjacent areas to me — over lunch."

I agreed, of course, and the following day Pedro and I returned for lunch, served on a veranda with a lovely view of the mountains. That gracious hospitality was never forgotten.

The field work culminated in the publication of USGS Miscellaneous Geologic Investigations Map I-319, "Geology of the Cayey Quadrangle, Puerto Rico."

Pedro would later become Director of the Puerto Rico Department of Natural Resources.

- Henry L. Berryhill, Jr.



## General, Get me a Bigger Crane

The phone rang one morning in my office at the Missouri Geological Survey. It was the Army, calling from a military post not far away. They had found a bottomless pit; could I help? A backhoe operator digging a utility trench for a new building noticed a hole in the bottom of the trench that was not of his making. Checking, he dropped a rock in the hole, but couldn't hear it hit bottom. Hence, a bottomless pit; time to call in the cavalry — That would be me.

Grabbing my gear for dealing with bottomless pits, I drove across the hilly landscape of the Salem Plateau, underlain by Ordovician dolomites and sandstone, with thick, cherty surficial materials consisting of residuum from weathering of the dolomite strata. Sinkholes, springs, and caves were common. One cave near the military reservation has an enormous room that was considered as the site for an underground jet propulsion lab, near the end of World War II. Maybe this "bottomless pit" would lead to a spectacular discovery?

The crowd gathered at the site was liberally sprinkled with Army brass. After a briefing, I crawled across some boards and peered down the hole. I could see a shaft about 25 feet in diameter, with walls that looked like laid stone, but I recognized residuum from the Roubidoux Formation, which is dolomite with considerable sandstone. The dolomite had been removed by solution, leaving broken sandstone in a cherty red clay matrix. It all looked frighteningly unstable.

Spotting a crane nearby, I suggested we use it. I would stand on the hook (you could do that sort of thing in those days) and they could lower me down the center of the shaft without touching the unstable walls. It worked perfectly—to a point. Just when I could begin to make out the bottom, the descent jerked to a halt—there was no more cable on the crane.

Returning to the surface, a large crowd had gathered, including the Post Commander, a general. Seizing the moment, I ordered, "General, get me a bigger crane." I half expected him to push me into the pit for being so brazen, but instead things began to happen quickly. An enormous crane lumbered into view, sporting a nasty-looking hook and enough cable to reach the Moho.



This time I made it to the bottom. The shaft was straight-walled, entirely in residuum, and the bottom was covered with loose stone and clay from the stoping process that had produced the shaft over time. A drain led to a dry sump, revealing the process by which the stoping debris had been removed through cavernous channels in the underlying bedrock, likely the Gasconade Dolomite. Unfortunately there was no access; the drain was clogged.

After making recommendations for filling the shaft with waste rock and crushed stone from the Post Quarry nearby, I drove back to the office with a silly grin on my face, thinking, "Having this much fun in one day would probably be illegal in any profession except geology." How frequently does a lowly geologist get to say, "General, get me a bigger crane?"

The pit was filled according to my directions, the building was completed, and it still stands today.

- Jerry D. Vineyard

### Other Duties

I joined the USGS in June, 1946, as a Temporary P-1 geologist, fresh back from WWII and a newly minted Master of Science. I reported to Washington, DC, and was greeted on the 4<sup>th</sup> floor of Old Interior with, "What do you want?" I knew at once that I was at home. I was in the Nonmetals Section of the Geologic Branch, with a job description that ended with the fateful words "and such other duties as may be assigned you". Those were pretty much the operative words for the next 61 years.

After a couple of days that were a blur, I was told to go to Alexandria, pick up a pie wagon (a precursor of the van), drive it to Lawrence, Kansas, pick up Robert Dreyer, a WAE geologist who was on the faculty of the University of Kansas, and drive us both to Denver, Colorado. So I was a gofer. We left Lawrence on a Thursday and, following old US24, headed west. Late that afternoon about 320 miles down the road, we went through Colby, Kansas, reached Brewster, and the pie wagon said THAT'S IT, thus far and no farther. Bob called Denver, and as there is such a thing as Mountain time, caught someone in the office, and was told that they had no authority to say fix the truck. It was just as well, because the mechanic in Brewster said he couldn't fix it anyway.

Now Brewster is a very fine town, beloved I am sure by its inhabitants, but it is kind of small. We found a so-called hotel, and a so-called restaurant, and waited for the morning sun (and the heat, of which there was plenty). Bob called Denver; Denver said, "Bob, get on the bus and come on in". Bob said, "What about Bush?" Denver said, "Tell him to stay there and keep an eye on the truck." This was on Friday, and Bob was lucky to catch the only bus going to Denver that day.

I spent the rest of the day walking around Brewster. That took 15 minutes. Brewster had a grocery store/drug store, there was no library, it did have a gas station, there was no movie theater, radio reception was poor to nonexistent (the hotel did have a radio), and there was a weekly paper that was published in either Colby or Goodland (I forget which). Time moved with glacial speed on Saturday and Sunday. On Monday I called Denver and was told to store the pie wagon somewhere and catch the bus to Denver. I did that, and several years later was asked officially whatever happened to the pie wagon. I told them that so far as I knew, it

was still stored in Brewster. And for all I know, it may still be there.

And so to my first project. Dreyer and I were assigned to the Canyon Ferry project in Montana. The US Bureau of Reclamation had a Missouri River Basin Program, which included plans for a replacement of the dam on the Missouri River at Canyon Ferry (about 15 miles northeast of Helena) to create a much larger reservoir still called Canyon Ferry Lake. The USGS was asked to do the geologic mapping of the area, which includes a part of the southwestern flank of the Big Belt Mountains.



The project was headed by John B. Mertie, Jr., and included Richard P. Fischer, S. Warren Hobbs, Robert M. Dreyer, Stanley Goode, Peter Jorolemon, and me. But this story is about Mertie. Mr. Mertie (there were very few people who didn't call him Mr. Mertie) was a legend in the Survey. He had worked for many years in Alaska, usually being dropped off at Anchorage, getting outfitted at Fairbanks, and then proceeding to map a swath of country of varying width across the Brooks Range and down the north flowing drainages to the north coast, where he would be picked up. He was a BIG man, I'd guess 300 pounds or more and well over 6 feet tall, and his wife (who probably weighed over 200 pounds) was with him on the Canyon Ferry job. They arrived a few days after we did, and so we all went down to the hotel in Helena to greet him. The Merties arrived in a car. I'm not sure if it was a Crosley or an Austin, but it was a small car, and they really fully filled it. His first words to us were, "My wife and I have left a trail of broken bed springs from the District right to here!" I don't remember that there was a rejoinder from his audience. To me that statement lives in unforgettable memory, and ranks right up there with Pershing's, "Lafayette, we are here," and maybe with Custer's apocryphal, "Where did all those Indians come from?"

