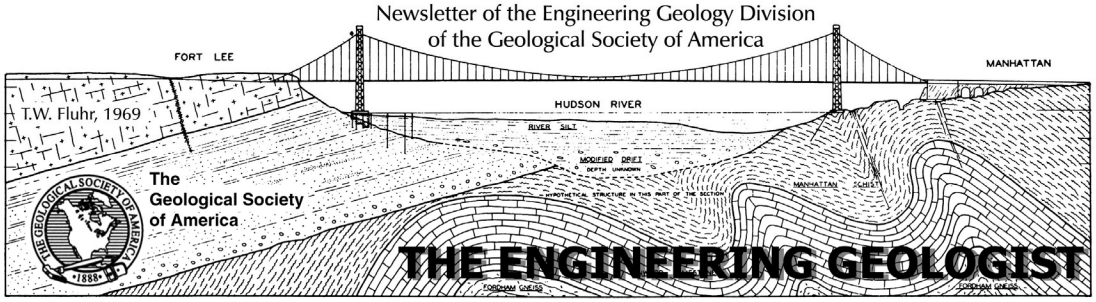
Newsletter of the Engineering Geology Division
of the Geological Society of America



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Message from the Chair

by Bill Haneberg

State of the Division

EGD remains one of GSA's mid-sized divisions, with approximately 800 members. All division membership levels fluctuate slightly from year to year and, as has occurred for GSA as a whole, membership numbers for most divisions remained fairly constant in 2003.

Here are some other interesting facts and figures provided by GSA: In terms of its size relative to the overall GSA membership, EGD membership has shrunk from 9.8% to 8.8% of GSA membership during the last decade. That's a statistically significant trend. In terms of participation in division elections and email use, EGD is consistently at or near the bottom of the list. In 2003, only 12.5% of us voted in the division election (the lowest percentage of any division). The International Division and Sedimentary Geology were at the top of the list, with 20% and 22% of their members casting votes. EGD leads the pack, though, when it comes to the percentage of votes cast by paper rather than electronic ballots. A likely explanation for the relatively large percentage of paper ballots is that, according to GSA statistics, 18% of our members either do not have email access or choose not to give their email address to GSA. I don't know why that is. EGD and GSA, like society in general, are relying more and more on electronic communications, and I'd like to hear your thoughts on the matter.

Another interesting figure is the number of engineering geology sessions at the GSA annual meeting, which is typically only a fraction of the number offered by divisions such as Hydrogeology, Quaternary Geology & Geomorphology, and Structural Geology & Tectonics. All of those divisions, of course, have many more members than EGD. Even when differences in division membership numbers are taken into account, though, EGD seems to have a low rate of member participation in annual meeting events. EGD members proposed a total of one Pardee keynote session, three topical sessions, and one field trip for the 2003 annual meeting in Seattle. The Pardee session on the science of Lewis and Clark, proposed and organized by Paul Santi, was a division first and a great accomplishment. Thank you for your efforts, Paul! Beyond that, though, only one topical session generated enough abstracts to go forward despite the hard work of the division members who proposed their own sessions. Abstracts submitted for the other topical sessions were added to other discipline abstracts to create one poster and one oral general engineering geology session. All of the EGD sessions were filled with excellent and intellectually

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stimulating presentations. The organizers of five other topical sessions agreed to add EGD sponsorship because the topics, which ranged from geological mapping to hydrogeology to coastal processes, were of interest to division members.

Our budget is in good shape, with a balance of about $15,000 that is carried from year to year. Our dues remain the lowest of any GSA division. During the past two years, we have had to use some of this surplus to cover shortfalls in the Jahns Lecturer and Shlemon Scholarship Funds because interest income has not been great enough to cover the expenses of these programs. The principal of these two funds is invested by the GSA Foundation and, particularly in 2001-2002, the market was not kind. As economic conditions improve, though, we anticipate that these funds will become self-sustaining and not require annual emergency infusions of cash from the EGD general fund. Other annual expenditures include award plaques and banquet tickets, expenses for the mid-year division chairs meeting held in Boulder, printing and mailing paper newsletters and ballots to members who won't or can't receive email, and (as I discuss below) new student initiatives.

The management board voted to change its meeting time to Sunday afternoon from 12:00 to 4:00 at next year's annual meeting in Denver. During the past two years, management board meetings had been held the Saturday afternoon before technical sessions started. This was done in order to avoid any overlap with any technical sessions, but attendance has been disappointing. Before that, the board tried a brown bag luncheon meeting at a public table in the poster session area. While attendance was higher, having the meeting in a noisy high traffic area made it difficult to hear and be heard. Another option is to return to an evening meeting, which has also been tried in the past. An evening meeting would not conflict with technical sessions but might compete with social events of interest to division members. Please let me know if you have strong opinions about any of these meeting options.

The Future: It's Your Division!

We geologists pride ourselves on our ability to draw useful conclusions from tentative and fragmentary data. So, what kind of picture can we paint about GSA's oldest division? To be sure, losing 1% of our relative membership in a decade isn't cause for panic (at that rate, we shouldn't go out of existence until 2104) but it is something to consider. My impression is that we're slowly graying and losing our membership share because we're not attracting new members to grow at the same rate as the total GSA membership. At the same time that EGD appears to be slowly shrinking, GSA has taken up the banner of applied geology and wants to know what it can do for those of us who consider ourselves applied researchers or practitioners. To that end, GSA past president Clark Burchfiel appointed former EGD chair Scott Burns to assemble a committee on applied geology that will include one or more EGD members (see Scott's article elsewhere in this newsletter). Geologists in general seem to have become more interested in the practical implications of their science, which have always been at the heart of engineering geology, and GSA has recently added a Geology and Society Division.

