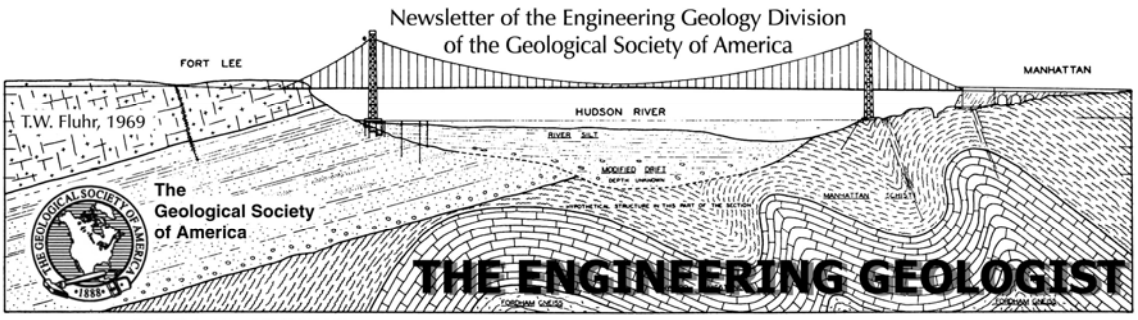
Newsletter of the Engineering Geology Division
of the Geological Society of America



THE ENGINEERING GEOLOGIST

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Message from the Chair

Paul M. Santi, Colorado School of Mines

Here is a question to test your awareness of modern technology: what has a hard drive of over 100GB, runs on a power supply of under 120 watts, and can send up to 50 text messages per hour, all while recording a low resolution, intermittent video of a lecture on clay mineralogy and causing two 20-oz bottles of Arizona Green Tea to disappear? It's an iPhone attached to a wet-dry vac! Actually, it's something remarkably similar: our students.

Something we have been trying to do since I starting helping with the EGD is figure out ways to make this a more valuable organization for our students. As a professor, this is an important issue in their broader education, and as a volunteer in the Division, this is how we secure our future success. Besides the legacy we leave through publications, this job centers around their experience at the annual and regional meetings. The basic requirements are a reason to get them there, a way to pay for it, and a reason for them to want to come back.

The first one is easy. They want to go. Let's face reality: students are probably more interested in the technical topics at the meeting than we are. We get bored by the isotope talks, think we have already heard about "the landslide I mapped on my summer vacation," and skip the poster session on unsaturated flow in rock because we've already decided our career won't head in that direction. But to the students, these are all fresh, new, challenging topics that intersect their short backgrounds in numerous ways. As an undergrad, I spent several days wandering through an AAPG meeting, understanding little yet inspired by it all. On top of this, the EGD works to offer discipline-specific sessions that the students gravitate to like Apple-geeks to the new iPhone, and we have welcomed their posters and technical presentations as well.

The second requirement is also easier than you might imagine. The Roy J. Shlemon meeting awards pay for registration, up to two field trips, up to two short courses, and a ticket to the ever-popular EGD luncheon. Shlemon awards also support attendance at section meetings, with special emphasis on paying for field trips. These awards are

not applied for to the degree they ought to be, so if you know a student, have them apply each year by August 1 for the annual meeting and around the end of January (varies by section) for the section meetings. On top of this, the GSA sections provide travel grants to section meetings. The amounts and deadlines vary, but can be found in the sections http://www.geosociety.org/sectDiv/ and meetings http://www.geosociety.org/meetings/ pages on the GSA website. Priority is given to students who will be presenting. With very little effort on our part, we can encourage students to pool their resources (translation: four to a motel room) and beg for funds from the department head.

"I'm not a professor. I don't really know any students," you say. Ahhh, you are the solution to the third requirement. I still remember the practitioners I met at the first national meeting I attended over 20 years ago. These are the heroes who were doing the work I wanted to do and who might even give me a job when the time came around. If we give them just a few connections, these students will stay with their professional organizations and transform into our next generation of enthusiastic and creative leaders, relieving us of the burden of keeping the ball rolling and giving us time to figure out how use that iPhone to actually dial a number!

