

The Geologic Division Retirees Newsletter



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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About the cover: USGS airborne magnetometer crew in Waterville, ME, September 1958. Left to right: J.D. Vogel, Bob Doyle (State Geologist of Maine), Duval Crist (pilot), V.R. Drake (co-pilot), Peter Popenoe, Elizabeth King, and Bill Bromery (party chief).
See note on page 3 about Bill's death.

From the President

An Extraordinary Success Story

In his novel, *Angle of Repose*, Wallace Stegner envisioned a dinner party in Leadville, CO, in 1879. In the context of several scandals that had plagued the Department of the Interior, the fictional Clarence King was asked, "How do you propose to guarantee the probity of government science?" After thinking about this for a moment, he replied, "You would pick men you would trust with your life, and you trust them with the Public Domain." This vignette captures the essence of U.S. Geological Survey science over the last 133 years. It drives home clearly the importance of relationships of trust and of the high level of ethics in our institution. Survey staff have an exceptional record of scientific contributions, produced with the highest degree of integrity. For individual members of the Survey, this fabric of productivity stems from a number of sources—excellent mentors, effective leaders, inspiration from colleagues, the dedication of support staff, and the value of public service. The following examples illustrate these ideals.

On the occasion of Bob Coleman's 90th birthday, our Reston lunch group was talking about our experiences with Bob. When Marianne Guffanti was still in college in 1975, she volunteered with the Survey in Menlo Park. She needed help finding ultramafic rocks in the San Francisco Bay area. Bob was a very busy guy at that time. He was at the height of a very productive career: he was widely recognized as the world expert in ophiolites; he was Chief of Field Geochemistry and Petrology, a large branch with many projects; and he wrote text books in his spare time. When Marianne made her request, he discussed the geology with her, helped her locate sites with the appropriate rocks, and then gave her his account number to obtain the maps she needed at Map Sales. She was tremendously appreciative and inspired by his generosity in taking as much time as necessary because she knew what an eminent scientist he was. It's fair to say that all of us have had similar experiences that inspired us in our careers.

On the subject of leadership, here is an excerpt from Dick Sheldon's message to us when he was appointed Chief Geologist in 1972: "Charles Anderson retires from the Survey this month...The Geologic Division has a long, unbroken record of scientific integrity and organizational morality. There is no question that this attitude toward science and government service was begun early and has been passed on. No Chief Geologist honored this charge better than Andy. It will be a pleasure and a challenge to follow his lead."

As for dedicated support staff, it's been said many times that our scientists would be lost without the support of the secretaries, administrative staff, technicians, editors, and others who provide the practical functions that get our projects done and our science out to users. A few years ago, Harry Tourtelot and I were discussing a secretary in

his office, Claudine O'Donnell, who was especially highly regarded. Harry said, "She is dedicated to the principles." He meant that she was dedicated to the ideals that made the Survey an institution of integrity and the long-term, productive, professional relationships that support the institution.

Early in my Survey career, it was made clear to me that we need always to keep in mind our obligations as public servants and remember that the taxpayers are funding our work. The great contributions of Survey employees to the welfare of the country have been made possible by public support. These contributions include the science that built the mineral and energy base of the U.S.; helped protect lives and livelihood from the effects of earthquakes, volcanic eruptions, landslides, and floods; located safe sites for nuclear power plants; allowed effective engineering of the Alaska pipeline; provided safe water supplies; and, recently, biology that supported restoration of ecosystems throughout the country.

A solid, long-term financial base is certainly fundamental to our work, but the values of objectivity and integrity, of the practice of ethical science, of commitment to each other, and of dedication to public service are what have made the Survey an exceptionally successful institution.

As retirees, one of the best things we can do is to record the institutional history of which we have been a part over the past 100 years. So I encourage all of you to continue sending in comments, anecdotes, and other history that we can publish. While some of these stories are just fun, most of them reaffirm the values that made the Survey great and provide a significant, useful record for posterity.

John Keith

Election Results and New Address

Geologic Division Retiree ballots were counted on March 15, 2013. There were 107 ballots received and counted. The results are as follows. President - John Keith, 105; Vice President - John Aaron, 107; Secretary/Treasurer - Odette James, 106; Eastern Regional Representative - Jim McNeal, 36; Central Regional Representatives - Al Merewether and Katherine Varnes, 36; Western Regional Representative - Patrick Muffler, 32. All candidates were elected and now are legal officers.

The retirees e-mail address was disabled for a time because the USGS has switched to a new e-mail program, called BisonConnect. It is gmail in another form. Recently a new address was set up for us that differs slightly from the old one. It is gdtirees@usgs.gov -- no hyphen. Messages sent to that address will go to John Keith, Odette James, Al Merewether, Katherine Varnes, Patrick Muffler, Bob Tilling (references) and Bill Outerbridge (newsletter contributions). Please try out the new address. If it does not work, send to the home e-mail addresses of the relevant individuals listed in the annual directory.

Treasurer's Report and Membership Statistics

This report summarizes the financial situation of the Geologic Division Retirees as of the end of 2012. Our present financial health is excellent because we have found a printer for our newsletters and directory who does a good job at a much lower cost than our former printer. We currently have a large surplus and added to that surplus during 2012, even though we decreased dues from \$10 to \$8. At current levels of expenses, the current surplus could fund the organization for four years. This seems too large a surplus for a non-profit organization like ours. Accordingly, we have decided to further decrease dues for 2013, from \$8 to \$6, in the hope that we can reduce the size of the surplus to a more reasonable amount.

Net worth, January 1, 2012 10,825.89

2012 Income

Dues and contributions received	
Dues for 2011 and prior years	300.00
Dues for 2012	1,927.00
Dues for 2013 and beyond	432.00
Contributions	519.00
Total income	3,178.00

2012 Expenses

Dues notices (envelopes, postage, labels, ink)	331.81
Preparation and mailing of newsletters and directory	2397.18
Bank charges	36.75
Total expenses	2,765.72

Net increase in net worth 412.26

Net worth, December 31, 2012 11,238.15

Assets December 31, 2012

Checking account, Wells Fargo	12,124.15
Undeposited dues & donations	70.00
Uncashed payments for fall newsletter	- 956.00

Total assets 11,238.15

Notes

Comparison with 2011: The amount received for dues in 2012 is \$1066 less than in 2011, primarily because of the dues decrease, and the amount received as contributions is \$246 less. Dues billing cost \$75 more (this cost varies considerably from year to year because envelopes and labels are bought in advance in some years).

Escrow for future dues: Of the assets at the end of 2012, \$1284 represents advance dues payments and must be regarded as funds in escrow for 2013 and future years.