- Alfred L. Bush

## A Day in the Life of a Magnetometer

In 1963 the paleomagnetic laboratory of Utrecht University moved to a new and (for a university) rather unusual location. Fort Hoofddijk was built in 1879 as one of the fortifications around Utrecht that formed part of the new Dutch water defense line. This defense line was designed to make use of inundating parts of Holland to stop the advance of an enemy. Utrecht was situated on relatively high ground and needed additional fortification. However, not a shot was fired from this military establishment, and after World War II it became clear that a civil use of the historic and partly underground building, and its moat and splendid vegetation was more desirable. The surroundings of the fort became the University's botanical garden, whereas the interior of the building, with its rooms and vaults for storing ammunition, artillery and people, was ideal for housing the offices of the paleomagnetic scientists and staff, and the equipment for measuring and analyzing magnetic properties of rocks.

In those days, magnetizations were measured with a static magnetometers, which consisted of small magnets mounted together with a tiny mirror on a torsionless wire. A lighted meter-long scale was reflected by the mirror into an eyepiece, and the observer recorded the readings as this so-called astatic system turned under the influence of a sample's magnetic moment. For comparison with modern times, it should be noted that for a typical paleomagnetic rock sample, a complete measurement of the magnetic vector would take some 10 to 15 minutes with the astatic magnetometer, whereas today a cryogenic magnetometer will measure and store the complete result on hard disk in no more than a minute or two.

The Utrecht laboratory's sophistication in those mostly pre-electronic days became rapidly known in other parts of Europe and young scientists from other countries began applying for time to use the

instruments. It was an enormous surprise, however, when a letter arrived from the famous Professor S. Keith Runcorn of University of Newcastle-upon-Tyne, enquiring whether he could come and measure a small collection of oriented paleomagnetic samples. Because it is an honor to receive this great paleomagnetist, clearly, one did not reply that time on the instruments was unfortunately in short supply and that opportunities for measuring would have to wait until later times.

And so, the eminent British scientist arrived with a heavy carton box at Utrecht's train station and was greeted with enthusiasm. Keith Runcorn was a founder of the discipline of paleomagnetism and he had just established that paleomagnetic results could only make sense if continental drift between Europe and North America had occurred by opening of the Atlantic Ocean in the last hundred million years or so. Obviously, the small box of samples could well contain the material for the next break-through in global tectonics. Politely, the Dutch hosts enquired how many samples the professor was carrying. About a hundred! Ouch!

Never mind! The letter had explicitly mentioned that Runcorn himself would be the one measuring the samples.

Patiently, the professor listens to the explanations of the workings of the magnetometer and gets installed behind the instrument. He repeats the instructions and it seems that he is indeed now planning to do the measurements. The Dutch hosts withdraw cautiously.

Soon noises emanate from behind the magnetometer. Professor Runcorn informs us that he is not just measuring his samples but also something on his person — every time he moves his feet, the reading

shifts dramatically. A moment later, the now shoe-less professor is left alone once again, but the problem seems to persist. As he gets up from the chair, something jingles in his pockets. Surprise! The Dutch coins are not made of silver, but from a cheap nickel-alloy. Now penniless, the professor reinstalls himself in



astatic magnetometer

Second Drink Etiquette

the measuring position. The Dutchmen withdraw once again and leave the professor to his tasks. But not for long. "I am frightfully sorry", he exclaims, "but I still seem to be magnetic!"

This initially stumps the Dutch hosts. But they ask the professor to stand next to the astatic system and, see, the zipper in the professorial pants is the culprit. "But we have experience with this, because our students often have the same problem. We have an old, and somewhat dirty pair of



pants here, just for this purpose. And here is a lab-coat to cover the pants — it used to be white, but there is no one here who pays attention to that".

The professor now sits down again, in borrowed pants, an old coat and socks. Around the corner in the corridor, the Dutchmen regard each other confidently — nothing else can go wrong.

But Professor Runcorn has one more ace to play: "When I move my head, the meter reading changes". Because of some old accident, he has two crowned teeth. "And, like the Dutch money, they are not entirely made of silver", he states cheerfully, apologetically explaining that he hadn't thought about that being a problem. "Moreover, they are solidly glued in", he adds, not without some satisfaction.

One of the Dutch paleomagnetists is married to a dentist and in a last attempt his hosts try to convince the professor that this can be helped by temporarily removing the crowns, but Professor Runcorn tersely replies that that is not an option.

The next day, Professor Runcorn bids his good-byes at the train station, on his way to an international conference. He would be awfully pleased and very appreciative indeed to get the laboratory results by mail in Newcastle in a few weeks.

- J.D.A. Zijderveld & Rob Van der Voo

In the early 1960s, Henry Trapp and I were conducting a ground-water and waterquality investigation for the U.S. Geological Survey in several counties in the Blue Ridge Mountains near Asheville, North Carolina. One particular day early in the investigation we were measuring water levels and spring discharges and collecting water samples. We had stopped at a farm owned by a retired schoolteacher to measure his well and collect a water sample. In the course of conversation he asked where else we were going that day. We told him that we were headed for such-and-such "holler" (I can't remember the name of the "holler"). He told us, "I want to give you boys two pieces of advice before you go up there to that holler, one, don't mess with their women, and two, don't refuse a man's second drink of his home-made liquor. If you don't drink and refuse the initial offer he will respect that. But, if you have a first drink and refuse a second one, that's an insult."

In the course of the investigation, we didn't mess with any women and were never offered a drink of homemade liquor (driving a U.S. government car probably nixed any offers of the latter). In making our rounds, however, there were offers of homemade pie, cookies, iced tea and coffee, and lots of conversation from very friendly people.

- Robert L. Laney



## Heidelberg to Cincy

September 26, 2005 — Heidelberg, Germany. Our last full day in this ancient village. The Rat hous Plaza fountain, sunlight early morning. The plaza filled with tables, chairs, and people reading newspapers, chatting, and drinking coffee. Lots of people in a cobblestone area between mayor's office and large cathedral, celebrating after a marriage by the mayor. Heidelgerger Herbst — day before yesterday with a 100,000 people crowded into the marketplace, Karlsplatz, Korn Market. The entire area of the old city of Heidelberg lays below the Schloss-Castle, the location for "The Student Prince." It's like a scene from a fairy tale.



