The Geologic Division Retirees Newsletter

The 2013 Denver Pick and Hammer Show

Number 68 Fall 2013

An organization of retirees of the Geologic Division, U.S. Geological Survey, who seek to keep in touch with each other and with their former Agency.

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As we go to press, the White House had announced the nomination of Suzette Kimball as the 16th Director of the U.S. Geological Survey. Suzette has been Acting Director for the past 10 months and formerly was Associate Director for Geology, 2008-2010.

From the President

Rising from the Plains (with apologies to John McPhee)

Sharp-eyed readers of my last message pointed out that I omitted one other important value in the Survey history: a vigorous institutional sense of humor, as embodied in the long-running activities of the Pick and Hammer Club. I'm happy to report that, after a period of quiescence in all centers, P & H has revived and thrived in Denver. More about that later, but first a brief history of P & H.

It began as the Association of Aspiring Assistants in Washington in 1894. At an annual dinner, in which all attendees were in formal dress, the "assistants" performed, to piano accompaniment, a number of satirical songs and skits that parodied life in the Survey. The songs were words written to well-known popular tunes. This evolved into the Pick and Hammer Club, and, at the annual event the "picks," who were those at the bottom of the Survey ladder, got to air their gripes about the "hammers," who were on top. These satires became more complex over the years, until by the 1960s they had become full-fledged musical theatre productions, with 2 or more acts, costumes, stage lighting, orchestra, some original music, and illustrated printed programs. The humor was, in general, mild satire, and a lot of the attention focused on the effect of bureaucratic rules on the scientists who were inhibited by said rules. The club eventually had its own (faux) Latin motto: Soc et Tuum! (Vigil).

As the Denver and Menlo centers developed, each of them created P & H shows of their own. The first show in Denver was initiated at the behest of Eddie McKee in 1960, when he was Chairman of the Geological Society of America annual meeting there. This highly successful event was held at the Denver Auditorium Theater and featured a full orchestra conducted by Al Marranzino. The identity of script writers was not advertised, but everybody knew that G.D. Robinson (Black Robby), Don Brobst, and Bob Schnabel were the core group of authors. The closing song for 1960, "It'll All Be the Same," was suggested by Deke Schnabel for the show, and it became traditional for all Denver shows from that time on.

All shows featured the current Director in a thinly-veiled stage presence (Bill Pecora was "Wille Begorra," for example), and he and other managers had to take a certain amount of flack for their bureaucratic shenanigans. Pecora was well known for his promotional efforts to boost our budget, so the 1966 Denver show was titled "The Snarin' of the Green," a spoof of his campaign for "high finance." Personal peculiarities of managers usually were off limits, but they were sometimes used to identify a character; for example, there might be an oblique reference to someone's "devotion to Caledonian dew." There were a number of highly memorable songs over the years, but none more often recalled than the iconic "Is There a Doctor in the House?" (to the tune of "Pretty Baby") from the Washington show of 1950. It was written to enforce the custom that we do not call people by their academic titles in the Survey. The first of two verses is as follows:

Everybody loves a doctor, that's why I'm in love with me—
Call me Doctor, call me Doctor—
And whenever you address me, don't forget the Ph.D—
Call me Doctor, call me Doctor—
For I'm just a little better than the average sort of man
Could ever hope to be,
So in grateful recognition, all you lesser mortals can
Call me Doctor—that's me, boy!
Call me Doctor—that's me!

A lot of P & H can be described as sight gags, puns, and slapstick, but there is also a significant amount of Survey history contained in the songs and stories. And the release of frustrations and general fun were a major morale-building contribution over the years. All the Directors, up through 1997, were firm supporters of the club activities; many, in fact, during their early careers, did their turn as writers, actors, stage hands, and singers. P & H was sometimes referred to as the collective conscience of the Bureau, as employees always had that special outlet for their complaints, in addition to more standard solutions. On a deeper level, P & H reaffirmed the democratic values of the Survey. So I'm delighted to see that this healthy tradition has been revived in Denver. This newsletter includes an extensive article about the Denver show, written by Marith Reheis. Soc et tuum! (And thanks to Deke Schnabel and Bob Davis for help with this essay.)

John Keith

Treasurer's Report and Membership Statistics

This report summarizes the financial situation of the Geologic Division Retirees as of September 30, 2013. Because we have not yet paid for printing and mailing of the second 2013 newsletter, our income at this point exceeds our expenses. Our income and reserve at present are more than adequate for anticipated expenses during the remainder of 2013. Because we have a significant reserve, no dues increase should be necessary any time soon; in fact, we may need to lower dues further so that we can reduce our reserves. Our new printer produces the newsletters and directory at much lower costs than our previous printer, and as a result we were able to reduce dues and still have a considerable reserve at the new dues level.

Net worth, December 31, 2012	11238.15
Income received in 2013 thus far	
Dues and contributions received	
Dues for 2012 and prior years	298.00
Dues for 2013	1,432.00
Dues for 2014 and beyond	526.00
Contributions	509.00
Total income	2,765.00
Expenses paid in 2013	
Dues notices (envelopes, postage, labels, ink)	258.49
Preparation and mailing of newsletters and directory	1,369.13
Bank charges	24.25
Total expenses	1,651.87
Net increase in net worth	1,113.13
Net worth, September 30, 2013	12,351.28
Assets	
Checking account, Wachovia	12,345.28
Undeposited dues & donations	6.00
Total assets	12,351.28

Notes:
Comparison with 2012: Thus far, the amount received for dues in response to the 2013 dues billing is $403 less than the total dues receipts for 2012, and the amount received as contributions is $10 less than received for 2012; thus, the total received at present is $413 less than in 2012. This decrease is desirable because we need to cut our reserve.

Escrow for future dues: Of the current assets, $1186 represents advance dues payments and must be regarded as funds in escrow for 2014 and future years.

Membership statistics:
At the end of 2004, we had 579 members, at the end of 2005 555 members, at the end of 2006 531 members, at the end of 2007 519 members, at the end of 2008 504 members, at the end of 2009 487 members, at the end of 2010 453 members, and at the end of 2011 434 members. We currently have 416 members. Of these, 33 are in arrears more than one year, 45 are paid up through 2012, 225 through 2013, and 113 through 2014 and beyond; an additional 3 are life members. All members who have not paid dues since 2010 will soon be dropped from the active list and the directory. Approximately 102 of our members are currently Emeritus Scientists with the USGS.

Odette James
Secretary/Treasurer

New Members

Elisabeth (Elly) Brouwers

Thomas J. Casadevall

Jane S. Ciener

I-Ming Chou

James C. Cole

Karl S. Kellogg

Carolyn Lumb

Christine Murphy

Zell Peterman

Kathie Rankin

Brian Skinner

Julia Thomas

Scott Tilley

Jeff Williams

The 2013 Denver Pick and Hammer Show

In late 2012, rumblings began in the Denver USGS offices regarding another resurrection of Pick and Hammer, which had been quiescent since 2001. Several meetings followed to test the level of interest and particularly to discover whether enough young new talent could be enlisted for a show and hopefully carry on the tradition; without new folks, a resurrection would have been pointless. With a lot of arm-twisting, some much-needed financial help from Reston P&H, and enthusiastic support from old and "new" (anyone under 45 years old) alike, we hosted "USGS Survivor! Sequestria Island" at the Green Center, School of Mines, on September 28, 2013—spectacular timing given the impending shutdown!

The show began with a short introductory slide show emceed by Pete Martin as a historical review of "Previously on Survivor!" This review used cartoons to illustrate the misadventures of the USGS beginning at the 1995 RIF and proceeding through the many reorganizational squabbles,

Secretaries Salivate and Ah Choo trying to stopper the blowout

the lack of communication among Divisions-Disciplines-etc. due to a lack of common language, the turmoil created by the Get Rich Congress and the intervention of All Gorp, and the musical chair games instigated by various directors, who departed leaving the Survivors more bewildered than ever.

Act 1, "We're All In This Together," opens with the Survivors in leaky boats, separated by Discipline, duking it out for funding and opportunities. They are dazzled by the arrival of the queenly Magic Eye Nutt, who sings to the tune of Bali Hai of how it could be for the Survivors if they would all work with her for common science goals—research prizes! endless funding! She is anointed USGS Director by Interior Secretary Salivate, and the swabs dance a hornpipe in celebration. Suddenly, the peace is disturbed by a wailing siren and a lookout screaming "Disaster in the Gulf! My Bongo has blown out!" Energy Secretary Ah Choo arrives to take counsel with Secretary Salivate, and they run in panicked circles until Magic Eye winsomely catches their attention and offers to save the Gulf. She waves her magic scepter and stops the blowout but admits she has no idea what was happening in the USGS during her absence. The crew sings "Ding Dong the Leak Is Plugged" in celebration, and Salivate asks Magic Eye if she will be his Science Advisor. She commences a monologue with a DOI fireman's hat and a USGS ball cap, alternating hats through the complex problems of prairie potholes, advising BLM land managers, numbers of sage grouse in Nebraska, greenhouse gases, placement of wind turbines, interspersed with repeatedly telling the Survivors they are all doing a great job, till she collapses in total confusion. Cruzette Cueball enters with knitting in hand and asks how she can help. She suggests reorganizing along the lines of the new Mission Statement, which Magic Eye seems to have missed seeing previously. Magic thinks it's a great idea, and Cruzette throws out new tee shirts to the Survivors, with colors to match their self-assigned missions: purple for Energy and Minerals, red for Hazards, green for Environment, blue for water, orange for Climate, white for Environmental Health. Since Core Systems works with everybody, they just put on whatever shirt they like. All sing "The Mission Song" (to the tune of "Happy Talk"). But at the end, Magic Eye seems very sad and distracted; something is missing from her happiness. A neighing rocking horse enters, and she is suddenly excited, remembering how much she misses riding in the hills. Putting on the riding helmet, she decides to resign and just walk away, singing "California, Here I Come." In disgust at being abandoned, the Survivors pelt her with their new t shirts. Magic Eye tells Cruzette to just keep telling the scientists their research is invaluable to the nation and that they're doing a wonderful job; Cruzette replies "Oh, I will, I will, I will. Every Monday morning. Over and over." Magic Eye departs, followed closely by the resignations of Salivate and Ah Choo. The Survivors are left alone weeping, tearing their hair, and "Singin' The Blues."