Dues billings: For 2013, dues notices were sent out in a single batch. Members who have not paid dues since 2010 will be dropped from the active membership list if they do not pay within a few months of receiving the 2013 dues notice. They will no longer receive newsletters, and their names will no longer be listed in the directory.

Membership statistics:

At the end of 2012, we had 414 members (compared to 579 at the end of 2004, 555 at the end of 2005, 531 at the end of 2006, 519 at the end of 2007, 504 at the end of 2008, 484 at the end of 2009, 453 at the end of 2010, and 434 at the end of 2011); on average, the net loss of members per year has been about 20. Of our members at the end of 2012, 65 were in arrears, 265 were paid up through 2012, and 81 were paid up through 2013 and beyond; 3 are life members. All members who have not paid dues since 2009 have been dropped from the active membership list. About 94 of our members are currently Emeritus geologists with the USGS.

Odette James
Secretary/Treasurer

USGS an Independent Agency with [Maybe] a Boost in the Budget!

Science (vol. 340, 19 April 2013, p.259) reports that "The President's 2014 [budget] request confirms that the U.S. Geological Survey has moved up in the scientific pecking order. After years of 1% and 2% proposed bumps, in 2013 the administration asked for a 3% boost. That increase didn't happen, as the agency suffered the same 5% cut from the sequestration as its peers. But this year the president came back with a plan for a 15.2% hike over current levels, to \$1.17 billion. Marcia McNutt, who stepped down in February as USGS Director and who in June became Editor-in-Chief of Science, says the recent budget jumps reflect the Survey's shift in status from a subsidiary of the Department of the Interior to a full-fledged science agency advancing the administration's science priorities. One of these priorities is climate change research, which is slated for a 22% increase to \$72 million."

New Members

Elizabeth Browers

I-Ming Chou

Jane Ciener

James F. Devine

Richard Ebens

Linda Gundersen
Curt Larsen
Sherman P. Marsh
Marith Reheis
Dave Schleicher
Brian Skinner
Joe Smoot

Memorials

Randolph “Bill” Bromery, 87, died February 26th in Danvers, MA. He was hired on the Survey by Jim Balsley as a young student. During his 20 years as a Survey geophysicist, he did extensive work on magnetic fields related to mineral deposits. He left the Survey in 1969 to join the faculty of the Univ. of Mass., Amherst, where he eventually rose to be Chancellor. He was instrumental in establishing U-Mass, Amherst, as a major center for African-American studies. During WWII, he was a member of the Tuskegee Airmen and flew many missions in Italy.

June Goldsmith of Marblehead, Mass., died Sunday, July 29, 2012, at Kaplan Family Hospice in Danvers, MA. She was 82. June was born in Marblehead in 1930, the daughter of Harold and Helen Waterman. She graduated from Marblehead High School and Radcliffe College. She joined the USGS in 1952 as a geologist and a technical editor, first in Denver in the 1950s and in Reston in the 1970s and 1980s. June and Dick Goldsmith married in 1955. Dick died in 2001. Jean Theobald remembers June as a lively, curious, and joyful person who enjoyed music as a listener and a musician and was an avid traveler. She and Richard spent time living and raising a family in Colorado, Massachusetts, Saudi Arabia, Maryland, and Virginia before returning to Marblehead in the late 1990s to take care of her mother. Jean says, “I like to think of her skipping through the Gates with a glass of champagne in one hand and a lobster roll in the other, a high heel on one foot and a hiking boot on the other. Her happy greeting with its “Let’s do it!” lilt always made my day. She was a loyal and dedicated friend.”

Edwin “Ned” Noble died on January 3, 2013. Ned was born in Bethel, Vt., on December 15, 1922, to Mary and John Noble. While studying at Tufts University, he was called to serve in the First Infantry Division of the Army during World War II. He received two Bronze Stars for combat valor in the battlefield while fighting in the Ardennes and the Rhineland. He met Polly, who would become his wife, when he returned to Tufts after the war. He then studied at the University of New Mexico and later received his Ph.D. in geology from the University of Wyoming. He worked in the Exploration Division of the Atomic Energy Commission on the Colorado Plateau and later in Argentina

as a UN advisor to their uranium program. In the 1960s he became the North Dakota State Geologist and Professor and Chairman of the Geology Department at the University of North Dakota. In 1977 Ned returned to the USGS, this time in Reston, Va., and then spent five years in Pakistan on a USAID energy resource program, work for which he received the Meritorious Service Award in 1991. He was married for 64 years to Polly and was the father of Bill from Colorado, Mary from San Antonio, Jonathan from Tucson and the grandfather of Andrea Stuen of Idaho.

Green Funeral Home and Washington Post

William Anthony ‘Rad’ Radlinski, 91, died on Feb. 15, 2013, of pneumonia. Rad was born in Salamanca, N.Y. He served in the Army in Europe during World War II and participated in the Battle of the Bulge. He remained in the Army Reserve after the war and retired as a lieutenant colonel in 1981. Rad graduated from what is now Hofstra University in 1949 and joined the USGS. He did postgraduate study in astronomy at Georgetown University. He became Associate Director of the USGS in 1969 and Acting Director in 1979. In 1963 a 9200-foot mountain in Antarctica was named in his honor by the Board of Geographic Names. Rad was a former president of the American Society for Photogrammetry and Remote Sensing and the International Federation of Surveyors. For five years after his retirement he was executive director of the American Congress on Surveying and Mapping. Rad was a member of the Cosmos Club. He is survived by two sons, Richard and Robert, three grandchildren, and seven great grandchildren. His wife, Theresa, died in 2011.

Washington Post, Bart Barnes

Frank Senftle died on January 12, 2013, at the age of 91. Frank was born in Buffalo, N.Y., on May 4, 1921. He earned his B.S. (1942), M.A. (1944), and Ph.D. (1947) in physics at the University of Toronto while working as a lecturer at St. Michaels College, Toronto. He worked for the Ontario Department of Mines and Resources and later as a resource associate at the Massachusetts Institute of Technology. Frank joined the USGS in 1951 as a physicist in charge of the nucleonics group. He also began a long and fruitful collaboration with Arthur N. Thorpe, then a student at Howard University and later Professor of Physics at Howard. They published numerous studies on magnetic susceptibility that defined this area of magnetism research in mineralogy, solid state, and organic materials. Frank held four patents, mainly dealing with chemical analysis and magnetism, in addition to authoring hundreds of journal articles and meeting abstracts. During the construction of the USGS headquarters in Reston, Frank, together with Tom Stern, then head of the Isotope Branch, planned and had built a small “physics” building in the woods on the USGS campus where Frank could keep his highly radioactive californium-252 source, which he used for numerous down-hole experiments. Although retired for decades, Frank

continued to be active in research and last published (with Thorpe) in 2009 on superparamagnetic corrosion products in tap water. Anne, Frank's wife of 60 years, predeceased him. He is survived by six children and many grand and great-grandchildren.