Heidelberg, Germany

The Hapstrasse main street bisects the old city; the Neckar River forms the north boundary, a line of mountains and forest the south. Old Heidelberg is at the point where the Neckar gushes through a water gap in the mountains. The Hackteufel, according to legend, was the demon god that reached up and pulled seaman under water at the rapids.

The Hackteufel is the name of our hotel on Stringasse near the south entrance of the Karl-Theodore Bridge. We are like John Service's "Cremation of Sam McGee" — "The Land of the Gold seems to hold him (Sam) like a spell." Heidelberg has held B & M like a spell for 15 years. We can't seem to get enough of walking the old cobblestone streets.

Our walk this morning was punctuated with coffee as usual. Stops along the way to rest and watch were ultimately directed toward Zum

Rotern Ochsen — The Red Ox Inn — built 1703, owned by the Spengel Family. It serves home-cooked German meals. Visited by Bismark, Mark Twain, John Foster, Cardinal Spellman, amid others, but we waited too long. The Zum was full. Never mind, next door was Zum Zepp'l, Haystraisse 213 — an old college tavern — just as unique as the old Red Ox with its unique antique decorations. I looked in vain on the hand carved labels for Dr. E.A. Smith's initials (2<sup>nd</sup> State Geologist of Alabama), but could find nary a trace.

After a cold beer and plate lunch at the Red Ox, we retraced our steps along the Haupstrass to our favorite antique shop; then past Hotel Zum Rictter, St. George, with one of the most fantastic facades carved in "old red sandstone" and built by Merchant Belier in 1592. A few blocks on to Káthe Wohlfaht — a store with 3 stories — jam packed with Christmas decorations — operates year around and then to Café 7 for a final big cup of coffee au lait on the main plaza to watch the people some more. Thus ends our final day in Heidelberg.

#### - P.E. Lamoreaux

Waiting for Foster Hewett to buy a case of local Malvasia Port wine, at the Cucamonga Winery, on the way to do field work in Southern Death Valley early in 1949.

- Dane McCulloh





My Field Geology teachers taught me to go around the hills to the left, hence I have a gimpy left knee today at the age of 85.

 $\hbox{\it -} \ Glenn\ L.\ Shepherd$ 

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# Wellsite Geology Incidents

#### "TORNADO AND LIGHTNING"

Two interesting events occurred while I was involved in wellsite geology in the Fort Worth Basin in Texas. My Petroleum Geologist job was to examine all the samples during oil/gas drilling, construct a lithology log and determine if we had hit a pay zone. One day



during the 1970's I was on the way to a well in Parker County, Texas. I had a map to determine where the well was located. When I got to the site I couldn't find the derrick. I knew I was in the correct location, but was mystified by not seeing the derrick. I drove up the rig road, still wondering why I couldn't spot the rig. I suddenly looked down on the ground and the derrick was lying on the ground. It was in a horizontal instead of a vertical position. A small tornado had come through just minutes before I arrived and had blown down the derrick. The crew survived because the derrick blew over opposite the doghouse. The crew was walking around, however, in a daze. At the time the tornado hit, the operator was logging the well. The electric log cables were all tangled on the rig and the ground and a Gamma Ray tool was dangling in the hole. Eventually all worked out OK and the Gamma Ray tool was recovered. This was a once in a lifetime event and I'm glad I wasn't there a few minutes earlier.

The other event occurred on the way to another well. The weather was very bad with dark clouds, heavy rains and lightning. I didn't want to go to the well on such a bad day. I always went, when required, regardless of the weather. I hated to get out of my truck to open the last heavy metal gate, but had no choice. I tried to hurry since it was a dangerous situation. The rain was hitting me in the face and I was having trouble with the very long, heavy, steel pipe gate. I had my arm over the steel gate to help control it and I heard a sizzle in the air and saw lightning strike the metal fence attached to the gate. The electric charge migrated to the metal pipe

gate that I had my right arm over. The force knocked me off the gate and gave me quite a scare. I was glad to be alive. I went to the well and rode out the storm with a very sore spot under my right arm. I was lucky that I didn't get the direct hit, but only the electricity charging along the wires attached to the heavy metal gate I was moving.



- Billy Caldwell

### "Encouragement"

About 45 years ago, Dick Hadley and I were attempting to sort out the terrace sequence in a valley in the Cheyenne River basin of Wyoming. We concluded that we were walking on and looking at alluvium of the Lightening terrace, which was deposited 1200 to 1400 AD. However, soon we came upon barbed wire, a rubber boot, and a cast iron stove lid in the alluvium. So much for terrace correlation and the tricks of Mother Nature.

Two low points in my early career as a geologist with the USGS:

- After reading my manuscript, that eventually became USGS
   Professional Paper 454-H, Jim Gilluly concluded that, although I
   had a good idea, I "couldn't write worth a damn."
- After listening to my explanation concerning hillslope erosion, Luna Leopold stated emphatically that I was "crazy as Hell."

Such encouragement from two outstanding scientists undoubtedly aided my career after I recovered!

- Stan Schumm

# High Tea on the Sahara Desert

During the early 1960's a Standard Oil of Ohio had a one third interest in about 6 million acres located in the Spanish Sahara of Western Africa. Tidewater Oil Company was their operator with a third partner, Banco Urquijo. An inspection tour was arranged by Tidewater, with the group traveling by plane and land rover. The group included me and Sam Elliott, Sr. Vice President of Standard Oil of Ohio. The seismic and geological crews were protected by Spanish soldiers as there were bandits reported to be in the area. A most interesting side trip was an opportunity to meet a Bedouin Tribe and have tea with the leader.

The group met in a large tent with a sand floor covered with a number of oriental rugs. We sat cross legged in a large circle. Can't recall but there must have been an interpreter present. The tribal chief produced a small silver cup filled with tea, took a drink and passed it on to the next person who took



a sip and passed it on. When the cup was empty it was passed back to the chief who spun his finger around the inside of the cup, cleaning it, before filling it again with tea. Everyone drank a bit of tea but no one became ill because of the unsanitary conditions. This High Tea was quite different from High Tea at the Ritz in London many years later with my wife while on a tour of England, where I really enjoyed the tea with crumpets.