Magic Eye, happy again after finding her horse

During the intermission, a terrible storm had blown up and wrecked all the boats. The second act opens with the Survivors stranded on an unknown desert island. They include two administrators, Rest Assured and Rest N. Peace, an AO named Very Rightly, Gear Head (IT guy), Flora Fauna (biologist), and Rocky G. O'Doode (geologist). They are distressed by the terrible situation and especially the lack of internet and cell phone reception. Suddenly an elderly "native," Castaway Jack, wanders in, and they pester him for information and help. He uses a paper map(!) to show that they are on the Quaternary Beaches Formation in the Bay of Reorganization on Sequestria Island, where he has been mapping for 30 years. But he refuses to help since previously they had wanted to stick him in a cubicle. Now the Survivors are in a panic, but suddenly a remote voice, He Who Knows All, interrupts and tells them to stop squabbling. He informs them that their fate is in his hands, and they

Swabs weeping over Magic Eyes's resignation

will need to show that they deserve to exist and whether they will have a robust, compelling presence on the web and social media. He tries to explain the Sequester, telling them that their new permanent duty station is Sequestria Island and that, due to a reduction in facilities they will now have only ½ palm tree and 2 feet of beach apiece. He then lays out the ground rules for a series of challenges, the winner of which will be in charge of reshaping the USGS for the next 134 years…or at least until the next reorganization.

Next morning, the Survivors are faced with a series of challenges, each of which results in the elimination of one of them (each one eliminated goes off into a corner where they drink beer and play cards the rest of the act). The first challenge is to enter their hours in Quicktime. Mysterious new IT guys arrive with wooden laptops for three competitors; two others try to make do with smart phones; and Rest Assured just looks bewildered until she realizes she can get the AO to do her Quicktime entry (and any other tests requiring a computer). Rest in Peace manages to finish, Rocky hammers away on a mouse, and Gear Head is done in seconds, but Flora is confounded by an expired password and is unable to do Instant Messaging to fix the problem. She is the first to be eliminated, and goes off to sulk in a corner after telling them all they have no synthesizers, no multidisciplinarians, and no ecosystem servicers and that bunnies are the future, not bentonite. Rest Assured, having figured out she can get Very Rightly to do her work for her, sings "Don't Know Much About Biology." The second challenge is to complete online training for FY 2014 Federal Underrepresented Castaway Training--Executive Division. The others race through the course (Rocky pounding away on the mouse till he gets to the test at the end), but Rest in Peace is entranced by the learning opportunity. She reads slowly and is quickly eliminated. The third challenge pits two teams of two (Rocky and Very Rightly vs. Rest Assured and Gearhead) in an effort to quickly investigate and report three fundamental observations that help characterize the island. Team 1 observes that the island has had recent volcanic eruptions, is slowly being inundated by the sea, and may experience frequent intense storms. Team 2 finds there is a huge problem with the USGS region assignment, totally whack internet, and deficient Weekly Highlights requiring a Town Hall. Team 1 wins and chooses to banish Gear Head, who sulks off saying "When the world is totally virtual, when all Science for a Changing World is done on in the cloud, you'll be begging for me. If you need me in the meantime-- just fill out a ticket." In the fourth challenge, the Survivors are told they are actually in a meeting and

Survivors trying to enter hours in Quicktime. L-R: IT Guy, Rest In Peace, Flora Fauna, Very Rightly, Rest Assured, Rocky O'Doodle, Gear Head

require permission from the Department of Interior to be on the island. They have to enter their meeting request digitally on Scarepoint. Rest Assured begs Very Rightly to help, so she grudgingly does that first, while Rocky pecks away randomly and actually completes the task by coincidence. Very Rightly is eliminated and points out that neither of them know how to do budgeting or sole-source requisitons and they'll be very sorry she's gone. In the last challenge, Rest Assured and Rocky go head to head in a USGS Trivia competition. Rocky wins the first question about Powell with ease and thinks he has won the second question—in what region is the Geologic Hazards Science Center in Golden, Colorado, located? But alas, the logical answer is incorrect, and Rest Assured knows it is in the Northwest Region. She also knows all the correct answers to the FISSA tests and thus wins the contest to become the Sole Survivor. However, Rest Assured quickly realizes that she can't do anything without Gear Head and the IT guys to make her computer work or without Very Rightly and Rest in Peace to keep her organized and send out emails, so she recalls them from the banishment corner. Then, as she is proclaiming the newly organized USGS, a booming voice interrupts; it is the New Director, and Rest Assured quickly deflates. A large explosion follows, and all are agitated and concerned, with the Director demanding information and

Rest in Peace and Rest Assured sheltering from the violent storm

Rest Assured unable to deliver because no one is answering her email demands for data. At last, Flora and Rocky volunteer to help, and point out that it looks like a volcanic eruption is occurring on the island. Then the ground shakes violently, and the Director gets even more agitated. Rocky explains that from the direction of shaking it's a subduction-zone earthquake, close by, and likely to generate a tsunami. A violent rainstorm ensues. The Director is furious that no one anticipated these disasters and orders the USGS to get back to scientific research. Rest Assured quickly agrees, then starts talking about accomplishing this by reorganizing. This triggers a revolt by Rocky and Flora, who march off until the two administrators beg them to stay, telling them they are the True Survivors. The show ends with a rendition of "The Survey Can Survive" in the style of Hank Williams.

Marith Reheis

Anecdotes and Other History

Jim Burns writes: Recent health problems made me rethink my live-alone status in Charlottesville, VA, and I'm now ensconced in Summit Square, a retirement community in nearby Waynesboro, close to my son Jasper. A wholly unforeseen benefit of the new arrangement is this: I can now spin yarns of "Life in the USGS" to a fresh audience. In particular, this has led to a resurgence of interest in my 2006 book, *The Cold Coasts – a Cold-War Caper in the High Arctic*. The book describes a field assignment that was unusual, to say the least. So unusual, in fact, that I'd like to describe a bit of it here for the archives of the Geologic Division Retirees.

The "Caper" is best summarized by a few quotes from the back cover of the book:

"The seal-hunting vessel Godønes slipped out of the Bergen navy yard and headed north. For five days she sailed along the spectacular Norwegian coast.

"Then, near the northern tip of Norway, 900 miles from where she began, the Godønes rolled and tossed at anchor, buffeted by a cold wind and a choppy sea. She was ready to leave the protected coastal waters and cross the open sea, still headed north.

"To this point the voyage might have seemed ordinary. Now some remarkable things took place. Electric generators and radio antennas were uncrated. The skipper was allowed for the first time to enter his own cabin, where he saw stacks of electronic equipment. He learned that the 'scientific expedition' for which he thought the ship had been leased was, in fact, an intelligence mission. There would be electronic sweeps of Russian settlements in the Norwegian territory of Svalbard, and then along nearby coasts of the Soviet homeland itself. While in Svalbard, teams would be put ashore to look into the possibility of building large airfields and developing harbors to supply them.

"It was impressed upon the skipper that this was a dangerous mission and that Russians might capture the ship. In such a case, the people on board should expect to end up in Siberia. The year was 1955. The Cold War was in full swing. Remarkable things like these often happened during the Cold War.

"Sixty-five days after she sailed from Bergen, the Godønes limped back into the port of Tromsø, mechanically disabled and under tow."

One might wonder why I called such a serious mission a "caper." The truth is, some aspects of its execution bore distinct earmarks of the Keystone Cops. Now, note those words "the possibility of building large airfields." Here enters the USGS and its one employee aboard, namely me. Based on whatever maps and airphotos I could lay my hands on, I selected eight study areas where sites might be found for runways of 10,000 feet or more. Over the next two months, I hiked over all eight areas, making an engineering geologic reconnaissance, and I hauled back many soil samples for testing by the Army Corps of Engineers. The best sites were all on raised beaches that, here and there, fringed the mountainous, glaciated interiors of the islands. My top-rated site was at a place called Kvadehuksletta, on the west coast of West Spitsbergen.

The next year, in 1956, two Norwegians went to Kvadehuksletta, one a military officer and the other an official of the Scandinavian Airlines System. They agreed that it was the best site in Svalbard for building a major airbase. They proposed that SAS be allowed to build an emergency landing field there. In 1958, the Soviet Union formally protested, saying that such a landing field could be used as a military airbase, contrary to the Svalbard Treaty, which allowed no military use of the land. End of subject, and silence and secrecy prevailed for nearly the next 40 years.

The story finally went public in 1996, long after I had retired from the USGS, in a rash of newspaper interviews with Norwegian participants in the venture. One of the interviews introduced a controversial claim that the ship

had contained an explosive charge set to go off in the event of any approach by Russians. It would sink the ship and the secret electronic gear aboard and leave it up to any surviving men to fend for themselves in the icy water. I believe this was a rumor cooked up by the crew, but have you ever tried to prove a negative? To this day, heart-wrenching interviews continue to show up in the Norwegian press, with old sailors saying such things as "They played with my life, and I didn't even know it." And today, indeed, nobody knows.