Harvey Belkin/Bart Barnes

Leonard Shapiro died November 20, 2012, of congestive heart failure, according to his daughter, Karen. He was 94. Len was born in Brooklyn, N.Y., and came to the Washington area in 1936 to work for the federal government. He received a B.S. in chemistry in 1943 from George Washington University and served in an Army medical unit during World War II. In the USGS he specialized in rapid rock analysis and was cited by the President for his improvements in the process. He also examined some of the Apollo 11 lunar rock samples. He retired from the USGS in 1977. Len was a member of the American Chemical Society. In the 1960s Len participated in civil rights activities. He also enjoyed painting and photography. Len's wife of 57 years, Nettie Sucher Shapiro, died in 2001. Three daughters, Linda Wertheim, Karen Shapiro, and Donna Haggerty, and three grandchildren survive him.

Matt Schudel

Hildreth "Hildy" Newell Shultz died October 14, 2012. She was born to Sterling R. and Ester W. Newell in Washington D.C., the day after Christmas in 1930. Her husband, Leonard, was a well-known clay mineralogist with the Survey. Hildy was a bright and positive soul who was very dedicated to teaching. With Len, she raised five children—Julia, William, Kathryn, Margaret, and Joseph. Hildy was very involved in the Jefferson County 4-H Clubs, CSU Extension Service, and many animal advocacy groups. She also tutored computer programming and accounting for many years at Red Rocks Community College. She was truly a life-long learner/teacher and never ceased to be fascinated by history, nature, literature, music and puzzles of all kinds. She patiently and steadily guided her family and students through "stormy seas." She will be dearly missed and fondly remembered. Hildy is survived by her sister Elizabeth Ann Parsons (Bob), children Julia Keilman (Tom), Bill Schultz (Cam), Peggy Schultz, and Joe Schultz (Su Niedringhaus), six grandchildren and one great-grandchild.

Julia Keilman

John H. (Jack) Stewart, who spent most of his Survey career in Menlo Park, passed away March 1, 2013, at the age of 84. Jack joined the USGS in 1951. His 62-year career began with the Colorado Plateau Triassic project headquartered in Grand Junction, Colo., followed by Cambrian and late Precambrian stratigraphic studies in the southwestern United States and northwestern Mexico. Jack was the preeminent authority on the geology of the Great Basin, which led to his preparation of the first comprehensive geologic map of Nevada. During retirement, Jack continued

geological research.

Barney Poole

Edwin Wilson Tooker, our good friend Ed, died peacefully at age 89 on February 26, 2013, after a long and constructive life. He was born May 9, 1923, in Littleton, Massachusetts, the eldest son of Ruth Augusta Robinson and George William Tooker. His family knew him as a wonderful husband, father, grandfather, and uncle. Others knew him as a kind and generous friend, a gentleman in his dealings with others, and a leader in his community and church. We knew him as a good geologist who shared his knowledge and enthusiasm, and who gave unselfishly to the Survey and the geologic community. He was raised on a New England farm, where he learned what it took to grow things. That was a skill he used throughout his life, growing an abundance of flowers and vegetables, and especially camellias, his great enthusiasm. He was the first in his family to go to college – interrupted by a stint in the Army Air Corp during WWII – and there he met and married Polly Beal, his wife of 67 years. Together, they created a friendly, comfortable home in which many of us were nicely fed and entertained over the years. Ed graduated in geology from Bates College in southwestern Maine in 1947 and moved on to Lehigh University in eastern Pennsylvania, where he completed a Masters in 1949. He began work with the Survey in 1948, gaining field experience in the New England pegmatite investigations, and is coauthor on a geologic map from that period. He went farther west to the University of Illinois for graduate school, where he earned his Ph.D. in 1952 with a specialty in clay mineralogy. He worked with the Survey again in 1950, involved in reconnaissance for uranium and thorium in Idaho and Montana, and closed out his academic training with an NSF Postdoctoral Fellowship at the University of Illinois in 1952-53.

The Survey hired Ed full-time in 1953 out of Denver, where he continued his work on wall rock alteration in the Front Range. In his reports on that work he concluded that no reliable ore guide was evident. He then turned his attention to what proved to be a main emphasis of his career, the geologic setting of the ore deposits of the Bingham mining district, Utah, in the Oquirrh Mountains south of the Great Salt Lake. Hal Morris worked on the ore deposits, Ed on their context. He is author or first author on at least a dozen 7½-minute quads there, and wrote on the stratigraphy and structure, in part with Ralph Roberts. In 1958 he moved his family west again, to join the new Survey center in Menlo Park, California, where he remained for the rest of his life except for two duty tours in Washington and Reston.

Ed spent the better part of 12 years on the Bingham project, during eight of which he took his young family with him for summers in Tooele, his base for fieldwork. This time also included a tour as staff geologist in Washington and some wilderness work, particularly in the Emigrant Basin north of Yosemite Valley with Hal Morris. In 1971, Ed served as MR Branch Chief for about a year and then, in

1972, he moved to Reston as Assistant Chief Geologist for Mineral Resources, a post he held for five years. There he optimistically persevered and succeeded in implementing the long running CUSMAP program. His broadened national perspective led him to move from his place-specific studies to several papers on problems and opportunities in the nation's mineral supply. He carried that broadened perspective, together with his effective coordination with western states, back to California. There he organized state workshops on industrial minerals, edited the proceedings, and worked on 18 mineral province maps of the U.S. as well as topical papers on copper and gold. He also continued to get his Bingham reports out. Ed formally retired in 1992, but he continued on for several years, drawing together his Bingham work into final comprehensive reports.

Ed's contributions to both the Survey and to science are notable, marked by a long string of bulletins, OFRs, GQs, circulars, and journal articles, as well his leadership and influence on others. For these he was awarded the Meritorious Service Award in 1984 and, at retirement, the Distinguished Service Award.

Carl Wentworth

In Memoriam

John W. Allingham
Raymond Milner Batson
Randolph W. Bromery
Fred J. Doyle
Gordon W. Greene
Mary C. Griggs
June Lillian Waterman Goldsmith
Philip T. Hayes
Richard K. Hose
Bill Keith
Donovan Kelly
Hope Miller
Robert B. Neuman
Edwin Austin Noble
Melvin Podwysocki
William 'Rad' Radlinski
Robert Gordon Schmidt
Frank Senftle
Leonard Shapiro
Hildreth Shultz
George I. Smith
John H. (Jack) Stewart

Barbara Thorman
Edward W. (Ed) Tooker
Flora K. Walker
Toni Watkins
John D. Wells
Isidore Zietz

Anecdotes and Other History

Dan Krinsley called in and identified **Robert Sigafos** as the unknown person on the back page of the last newsletter in the "tree-cutting" photograph.