#### - George Schmidt

Mapping and estimating ore reserves in abandoned quicksilver (mercury) mines during World War II in central California.
- Donald S. Everhart

## Animal Ecology

My earliest memories relate to the playground in the zoological gardens in my native Berlin, Germany, where I learned about animal ecology. I would go to the open air, outside cages and wait for families with children. I would explain to them that the animal in view was a leopard, lion, or tiger, spell out its scientific name and give the location where it is native and its ecology.

Most of the animals were from Africa, especially Ethiopia, and on one occasion, a mother asked me, "But where is Ethiopia?" I did not really know, but this question spurred my search for knowledge in geography. My nanny watched me from one of the benches of the playground and enjoyed my interaction with the zoo visitors. This is perhaps my earliest experience of helping others to learn (which later became my career as a professor of geology) and which also included ecology.



#### - Gerald Friedman

I was with the U.S. Geological Survey – Geophysics Branch in the 1950's and was checking on the permafrost with the mistor temperature string. Bored as deep as 1600 feet into the ground at



Pt. Barrow, Alaska, I was making a round of these wells when a Polar bear came by. I thought I was a goner, but he passed me up, too skinny then I guess.

- James W. Knox

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## Truck Jack Caper

In 1965 I made a 10-day trip to Coahuila, Mexico, to become familiar with the Parras Basin, where Al Weidie and Jim Wolleben (both at the University of New Orleans) and I planned to do field work the following two summers. Our goal was to study the stratigraphy and paleontology and to reconstruct the sedimentary history of the Late Cretaceous clastic rocks of the Difunta Group and Parras Shale. I left the University of Texas at Austin campus alone in a Geology Department Carryall. As I approached the Texas-Mexico border, I decided to check whether my vehicle had a spare tire and tools for changing a flat.

The department had several vehicles, and sometimes on a caravan trip tires and tire-changing equipment got switched between several different vehicles. Well, I found that my vehicle had no jack! I drove to the Western Auto store in Laredo and bought a heavy-duty scissors jack that could handle 3/4-ton vehicles. I threw the boxed-up jack into the back of the Carryall and on to Mexico I went.

I met Al Weidie and Jim Wollebe in Saltillo. We went into the field the next several days in my vehicle because it was the newest. Somewhere in the boonies I drove across a narrow V-shaped arroyo and hung the front and rear bumpers of the vehicle on limestone ledges.



The drive wheels hung in the air and would only spin uselessly. In order to get out of the arroyo, we would have to jack up the vehicle in stages and put rocks under the rear wheels. I proudly whipped out my recent purchase from Western Auto and broke the jack out of the cardboard box, which I had not opened previously. Out spilled the beautiful new heavy-duty jack. But there was no jack handle. In very small print on the side of the box I read "Handle Sold Separately".

Well, if you insert the point of an Estwing geologic pick into the handle hole of this model jack, you can turn the lift screw about 1/4 turn each attempt. And that's how we jacked up my vehicle. Once up and once down! My colleagues said very bad things about me and to me.

- Earle McBride

## A Condor's Swoop

From January to July 1980 I was in the Province of Mendoza, Argentina, on a project supported by NSF to work with Arturo Corte examining active and inactive rock glaciers in cirques of the Rio Blanco basin in the Cordon del Plata west of Mendoza and some of the glacial and debris flow deposits down valley.

On Palm Sunday 1980 my wife Naomi, who was working with me as a field assistant, and I were hiking along a ridge at the top of a very steep slope above the south side of the debris-flow fan filled floor of the valley of Arroyo de la Angostura examining the clasts along the ridge. It was a clear day and several condors were soaring well above us. As we walked along the ridge, just where the slope below us was steepest, a condor flew over us very close, its primary feathers making a very noticeable "swoosh" sound as it passed over us. It wheeled around and came back over us again, and again making the same sound. It flew back upvalley at the same elevation as we were standing and very near to us. I managed to get a photo of the magnificent bird when it was closest.

The following Monday, when we returned to the office of CRYCYT and told Arturo about the condor's flight around us, he laughed, then told us the condors often do just that in order to startle a guanaco or other possible large animal so that it might lose its footing and fall down the steep slope or off a cliff and become injured or killed—and thus a meal for the huge bird. This one didn't get the meal it must have hoped for, but we did get a good photo of it.



- Bill Wayne

### Two decades in the Antarctic

In December of 1959, Ed Thiel and Ed Robinson (University of Wisconsin) and Cam Craddock (University of Minnesota) were conducting an airborne geophysics and geology traverse, roughly along the 88<sup>th</sup> meridian in West Antarctica. They were supported by a ski-equipped R4-D aircraft (Navy version of a DC-3). As they traversed northward weather played an important part in the conduct of this traverse, and several times the plane was forced to land and



wait out cloudy or otherwise inclement weather. In some instances the locations of these forced landings were not well known or documented. Nevertheless, Cam Craddock being a dedicated geologist brought back to the University of Minnesota rocks from at least one outcrop for which he had no good location. For those of us who had been in the field with Cam it was a point of some friendly "needling", as documentation of collection sites was one of the points he stressed over and over again during our course in fields methods.

In December of 1979 George Denton (University of Maine) and I (University of Nebraska) along with Howard Conway, a New Zealand mountaineer who served as our safety guide (now a Research Professor at the University of Washington), were at a large base camp on the edge of the Minnesota Glacier between the Sentinel and Heritage Ranges of the Ellsworth Mountains. The weather was lousy, clouds right down to the ground and about zero visibility. We could neither move about by the helicopters or by motor toboggans. It was possible to hike or ski if care was taken, and the three of us finally got cabin fever and set out to out to put our feet on rock. We selected as our destination a small peak known as Pipe Nunatak less than a mile from camp.

It was an easy climb to the top, and as we reached the summit we were above the low clouds, the sun was shining, and life looked a great deal better. As we sat around congratulating ourselves on the escape from camp, George pulled out a big cigar, lighted up, and looked around the quite flat summit of our little peak.

He turned to me and said, "That pile of rocks over there looks like it was piled up as a "cairn". Howard (known in the trade as "Twitty") and I suggested to him that the cigar was maybe a little strong, but he prevailed and we walked over to the "cairn", unpiled the rocks, and there found a note that read as follows:

27 December 1959
1025 Z
The University of Wisconsin airborne
traverse party reached this spot on the
above date during the course of its
studies along meridian 88° W.
Edward Thiel
Edwin S. Robinson

We had found this cairn and note almost 20 years to the date later, and on the back of the original note we left a message indicating that the Maine-Nebraska Striae team found the note on December 10, 1979. We returned the note to its original site and carefully restacked the rocks of the cairn.