Dave Campbell's Observations in Saudi Arabia, Chapter 3

Today I went swimming in the Red Sea! Right after breakfast, 7 a.m., we loaded up Ron Worl's van with stuff and took off. At the Makkah turnoff, we got on the Christian Road, angling further south to the Shoibah (SHWAY buh) road, then southwest back to the Sea. Shoibah, on some maps spelled "Shuayba", is one of a chain of Saudi Arabian Coast Guard stations spaced 10-20 miles along the coast to protect Red Sea shipping. Over 30 years ago, USGS people started coming here to camp on the beach and fish and swim. Ron took his sons here when they were 8 and 12; now both boys have sons of their own that age. The Coast Guard guys, bored with nothing to do at their lonely station, would come down to the campfire to chat and share the ghawah (sweet, thick Arab coffee) and eat watermelon. Soon, our USGS guys knew all the local folks, and they got in good with the emir (essentially, the feudal lord) of the region. Over the years, a few blocky trailers got parked there for people to stay in, a water tower was put up, and so on... Nowadays, USGS pays one of their old retainers, Saud, to watch over the place. And it's just as well Saud was there -- about three years ago, he woke up one morning to find a gang building a wall around the USGS installation, enclosing about half a mile of seashore. Apparently, if you can enclose desert land in a wall, the property becomes yours: some guy was trying to steal the place. Saud jumped in his HyLux (the cream and red Toyota pickups I told you about are called HyLuxes, I've learned), and went over to complain to the emir. By noon the next day, every vestige of that wall was gone, and the two Coast Guard officers who had thought up the scheme were out of the corps...

Shoibah is really a paradise for snorkeling and scuba diving -- a generally unspoiled stretch of beach and reef that ought to be a wildlife (e.g., fish) preserve. In fact, Ron says when USGS finally leaves KSA, that is probably what will become of it; so much of the rest of the Red Sea coastal reefs have been destroyed, the place is already unique. It is a small bay shaped like a shallow crescent, with about a mile of shoreline, Coast Guard station on its southern point, and a deep-water pier and "resort" on the northern one. Our party was Ron, who drove, Tim Hayes, Carlos the houseboy, and me. None of the wives came, and I'm getting the impression they don't mix much in men's lives, even the American wives. We put on our stuff and went out. It was nice, but without my glasses I actually couldn't see very much: I'd go up close to the coral and peer at it, maybe see a fish or two. After while, Tim stopped snorkeling to try his hand at fishing, and, hearing my trouble, suggested we swap masks. He is nearsighted like me, so has a prescription faceplate in his mask to help him see. He thought our eyes may be close enough that it might help me. So that's what we did...

WOW! Suddenly I could see stuff, sharp and clear, all kinds of details way out in the water, corals of all colors and hues and shapes; brain and antler and nodule corals, full of tiny vividly-colored fish darting in and out of holes in the reef, schools of bigger fish patrolling the edge where the water suddenly dropped from waist deep over the highest coral trees to plunge down, down so far the bottom there was colorless and dim. Charcoal fish the size of my hand would come up and peer into my (actually, Tim's) facemask -- later, I looked them up in a fish book Ron brought (a waterproof book -- somebody was thinking!) and learned they are "royal damselfish." At places it looked like there were shimmering showers of yellow aspen leaves in the water; closer up, they were schools of half-dollar sized, flat, thin gold fishes. There were parrotfish and wrasse fish, that have such strong beaks they munch on coral. There were zebra angelfish with thin vertical stripes of alternating inky black and pure snow white; trigger fish, butterfly fish, and many many more whose names I'll never know. One fantastically pretty fish was the royal angelfish, a fish the size of a dinner plate with vertical stripes of bright light blue, bordered by black on both sides, on a background color (between stripes) of international orange. Seashells! A clam two feet wide with a neon light blue lining inside his shell!

Carlos was along, so I'd thought to cook for us, but it turns out there was something else. At the "resort" on the north point there is a business operating that collects showy salt-water fish and ships them live to hobbyists and aquariums all over the world. The boss has a crew of four guys hired to go out and get him his fish, and it turns out these four guys are Filipinos from Carlos' home town. So he was out there yakking with his fisherman buddies in Tagalog (t' GAL log), while they worked netting and sorting out the fish their boss needed. The bigger fish that weren't on the list they gave to Carlos, the most edible ones anyway. They even used their spearguns to shoot a few especially choice food fish for him. Also gave him an octopus they'd got. He ended up with a whole ice chest full of fresh fish that he's going to feed us in the USGS compound. He got about a dozen sohal, a main food fish that is greenish charcoal with subtle iridescent stripes, with inch-long narrow orange patches front and rear. These fish catchers have worked there for over 4 years, with only Fridays and half of Thursdays off, out alone all day in their wet suits netting tiny fishes for their boss to ship round the world. They sleep in dorms and send almost all their wages back to their families in Philippines and to educate their children. Carlos himself has been in KSA 16 years and only been

back now and then. He has 6 kids, and he's put them ALL through college, except the youngest, Carlotta, who is still in college. Two of his sons studied in the USA and are now US citizens. This seems typical -- almost all the grunt work in KSA is done by TCNs (third country nationals). USGS, in particular, hires Filipinos. All the secretaries here, for example, are Filipino men: women cannot hold such jobs, and Saudi men only do the kind of "work" where you tell someone ELSE to do it...

At lunch we sat under the shade with Saud and his boy, drank ghawah and chai, ate some of Carlos' sandwiches. Then we snorkeled some more and finally showered off with fresh water that had been trucked in, had a supper of hubhub (watermelon), and drove home as the sun set in the Red Sea. Sunburns, coral scratches, and all, it was a fantastic, wonderful day!

Tuesday, 28 October 1997, 1300 hrs

I just got back from my first multi-day field trip and really saw a lot of stuff, including flying in a SkyVan, USGS field camp procedure, a desert sandstorm, and trucker's chai houses along the roads. The image that will stay is one I dared not photograph: sunrise at the umm Matirah camp. Picture a ring of tents and trailers in a rocky desert valley, mountains rising on three sides, and in the middle of the clearing a huge canvas laid out on the ground. The whole thing is lit by floodlights mounted up on the flagpole. On the canvas, facing Makkah, is a row of Moslems dressed in their best; this means various costumes, but all have heads covered. The richer wear white robes, with headcloths of red and white (gutra) held in place with black rubber bunji-chord things that look exactly like spare fanbelts (eGAL). All are barefoot with the brown soles of their feet showing, all bowing to Allah, forehead and palms flat on the canvas and bottoms in the air. Someone is chanting in a booming resonant voice "Bis'm illah ar-Rahman ar-Raheem..." (the opening passage of the Koran, and a standard Moslem prayer); the wind is flapping the Saudi flag at the top of the flagpole (dark green, white sword below and elaborate Arabic calligraphy above); just enough light is dawning to make out the rocky ridgetops, and low over the ridge behind the high bottoms, a perfect crescent moon, tips pointing up: the symbol of Islam. In our latitudes we don't get moons with tips pointing up, only near the equator; and this is the first time I've ever seen it. This was a perfect image, but it would have been rude, not to say perhaps even a mortal offense with some of those guys, to photograph it...

The SkyVan is operated by Saudia Airlines on contract to DMMR, and there were five of us going out that morning (Saturday, the first day of the week). I was with Mabrook, the DMMR senior geophysicist who was to show me around the five places we were to visit that week, all within a radius of about 200 km of umm Matirah, where we landed. Also going out were the BRGM drilling boss, Roger (pronounced the French way -- it took me 2 days before I realized that it was NOT "O.J.", as in O.J. Simpson), Said, a cheerful Yemeni geochemist (sigh EED), and Khalid, a scowling Saudi geologist. The SkyVan is a big box about 15 ft long, 8 wide, and 7 high that can be loaded with up to 12,000 lb of gear. It has high wings with 2 props, big fat tires to land in the sand, and is VERY noisy. Having been warned, I used the Alaska trick of rolling up tight little plugs of toilet paper and put them in my ears before donning the earmuffs we got. Roger also did that, but the others apparently didn't know.

It took 2 hours to fly to umm Matirah, over very interesting country. First were foothills, then up over an ABRUPT mountain wall of huge mountains (the "escarpment"), and behind that, desert with its own smaller mountains. Some of the mountains were in ranges, but most were isolated tops sticking up out of the sand. We flew over a harrat (h'ROT), a flat badlands of basalt chopped by winding valleys that came together and crossed every which way. From the air the harrat looked like pieces of a jigsaw puzzle laid out almost put together but not quite, with the winding edges still open and showing. It would be a huge job to pick your way across this maze if you were down on the ground, plus I'm told the lava itself is treacherous -- razor-sharp aa and pahoehoe with weak foamy places you can fall through and cut yourself badly, or even fatally. Naturally, the old-time desert people took to the harrats as a safe place to live where no one could get at them. There are deep water wells and potholes full of loess up there, and they'd farm them. The harrats are pocked with old settlements going back to before bible days, 6000 bc. In fact, some chauvinist Arab scholars have made a case that Bethlehem, Nazareth, and so on weren't in "Palestine" at all, but up on a harrat; they even have contemporary references to town names up there that fit the New Testament stories pretty well!

You won't find umm Matirah on any maps; it's just an indistinguishable part of the desert about a third of the way across the KSA east of Jiddah. In fact when I asked Mabrook to locate it on my map, he got it wrong by some 600 km too far north. It is a place where gold was mined during the Abbasid caliphate, a thousand years ago. Now we're back again, looking for more. The camp consists of two dozen tents and trailers drawn up in a ring, a water tank up on the hillside to provide running water, an electricity generator that runs all the time, a vehicle lot with tank trucks, drilling rigs, a John Deere backhoe and half a dozen tan Toyota Land Cruisers that we all use to tool around in. There is a toilet and shower a hundred yards downstream (the stream is dry), the shower stall on the left with an American toilet inside the shower stall, an Arab toilet on the right, and a lavatory in between with no door. You are supposed to bring your own toilet paper (I did) and towel (I forgot). My quarters was a 8'x10' trailer with a bunk and desk, electric lights, and an air conditioner that wouldn't shut off. It also had a non-functioning shower stall in there. The bunk had one wool blanket and a pillow on a bare mattress, but I'd brought along a sleeping bag. If you had to get up in the night to go to the toilet (and I did), you had better take a

flashlight to avoid snakes. Actually, I didn't see any snakes, but they ARE nocturnal, and three years ago an American was killed by one when he went barefoot out to the toilet in the night. The trailer is up on wheels, a yard in the air, so snakes can't get up there. About 400 yards away is another, similar camp, where Roger's BRGM drillers stay. The camp has a full-time guard, plus about a dozen Arab helpers working there this time of year: cook, mechanics, general laborers. Plus there are any DMMR staff -- geologists, well loggers, and so on -- who happen to be there at any given time, and any local Bedo men who come by. Maybe 20 in all. The Arabs live in the tents, and the staff in the trailers. There is one big mess tent with a cook to feed us. Food comes at 0600, 1200, and 1900 hrs, and you better be there or go without. One of the Arabs had a baby camel he had bought; it was sick and he was nursing it back to health to sell someday. So counting the camel, umm Matirah is the biggest place around. When we arrived, the camp helpers had us in for ghahwah and tamar and chai, and with so many new faces in camp the first night they had a goat grab in our honor.