Centennial celebration of Hawaiian Volcano Observatory

The August 2012 Hawaiian Chapman Conference celebrated the 100th anniversary of the Hawaiian Volcano Observatory in Kona, Hawaii. Being the oldest Ex-Scientist-in-Charge, I was invited to present the banquet address near the end of the meeting. The invitation was received in March during a difficult period as I languished in Stanford Hospital after a bike-car collision. My bike was bent and a leg broken, but the driver's windshield was totally demolished. Fortunately, I accepted the invitation, even though at the time I wasn't sure I could make the meeting.

The banquet talk began with the story of the beginning of the Survey's Hawaiian oceanographic research program exploring the submarine part of the volcanoes. It all began when we heard rumors of an upcoming research cruise of the U.S. Coast and Geodetic Survey Ship Pioneer in Hawaiian waters. We submitted a research proposal, and surprisingly the plan was approved and two weeks of ship time was granted. The cruise took place a half century ago, in October 1962. We made 15 dredge hauls and numerous camera lowerings, most on the active east rift zone ridge of Kilauea Volcano. The dredge hauls recovered glassy basalt from near vents on the crest of the ridge down to depths of 5000 meters. Analyses of the fresh basalt quenched under high ocean pressure showed that it still contained much of its original volatiles—elements that were normally degassed in surface eruptions. Analyses of these unique samples provided some of the first hard data on the water, sulfur, and carbon content of basaltic magma. This realization ushered in a new field of magmatic geochemistry. The photographs, made from a prototype EG&G camera, were among the first ever taken of pillow basalt in the deep sea.

This introductory material at the banquet was followed by Lee Tepley, who from 1971 to 1973 was the diving photographer in the scuba venture that explored underwater molten lava for the first time. He recounted the events that led to his participation in the diving team. I was aware of Lee's abilities and asked him by phone if he might

participate in a program to dive and photograph active lava flows entering the sea off Kilauea Volcano. After a moment he asked "Is it dangerous?" I answered "We don't know. It's never been done before." Lee replied without hesitation, "When do we leave?" The diving venture was successful when we discovered that incandescent lava could be closely approached and photographed underwater. At the banquet Lee screened the movie: "Fire Under the Sea, The Origin of Pillow Lava". This production has always been gratifying to me because many of those who saw it as students told me years later of the strong impression it made on them. It was the stimulus that triggered their interest in the fields of earth and ocean science as a life's work.

Jim Moore

Special Commentary: L'Aquila earthquake in Italy, 2009

In April 2009, a 6.3 magnitude earthquake killed over 300 people and caused much damage in this Italian town in the Apennines. It followed several months of small to medium earthquakes in the area. In 1461 and 1703, foreshocks had preceded a significant large event in L'Aquila. In October 2012, seven experts (three seismologists, two engineers, a volcanologist, and a government official) were convicted of manslaughter in an Italian court for their part in deliberations about the 2009 seismic events. According to the prosecutor, they were found guilty not because they failed to predict the earthquake but because they allegedly carried out only a superficial analysis of seismic risk in the area and then falsely assured the public that the minor shocks experienced did not increase the risk of a major event. Science apparently has little political clout in Italy, and the trial proceeded in the complete absence of the informed public debate that would have been mandatory elsewhere in Europe, the United States, and Japan. In these countries, many government agencies usually have to be involved in the interpretation of scientific results, followed by a systematic review process before any formal announcement of potential hazards can be made to the public.

Worldwide there has been overall condemnation of this judgment, which has severe repercussions for the scientific future of predicting natural events. The presidents of both the U.S. National Academy of Sciences and the U.K. Royal Society have put out a joint statement protesting the verdict. Scientists will now be extremely wary of making public announcements of the possible interpretations of their work, especially whenever there are likely to be repercussions for the general public.

The USGS experienced this kind of science/public interaction during volcano-monitoring studies around Mammoth Lakes, Calif., in the early 1980s. Seismicity indicated the movement of magma beneath Mammoth Lakes. When these results were described to the general public, there was immediate consternation and almost panic. Meetings between scientists and residents did not allay fears. USGS scientists were not welcome in town, and

some received threats of physical harm. Property values in this affluent ski area were negatively affected. Fortunately, the seismicity gradually decreased over a period of time, and the situation was resolved naturally.

The L'Aquila group of seven had been evaluating the recent low-grade seismicity in the area. The government official on the panel convened a meeting, representing an official national risk commission, to assess the likelihood of a major earthquake in view of the low-grade seismicity that had been occurring over the previous months. After deliberating in a short meeting, the group said that, while the threat of a major earthquake had been raised, it was not possible to offer a detailed prediction. At the following press conference, local authorities re-assured the population that minor shocks did not increase the risk of a major one. According to the prosecution, these assurances led people to remain inside their homes at night instead of leaving the town.

The group charged with answering these questions was scientifically qualified and quite distinguished. The meeting was convened by an agency of the Italian government responsible for evaluating major national risks. They were all well versed in seismological matters. Their fault, after their short meeting, was to suggest that the tremors posed "no danger" and that the "scientific community continues to confirm...that it is a favourable situation." This fault was compounded by the chairman, a government official (not a scientist) who had opined before the meeting that any danger decreased with further small events, which helped to dissipate any built-up energy. To be fair, the group also advised that there should be better enforcement of anti-seismic measures related to building construction in the town. As a result, many people in the town no longer stayed outside their homes at night, thus putting many more at risk when the large event occurred.

The U.K. journal *Nature* says that the verdict is perverse and the six-year jail sentence ludicrous. Scientists have warned that their ability to serve in public risk assessments will be severely curtailed. They are not going to be willing to offer opinions on hazards for fear of litigation. Ironically, they are the only people who are qualified to do this (other than astrologers and Nostradamus). Predicting earthquakes is not an absolute certainty. Scientists make the best case based on the data they have collected—usually from a variety of measurements of different properties. They cannot take responsibility for an event that is unpredictable. Earthquakes in this region of Italy had a very long return time, so their conclusion that a major event was unlikely in the short term was reasonable. Just because there may be increased seismicity under the Yellowstone Super Volcano does not mean that another huge caldera-forming eruption is likely tomorrow, given that the last one was about 600,000 years ago. Low-magnitude seismic swarms around the San Andreas Fault do not necessarily presage "The Big One."