Cam Craddock had not climbed the peak in 1959 but had stayed at the base doing geology and collecting rock samples. It was a pleasant surprise to him when we returned to camp and told him that we now knew where the samples he brought back to Minnesota from that trip were actually collected.

NOTE: Ed Thiel was killed the next year in an airplane accident in Antarctica. Cam Craddock died in 2006 after a distinguished career in geology. Ed Robinson is Professor Emeritus at Virginia Tech.

- Ed Robinson
- Submitted by Robert H. Rutford

As I pull alongside a truck and trailer, a tire blows up and the air blows me toward the thin moon. I ride the skidding car to the highway's apron. When we stop, the motor stalls. I get out and lift the trunk lid. Tennis balls cover the floor. Stuck to a tennis ball with grease is a sonnet about Peregrine Falcons that once hunted on the Big Horn River in Wyoming where I was a kid.



I cannot dislodge the jack, clamped high against the back of the trunk. It unscrews, say the instructions. The unscrewer is gone.

I have never changed a tire on this old car. I am overcome by angst. I will be here between Evanston and Rock Springs all night, maybe for days or weeks.

I unscrew the jack. I pick up a wrench to unscrew the bolts on the hub cap. The wrench fits well enough and the bolts turn easily. They turn if I touch them. They will turn any time; they decorate the hub cap and will not come off. It takes me twenty minutes to figure that one out.

With a small wrench, I pry off the hubcap. It clatters on the highway. I swear at cars and trucks that swerve toward me. Fortunately, I do not have a flashlight and make a dim target, moving erratically, casting no shadow. I use the same wrench to work on the lugs. The wrench slips, making suborbits tangential to the fender. I skin the back of one hand, then the other. The landscape lightens; I'm becoming adjusted to the dimness. The wrench has weathered, carries rust. It does not fit these lugs, perhaps none anywhere. I pull the jack handle out and try it on the lugs, surprised at its tight fit. I spin the wheel. I lower the wheel back to the road to gain purchase. I do not strip the lugs, certain as it seems that I will. The tire is off. The spare is on. I drive slowly in the deepening night to Rock Springs, once a red-light town.

I wash the blood off my hands in the men's room of Conoco Oil. A truck driver standing on my left, shaving at midnight, says his wife could not change a flat tire on the family car—the jack handle, which is also the wrench, was too much for her, but not for him, he says. I meet other men

at the gas station—all with great ability to change tires, they say. All have great tales. I am not diminished. A poet can also change a tire.

At one o'clock I head north from Farson, through the basin badlands toward the south flank of the Wind River Mountains. I begin to believe that the mountains are moving toward me, thrusting out over the deep basin as they once did.

The dark Precambrian rock, ribbed with iron minerals, and the luminous limestone above rise, sending tremors through the basin floor, rippling land and road. Sagebrush shimmers like a desert lake at noon. Antelope flee deep into the basin.

I drive on. Rattlesnakes move on this burning autumn night. Clouds intervene and the night dims and darkens. Ahead, artificial yellow light flames rhythmically; police cars surround an empty, rusted Datsun. I slow down, but drive on.

At last at the mountain's summit; the white pines gently wave, webbed with moonlight. A doe with her half-grown fawn clears an absurd oak. It is becalmed: the mountain rests.



### FDR in North Carolina

One-half of the oil wells pump night and day. With all that racket, the rabbits cannot sleep. Pumping crews toss horseshoes at noon, causing earthquakes that turtles angrily record. Near abandoned wells wrenches rust. Before the nightly ten o'clock news, citizens in Lander, a village north of here, go outside to watch the UFOs. In the summer, the ships arrive frequently and hover near the mountains. Visitors to Lander see them as well as anyone.

On terraced badlands Antelope at dusk look cars In their sudden eyes.

Pebbles of pyroxene schist
On the flood plain
Framing air-blown sand and silt
In braided sheets.

At noon all of the rocks are wan—pale green and red claystone bands and pale brown sandstone laid down by fierce Eocene streams. Narrow

flat-bottomed clouds cast sedate shadows on desolate terrace planes. The high sun shines on an antelope band, a buck and four does grazing in low sagebrush stands. Paper lies imbricated on the stern fence, shingling lower strands. When they head for winter range, unfortunate animals will jitterbug on the high strands, hooves thrust into diamond slippers.



The oil hunter urinates on pale rocks. A scarred doe chooses to do the same on the green badlands. The buck stands off from the little band, head high, horns idle, looking at the geologist. The buck heads off, the does follow. Terraces dance, multiplying pale laminae. Ants carry a beetle home, its four wings stilled. It is so quiet.

- Dane Picard

In January 1953, Charles Denny and I were invited by William Overstreet to visit him and his field party in Shelby, North Carolina, where he was working on the occurrence of monazite. The monazite was found as residual deposits in saprolite and its associated residuum — which are products of deep Tertiary weathering — and Charlie and I were supposed to tell Bill something about the process.



Shelby is a small place in the Piedmont, and to show just how small it is Bill told

us about an experience when President Roosevelt came through in a motorcade after dedicating the Great Smoky Mountains National Park. Of course, the White House staff had made all the arrangements months before, including the route through town, and the leader of the motorcade faithfully followed these instructions. Meanwhile, the town council had paved the road and had also paved an adjacent road, designating them as one-way streets. The driver naturally followed the original plan, so that people who had lined up on the other paved road were streaming through back yards and across fences to get a look at FDR in his open car. Whereupon, Bill says, one old codger muttered in his beard, "That's the trouble with having two paved roads in town!"

- Harold E. Malde



Doing Geology on horseback just west of Yellowstone National Park as a volunteer for the USGS in 1958, the year before the earthquake.

- Ann G. Harris

## A Dive to a City in the Deep

Click! The hatch cover locks.

Ballast air hisses out, ballast water gurgles in.

Waves splash against the view ports of our yellow U-boat.

Then silence, sinking, and sinking, and sinking.

In a tranquil dream of fading light,

100, 200, 400, 800 feet, into the edge of night.

We softly touch the seafloor.

Lights-on draws to view ancient rock slabs, chaotic mounds, like fallen masonry, unchanged for millennia before

Ninevah, Ur, Babylon and Eden.

An ancient cityscape, populated all those years by shy fish, calling, those shapeless structures "home," now peek at this intruder so suddenly come.

I choose to think, imbedding in their memories, is the first coming of a deity in his yellow chariot, hoping the Messiah, is come to save them, to set straight their chaotic city or protect them from evils lurking in the yet blacker realm below.