Wednesday, 29 October 1997, 1900 hrs

The goat grab was in the evening on the canvas in the center of the clearing, and everybody came. As you step onto the canvas, you take off your shoes. I now see why Arabs wear those loose sandals; you can kick them right off and not lose a step on the way to the food. I had on my field (hiking) boots, so had to stop to unlace. That always takes a while. On the other hand, boots like that are lots harder for a snake to bite through, if you wander too near one, so I prefer to wear boots, all things considered. Before the main course we drank innumerable ghawas and chai, served with great ceremony. BUT, the cups that are used are kept in a pan of water, maybe originally hot, but now lukewarm and greasy. When you're done with yours you dip it back in the pan and leave it, and newcomers get their cups out of it, dripping wet, to be filled with more ghahwa/chai. Struck me as a fine place to grow germs; and in fact Jim (Elliott, the USGS geologist there) says whenever new faces come into camp there is a new round of coughs and dysentery. Jim keeps track of things like that, for he has the medicine chest, so is the camp medico. This medicine chest has lots of serious stuff in it, morphine and penicillin, syringes and so on. No snakebite anti-venom, though: you have to have different ones for different snakes, and also keep it refrigerated. So they airlift out the snakebites. Jim decides what to give folks who come in. He tells me he left it unlocked one time while he was away, and people treated themselves. Apparently they thought all whiteman medicine was equivalent; you had guys with diarrhea eating a bottle of aspirin, and guys with sunburn shooting up with waspbite antihistamine. The medicine box was totally empty when he returned. So now it's kept locked, and Jim has a deputy medico to do sick call when he isn't there. Some people there were very clearly sick with runny noses and aching stomachs, and people were hacking and spitting all the time. Apparently all Arab camps are like that. So hard to tell if I've yet to come down with anything... The goat grab itself was like I already described; big pans of rice with a roasted goat in the center. You wad up balls of rice with your right hand and pop them in your mouth, and then you rip a shred of meat off the goat and present it to your neighbor or eat it yourself. Throw the bones down beside you. When done, you put on your shoes and go to the sink to wash the grease off your (right) hand and face... (Arab manners: eat with your right and save your LEFT to wipe your ass.)

We drove out and worked on the desert each day. Some places we went were hours from camp, bombing across the desert at 120 kph. Old jeep tracks go every which way. You have to learn the local landmarks to navigate; e.g., go north till you pass the third cone-shaped mountain on your left, cut around the north edge of the sand dunes and make for the funny-shaped range on the horizon. It was so hazy you couldn't see the sun to get direction, and then that night it rained. The last 3-4 years have been unusual ones in KSA for rain; there's been a lot (30mm) of it. Most the places we study were gold mines found and worked over 1000 years ago under the Abbasid caliphs. Those old guys worked quartz vein mother lodes and placers downstream from them. I found "arristras" exactly like those the old Mexicans used in Utah and Colorado: granite blocks, likely imported from far away, with a hollowed lower plate and rounded upper one. Both plates had a hole in the center for an axle on which the upper grindstone would turn to grind up the ore. The upper one had two other holes drilled half way through the top for pegs to catch a long pole. The arristras are horizontal and a man or animal walks around pushing the long pole to turn it. I knew the Mexicans had taken their design from the Spaniards; I now see the Spaniards got it from the Moslem Abbasids.

One mine I judged different, maybe not from Abbasid times, because there were no stone piles to mark the miners' houses. Instead, we saw mud brick walls in one of our modern trenches made by the backhoe -- those particular guys built of brick and not stone, even with lots of stone everywhere. And because it happened to have rained the night before, we saw the most remarkable thing -- a whole village with all its walls outlined by still-moist places in the dry dirt. Apparently the bricks dry out more slowly, so you could see every wall of the old town: blocks of houses. One especially big "villa" had an outside wall with wings extending even further on the sides and back where the animal sheds probably were. You could see the door in front and the rooms of the house inside the wall. Perfect square corners! Because it was so big we first thought it might have been the mosque, but it wasn't, because it didn't point towards Makkah. The Abbasids were good geometrers and would have gotten something like that right. But not one of the buildings was aligned right; my guess is this particular mine may have been from the days of the

Queen of Sheba, long before Mohammed. No big arrastras there either, just little hand mortars with no obvious pestles. The place is called Bir Warshah. Bir (pronounced "beer") is Arabic for "well"; even today, the stock come there to drink. (Remember "Beersheba" in the bible -- Sheba's well.) I wonder if our word "beer" was picked up by the Crusaders from this ancient Arabic word...

Thursday, 30 October 1997, 1300 hrs

When Mabrook and I went to places in the desert we were driven by Hammadi, our USGS camp boss. One of the places we went was ad Duwayah, a camp with no people there yet. On the other hand, the trailers and tents were all set up, and the water and gasoline barrels; the generator was running, and so on. Hammadi is the guy who sees to it that all this stuff is in place and ready to use when the geologists get there. He had hired a local Bedo to guard the place, but the guy wasn't around. The trailers were all unlocked, and anything could have been stolen. Hammadi stormed about the place, getting madder and madder, looking for the guy and noting that not one of the locks were in place. Apparently he had spot checked this place a week before, and the guard hadn't been there then, either. We ate our lunch in the shade of a trailer and were a mile outside of camp when the guy finally showed up. I think he wished he hadn't. It was a time when I REALLY wished I understood Arabic, 'cause Hammadi told him off with what was clearly some fantastically colorful and inventive language! Arabic is full of pious stuff about Allah, but it is evidently also perfectly adapted for cussing!

Being around the camp people, I've started to pick up just a smidge of VERY rudimentary Arabic. I wore my badge with my name on it in Arab script, but none of those guys can read, either. Clearly the Berlitz trick of "please point out your answer in this book" wouldn't work very well where I was. And most of them, even Hammadi, haven't bothered to learn much English. It's got to be confusing for them, anyway, because when they try to talk the words they DO know to a Westerner, it's likely he will turn out to be French, or something, and won't understand it, anyhow. In the end I told them my name is "Daoud al jamal" (David the camel). After that everyone would greet me volubly, and I got along fine. (Back in Jiddah, Dr. Nimr heard about this and laughed uproariously. But he was the only one to catch the bilingual pun.)

The desert out there gets short, drenching rain showers, but only in small patches. Many times you could look on the horizon and see where the rain was, either the rain itself, or fragments of rainbows. About a week after rain, grass sprouts from seeds that may have lain there dormant for 20 years. The Bedos follow the rain, trying to get where it was in time for the grass. So you have to keep tabs of where the rain had been about a month before, and drive your goats and camels there. You can see why the Children of Israel wandered in the desert for 40 years; they were just following the rain...

The desert has ravens and hawks, lizards and snakes, but no rabbits or deer or ground squirrels I could see. Out on the desert it is common to see heaps of camel bones and hide but no sheep or goat remains. Apparently old camels are too tough to bother slaughtering. Quite a few Bedos train falcons and hunt with them; we saw hooded hawks riding in HiLuxes and sitting on people's arms. Mostly, though, the desert has little wildlife due to years of overgrazing. There is one game preserve that has been in operation now for about a decade; 40 by 70 km and enclosed by a dirt fence. Anyone caught inside goes to jail for a year. You can see there are a few more trees and plants in there, and everyone is proud the rabbits and gazelles are coming back. The rangers counted 3000 gazelles in their last census, over one per square kilometer! But I didn't see any gazelles...

[Conclusion]

Eric Force writes: I composed this more or less whole, walking through woods near Prescott where I'd mapped decades ago. Fortunately, those woods haven't burned yet.

MINDFULNESS AND THE ART OF QUADRANGLE MAPPING

Our earth's surface is quite a patchwork of different rocks. Rocks of different ages and types, related to each other in a great variety of ways. Each patch of ground is characterized by some rock, and what that patch is good for depends in part on what that rock is, its properties chemically and physically. So it is useful to know what rocks are where in some detail; certainly the U. S. Geological Survey thought so as it employed scores of us geologists to make maps of rock distribution in a systematic way. It was called mapping a quadrangle.

As we walked along, we were filling in a blank map. In some places rock identification is not terribly obvious due to thick soil or thick vegetation. But underneath, every piece of ground is SOME rock, and all clues were welcome, even from soil and vegetation themselves, as to what that rock is. Finessing the question was not a possibility; because every step does correspond to some rock type, it follows that the entire map can be filled in, so that was what was demanded of us.

Some of us were better at it than others—naturally the reader and I were best of all. There were a variety of styles. One could have an opinion in advance and stride along making cursory observations, enough to flesh out the map with those opinions. This was, of course, the fastest way, but this map was also the most likely to be wrong. One could defer a decision, waiting to see if the next exposure clarified the last one. Some rocks defy identification in the field, so one could even defer the decision for microscopic or chemical analysis. This is the slowest method and carries the inherent problem that the decision is made far away from the patch of earth being identified. Alternatively, one could delve into every possible clue the ground offers, shoveling into the soil if necessary, but most probably by

extensive preparation for the walk via air photos and other remote methods, to maximize the information on which the decision would be based. The basic requisites, though, were (and still are) knowing where you are and knowing what you're standing on.

Which brings me to the modern word mindfulness, used to capture an observant state of mind. It's something that we mappers already trained ourselves for but with only one main focus. In retirement, we old quadrangle mappers no longer have artificial boundaries assigned to us. We can assign ourselves—to Earth Quadrangle. And we carry with us our old habits, our knowledge that everything we observe may be significant in some way, and that we should remain as observant as possible. Perhaps the clues we used are just as interesting as the geologic information we sought. Perhaps our habits can lead us to new observations about vegetation and soils—or animal behavior including our own species.