We deal with the unpredictability of natural events all the time. Weather forecasts do not come with guarantees. People continue to construct buildings in areas known to

have a history of earthquakes, volcanoes, and floods. Much as the public would like science to provide clear simple answers, it is not always possible. Scientists can gather all their available evidence and offer an analysis—to the best of their ability. Sometimes they will be wrong. But as we learn more about natural hazardous events, sometimes they will be spot on with their forecast. An outstanding example is Mount Pinatubo (Luzon, Philippines) in the 1980s where USGS scientists and their Filipino colleagues predicted a catastrophic eruption within a short time-window. And they were correct – thus saving many thousands of lives. Even for smaller dome-building eruptions of Mount St. Helens in Washington State after May 18, 1980, the continuous monitoring using many different types of instruments has enabled correct forecasts days to weeks in advance. Yet the prediction of a repeat of the 1906 major earthquake in San Francisco can only at present be bracketed, within a 50 percent chance, at “the next 30 years.”

Many societal choices rely on the best-available scientific advice. We must cultivate an environment that allows scientists to contribute what they can, without their being held responsible for judgments that they cannot make with absolute certainty. The global scientific community in the coming years will no doubt be closely following the outcomes of the judicial appeals processes of the Italian scientists convicted in L'Aquila.

(I appreciated helpful reviews by Bob Tilling & Jim Devine).
Henry Spall

From David K. Campbell: Chapter 2 *of his experiences in Saudi Arabia*

Saturday, 18 Oct., 1997, 1930 hours

This was a busy day, the first day of the work week, with everyone back in the office. Not too much to report, because it's all technical.... Looks like I'll be heading out to the field a week from today, for 3-4 days at Umm Matirah, in the center of the country, maybe 1000 km from here. I'm told I'll go out in a SkyVan, a small noisy airplane that flies low and slow. Part of today was getting travel orders cut for me to do that; those are an official paper with my picture on it that is supposed to get me thru check points. Apparently you get in deep trouble without one! Original plan was to fly home via a Saudia commercial flight, but now maybe a Saudi colleague will come along, and we'll drive back about Tuesday/Wednesday.

The scope of my duties has kinda stretched now that I'm here. Geology is done for DMMR (Deputy Ministry for Mineral Resources) by both USGS and by BRGM (“BAY AIR ZHEE EMM”), a group of French counterparts. USGS and BRGM occupy nearby living/office compounds inside our wall, but work on separate projects. I'm told DMMR prefers to keep us 2 groups in heavy competition, in order to play us against each other; and that DOES happen to an extent as far as geology goes. The catch, though, is that

BRGM has no geophysical group here at all, so the USGS group does all the geophysics “services.” As a result, my field time will now include visits to all the French field places, as well as our own to assure that everybody is getting all the geophysics they need. I guess the Saudis wanted to look me over a little before deciding they would let me see the BRGM side of the picture. But now I'm supposed to see both the U.S. and French operations; to judge them and write an exit report on how everyone is doing, geophysics-wise. Appears my report will now be longer than I first thought, will cover more, and most probably will be taken rather more seriously by DMMR....

The week after Umm Materia will be Jabal Dhyhan, then the week after that it appears I'll get to see some water problems in a town in the interior. I've told them I absolutely won't stay beyond Nov 21st, no matter what! Tomorrow I'm invited to a dinner (like, 2000 hrs to midnite) at BRGM, and will likely hear still more at that time. I do know that BRGM has asked the Deputy Minister to let me come over and give them some courses; but I hope we can resolve that one by doing ONE set of courses for BOTH sets of folks. Too, the geology department at King Abdul Aziz University has asked for a lecture. The way it works here, they don't ask ME; they ask Dr. Tawfiq, the DM. If he says yes, then they owe him something; if no, then they know they're in disfavor. There are people who go around with a little book in which they keep track of who owes them favors and who they owe, and of what size! But the whole country runs on favors....

Sunday, 19 Oct., 1700 hrs

Another busy day, this' kind of a down day because nothing worked right. I got the word last Friday that the USGS was probably NOT going to allow the purchase of the computer program I need to use here, for stupid legal reasons. (We're technically buying a LICENSE to use the program, rather than the program itself; this means federal lawyers reviewed the license; that means problems because the program is from Canada, not the U.S. So it goes....) Anyway, the U.S. government will KEEP the \$2,000 that DMMR paid it buy the program on their behalf, but now DMMR gets NOTHING in return! To DMMR this just looks like a scam to steal their money; and since I was the one who recommended the program, I am likely to be elected goat. (I may be coming home lots sooner than planned if this affair goes the wrong way!) Meantime I've got our USGS people trying to help if they can at all and will know tomorrow if they got anywhere. But they already warned me, probably NOT.

When I came here I brought along a demo version of this program that does a few of its functions. I spent yesterday, and all of today, working with 3 Saudi geophysicists to try and fix up ways to trick the demo into analyzing our data. In principle we ought to be able to do that, sort of; but we've now discovered it will require going to great pains. And as of yet, we've not got it working....

Rick Heilbron, an American on the staff here, has lent me his guitar, my only release. Carlos fixes us massive meals, lots of meat and way more than we can eat: our only requirement is to show up PROMPTLY at 0700, 1200, and 1800 hrs to eat it. Up to yesterday my shower didn't produce hot water, and I'd been washing in cool water only. I thought that was how it is here but then found out everybody else does get hot. So I complained, and yesterday a Filipino handyman came by and took all my pipes apart. He found the hot line had filled with scale deposits, scraped them out with a wire, and now I, too, can shower hot! Also, Sunday I took a dip in the swimming pool. This is a full 50m pool, with 6 lanes and starting blocks. In earlier days when there were lots of young geologists with kids stationed here, USGS had a swim club, and there were meets. Now, though, we're down to fewer folks, and it isn't used much. I also saw the soccer field, which could be beautiful if new grass were installed. It is sunken, and bleachers could be set along the slopes on 3 sides. It easily would fit many hundred spectators. I don't know whether it was once used, but it clearly isn't now. There's also a pool room and exercise room with weight machine, stationary bike, and a walking machine. I used that once, and ought to more....

Monday, 20 October, 1530hrs

Still a weary day, because I haven't found how to trick our demo program into working to analyze our data. I spent all day on this, together with 3 of the junior guys here. No far, no luck. But we really NEED the analysis, if at all possible before I go to field next week.... All this work wouldn't have been necessary if only the jerk lawyers had let us buy the full program we asked for.