But, from that blackness emerges
the Prince of Darkness, in shark disguise
circling, circling, circling us,
fearing not this false deity from above.
Air hisses into the ballast tank,
ballast water gurgles out, lift off,
rising, and rising, and rising
in a troubled dream toward the swelling light
into the edge of day.

Off Santa Barbara Island - James W. Vernon

# Veracruz-Anton Lizardo Reefs

We visited one of the patch reefs off Veracruz before we drove back to the United States. We rented a small boat at the harbor in Veracruz, and went out to Isla Verde, a small patch reef. I was intrigued by what I saw underwater. I later learned that the modern ostracodes of these reefs were unknown. This was the beginning of my studies on the Veracruz reefs.

On July 13, 1972, I began to analyze the modern reefs at the port of Veracruz. Initially, I sampled an inshore reef (Hornos) that is growing right on the quay leading out to the harbor entrance at the port. One can actually walk along the quay and sample the reef directly. I also explored

the fortress of San Juan Ulúa, which was built in 1747 to protect the port from Gulf of Mexico and Caribbean pirates. During our collecting on the Anton Lizardo reef group, I had noticed a marked difference between the northern Veracruz and southern Anton Lizardo group. Riverborne sediment carried by the Rio Jamapa seemed to be having a detrimental effect on the coral growth on the southern reef assemblage. I also wondered how much siliciclastic



contamination was occurring within the carbonates on these reefs. Many years later I had the opportunity to impregnate my carbonate samples from both reef groups and study them in thin section.

- Paul Krutak

### Encounters with "Doc Bretz"

It was 1975 on a quiet street in Homewood, Illinois, when "Doc Bretz" greeted me and Russ Clark with our van full of Albion College students. A very large glacial erratic marked the entrance to his home. J Harlen Bretz (no period after the "J") was an alert man for the age of 93. An alum of Albion College, Class of 1905, Bretz had been thrilled in 1964 to hear that I had established a geology department at Albion.

Accompanied by his collie dog and aided by two canes, he moved quite nimbly about the yard. With a pipe dangling from his mouth, he quizzed us about the big boulder in the front yard and then led us to an array of fifty or more boulders scattered about his backyard garden. Treating us like his former students and clearly enjoying the opportunity to challenge our wits, he led us among the rocks in the garden (called "Boulderstrewn"), testing our



knowledge of geology, posing questions about each boulder we came upon. Bretz collected the boulders during his travels in the U.S. and from places such as Greenland and the British Isles. Each specimen revealed a different aspect of geologic history. In the past his grad students were asked to identify these rocks. Those who named most of them were awarded a bottle of his homemade wine, while those who failed were awarded an empty bottle.

With a twinkle in his eye, a subdued chuckle, and an intimidating manner, he quizzed the Albion group and waited for our answers. Later Doc Bretz graciously donated these rocks, including the large glacial erratic, to Albion College, for display in its Science Center courtyard.

This was one of several visits by our staff and students in the late 1970s, each marking an opportunity to meet the renowned University of Chicago emeritus geology professor, a recipient of the Neil A. Miner Award for teaching, a Channeled Scablands specialist, an authority on caves and Great Lakes glacial history.

Three years after our visit, at the age of 96, he was awarded the Penrose Medal. After four decades, Bretz was finally recognized for his "flood hypothesis" on the origin of the Channeled Scablands of eastern Washington.

That day in 1975 we were thankful to his daughter Rhoda Riley for giving us this unique opportunity to see Bretz. Indoors she greeted us warmly and provided a wonderful lunch while we listened to Bretz reminisce about his field experiences. Then we retired to the living room and sat on the floor near the fireplace while "Doc Bretz" passed around small "mystery" specimens. Many samples were from the Channeled Scablands, including rounded and flattened flood-transported basalt cobbles. He asked us first to identify them and then, with a rasping, authoritative tone, told us the remarkable story each sample contained, gleaned from his own observations and fieldwork.

Finally, we were challenged to seek out Bretz's hidden wine closet, located somewhere in the basement. We descended a narrow stairway into a dimly lighted museum-like room. The skull of a steer greeted us with red lights blinking from each eye socket. Many photos, posters, signs, and quotes were stuck on the walls. One sign read, "spook at large," another "pedestrian and bicycle toll 5 cents," and another "healing meetings." Many displays and photos reflected places that he visited during decades of

fieldwork, including caves that he explored during his research on the origin of caves. It was like a walk through Bretz's past. But where is the wine cellar? Off to one side along a wall was a bookcase housing worn paperbacks and other documents. One of our astute students clasped the edge of the bookcase and pulled



outward. Behold! The bookcase opened like a door, revealing a barred gate guarding the wine closet behind. The shelves, with wooden labels,

## Descent into Keflavik

read dandelion, pear, peach, etc. Each bottle had a year etched on it, some dating to the 1930s.

With a cheer from the students we ascended the stairs. Much to our surprise, at the head of the stairway, the door was locked! Indeed, another challenge from Bretz. "You must find the hidden lock-release," he exclaimed with a chuckle. After some poking and scuffling we discovered a cord strung behind the stair railing. A firm pull released the lock.

In retrospect this encounter revealed to both students and staff the amazing character and intellect of Bretz. We found Bretz to be a brilliant, intimidating man, one who spoke with authority and exuded selfconfidence. He had a strong desire to impart his knowledge to others by using an effective Socratic approach to teaching. He had a quick and subtle wit, sometimes laced with off-color humor. Behind all this was hidden a very compassionate person, who dearly loved his wife and children, his colleagues, and students.

For years, up until his death in 1981 at the age of 98, Bretz provided us at Albion with pertinent articles clipped from Science News and other journals. In addition to his boulder collection, he donated to Albion College his collection of reprints, journals, Channeled Scabland maps, cave maps, lantern slides, and many letters, now housed in the college library as an archived special collection.

-Larry Taylor

Geologic mapping (15' quad part) around mining ghost town of Carter Nevada, for 1949 summer field camp, UCLA, with Professors Gilluly, Nelson and Crowell.

- Edmund Kiessling



As we approached Keflavik on Icelandic Air in the summer of 1977, we descended through a solid overcast. We broke through the clouds at about 500 m, and my first glimpse of Iceland, an exposed part of the Mid-Atlantic Ridge, was of verdant terrain broken by a system of fractures/faults/grabens



oriented north-northeast, that extended as far as I could see virtually parallel to each other. I was looking down on the result of the slow movement away from each other of the North American and Eurasian plates, a manifestation of sea-floor spreading. Although I was familiar with maps and photographs that recorded this remarkable scene, seeing it in person for the first time was a memorable moment — a geologic epiphany!