Dr. Edmund Medley: AEG/GSA 2009 JAHNS DISTINGUISHED LECTURER

Edmund Medley, PhD, PE, CEG, F.ASCE is the *2009 Richard H. Jahns Distinguished Lecturer in Engineering Geology*. The selection committee for this award is composed of representatives of the Association of Environmental and Engineering Geologists (AEG) and the Engineering Geology Division of the Geological Society of America (GSA). The intent of the partially funded Lectureship is to encourage student and professional awareness of engineering geology through a series of lectures presented across North America during the award year. The award was established in 1988 to commemorate Professor Jahns (1915-1983), who had an influential and diverse career in academia, consulting and government. Details on the life and career of Professor Jahns are presented at edmedley.com (**Jahns Lectures** page).

Dr. Medley is a Senior Consultant in the Oakland, California office of Geosyntec Consultants, international consultancy renowned for innovative solutions to geoengineering and environmental problems. Dr Medley started his career in the Applied Earth Sciences in 1969, and now has over 30 years

of unusually varied international experience in geotechnical and geological engineering consulting, mineral exploration prospecting, failure investigation, project management, litigation testifying, academic research, teaching, and lecturing. He has an international reputation for his pioneering research into the engineering and geological characterization of bimrocks (block-in-matrix rocks), complex geological mixtures of rock and soil such as melanges, fault rocks, weathered rocks, tills, and colluvium. (Most of his professional contributions are at freely available at bimrocks.geoengineer.org.)

Dr. Medley also has experience evaluating geotechnical/geological engineeering vulnerabilities and the causes of civil engineering failures, and has provided testimony for attorneys, insurance companies, contractors, and municipal clients. Projects include investigation of major landslides, rockfall hazards, expansive/collapsing soils, tunnel failures, coastal erosion, sinkholes and other ground movements in California, Nevada, District of Columbia, Hawaii, Guam, and Papua New Guinea. Dr. Medley has authored/co-authored about 50 professional contributions, and presented well over 150 professional and academic lectures, Short Courses and MCLE Credit courses. He is licensed as an engineer and geologist in the USA, Canada and the United Kingdom.

In 1978, Dr. Medley was the first recipient of the *Aro A. Aho Memorial Medal* for Excellence in Geological Engineering. He was the *AEG Marliave Scholar* in 1993, awarded for outstanding scholarship in Engineering Geology and Geological Engineering. He was the San Francisco AEG Section Membership Committee Chairman between 1991 and 1993 and the San Francisco Section Short Course Chairman between 1995 and 1996. He has been a member of GSA for many years.

Contact Dr. Medley directly to arrange lectures: emedley@geosyntec.com and (510) 285 2722. Dr. Medley offers several Lectures, as summarized below.

***The Least You Should Know About Characterizing Geological Chaos*:** Bimrocks (block-in-matrix rocks) are geologically complex mixtures of rocks and soils, such as melanges, fault rocks, and weathered rocks. Bimrocks present major challenges to geopractitioners because successful and economical characterizations of rock/soil mixtures are frustrated by their geological, spatial and mechanical variability. This Lecture presents broad concepts on characterization, design and construction in bimrocks that have been provocative, yet useful, to geopractitioners around the world.

***The Comforts of Ignorance and the Benefits of Arrogance: Lessons of the Failure Kind for the Geopractitioner*:** Ignorance and arrogance are all too common in the design professions. It is comforting to not know what one does not know. And, there are benefits to being arrogant: why waste time on having a colleague check your work if you know what you are doing? Why go through the pain of further education or

professional development? Why should engineering geologists talk to geotechnical engineers (and vice versa)? After all: "I know enough geowhatever to get by." But ignorance leads to blissful mistakes and arrogance results in occasional spectacular, famous and expensive failures. A few lessons are offered, particularly to the engineering geologist/geotechnical engineer/environmental scientist who thinks he/she knows it all.