Last night was a "party" at BRGM. Elliot Endo, another TDY here, drove me there, actually just a block down the street in another, but separated, part of our walled compound. In Arabia, parties are only for men; one never sees ANY women, and certainly not at semi-official social functions like this was. We went in the party room, a huge area with floors completely covered by maybe 100 huge, and expensive, oriental carpets. Along the walls were cushions, where we sat. Soon after sitting, I noticed that everyone had shoes off: I hadn't removed mine. It seems everyone was taking off shoes leaving them just outside the door. Big social blunder, right? So I took mine off, too, and asked Elliot, "Shouldn't I take these outside?" But he advised me, better not, just draw attention to your slip-up. About that time Dr. Nimr came in and noticed my shoes. "Hey, those are nice shoes!", he announced in a loud voice, "Why do you have them here? Are you selling them? What you charge? They expensive?" He really rubbed it in.... So I took them outside and threw them down with all the other shoes.

I had worn my tie and jacket, thinking that would show respect, but all the other Westerners were in shirt sleeves. Some did have ties. Pretty soon it got warm, and the jacket was trouble. But I stuck that one out... I chatted with quite

a few of the Frenchmen, those who spoke English at least. A lot of the chatter was in French. I met a few more BRGM people, most of whom had hyphenated names: Jean-Claude, Pierre-Luc, and so on.... One guy was only Yves, easier to remember. Ron Worl came over and sat nearby, as it turns out to chat with Dr. Tawfiq, the ADM. (I hadn't even recognized him. I've been meeting too many Arabs, and he looked like all the rest. I knew vaguely that I'd met him somewhere, but that was it.... He'd come and sat just two guys over from where I was.)

So the evening went along. We were told the food wouldn't come till maybe 11:00 p.m., but at about 10:30 guys brought in sheets of plastic tablecloth and spread them here and there around the floor. Then they spread food on the plastic. Ron and Dr. Tawfiq motioned me to come with them to eat at a "table". That sounded like a good idea, so I went with them. Wrong! The table was a separate room for muckey-mucks, but otherwise the same: carpets and plastic sheets on the floor to eat off of. The food was a lot of side dishes, some hot sauce, some very sweet, and in the middle was a huge plate of rice with a dead goat on top, roasted. It was just like you hear about, with Dr. Tawfiq taking off special tidbits of goat and presenting them to people around the group. I got a thing that looked like the goat's testicle, but I snuck it back in the middle of the plate when I got a chance. Everyone ate with their right hands only, tho it seemed okay to use your left when you needed it to help pull apart chunks of goat, long as you only ATE the chunks with your right. You would make a ball of rice and pop it in your mouth. Also, you just piled gnawed-up goat bones and gristle on the cloth in front of you and left them there. No conversation, except when someone was presented a tidbit -- people just ate, fast, like hogs. My hands got greasier and greasier. I was afraid someone was going to pry out the goat's eye and present me it, since I was the obvious new boy, but they left it there in the goat, Humdullah. After eating voraciously, people just got up and left. I thought maybe they might come back pretty soon -- still lotsa rice and goat left -- but Ron came and told me there was a bathroom to wash up. By then a line of Arabs were waiting to get in there. I got to the front after a bit, and washed. The towel was a strip of toilet paper stuff you tore off and used. That was it. People had eaten and washed off, and they all just got their shoes and went home. So Elliot and I did, too.

This morning, at 9:00 a.m., the geophysics group of DMMR/USGS had a breakfast for everybody. Elliot told me it was in my honor, but no one else said so. This one was in the drafting room, a big buffet on real tables. No goat; but rice, many kinds meat, sweets, halvah, hot sauce, soft drinks, sesame bread and pitas to eat the many kinds of humus, and so on. I asked Dr. Nimr, "Should I take off my SHOES?" and got a big laugh from everybody. We all stood around the tables and dug in to get what we wanted. Again, when done, each person just went away— no thanks

or goodbyes expressed at all. So that's what Arab parties are like!

Wednesday, 22 Oct., 1700 hrs

Two weeks down, about four more to go... During next week, starting Saturday, you will not be hearing from me; I'll be in the field. Tomorrow we go to swim in the Red Sea at Shuayba, 50 km south of Jiddah.

I'm beginning to understand the daily pace around here, governed by prayers:

Fajr -- prayers about 1 1/4 hrs before sunrise.

Sunrise -- no prayers, you just have to know when it is to work everything else out.

Dhuhr -- prayers at midday.

Asr -- prayers about 1 1/2 hrs before sunset.

Magrib -- prayers at sunset.

Isha -- prayers about 1 1/2 hrs after sunset.

All this means people here are at work very early, having gotten up way before sunrise. It also means they go home early; the place is deserted (of Moslems, anyway) after about 2:30 p.m. Apparently, many (most?) of these guys have a second job or business they run in the afternoons/evenings, USGS pay here being very low by Saudi standards. It further means my lunch time, rigidly set at 1200 hrs by Carlos, doesn't match Saudi lunch time, which is (for most) just after Dhuhr, about 1230 hrs this time of year.

Turns out a young geophysicist that I'm working closely with plays both guitar and oud. Yahya Tarabulsi is an immensely charming young fellow, reputedly a professional-level tennis and squash player, graduated 4 years ago, about 25, single and far too poor to marry for many years yet. (This is a problem in KSA: men can't marry till middle age, when they finally have enough money set aside to pay bride price. Then they wind up contracting for a girl in her teens...) Anyway, Yahya has promised to take me to a good music store, probably a week from tomorrow, and help me bargain for an oud. George Vranis, TRU head here, says in the music store I also ought to check out qanuns (ka NOON), a kind of zither. Can't find out if it is hammered or plucked. (to be continued)

Recent News from Retirees

Mary-Margaret Coates writes that she works for the USGS Denver Science Publishing Network as a book editor (contractor).

Bruce Doe reports that his novella, called Swell Country, came out as a Kindle eBook last April and is now also available as a paperback. Because of the colored pictures, the novella in paperback is very costly so the eBook is a much, much better deal. Just go to <http://amazon.com> and type Swell Country in the search box. It will take you right

to the novella. If you don't have a Kindle, no problem, as there are free apps to download to desktop computers and most tablets except Nook. Bruce's oldest nephew, who put the novella up on an eBook, gets the royalties for that. He also did the work to get the paperback out, and Bruce has refused royalties on the paperback to bring the price down a couple of dollars. The story concerns the almost forgotten uranium boom of the early 1950s. The San Rafael Swell had a long history in uranium/radium/vanadium. It was also the location of the Hidden Splendor Mine or Pick's Mine discovered in the early 1950s and sold to Floyd Odum for the absurd sum of \$7 million and a PBY airplane.

Bruce has all but left science and continues to work on his blog Reunite Gondwanaland (<http://stopcontinentaldrift.blogspot.com/>) that has nearly 190 items as of the date of submitting this piece for the GD alumni newsletter. A recent piece that is getting a lot of hits is L'Affaire Petraeus--Today (<http://stopcontinentaldrift.blogspot.com/2012/11/laffaire-petraeus-today.html>).