- James Underwood, Jr.

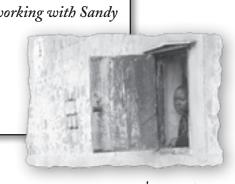


I attended my first GSA meeting in Chicago, Illinois (1948?) by riding my then new Indian Scout motorcycle 350 miles, 180 of which was in a severe snow storm.

- Richard D. Harvey

Spending three weeks in Cameroon, working with Sandy Van Schmus in 1983. We collected samples for Geochronology and saw the country and its people as tourists never do!

- Marion E. Bickford



The first meeting of the North-Central Section of GSA was held 40 years ago (April 19-22, 1967) at Indiana University, sponsored jointly by the Department of Geology and the Indiana Geological Survey. Charlie Wier was appointed General Chairman for the meeting and I was the Field Trip Chairman and guidebook editor. In the former capacity, I had polled the members of the section by mail as to their preferences for field trips. Based upon their replies, we decided to run four one-day trips: (1) a karst geomorphology trip, led by Dick Powell and Bill Thornbury, (2) a Silurian/Devonian stratigraphy trip, led by Carl Rexroad and Bill Orr, (3) a Pleistocene stratigraphy trip, with me as the leader (with Bill Wayne as honorary co-leader), and (4) a nonmetallic mineral resources trip, coled by Larry Rooney, Charlie Wier, John Patton, Bob French, and Harold Hutchison.

After making the usual calculations for transportation, lunch, and guidebook costs, we set the registration fees for each trip. Forty-six people signed up for the karst trip, 57 for the Silurian/Devonian trip, 29 for the Pleistocene trip, and 40 for the economic geology trip. For my Pleistocene trip, I had decided to use private vehicles. But for the other three trips, I had arranged (several weeks in advance) to hire Indiana University buses, as the cost for these buses was well below that of Greyhound or similar buses out of Indianapolis. The registration fees for the three trips were, of course, based largely upon quotes for the buses.



After making the initial arrangements for the buses several weeks before the meeting, I made the usual one or two periodic phone calls to

confirm the arrangements. Everything was in order and going smoothly. Then when I was making final checks for lunches and transportation on Monday of the week of the meeting, the fellow in charge of the IU buses delivered a near-fatal blow to the success of the meeting. "Oh, I forgot to call you, Al, but you have no buses. Our buses are restricted to the city of Bloomington. They can not operate on Indiana highways." Turned out that one of the buses was in a minor accident in Louisville, and it was determined that the buses were too wide; they were beyond the legal limit for operating in Kentucky. Word was passed on to the Indiana State Police, and it was determined that the vehicles were also too wide to operate on Indiana highways and thus were confined to Bloomington. So he "forgot to call" — to put it mildly, Charlie and I were irate.

Just two days before participants were due to arrive and only five days before the field trips and we had no transportation for three field trips with nearly 150 pre-registered persons! GSA had made it abundantly clear months earlier that we were completely on our own financially:

don't expect any funds from headquarters in New York to get the section underway. And North-Central obviously had no reserve funds in its coffers since this was the very first meeting of the section. Greyhound buses were available from Indianapolis, but the per-hour, per-mile costs, and the deadhead charges to bring several buses to Bloomington were prohibitive.

To say the least, Charlie and I were fit to be tied. We certainly couldn't tell our

colleagues when they arrived that their pre-registration field-trip fees were inadequate to cover the costs, even if it were possible to determine what the additional fees might be for each trip. And at that point the use of private vehicles presented far too many logistical obstacles. We were clearly between a rock and a hard place! But as field-trip chairman, it was my responsibility to resolve the problem. I was on the phone almost

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We were on the verge of canceling all field trips and refunding the fees, a move that we certainly did not want to take. Then our first break came when our boss, State Geologist and Department Chairman John Patton, who was co-leading one of the trips himself, told me that he might be able to persuade the university to free up enough carry-alls, even at that late date, to accommodate the 45 or so persons registered for the economic geology trip. He was successful. Then on the day before people began to arrive for the meeting, I was able to secure the use of three shuttle buses that transported persons between downtown Indianapolis and the Indianapolis airport — enough to accommodate the nearly 100 persons on the karst and Silurian/Devonian trips. And the cost was within our budget. Talk about luck and a close call!

This GeoTale has a great ending. All four field trips were enormously successful. The technical sessions were successful. Not only did we break even financially, but we ended the meeting with a small surplus that we passed on for the 1968 meeting in Iowa. We've always felt that, despite our problem, we got North-Central off to a good start.

#### - Allan F. Schneider

The summer of 1953
spent as a USGS field
assistant on an AECsponsored radiometricreconnaissance of the
mining district in the San
Juan Mountain region of Colorado.
- John W. Hawley

Albert P. Crary, also known as "Bert", became my brother-in-law, in 1941. Receiving his B.A. degree from Saint Lawrence University, and his Masters from Lehigh University, Bert then went to work for Independent Exploration Company. It was a contract company that carried out seismic exploration for oil companies and he was assigned to a field party working in South America.

The field party was normally supplied with food shipped from the U.S.A. During a rainy period, the roads became so bad that even tractors with continuous treads could not get through with the food supplies. When their stores got low, the party chief called in Bert and told him to go into the nearby town and purchase some canned goods to tide the party over.

Bert slogged his way into town and found a very small food store, the only one in town. He entered and went to the section of canned goods. He took out a can of peas. On the bottom there was printed "Practically up to the U.S. standard", so he put that back and pulled out a can of

beans. That too had "Practically up to the U.S. standard" printed on the bottom. It went back on the shelf and he took another can, which also had "Practically up to the U.S. standard" near the bottom. He finally decided that statement meant their contents were the highest quality that was available.

He loaded up a box with similar cans and returned to camp. He had to make several more runs for cans of "Practically up to the U.S. standards" before their supplies from the states finally arrived.



- J. Lamar Worzel

### Bruce Heezen - Plate Tectonics and Currents

In 1953, Maurice Ewing (1906-1974), director of Columbia University's Lamont Geological Observatory and Bruce C. Heezen (1927-1977), associate professor, helped develop the theory of tectonic plates. The Geoscientist (2001, v. 11) records in its bicentenary countdown that in



1956, "Bruce Heezen and Maurice Ewing discovered the mid-ocean ridge system that girdles the globe."