***Of Elephants, Earthquakes, Caves and Hot Rock - Recent Geological Engineering Adventures*:** The Lecturer, a Civil Engineer/Engineering Geologist, describes the technical background of a Geological Engineer in the context of elephants. The broad technical skills sets of most Geological Engineers are excellent for the two-way translations of geology and engineering. Three recent case histories provide examples: A summary of the Geological Engineering observations from a reconnaissance commissioned to observe damage resulting from the October 2006 Hawaii earthquake; the very challenging Forbes Cave project in Hawaii, a rare story of a geopractitioner consultant becoming very dirty as a Court-Appointed Expert advising on lava tube cave stability and recovering a buried collection of unique Hawaiian cultural artifacts; and, the Geological Engineering insight required for overall geoengineering characterization of terrain hazards at the Lihir gold mine in Papua New Guinea, located in a geothermally active, collapsed volcanic caldera.

***Something to Chew on: Rock is More Nutritious than Dirt*:** A medley of geoengineering presentations is scrambled to provide oft-neglected supplementary nourishment to soils engineers afforded by rock engineering. Ingredients in the Lecture may include (at the whim of the chef): an analysis of high cut slopes, and characterization of weak rock masses using the Hoek-Brown Failure Criterion, "layered" on the basis of depth varying Geological Strength Indexes; description of the simple Geological Engineering basis for confidence in the rock mass stability of the walls of lava tubes caves during retrieval of a buried collection of unique Hawaiian cultural artifacts; and, why you should care about melanges and other block-in-matrix rocks (bimrocks).

***An Introduction to the Use of Ground-Based Stereo Photography in Geopractice*:** In some situations three-dimensional (3D) perception is critical to efficient and accurate geological/geotechnical investigation. Taking and exploiting ground-based stereo photographs for personal use and geology and engineering consulting is easy and inexpensive. Stereo (3D) photos preserve records of site conditions for use in analysis back at the office, and allow a clear visual depiction of the site to audiences such as clients and juries. Examples of ground-based stereo images of terrain, landslides, gullies, distressed structures, and other features—as used in project-related analyses and presentations—demonstrate the considerable

advantages in collecting and viewing site information as stereo images. **Stereo glasses will be provided.**

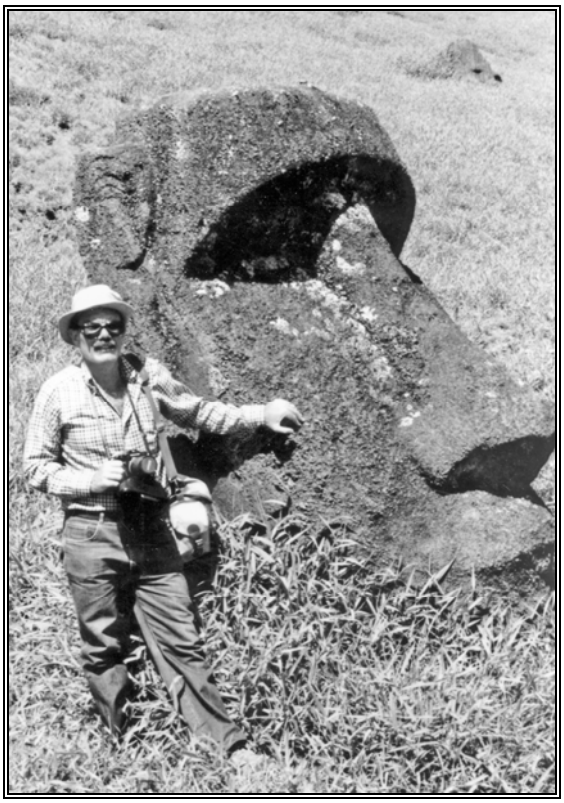
Forensic Investigation of the Sea Cliff Incident, an Urban Catastrophe: Shortly after midnight on December 11, 1995, storm water started to leak from a century-old 6-foot brick sewer underlying the prestigious Sea Cliff neighborhood in San Francisco. The leakage eroded vulnerable dune sand soil to create a pit that grew uncontrollably to over 250 feet wide and 40 feet deep. Shortly after dawn, a multi-million dollar home and portions of other properties fell into the pit, events that were broadcast by TV world-wide. Discharge from the sewer continued for several hours, resulting in the undermining of other homes, destruction of part of the Presidio National Park, and eventual overflow of sewage more than two miles away, across the Great Highway and Ocean Beach, into the Pacific Ocean. Dr. Medley, the Principal Investigator for the investigation, shares findings and the lessons learned from the failure.