CUDDLELY BUNNY COMES HOME: recalling a story about **Norm Hatch** (recounted by Peter Robinson, Professor Emeritus, University of Massachusetts, Amherst)

The modern entry to this story took place on Sunday noon, October 20, 2013. I was having picnic lunch in the U. Mass. Geosciences Department with my daughter, Alexandra (Sandra) McEnroe, her friend Cody Burke, and Don Wise. Sandra is a third year major in Chemistry. The previous day she had been on the Geology 101 Berkshire Field Excursion, and, during our lunch, Don and I were debriefing her on that excursion and the various stops. Toward the end we came to the stop at the road junction where Route 8A branches south from Route 116. The long road cut there, along Route 116, exposes the Proterozoic core of the Berkshire Massif to the west and the overlying early Paleozoic cover to the east.

This immediately brought me a flashback to a time and incident many decades earlier.

On a summer day in 1965 four of us gathered to view some of the mapping being carried out by Steve Norton near the southern end of the Hoosac slice of the Berkshire Massif, originally made famous by the 1894 USGS Monogragh 23 by Pumpelley, Wolff, and Dale. At that time Steve was a Ph.D. student at Harvard, I was a new Assistant Professor at U. Mass. and Norm Hatch and E-an Zen were with the USGS. Early in that day, while looking at outcrops near the western portal of Hoosac Tunnel, we divided into two teams of two, in an ungentlemanly splash war. This consisted of throwing rocks across the brook to land in the water as close as possible to the other side and as close as possible to an opponent who would thus receive a drenching splash. This lasted for some minutes until the unexpected arrival of a local farmer cut short this undignified behavior. He strode on without significant comment, no doubt wondering what kind of a lot we geologists were, and thinking about financial waste in state and national government.

A little later that day we arrived at the road cut in question and worked our way slowly from the west toward the east end, trying, of course, to dope out the significant contact, eventually found. In the roadside ditch next to the last bit of outcrop on the east, Norm Hatch took notice of the label on a large piece of cardboard box and read it aloud to us: "Contents: One Cuddlely Bunny". From that moment, through all subsequent times, this became known to the well informed as "The Cuddlely Bunny Outcrop." On the following day we were joined by John Rosenfeld, a long-time professor at UCLA, from his cabin in Weston, Vermont, and before long we were seeing rocks that reminded us of the Cuddlely Bunny outcrop. He overheard words like "This looks just like the Cuddlely Bunny" and "No doubt about it, this is the Cuddlely Bunny rock." John was obviously not yet among the cognoscenti concerning this terminology, and we continued to rub it in until finally he called a stop, declaring "Hey guys, this isn't fair. What is this Cuddlely Bunny stuff?" Eventually and reluctantly, we clued him in. Remarkably, of that group of five, only Norm Hatch is no longer with us, but his immortal reading of the cardboard lives on.

The scene now shifts to July 2011 on an excursion to study ultramafic rocks and subduction phenomena in the western Italian Alps. By chance, on the excursion bus, I was seated next to Gray Bebout, a Professor at Lehigh University in Pennsylvania, who had done his Ph.D. at UCLA, in part as a student of John Rosenfeld. I was interested in Gray's connections to New England geology and before long he was describing the sequence of his annual student field trip to western Massachusetts and Vermont. "...and then", he said, "we stopped at the Cuddlely Bunny outcrop." Quite naturally I nearly sank through the floor!!

So I conclude this story with the hope that the idiosyncratic term first applied 48 years ago will continue to live on in the memories of geologists, not least the undergraduates and graduate teaching assistants on the U. Mass. Berkshire Field Trip.

From **Vance Kennedy** (in GD from 1948 to 1958, then in Water Resources Division):

Toward the end of the Second World War, I understand that there was a request sent out to Survey members asking for ideas for new studies. Herbert Hawkes suggested analysis of soils and sediments; Helen Cannon, analysis of plants; and Lyman Huff, analysis of water as a means of geochemical prospecting. In 1946 a new geochemical research group was organized under the leadership of Herb Hawkes, and two analytical chemists were hired from the Department of Agriculture to develop appropriate chemical tests. The two chemists were Bert Lakin and Frederick Ward.

At the request of Allen Heyl, a Survey geologist working in Wisconsin, an initial investigation of natural waters in southwestern Wisconsin was begun by Lyman Huff, in 1947, which showed quite variable concentrations of heavy

metals (undifferentiated copper, lead, and zinc) in natural waters in the vicinity of Potosi, WI. Meanwhile, in the fall of 1947, Professor Sylvain Pirsson at Penn State began the first course in Applied Geochemistry in the nation. I was the first student signed up for that course. Somehow Herbert Hawkes heard about the course and offered me a summer job in Wisconsin for 1948, which I accepted.The job consisted of trying out the various chemical tests developed by Huff, Lakin, and Ward in a field situation.

Huff joined me in the field in 1948, showed me how to run the tests, and then left me to try them out. I had a degree in chemical engineering at that time and the tests were simple, so that part was not complicated. The complicated part was that I had no money to live on. Standard procedure at that time was for people to turn in their expenses at the end of each month and sometime later get reimbursed. My new wife was working at Penn State on a meager salary, but she sent me some money to eat on. Housing and food came to less than $2.50 per day by really pinching pennies, so I turned those costs in to headquarters. A few days later I was notified that I had turned in too little expenses and should increase them to about $6. Apparently my cost made everyone else look bad and they could not allow that. That was probably the only time anyone was ever asked to increase their per diem.

During that summer, I found a spring draining out of a hillside carrying about 1 part per million heavy metals, compared to the nearby stream's far lower concentration. I went back to the Survey office that day really excited and told Allen Heyl that I had discovered an ore body, so let's drill it out to prove how effective geochemical prospecting can be. Allen said that they were a mapping group and had no authority to do any drilling. I was so disappointed! About three years later, Allen called me in Denver to tell me that hillside had been drilled by a mining company and a large ore body had been found. I think I found the first ore body by geochemical prospecting in the western hemisphere and the Survey got no credit for it. If there is ever a history of geochemical prospecting in the Survey written, this information should be included.

I joined the Survey full time in 1949 as a GS-7 geologist, passing the test with a 72, barely exceeding the required 70. Three years later Herb told me that I was rated a geologist, but I had no geology courses in my record. There would be no more promotions until I rectified that. It was a fluke. In 1948, I think the Survey decided that the Survey geologists were too qualitative and so they would make the test much more quantitative. The year I took the test, guys with master's degrees in geology failed the test. I simply lucked out because of my fairly extensive background in chemistry and math. I spent 1952 to 1955 at the University of Colorado for a doctorate in geology. But when I wanted to return to the Survey the only jobs were on the Colorado Plateau in uranium research. With two kids and no job, I went to Grand Junction. Three years later, in 1958, the AEC money ran out also. Back to Denver to wait.

Water Resources Division looked at my record and offered me a two-year job doing a sediment study in Georgia, after one month of training. Two years later I was back in Denver as a hydrologist, with never having had a course in hydrology. During my work in WRD I had an ideal job. As long as I came up with interesting proposals, I did not have to scrounge for project money, as is necessary now by project leaders. Most of my work entailed study of how water chemistry is affected by interactions with soils and sediments. It got me a lot of pleasure and a Distinguished Service Award in 1994. One could not ask for a better career.

I retired to a small farm in the Central Valley of California, where I can have ripe fruit the year around. There are major water problems in the Valley, and I am heavily involved in the political and scientific aspects of those problems. At age 90 I am definitely slowing down, but it is a good life.

The report "Geochemical Studies in the Southwestern Wisconsin Zinc-Lead Area" was published as Bulletin 1000-E in 1956. It includes a map of the spring drainage where the ore deposit discovered by geochemical prospecting occurred.

Recent News from Retirees

Jim Cole is continuing his work on the Colorado Headwaters Basin Project studying Paleogene sediments and Laramide structure in north-central Colorado.

Linda Gundersen: I spent the last six months as a rehired annuitant helping the Director's Office of Science Quality and Integrity in revamping the DOI Science Integrity Policy; passing on the torch to my replacement, Alan Thornhill; and wrapping up various projects. At the end of June 2013, I became an Emeritus Scientist with the Eastern Geology and Paleoclimate Science Center, joining my husband, Joe Smoot. I will be finishing some long neglected Reading Prong metamorphic petrology and geochemistry, while Joe continues working on the mysteries of the Chilhowee Formation and evolution of the Atlantic eastern shore. Our daughter, Gillian, a junior this coming year at UMASS Amherst, worked for the USGS last year for Dr. Jill Barron at Colorado State University and continues that work this summer as a CSU employee. She loves biology and soils!

Joe retired in March 2013 and we took the month of April off to go play in Florida, went on a "Top Chef" cruise and ate ridiculously great food, went traveling and birding across the state, and ended the month on a four day boat trip to the Dry Tortugas, adding quite a few life birds to our list -- it was fantastic! We are also renovating two houses -- one to sell and one to move into. Please visit us in beautiful Delaware if you have a chance -- we love visitors!!

Warren Hamilton reports: Alicita has just published a small book on her 20 years as pre-school director and faculty member in a speech-and-hearing clinical department at the University of Denver. It's an upbeat account of helping youngsters with hearing and communication handicaps by treating them as much as possible like, and integrating them with, normally developing children, and is a mix of narration, description, philosophy, and advice. It will be of keen interest to parents of handicapped children, but anyone interested in the development and education of young children will find much of value. Alicita also is very active in OLLI, a program of continuing education for retirees, mostly run and taught by volunteer retirees themselves. Eighty universities around the country sponsor OLLI programs for their areas, and these attract interesting well-educated people. I have taught "How the Earth works" every winter quarter since an OLLI branch started 7 years ago in west-metro Denver. Programs are held weekdays in church facilities: easy access and on-site free parking. Google OLLI to see what might be available if you live in a university area and are interested.