In my opinion, Ewing's contributions have been fully recognized, but not those of Heezen. I first met Bruce Heezen as a classmate at Columbia University taking Walter Bucher's course with me in the spring semester of 1949. Later in 1975, I served as President of the Society for Sedimentary Geology (SEPM). By that time, Heezen's contributions had not yet been formally acknowledged by Lamont. As President of the society, I took it upon myself to convince the appropriate committees of SEPM to award Heezen the Francis P. Shepard Medal (for Excellence in Marine Geology) for that year for his contributions.

What prompts me to explain these historical details and decry the missed opportunity of recognizing Bruce Heezen at Lamont? In the early days of what was then Lamont Geological Observatory of Columbia University, Heezen and Ewing collaborated closely.

However in the 1960s, no room existed within a single faculty and within one laboratory for both Ewing and Heezen. The two strong-willed men chose somewhat divergent paths. Heezen was clearly the loser. At the time of his death in 1977, he had not yet been granted the rank of full professor. The dichotomy between Heezen and Ewing rubbed off on Heezen's students. Heezen's strong-willed character, his energy, new concepts, damn-the-torpedoes approach, in my opinion, made Bruce one of the most creative 20<sup>th</sup> century geologists. He, therefore, in my opinion deserved the recognition the faculty of Lamont withheld from him.

As part of his contribution to the geology of the oceans, Bruce Heezen

had become the father of contourites and bottom currents. The concept of contour-following bottom currents and contourites originated at Columbia University in those years.

In 1950, Professor H.
Kuenen (1902-1976) visited
Columbia University. Bruce
Heezen at that time called
himself a true "submarine"
geologist. He explained
to Walter H. Bucher
(1888-1965) and me his
experience in a submarine
at sea which drifted when
the engines were stopped.



Recalling this story, he clearly had experienced the effect of contourfollowing, although not necessarily, bottom currents. Heezen appreciated the concept of contour-following currents very early in his career and had his group of students work on this concept.

Bruce Heezen heard Kuenen lecture at Columbia University. Heezen found in the Dutch scientist's work an explanation for the breaking of submarine cables (transoceanic telephone cables) off the Grand Banks in 1929. Heezen linked the broken communication cables to a giant turbidity current triggered by the November 18, 1929, Acadian-Newfoundland earthquake. He went on (with others) to develop the concept of geostrophic or contour currents and explain their role in reworking sediments on the continental rises.

Charles L. Drake (1924-1997), chair of the Department of Geology of Columbia University, asked me to accept an appointment to supervise Bruce Heezen's crop of incoming graduate students at Columbia University since Heezen was no longer allowed to accept additional graduate students. At that time, the dispute between Heezen and Ewing had climaxed. I agreed, however, on only one student, Naresh Kumar. Naresh became my research assistant at the Hudson Laboratory of Columbia University, a marine research station affiliated with the Physics Department of

Chemical Reactions

Columbia University and on a parallel track with Lamont Geological Observatory of Columbia University.

In 1969, I received a telephone call at the Esso Motor Hotel in Maidenhead, England, from a National Science Foundation representative in California. He asked me to be co-chief scientist on a cruise with Heezen. I would have loved the opportunity, but was at the time committed to the petroleum industry, teaching short courses for the dates of the cruise. In retrospect, I feel even worse because less than six years later Heezen died on board ship.



Bruce Charles Heezen (4/11/1924 - 6/21/1977)

#### - Gerald Friedman

Spending a summer mapping in northern Maine and living in an abandoned log cabin with double bunks. I would leave my towel on the upper bunk, and sometime when I would get it, a

snake would be lying on it. Also, I am still reminded of the number of black flies when I leaf through my old notebooks. Every page contains several preserved black flies.

- John R. Griffin

I'll never forget the time, Nyholm, our lab technician used our coffee spoon to stir the acetylene tetra bromide in the lab and sent all of us scurrying to the head.

Some other anecdotes, briefly:

- Jack Baker, our shy geologist, got caught one night singing over the speaker system.
- Dan Lynch, our smallest professional, an engineer, was presented a box to use at the urinal by a group of our scheming secretaries!
- Our very curvaceous draft person, when wearing low "V" cut sweaters, always had lots of help on drawing contour lines.
- Emma of the famous peanut caper fame (see earlier vignette).
- Doyle Knowles, another of our engineers, after dropping a 100 foot tape down a well was accosted by the lady of the house with a shotgun, telling him, "Young man, you get that tape out of that well right now, ya hear!"
- Vick Shamberger and his famous dog, "Majuh". Majuh never got lost, even though the hunters did.
- Doyle Knowles and his slippery slide rule, and a can of beer.
- Gene Clements Boy Scout be prepared!
- George Swindel and his famous pumping machine!
- Tom Simpson and the coat hanger sky hook caper!
- Tom, while on assignment in the Birmingham-Bessemer area, went to the home of Pearson Drilling Company to get records from wells. Backing out a curved driveway, he neatly placed all 4 wheels of his 4x4 on a concrete culvert. Had to call the wrecker — how embarrassing!
- Bill Tucker, another engineer, 6'5", 300 pounds cried when he left us. Then he went out on his own and made millions in the oil patch.
- Gene White, petroleum engineer, one "smart cookie".
- "Anonymous" backed into a power line and a security fence in an industrial area and caused all gates to close and lock at quitting time. The work crews headed home after a hard day's work were not pleased.



- Philip E. Lamoreaux

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## A Calm Too Fleeting

Come, let us brave the briny blue,
full five and twenty fathoms deep.
What shall we find there?
A shark or treasure chest? Ours to shun or seek.
Or, perhaps, a bed of sifted sand,
rocks like flint or friendly fish.

Come now, let us sound and see.

First shock of cold water, blocks the breath, then sinking free of gravity's global grasp, past fathoms five and ten we feel the chilling hug of sunless water.

Down, down we drift in a weightless dream 'till seafloor rises to us, a silent scene of perfect peace.

Thin shaggy strata slabs point upward, the rat-chewed pages of an ancient book. It's a rare, too fleeting taste of tranquility. We must in haste, feast our senses, for deadly bends could strike.

Minutes of such weightless calm is full measure for a day.

We glide upward, holding envy of Poseidon's peaceful realm,
a serene dream, that we never shall share
in the soft and faintly pressing air.

Look up! The dome of his domain, sun-struck, quivering quicksilver, that we must pierce to find life-giving air. And endure again gravity's heavy-handed grip.

Santa Rosa Island
- James W. Vernon





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