***"Shoot! It's Been Delightful!" (Reflections and Snapshots from a 40 year Geo-Odyssey)* :** With this typical enthusiastic comment from the late Professor Richard H Jahns, Dr. Medley describes the highlights of his own unusual career as a prospector, geological engineer, geotechnical engineer and vagabond - a random walk of major life lurches, with several engaging detours. Pausing en route, Dr Medley offers some observations on the current state of engineering geology education and professional practice with (likely provocative) suggestions for academics, students and young professionals.

Hamel, Cannon and Cornforth Honored at Annual Meeting Luncheon

The **Distinguished Practice Award** recognizes outstanding individuals for their continuing contributions to the technical and/or professional stature of engineering geology. This year's awardee is **Jim Hamel**, the principal for Hamel Geotechnical consultants, a private company based in Monroeville, Pennsylvania. Dr. Barry Voight, Penn State University, will be the citationist. Dr. Voight is a world-renowned volcanologist and author of a classic book on rockslides.

The **Meritorious Awards** are for outstanding service to the Engineering Geology Division and only Division members are eligible. Dr. **Susan Cannon**, US Geological Survey and past Chair of the Engineering Geology Division, is this year's recipient. Dr. William Haneberg, Haneberg Geoscience, will be the citationist. Dr. Haneberg was a recipient of the Division's Meritorious Service Award in 2006.



Jim Hamel and “friend” In the field.

Dr. Susan Cannon

The **Edward Burwell, Jr., Award**, established by the Division in 1968, honors the memory of one of the founding members of the Division and the first chief geologist of the U.S. Army Corps of Engineers. In addition to be one of the major awards of the Engineering Geology Division, this award is also among the outstanding awards of the Geological Society of America. It is made to the author or authors of a published paper of distinction that advances knowledge concerning principles or practice of engineering geology, or of related fields of applied soil or rock mechanics where the role of geology is emphasized. The 2008 recipient of the E.B. Burwell Jr. Award is Dr. **Derek Cornforth** for his book, “Landslides in Practice: Investigation, Analysis, and Remedial/Preventative Options in Soil.” Dr. Paul Santi, 2008 EGD Chair, will be the citationist.

Dr. Derek Cornforth

The Engineering Geology Division will present these awards following the luncheon at the Annual Meeting of the Geological Society of America in Houston, Texas. The luncheon is scheduled to begin at noon on Monday, Oct. 6, 2008 at the Hilton Americas Hotel in Lanier Grand Ballroom D. While the luncheon itself is a ticketed event, the awards ceremony following the luncheon is open to all those wishing to attend. The awards presentations begin no sooner than 1:00 PM.