Bruce further reports that his progressive arthritis continues to progress, but, courtesy of a gadget put in his back (neuro-stimulator), pain signals from his lumbar are partially masked by giving the nerve a buzz. Although his wife is physically fine, she continues to mentally decline since her stroke on Christmas Eve of 2010. Bruce has begun to use bluetooth hearing aids with which he can answer his cell phone and, hopefully, his home phone soon. The Does moved on February 11, 2013, to Penick Village, a continuing care facility. The e-mail will be the same: gondwanaland31@gmail.com

Bruce continues, (a month later, after moving to a continuing care facility): We are enjoying it very much. The meals tend to be very good with at least four items for dinner entrees, one of which is always salmon and two of which are steaks (6 and 7 oz). You can always get a hamburger or hot dog or a few other items if you wish. There are always four salads offered. You have to watch yourself here as you could gain a lot of weight very easily. There are full lunches too, but we tend to only eat dinner at the restaurant. Oh, did I mention there is a full bar? Our apartment has French doors to the outside as well as to the hall and our reserved parking spot is around 50 ft away. They are very accommodating and put in a walkway for us across a strip of grass.

James F. Devine says he is retired but has been hired back half time by the USGS with the same title: Senior Advisor for Scientific Applications.

Lucy McCartan Manheim writes: At 82 and 70, Frank and I are still blessed with good health. Swim meets keep us focused on exercise and trying to avoid the sweets we both enjoy. Frank continues his diverse public policy interests and affiliation with George Mason University; I am working on slowing the progress of my primary lateral sclerosis with stem cell therapy. We visit with our kids and grandkids as our schedules permit--usually fun, always interesting.

Sherman P. Marsh says that he volunteers at the Colorado School of Mines Museum and is also President of the Friends of the Colorado School of Mines Museum. He also runs a small mineral business and had a booth at the Denver Gem and Mineral Show. In November 2012, he gave a paper on the San Pedro Mine (New Mexico) at the Socorro Mineral Symposium.

Robert Calvin Milici writes that he plans to be fully retired by the end of March, 2013, but will stay on as a scientist emeritus.

Ken Pierce received the Distinguished Career Award of the American Quaternary Association (2011) and the Distinguished Career Award of the Quaternary Geology and Geomorphology Division of the Geological Society of America (2012). The citation by Steve Colman for the AMQUA award follows.

Ken has made tremendous contributions to Quaternary science, in a truly interdisciplinary way, as a researcher, mentor, colleague, and friend. He has geological blood in his veins. He grew up in Washington D.C., the son of William Pierce, famous for his research on the Heart Mountain Thrust; and Ken's daughter, Jennifer, is now an established academic geologist. Ken attended Stanford University, receiving his B.S. in 1959, and then moved on to Yale University, where he worked with Richard Foster Flint and John Rogers, receiving his Ph.D. in 1964. After a short stint with the USGS in Kentucky, he moved to the regional office in Denver in 1965, where he spent almost 35 years of his career. In 2000, he and his wife moved to Bozeman, Montana, where he continued to focus on his Yellowstone research. He officially retired in 2003 and remains an active emeritus at the USGS Bozeman office.

Ken's work spans much of the fields of Quaternary geology and geomorphology, especially natural landscapes and the geologic processes responsible for their formation. Specific areas of his research include (1) Pleistocene glaciations of the Rocky Mountains and adjacent areas; (2) Quaternary faulting and neotectonics; (3) Yellowstone caldera unrest; (4) volcanism, faulting, and uplift on the track of the Yellowstone hotspot; and (5) geologic controls on ecology of the greater Yellowstone area. He has contributed immensely to the fields of Quaternary science. Most of his research has involved interdisciplinary work in the greater Yellowstone-Teton area, but he has made fundamental topical contributions to the glacial history of the Rocky Mountains, Quaternary dating methods, and young tectonic and volcanic processes. He has produced landmark papers in glacial geology (his Yellowstone ice cap paper won the 1982 Kirk Bryan Award), dating methods (obsidian hydration, progressive weathering and landform change, and cosmogenic radionuclides), and mantle-plume evolution (young faulting, uplift, and volcanism associated with the Yellowstone hotspot).

Ken was in the vanguard of a new generation of earth scientists who combined basic geological methods like field mapping with strong, process-based understanding of topics such as glaciology. This new approach, combined with his calm but tenacious curiosity, was extremely attractive to young researchers. At one point, a loose confederation of young Quaternary scientists were referring to him as "The Guru," much to his quiet dismay. Ken has had unusually long and productive collaborations in an impressive range of disciplines. For contributions to Quaternary geology, interdisciplinary studies of the history of the Greater Yellowstone area, and scientific leadership, he is eminently deserving of the Distinguished Career Award. Many of the Quaternary scientists with whom Ken has worked over his long career have written with enthusiastic support of this nomination, including Joseph Licciardi, William Locke, Michael Machette, Lisa Morgan, Marith Reheis, and Cathy Whitlock. Here is just a sampling of their comments:

"Ken is a stimulating scientific colleague who has taken courageous scientific positions throughout his career always pushing to new frontiers..." (Morgan)

"Ken is a truly interdisciplinary scientist, who recognizes the connections between geology and ecology, geophysics and geomorphology, and climate and landscape." (Whitlock)

Of course, there is much more in these messages that document Ken's scientific achievements and contributions. But these quotes give the flavor of the universal respect that Ken has in the scientific community.

Bob Rowland writes that although retired he continues to work for the USGS Coastal and Marine group at Woods Hole, Mass., on the Extended Continental Shelf Project under the leadership of Deborah Hutchinson. He is working on a publication.

John Sass contributes: On January 9 I began my 15th year of retirement. As such, I have pretty well finished my professional activity. My earth-science reading is limited to EOS, and I have given up all pretense of expertise in geothermal matters. I was consulting on thermal aspects of the hydrology of the Great Basin and on the geothermal resources of Australia but am content now with reading, cryptic crosswords, gardening, dog-walking, cycling, "honey-doing" for my partner, Mary, and maintaining two residences—here in Port Huron, Mich., and the cottage at Grand Bend, Ontario.

The house here was severely damaged in late October during Superstorm Sandy, which curled around Lake Huron and Georgian Bay with very strong winds, hitting Port Huron very hard. One of the trees in the back yard snapped and messed up the roof, as well as causing structural damage. There was a lot of rain associated with the storm, so there was water damage inside as well.