My long and exciting USGS career included work around the world and across the spectra of geologic scales and topics and some geophysical ones. In 1996, "curiosity-driven research" was disparaged, and I left my Survey then-emeritus position for academia as a Distinguished Senior Scientist in the Department of Geophysics, Colorado School of Mines, and an Adjunct Professor in the Department of Geology and Geophysics, University of Wyoming. I had the good fortune soon after to join a still-continuing e-mail discussion group with a superb bunch of broadly knowledgeable contrarian geophysicists, geologists, and petrologists, who helped me climb new learning curves. I have a large office at Mines but work mostly at home, where I'm better computerized to cope with illustrations and e-libraries, and do a little teaching but otherwise continue my own research on broad topics of tectonics and geodynamics. There is far more still to learn in geoscience than we yet know.

The standard model of geodynamics and global geochemistry, applied also to the terrestrial planets, consists of circular rationales heaped upon 1970s speculations. The basic dogma has mutually incompatible, yet simultaneously held, assumptions: still-primitive lower mantle, depleting upper mantle, and unlimited core heat have produced vigorous whole-mantle circulation throughout geologic time. Numerous derivative conjectures, and voluminous calculations such as fluid-dynamic visual aids with physical-nonsense parameters, and wishful-thinking seismic tomography, have been added. That the dynamic scheme could not be correct was already obvious in the 1970s to many of us who worked with actual plate interactions and kinematics, which are incompatible with it, but hypothetical Earth behavior, deduced from the popular model without data input, dominated the literature then and ever since. Most of the assumptions and predictions of the standard model have been disproved by ever-increasing evidence, much of it generated by proponents themselves, yet each new disproof has been met by mainstream specialists with an ad hoc excuse unique to the misfitting example so that the standard model is now popular mythology, not testable science.

I generated progressive contrarian syntheses as data and my comprehension expanded. My papers from the last decade have dealt with aspects of the standard model: plate tectonics is driven by cooling from the top and its circulation is limited to the upper mantle; no plate tectonics operated on Archean and Proterozoic assemblages (which differ strikingly both from each other and from Phanerozoic ones); Venus has been effectively a passive target for almost 4.5 Ga. My 2013 Moho paper presents the most comprehensively multidisciplinary case yet for rejection of the standard model for Earth (and of its mindless extrapolation to Venus), and integrates evidence that supports its replacement by a diametrically opposite model of synaccretionary global fractionation, subsequent top-down re-enrichment of the upper mantle, only of Earth, where it ultimately enabled plate tectonics; and no circulation between upper and lower mantle. PDFs on request.

Nelson and Cathy Hickling write: Your last Retirees Newsletter was really loaded with articles I found very interesting...many of them really. I want to respond to the cover story about the USGS airborne magnetometer crew in Waterville, ME, Sept. 1958. In particular to the Memorial given to Randolph 'Bill' Bromery, their party chief.

I met Bill while taking graduate courses at American University in the early '60s. We were in a mineralogy course together and Bill thought he needed a little help to get him going in this field where he had little previous experience. So for the first 2 or 3 weeks we did some of the routine work together, and I found Bill to be a real quick study. He needed no further help from me but we remained friends and occasionally took breaks together. During those breaks he often spoke of the experience he and his crew had gained together learning how to use that plane to fly magnetometer surveys. There were no instruction books to follow... they just tried to make things work as they developed the fundamental skills and routines.

One of the earliest problems became evident in the initial trials of just trailing the magnetomter below the plane on a long cable. Often the detector would swoop round and round at the end of the cable, very frightening way because it could wrap round and round the tail of the plane...not a good thing. They gradually were able to alter the aerodynamics (I think) of the magnetometer to reduce that behavior. In the early flights one of the crew stood over the cable with a large ax where it slid along the floor to exit below the tail to 'cut it free' from the plane should it threaten to encircle the tail section.

Bill never referred to his earlier role as a Tuskegee Airman during World War II. He was an unforgettable

person with many accomplishments and no baggage. I see Pete Popenoe was part of that crew too. I knew Pete just kind of in passing in early 1975 or so. Pete could flesh out my remarks more fully as he was in the middle of all that and maybe even wielded the 'ax' on occasion? He could tell this story I have attempted here with firsthand knowledge.

William R. (Dick) Keefer offers the following "gravel story:"

In the summer of 1952, I was mapping in the northwestern part of the Wind River Basin in western Wyoming. This narrow "neck" of the basin, which contains the headwaters of the Wind River and several major tributaries, is bordered largely by glaciated mountainous terrain. Glacial debris was derived from both the Wind River Range to the west and northwest and from the Absaroka Range to the east and northeast, but in some isolated outwash deposits the exact source was questionable. For these, I randomly selected 100 pebbles to obtain the proportions of various rock types and then determined whether the suite was representative of Wind River rocks (Precambrian and Paleozoic) or Absaroka rocks (volcanic as well as Paleozoic) One afternoon as I was examining one such deposit in a small road cut, a rancher drove by in his pickup. He stopped when he saw me, looked out the window and inquired as to what I was doing. It was late in the day and I didn't feel much like going into a discussion of the regional glacial history. I thought for a moment, and finally just said "I'm counting pebbles." He digested that for a bit (of course, my government vehicle was parked nearby), then remarked "That's pretty good work if you can get it," and drove off. I've often wondered what he may have told his friends about that government worker he came across that day. I can only imagine.

Carolyn Lumb says that she does volunteer work with her 12 year old Westie, Meggie Mae, who is a registered therapy dog. They do Books'n Barks at the local library and elementary schools. She is also President of the Blue Ridge Flower Club and continues to be an avid gardener.

Dan Milton: This is a report I posted on a Scrabble site. For non-Scrabblers, the North American Official Word List is essentially ordinary English. The Collins List is 25 percent longer, with weird and wonderful words, lots of Scots and British regionalisms, archaic words and spellings back at least to Spenser, South African slang, 135 NZ words from Maori (great vowel dumps), etc. I may be the oldest person ever to learn Collins. Two years ago, when I was 77, I was reconciled to never being a good player in any dictionary, but I thought that while I could still get around, I'd like to see how the rest of the world plays the game. Now I know this was one of the best decisions I ever made. I enjoyed tournaments in Israel, Malta, and England, good games with nice people in an expanded vocabulary, but nothing basically different from what I was familiar with. Nigerian scrabble is another world. There were over 400 players, about 40 from other African countries, but from overseas only Austin Shin from England, Jason Katz-Brown and I from the US (not counting Sammy Okosagah, who returned to his native country from Baltimore to take top prize), and a half dozen from Thailand and Malaysia, including Komol Panyasoponlert, who took third, and Nigel Richards and Pakorn Nemitrmansuk who, contrary to expectations, came in fourth and ninth.

Austin, Jason, a couple of Zambians and I were met at Lagos Airport by Femi Awowade, who took us to an overnight hotel in a van emblazoned on the side "Nigerian Scrabble Federation, donated by Chief (Dr.) Godswill Akpabio, the Executive Governor of Akwa Ibom State" with a picture of him across a board from Pakorn, and on the back "Scrabble, Key to Good Governance". Until we were back in Lagos Airport the next week, whenever we outlanders were bewildered what to do or where to go next, which was often, Femi would show up to shepherd us. At Uyo Airport the next day we were taken in another van, donated to the Akwa Ibom State Scrabble Association, to the venue at the five-star Le Meridien Hotel. Just guessing, but I wouldn't be surprised if the rack rate for my room for one night approximated the $400 foreigners paid for the whole deal. Playing in the Masters' Division I was eaten alive, but no matter. The African players are especially relentless on defense; I don't know how many of my bingos were blocked the turn before I could get them down. With a crowded room, a tight schedule, moving equipment from table to table between each round, and lending and borrowing by players who came without equipment, things got a bit chaotic at times, but it all worked out.

I particularly enjoyed seeing and talking with the young players in the lower division who came in their school uniforms with their Scrabble coach. It's unfortunate that, unless they learn Collins, American kids will never get to play them, or participate in the Godswill Akpabio International Childrens' Scrabble Rumbles that will be inaugurated next month. Sunday evening was Awarding of Prizes and Gala Night. This was not at the hotel but at the Government Compound across town. I didn't see any notice or hear any announcement of the locale, but everyone got there, maybe in buses. I was in the van with a police escort blaring sirens to get us through traffic. A brass band filled in the three hours between the scheduled start and the arrival of the Governor and entourage to start festivities. I tried to take a seat appropriate to a player with a 7-21 record but was moved up to a front table. The program consisted of interminable speeches alternating with entertainment. A troupe of girl dancers was exciting and all-girl percussion group really rocked. A troupe of young male dancers were very athletic in a style more break-dancing than anything traditional. I suppose this was intentional, as the title of their piece was "Uncommon Transformations", the slogan of Akpabioism, as attested by billboards around town. A standup comic I found incomprehensible.

The Association of African Scrabble Federations

had awarded the Governor the Title "Pillar of Scrabble in Africa" and the President, from Zambia, presented him with a handsome trophy, an engraved crystal map of Africa suspended between bronze supporters that I assume represent elephant tusks. This was the title used with his picture on the caps, polo shirts, score books, etc. that everyone got in their goody bag. The Akpabio-Richards match was supposed to be a few token moves for a photo op, but the Governor got interested in the game and played it out to the end. It was announced as a tie. At some point I found myself on the stage with Nigel and Pakorn and hope I expressed my appreciation for everything coherently. When the program was over at 1 or 1:30 I was ready for bed but someone led me up to a mob milling around the door to The Governor's Reception Room. Ushers were pushing some people back and pulling others in. The group I was admitted with consisted of some foreign players and school kids among others. His Excellency was seated on his throne (or at least a large chair) with an underling beside him with stacks of envelopes to be dispensed. Rather than go into specifics, I'll just say that Akwa Ibom is Nigeria's leading oil producing state, generating billions in revenue. There is apparently no distinction between the public exchequer and the governor's privy purse. And an African Big Man displays his status by acts of extravagant generosity. By the time of the Governor's speech I had zoned out of following heavily accented English. I don't know what was in the envelopes (though everyone that got one looked pleased). I thought I caught the name "Daniel" but didn't connect it with Nigel leaning over to say "Did you hear that, ten thousand dollars?" So it came as a complete surprise when, instead of an envelope, H.E. handed me a pad of 100 $100 bills. My Scrabble trip didn't end in Uyo. The next weekend I eased back to normality in the picturesque town of Bad Wimpfen. This was a 32 player affair that made up in gemutlichkeit what it lacked in grandeur.