Technical Programs at Section Meetings Benefit from Division Involvement

The Geological Society of America strongly encourages both Divisions and Sections to work together in developing interesting and worthy technical programs at Section meetings. To facilitate this interaction for the Engineering Geology Division, the Member-at-Large position on the management board is charged with having the primary responsibility for this coordination. The idea is for him/her to identify and assist EGD members who wish to organize short courses, fieldtrips or technical sessions at upcoming Section meetings. If you have a Section meeting coming to a locality near you in the next year or two (see http://www.geosociety.org/sectDiv/), contact the Member-at-Large, make your interest known, and get connected to the key people planning the Section meeting. They will likely be pleased to have you join them in making their future Section meeting a great success. Contact information for your EGD Management Board members is on the Division's website at http://rock.geosociety.org/egd/index.html; click on "Officers" in the lefthand sidebar.

Roy J. Shlemon Scholarships Awarded at Doctorate and Masters Levels

The primary role of this awards program is to provide partial support of master's and doctoral thesis research in engineering geology. The program is competitive, and there is no guarantee of funding. The Scholarship Awards Committee strongly encourages women, minorities, and persons with disabilities to participate fully in this program. Eligibility is restricted to student members of the Engineering Geology Division. Roy J. Shlemon scholarships are given to graduate students with the best research proposals within the broad field of engineering geology. Graduate students or professors with engineering geology graduate students can obtain more information on this program and an application from on the Engineering Geology Division website http://rock.geosociety.org/egd/index.html.

Diane I. Cook, a student at the Colorado School of Mines, is the recipient at the doctoral level. She is pursuing research for improving horizontal drainage design. Specifically, she is trying to answer the questions: 1) What does the 3-D groundwater profile typically look like in a slope containing horizontal drains, and how can it be addressed in a 2-D modeling program? 2) What does the 3-D groundwater profile typically look like in a slope containing horizontal drains, and how can it be addressed in a 2-D modeling program? and 3) If the groundwater profile within a drained slope is

corrugated in nature, what would be the expected water level in a piezometer any given distance from a working drain? Her research is under the direction of Dr. Jerry Higgins and Dr. Paul Santi.

Two awards were made to students pursuing Masters degrees. One recipient was **James Fisher**, Kent State University. Mr. Fisher is collecting and analyzing structural data for design of road cuts for the Interstate 81-Exit 118 expansion project, Virginia. Data will be collected both manually and through remote sensing methods as part of this effort. Dr. Abdul Shakoor is his advisor.

The other recipient is **Steven Sobieszczyk**, Portland State University. He will do field work in the North Santiam River Basin, Oregon, to produce two maps and an accompanying report describing 1) a landslide inventory database and 2) the surface erosion susceptibility. This will be used to better understand water quality, particularly in drinking water for the City of Salem, Oregon. Dr. Scott Burns is his advisor.

What Happens to Past Shlemon Scholars?

Rachel Pirot, a 2007 Shlemon Scholar pursuing her Masters degree at Portland State University, will present a paper based on her research at the 2008 Annual Meeting of the Geological Society of America in Houston. It is scheduled for Session 177 Engineering Geology II - Landslides: Characterization, Mapping, and Monitoring, to be held in Convention Room 310 BE. Her paper is scheduled for Monday, October 6 at 8:30 AM. It is entitled, Initiation Zone Characterization of Massive Debris Flows on Mount Hood, Oregon, November, 2006. Her co-authors are Scott Burns, Portland State University, and Tom Deroo, USDA Forest Service.

It is always hoped that individuals receiving Roy J. Shlemon scholarships are successful in their research and become involved members of our profession. So the Newsletter Editor is always looking for feedback to share with EGD members. Please pass any information for future issues to Jerry DeGraff, EGD Newsletter Editor, at jdegraff@fs.fed.us.

Be An Active Division Member

Division members are urged to be active in Division affairs. Nominate individuals for Division awards, contribute to the fund supporting the Jahns Lectureship, offer to be a Shlemon mentor or organize a technical session at a Section meeting or the GSA Annual Meeting. There are lots of opportunities to further our profession through this type of involvement. Contact your officers or check out our Division website for information on who to contact, where to send nominations, or to see what is going on: http://rock.geosociety.org/egd/index.html.