In addition to retaining some of my problem-solving skills from USGS days, I was very fortunate in getting first rate people to work on the problem. First, my incredibly

gifted landscape guy came over with his humongous chain saw and had the tree off the roof by noon of the day after the storm. That allowed my trusty handymen to get a tarp over the damaged section, which greatly limited the water damage. Next, a contractor friend from down the road, who was also a partner in an addition we put on in 2007, volunteered to direct the repairs. He established a great rapport with the insurance adjuster, who agreed to a lot of work that I frankly considered marginal, and was able to sell it to State Farm Claims. They agreed to a price tag of \$24 K, which included a completely new roof (with higher quality shingles), completely residing the north end of the house, repainting virtually the entire interior, and steam cleaning the carpets. The house is now, if anything, better than new.

With memories of Sandy still fresh, it was difficult to avoid being 'preachy' in my holiday messages to friends. Global climate change is real, and the earth is in the grip of a catastrophic environmental crisis, which is being denied by Neanderthal politicians and ignored by others. It's significant that climate was not mentioned once by either presidential candidate during the 2012 election campaign. I got quite a few pictures of adorable grandchildren in year-end newsletters and couldn't resist pointing out in my replies that these youngsters face an uncertain future, owing to anthropogenic climate change caused by shortsightedness, corporate greed and political paralysis.

Jean Theobald writes: Our son-in-law, Bob Eppinger, who began his career as our field assistant, is now a dedicated, internationally known geologist and geochemist. His wife, our Catherine, is a veterinarian with many specialties in the Boulder area. Their daughter Rose is following a medical career. Their son Robert Paul has a B.S. in poly-sci and is in the Navy. Our daughter Mary, after several years in the Reno/Elko area, was head of the ALS North American labs in Vancouver. She is now chief geochemist for Newmont Mining in Denver. Her son, an excellent soccer player in Reno, is now an extreme skier and studying geology at UBC. Our third generation geologist! I continue to travel, the most recent being with Road Scholar to Morocco; a small-ship cruise trip from Venice to Athens with Rose; and a very-small-ship cruise of the Black Sea and along the Aegean coast of Turkey with Cathy. So much to see, to learn, to do. Thanks to all our friends who helped our children grow and to the USGS which gave us such extraordinary lives and opportunities.

Ron Walton writes: I am a volunteer on 3 water boards here in south central Texas and work with the local USGS Water Resources Research Center here in San Antonio very closely as the elected (volunteer) District 9 Edwards Aquifer Authority (EAA) Director for hill country, which is Comal and Guadalupe Counties. I am also on the Trinity Aquifer stakeholders groundwater board, which is establishing a groundwater district for same area as most water wells are through the Edwards formation into Trinity

and there is no current oversight. I am also on the Coalition for Equitable Water Rates (CEWR) board, which addresses water costs for all developments in the area as for-profit companies are increasing rates that are not equitable. My geology background has been instrumental in being able to serve as a volunteer on all three boards in area where we live. I am very grateful for USGS experience and was in emeritus status when I retired, as I was a professor at Colorado Christian University teaching computer data base technology and had a funded emeritus project for the oil shale data base in Office of Energy which must now be very valuable with all activity going on, like the local nearby Eagle Ford (oil) Shale production. Anyway, this info is just to update and keep in touch with others in GD. I wonder what became of that oil shale data base which is now even more valuable? Incidentally, I ran into Ogden Tweto's assistant, Richard Schoenfeld (also a central region GD retiree) recently as he lives here also. We reminisced about Ogden's great professionalism and loyalty to USGS. His office was right across the hall from mine in Building 25, as he was recognized as one of the "hall of fame" scientists.

Don and Evelyn Wiesnet announce that they have moved to an assisted living home, Sunrise at Hunter Mill. They also say that their daughter, Beth Stettner, is retiring from the Survey, completing two generations of Survey employees. Like father, like daughter!

Teresa Wren writes: At age 93 my 'Get up and go' got up and went, so I am cutting back on my activities. An afternoon nap has become very pleasant. My driving is limited to St. Mary's County and daylight hours. For any longer trips, I hire a driver and car. Fortunately, our bus at Wildewood Retirement Village provides transportation to theaters, concerts, and restaurants. I still collect used books and deliver them to one of our county libraries for Friends of the Library for their twice-yearly book sale. Each month, I assist a retired priest who comes to the Village to say Mass. I am his driver, lector, Eucharistic Minister, and general helper. I am now contacting the remaining twenty-two members of the Class of 1941 at Trinity College for their activities during 2012 as I am still Class Scribe.

In May, I took a week-long cruise from Alexandria, Va., to Philadelphia, Pa. The vessel was small, only 100 passengers, so it was most enjoyable. My health is excellent for my age. I just completed a battery of tests and passed all with flying colors. Must be that afternoon nap. Best wishes and good health to all in 2013.

RETIREE PUBLICATIONS

Note: The references below are compiled from information available as of 4 June 2013. These references are “new” since the Fall 2012 Newsletter (Number 66) and only represent those not previously listed in prior Newsletters. However, an effort is made to compile **ALL** known publications 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.

ROGER B. COLTON publications:

Fullerton, D.S., Colton, R.B., and Bush, C.A., 2012, *Quaternary Geologic Map of the Shelby 1° x 2° Quadrangle, Montana*: U.S. Geological Survey Open-File Report OFR 2012-1170.

Fullerton, D.S., Colton, R.B., and Bush, C.A., 2012, *Quaternary Geologic Map of the Havre 1° x 2° Quadrangle, Montana*: U.S. Geological Survey Open-File Report OFR 2012-1028.

Fullerton, D.S., Colton, R.B., and Bush, C.A., 2013, *Quaternary Geologic Map of the Glasgow 1° x 2° Quadrangle, Montana*: U.S. Geological Survey Open-File Report OFR 2013-1217.

WENDELL A. DUFFIELD publication:

Duffield, W.A., 2013, *Thoughts on a Graduate Thesis Proposal Or How I Almost Got Booted Out of Graduate School*, Earth Magazine, April 2013, p. 8-9. www.earthmagazine.org.

ROBERT B. FINKELMAN publications:

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Ogala, J. E., Finkelman, R. B., Akaegbobi, M. I., and Francis, 2010, *Evaluation of the trace element content of some Nigerian coal samples*: Journal of Mining and Geology, Vol. 46, no 2, pp. 151-161.

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Pirrone, N., Cinnirella, S., Feng, X., Finkelman, R.B., Friedli, H.R., Leaner, J., Mason, R., Mukherjee, A. B., Stracher, G. B, Steets, D. G., and Telmer, K., 2010, *Global mercury emissions to the atmosphere from anthropogenic and natural sources*: Atmospheric Chemistry and Physics, v. 10, no. 13, p. 5951-5964.

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Ed Tooker contemplates his domain: Today the Office of Mineral Resources, tomorrow the world. Photo by John Keith, Sept. 1975.



April Fool's Day, Reston, 1985 (photo by Dave Usher)