I'm living near Reston and most Fridays get to the Jurassic Park lunch table at the Survey. I have a very supportive ex-wife living nearby and two kids in the Foreign Service, a daughter and her husband in Bombay and a son with wife and daughter in Guatemala City. So I'm pretty satisfied with life at my age.

Larry Rooney reports:

I am always happy to shout "Here" at the Division roll call of those who were. Buddie and I watch with detachment the growth and increasing affluence of our home town Whitefish, MT, and accept the comforts that spill our way. We realize down the road are congestion, smog, and crime, but that is business. Our daily routine always includes an hour in the coffee shop, about an hour working in the library, and a half-mile swim in the fitness center. We continue to maintain River Trail, the farm six miles from town where our son and family who live in The Hague spend a few weeks each year. We leave the trees on the tree farm to their own devices.

Our most recent foreign travel (May) was to Florence, Elba, Corsica, the Riviera, Turin, and Lakes Orta and Maggiore. Turin (Torino) was the unexpected delight. As one with long familiarity with the Indiana building stone industry, I took great pleasure in visiting the underground marble workings in Carrara. Granite in buildings and pavements is ubiquitous in the Orta and Maggiore regions known for their quarries, especially rose granite.

We play some 60 to 70 nine-hole rounds of golf each season, the back nine. I call the first hole the "Headstone Hole." From its tee box we can see our gray granite block in the Whitefish cemetery, erected as a preemptive nod to the inevitable. It is only a pitching wedge away (for Tiger Woods, a 7 iron for me). We don't anticipate moving there soon. I renewed my driver's license for four years and interpret it also as a license to live to my 91st birthday. Even in Montana, dead people are not allowed to drive.

From **Chet Wallace:** I continue to work as a consultant for various entities. Much of my work is focused on developing and perfecting process-predictive geologic methods that locate stratabound-mineral deposits and shallow hydrocarbon reservoirs in ancient sedimentary basins. My particular emphasis is to map brine and hydrocarbon migration pathways in ancient sedimentary basins because migration maps lead to the mineral deposits and hydrocarbon reservoirs. I integrate data from geologic maps, subsurface and surface mapping, burial diagenesis, alteration diagenesis, chemical evolution of inorganic and organic fluids during basin subsidence, burial-history diagrams, metal-maturity models, stratigraphy, and structure to determine the most favorable localities for the occurrence of specific types of stratabound-mineral deposits and shallow oil and gas reservoirs. Part of this analytical procedure is protected by a pending patent that wanders its way through the U.S. Patent and Trademark Office. In general, these process-predictive methods are straightforward, but in detail integration of the analytical processes is complex. My recent work has been in the Paradox Basin, UT-CO, and in South-Central Oklahoma. I employed subsurface data and geologic mapping to predict locations of stratabound-mineral deposits (Paradox Basin) and shallow oil reservoirs (Oklahoma). Work in South Australia continues, where I apply the above concepts to stratabound-mineral exploration projects for a small company of which I am part. A short-term and very interesting project in British Columbia involved locating prospective places for the next Sullivan-type Pb-Zn deposit; this project also resulted in locating oil-migration pathways in the lower part of the Mesoproterozic Belt-Purcell Basin. My views of depositional environments of the lower Belt-Purcell Supergroup have changed greatly since I mapped those rocks for the USGS.

I teach field geology at Oklahoma State University (OSU) Field Camp in Canon City, CO, each late Spring. I am one of four faculty who teach a five-week course for 60 students, 30 of which are from OSU and 30 of

which are from other educational institutions, such as James Madison University, Temple University, Central Michigan University, Georgia Southern University, etc. My responsibility is focused on teaching how to craft geologic maps. I thoroughly enjoy teaching again, especially field geology.

I enjoyed reading Dave Campbell's account of his time in Saudi Arabia. Dave and I were in Arabia at the same time, but most of my time was spent in the field. At that time Dave and I were in Arabia I worked for the USGS Mission as a contractor, having been RIFed by the USGS in 1995.

I ceased working for the Saudi Geological Survey (SGS) in 2011 after a contract dispute. I am quite happy not to be working in Arabia because SGS management is dysfunctional.

Ken Watson reports: In September I attended the 50th Anniversary of Planetary Science at Caltech where I gave a talk which included my recollections as the first Ph.D. graduate of the program.

Memorials

John Clayton Dohrenwend was a former USGS scientist (1979-1996) and former Adjunct Professor in Geosciences at the University of Arizona, who died in Moab, Utah on April 21, 2013. John was born in Cook County, Illinois on Dec. 8, 1942. As a boy, John loved the outdoors, and his father encouraged early interests in rocks, minerals, and photography. John graduated from Rensselaer Polytechnic Institute with a BS in management engineering in 1964, where he was also commissioned as a Second Lieutenant in the U.S. Air Force. He married Valerie Urban in August 1964, and served in the Air Force from 1964 until 1968. He was first assigned to graduate school at Purdue, where he received an MSIA in industrial administration in 1965. He was then stationed at Hickam AFB in Hawaii, where he became adept at diving and underwater photography. He left the Air Force with the rank of Captain to resume graduate studies at Stanford University, earning both an MS (1972) and PhD (1975) in geology, his true passion.

John began his professional career as an assistant professor at Williams College from 1974 through 1979. From 1979-1996, he worked for the Office of Mineral Resources, Western Region, USGS and was based in Menlo Park, CA. His principal projects involved: (1) mapping young faults in Nevada; (2) estimating neotectonic history and subsurface geometry of fault-bounded basins in the Basin and Range; (3) using geophysical and log data to construct three-dimensional models of basin geometry and basin fill stratigraphy. John's interest in landscape evolution took him to interesting places in Alaska, the Colorado Plateau, Mojave Desert, the Great Basin, Baja California, the Cascades, the Mississippi River Valley, Hawaii, and the Gran Sabana of Venezuela. From 1989 through 1995, he served as visiting scientist with the Australian Geologic Survey in Queensland, mapping regolith geology and minerals potential. Throughout his career, John used remote sensing – first, aerial photographs and later, satellite images – to better understand how the surface of the earth changes. Ever the practical scientist, he worked with colleagues at the Jet Propulsion Lab to find ways to process satellite images for use in the field. His laptop-based image processing system was applied successfully to such diverse problems as flood damage along the Missouri River and regional regolith mapping in north Queensland, Australia, as well as classifying channel geomorphology along the Colorado River near Moab.

After the Mississippi River floods in 1994, John was a part of the Scientific Assessment and Strategy Team organized by the White House to provide scientific advice and assistance regarding flood recovery in the Upper Mississippi River Basin. He helped produce an image in 1998 of the Missouri River Floods that was featured on the cover of "BioSciences," and contributed to several papers about flooding and flood control on the Missouri River. He liked to joke that, "all that work only proved that the flood was caused by a great deal of rain." During his career, John produced more than 140 abstracts, maps, reports, papers and books including chapters in "The Basin and Range" (1987) published by the Geological Society of America, and "Geomorphology of Desert Environments" (1994). John mastered the art of creating high-quality poster-size images based on views of earth taken by satellites, which he often gave away to friends and colleagues. Some of this imagery appeared in Al Gore's documentary "An Inconvenient Truth."

When John retired from USGS in 1996, he joined the faculty of the Department of Geosciences at the University of Arizona, Tucson, as Adjunct Professor. In 2004, he moved to Moab, and participated in local projects focused on water in the Moab Valley, and across the desert Southwest. As Lake Powell levels fell with drought in the last decade or so, John took and matched his own photographs over the last decade to illustrate changes to the Upper Colorado River delta as the reservoir receded. Some of the more spectacular photographs, graphic evidence for drought impacts, appear in many fact sheets and web sites (e.g., http://pubs.usgs.gov/fs/2004/3062/; http://www.climatewatch.noaa.gov/image/2010/dramatic-decline-in-lake-powell-water-levels; http://uanews.org/story/exposed-upper-colorado-river-delta-rapidly-eroding-lake-powell).

In retirement, John maintained deep ties with the science community. In 2005, he collaborated with Dr. Jim Ehleringer, University of Arizona, to establish a research facility at his partner Susan "Rusty" Wheaton's Entrada Ranch- now called the Rio Mesa Research Center- on the Dolores River. John is survived by his partner, Susan "Rusty" Wheaton and his daughter Kara Dohrenwend and her husband Ray Williams, who live in Moab. He is also survived by his brother, Robert Evans Dohrenwend; his

sister-in-law, Jeffrey Hadley Dohrenwend, Pelkie Mich.; his niece, Trudy Louise North (née Dohrenwend,) Duluth, Minn.; and nephew, Timothy Wilkes Dohrenwend, Sioux Falls, S.D.

Julio Betancourt

Frederick J. Doyle died on April 17, 2013. During WWII he served in the Army Air Force in Guam, where he prepared target approach and damage assessment charts for B-29 bombing raids. After the war he was assigned to a geodetic survey unit in Central and South America until he was injured in an airplane crash in the Andes Mountains between Chile and Argentina. He was hospitalized for 18 months while his injuries healed. He then entered Syracuse University, from which he graduated summa cum laude in 1951. Then he studied for a year on a Fulbright fellowship at the International Training Center for Aerial Survey in Delft, Netherlands.

He joined the faculty at Ohio State University in 1954 and from that base led an Air Force expedition to Labrador in 1954 to observe a solar eclipse and another similar expedition to Vietnam in 1955. He then was appointed first chairman of a new department of geodetic sciences. In 1960 he came to Washington to do research on classified satellite reconnaissance photographic systems for government agencies.

Fred joined the Geological Survey in 1967. In 1969 he was loaned to NASA as chairman of NASA's Apollo Orbital Science Photographic Team, planning the camera systems and directing orbital science photography for Apollo lunar missions 13 through 17, for which, in 1971, he received NASA's Exceptional Scientific Achievement Medal. He was also principal investigator on the Landsat satellites and on Skylab. Survivors include his wife of 58 years, Mary Blaskovich Doyle, sons Frederick and George and daughters Margaret and Mary Ellen, two brothers, a sister, and 10 grandchildren.

Washington Post

Orwoll Milton Hackett died October 22, 2013.
He was born in Vayland, SD, in 1920, to Hilda Dahl Hackett and Frank Moody Hackett. He grew up in Cottonwood, MN, and, in 1938, entered the University of Minnesota. Milt joined the Navy in 1940 , attended OCS, and served in destroyers, primarily in the Pacific Ocean. He met his wife Pam, a lead singer at a USO function, in Boston, in 1944. He separated from the Navy as a Lieutenant Commander in the Naval Reserve in 1946. He and Pam were married in 1946. In 1949, Milt completed college with a degree in geology and joined the USGS. He advanced through many positions in WRD, first in the field and then in administration and in foreign assignments. In 1978 he was awarded the DOI Distinguished Service award.

Pam died August 12, 2013. They are survived by four children, eight grandchildren, and 10 great-grandchildren.

Donovan Blaise Kelly was born in Erie, PA, Dec.12, 1941 and died on May 2, 2013, of a heart attack. Don was a 1963 geology graduate of Pennsylvania State University and earned a master's degree in technical writing from New York's Rensselaer Polytechnic Institute in 1966. After graduation, he joined the USGS as a report specialist in New York. In 1969 he was assigned to the public affairs office at USGS national headquarters. He was promoted to chief spokesman in 1980. He handled media inquiries on a range of topics including droughts, floods, and earthquakes. He was awarded a DOI Meritorious Service Award in 1987 and retired in 1997.

From 1997 to 1999 he wrote more than 50 reviews for his "Crummy but Good" series in the Washington Post, in which he humorously reviewed local, hole-in the wall, down-home restaurants that offered good eats and company in spite of their shabby exteriors. He also contributed humor and poetry pieces to élan, a Great Falls publication, and the Loudoun Times-Mirror.

Survivors include his wife, Rita Panameroff Kelly of Hamilton, VA; his mother, Esther Kelly, of Cambridge Springs, PA; two children, two brothers, a sister, and three grandchildren.

Washington Post

Robert Ballin Neuman died May 24, 2013. He was 93. Bob was a third-generation Washingtonian. He attended Gordon Junior High School and Western High School. He earned his bachelor's degree at the University of North Carolina, Chapel Hill in 1941. During WWII he served in the U. S. Navy, leaving as a Lieutenant. He earned his Ph.D. in geology at the Johns Hopkins University in 1949. He specialized in fossil brachiopods.

Bob joined the USGS in 1949 as a geologist. From 1949 to 1956 he did geologic mapping of the western Great Smoky Mountains and of the Paleozoic rocks in their foothills. From 1957 to 1963 he did geologic mapping of the Shin Pond and Stacyville quadrangles in Maine, and from 1964 to 1980 he studied the stratigraphic paleontology (Ordovician brachiopods) of central and eastern United States and of the plate margins of the North Atlantic region (USA, Canada, Ireland, UK, Norway). He introduced many students to geology through fieldwork and worked closely with the Maine Geological Survey.

Bob retired from the USGS in 1980 but continued working from his office at the Smithsonian Institution. He was appointed Scientist Emeritus of the USGS in 1991. As of 1996 Bob had published 80 papers, with more on the way. In 2007 a campsite on the International Appalachian Trail located near Mount Katahdin was named in his honor. In 1949 married the late Arline (Ross) Neuman. He is survived by daughters Elizabeth Reichman and Martha Welsh, four grandchildren and six great grandchildren as well as his sister, Dr. Alice Bessman.

R. B. Neuman CV and Bangor Daily News

Samuel Rosenblum died October 19, 2013, of parkinsonism. He was 90. Sam served his country in WWII and as a geologist in the USGS and the State Department, working in developing countries. He is survived by his wife of 67 years, Lenore, and children Anne and Gene.

Denver Post

Robert Gordon Schmidt died on May 12, 2013. He was 88.

Bob was born in Minneapolis, MN. He earned a bachelor's degree in 1948 and a master's degree in economic geology in 1951, both from the University of Wisconsin, Madison. Bob joined the USGS in 1951, specializing in economic geology, eventually using satellite data and remote sensing techniques to study mineral resources. He also studied the environmental effects of Roman silver mining in Spain. He was the author or co-author of more than 40 scholarly publications and was a recipient of the Department of the Interior Meritorious Service Award. Bob retired in 1990 but stayed on as a Scientist Emeritus. From 1982 to 2007 he was a research associate with the Smithsonian's National Museum of Natural History. Survivors include his wife of 61 years, Alice Hankins Schmidt, two sons, David and Leonard, and three grandchildren.

Washington Post

Other Recent Deaths

Barney Berger

Earle E. Brabb

T.T. Chao

John Donnell

Pam Hackett

Carl Mortenson

Richard D. (Dick) Powers Sr.

Paul Richards

Robert Schneider

Muriel Spetzman

Thomas A.Steven

Dick Tripp

From Left: Unidentified, Tom Steven, Paul Theobald, Ogden Tweto, Dick Taylor, and Bill Sharp. Photo by Skip Cunningham at Leadville, CO, in early 1980s.

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RETIREE PUBLICATIONS MOSTLY 2010 - 2013

Note: The references below are compiled from information available as of 21 November 2013. These references are "new" since the Spring 2013 Newsletter (Number 67) but also include some pre-2010 publications not previously listed in prior Newsletters. However, an effort is made to compile ALL known publications (whatever year) by Geologic Division Retirees (GDR) for inclusion in the Master List of GDR Publications (now being maintained and updated by Bob Tilling). Please send any new references to Bob (e-mail: rtilling@usgs.gov or volkno@earthlink.net), with cc to Odette James (e-mail: o.b.james@verizon.net) as back-up, for listing in the next Newsletter and for updating the Master List.

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Hamilton, Alicita (with photographs by Warren Hamilton), 2013, ***Missy Hamilnook reflects on early childhood education***: ISBN 978-0-9837470-5-5; Paperback from BookCrafters@Comcast.net and other on-line bookstores; also through e-book distributors.

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Newsletter, May 2012, p. 2.

Hamilton, W.B., 2012, ***The ancient surface of Venus is saturated with impact structures, and its lowlands are covered with marine sediments*** (Abstract): Colorado Scientific Society Newsletter, May 2012, p. 2.

Hamilton, W.B., 2013, ***The Archean Mohorovičić discontinuity evolved from a synaccretionary 4.5 Ga protocrust***: Tectonophysics, pub. online Aug. 2013, paper pub. to follow, 28 p. (invited review paper).

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LeCain, G.D. and Stuckless, J.S., 2012, ***Hydrology of the unsaturated zone, Yucca Mountain, Nevada***, *in* Stuckless, J.S., ed., Hydrology and Geochemistry of Yucca Mountain and Vicinity, Southern Nevada and California: Geological Society of America Memoir 209, p. 9-72.

Belcher, W.R., Stuckless, J.S., and James, S.C., 2012, ***The saturated zone hydrology of Yucca Mountain and the surrounding area, southern Nevada and adjacent areas of California, USA*** *in* Stuckless, J.S., ed., Hydrology and Geochemistry of Yucca Mountain and Vicinity, Southern Nevada and California: Geological Society of America Memoir 209, p 73-142.

ROBERT I. TILLING publications:

Hickson, C.J., Spurgeon, T.C., and Tilling, R.I., 2013, ***Eruption Types (Volcanic Eruptions)***, *in* Bobrowsky, P.T., editor, *Encyclopedia of Natural Hazards*: Springer Reference, New York, p. 290-293.

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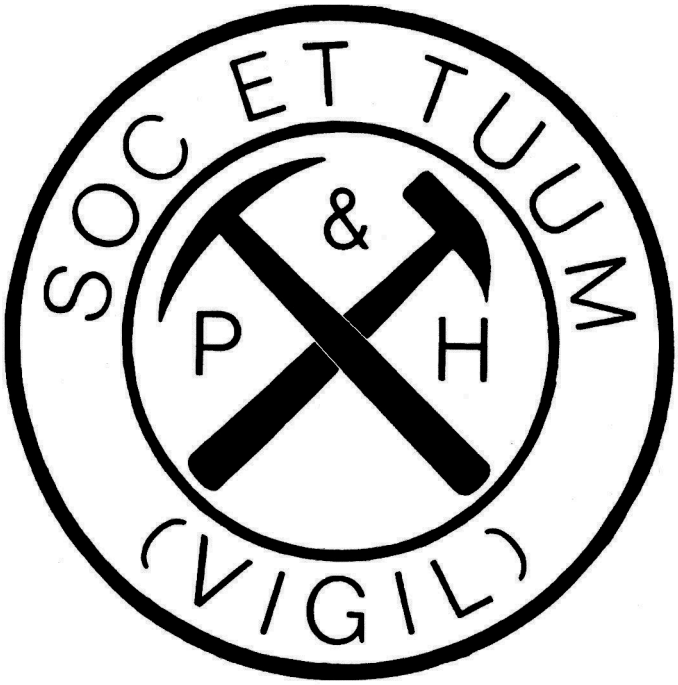
Several readers, who have not seen him for a few years, requested a photo of John Keith. Although this is not the most recent one, it was handy at press time. Costume courtesy of Penny Hanshaw, photo by Dave Usher.

Key to people in the April Fool's back cover of Spring, 2013 issue, left to right:

Gene Robertson, Jack Epstein, Elliott Spiker, Susan Russell-Robinson, Kathleen Gohn, John Keith, Liz Koozmin, Sheila Martin, and John Jones.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