How should EGD fit into a GSA that wants to actively promote applied geology? Are division members happy with the current level of EGD activity? Should the division be more active? Stay the course? Or, maybe even become less active? Are we offering the kinds of annual or sectional meeting activities that make EGD membership valuable and draw members to meetings? Does the membership want something different? How do annual and sectional GSA meetings rate when EGD members are prioritizing their professional development and training budgets? I firmly believe that organizational change is most effective when it comes from within, not imposed from the outside, so let me or the other management board members know what you think!

Increasing student participation is one way to generate interest in engineering geology and, ultimately, EGD membership. Each year, EGD awards Shlemon travel awards to undergraduate and graduate student members to encourage participation in field trips and short courses, and Shlemon scholarships to help defray the cost of graduate research related to engineering geology. Scott Burns, chair of our University Liaison Committee, has had one of his student employees scour the AGI directory to compile a

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list of people teaching environmental and engineering geology throughout the country, which will help us to get the word out about the benefits of student membership (and perhaps encourage some faculty members and students to join the division). The EGD management board voted to start offering best student presentation awards, which will include cash prizes and *Reviews in Engineering Geology* books, starting with the 2004 annual meeting. We are also looking into the possibility of having a joint student reception with the Hydrogeology Division, which has held well-attended student receptions for many years, at the 2004 annual meeting.

Another way to promote a vigorous and professionally active division is by participating in annual and sectional GSA meetings, either by contributing abstracts or organizing your own sessions. I've found that organizing an annual meeting topical session offers a great opportunity to expand my professional horizons, assemble groups of experts to address the topics in which I'm most interested, and meet people engaged in fascinating research and professional practice. The deadline for 2004 annual meeting sessions will have passed by the time you read this, but there will still be plenty of time to submit an abstract before the July 13 deadline (the call for papers will be in the April issue of *GSA Today*) or plan your own session in subsequent years. Sectional meetings also offer opportunities for sessions on locally or regionally significant topics and can be less expensive to attend than annual meetings. If you're not interested in meeting activities, then think about submitting a manuscript to *Environmental & Engineering Gesocience*, which is published jointly by GSA and AEG. Or, if you've read an outstanding paper recently, consider nominating it for the Division's Burwell Award (see deadlines article elsewhere in this issue).

I am especially interested in hearing from division members. Please tell me what EGD can do for you or what you would like to do for EGD (we always welcome volunteers). Let me know what we're doing well, where we can improve, and what you'd like to see in the future. You can reach me most easily by email at <bill@haneberg.com>, and somewhat less easily by phone at (206) 935-0846 or by sending a letter to me at 10208 39th Avenue SW, Seattle WA 98146.

Fast Approaching 2004 EGD/GSA Deadlines

Please see the EGD web page at <http://rock.geosociety.org/egd/index.html> or the GSA web site at <www.geosociety.org> for information and application instructions for the following awards.

EGD Distinguished Practice and Meritorious Service Awards. These awards represent an excellent opportunity to honor peers or mentors who have contributed to engineering geology through either their professional practice or their service to EGD. Please send nominations and a supporting statement (*e.g.*, a c.v., publication list, and/or narrative statement of accomplishments) to Bill Haneberg, EGD Awards Committee Chair, at <bill@haneberg.com>. **Deadline: March 1.**

EGD/AEG Richard Jahns Distinguished Lecturer. Do you know of an outstanding researcher or practitioner who is an outstanding speaker, who would help to commemorate the work of Professor Jahns, and who would help to generate interest in engineering geology among students? Please send nominations and a brief supporting statement (*e.g.*, a c.v., publication list, and/or narrative statement of accomplishments) to Bill Haneberg at <bill@haneberg.com>. **Deadline: March 1.**

Roy J. Shlemon Scholarship Awards. Two awards, $1000 each, to M.S. and Ph.D. students in the broadly defined field of engineering geology. Applicants must be EGD members. Information and applications are available at the EGD web site or from Robert A. Larson <ralarson@rampageusa.com>. **Deadline: March 15.**

John C. Frye Environmental Geology Award. This award is given for an outstanding environmental geology paper published by either GSA or one of the state geological surveys. **Deadline: March 31. For information on the Frye award, please go to <http://www.geosociety.org/aboutus/awards/#frye>.**

Professional Development Opportunity – Neotectonics and Paleoseismology

Dr. James P. McCalpin, Dr. Jim Evans and Dr. Susanne Janecke will be offering their acclaimed short course "Field methods in neotectonics and paleoseismology" for three (3) graduate credits from Utah State University. This hands-on, field-oriented course emphasizes collection and analysis of geologic data related to neotectonics and paleoseismology and, as needed, geomorphology, Quaternary geology, and soils. This course is taught at the upper-level undergraduate and graduate level, but young professionals may find it useful. The field experiences include trench studies of active faults and will be June 7-19 in southern Colorado. Cost varies with housing arrangements, and ranges from $700 (no credit, camping-out) to $1,880 (full credit, motel). Information is available at <http://www.geohaz.com/04curric.htm>.

Another Professional Development Opportunity – Shlemon Conference on Earth Fissures

Hosted by the Engineering Geology Foundation and the Association of Engineering Geologists, the first annual Shlemon Conference in El Paso, Texas, will evaluate the present state of knowledge of earth fissures. The El Paso conference will consist of keynote oral presentations by selected experts, volunteered oral/poster presentations by conference attendees, a field trip, and a 1/2 day wrap up session to help define future research directions and data needs. Discussion topics will include:

- Processes Leading to Fissure Formation
- Fissure Classification and Evolution
- Prediction of Fissure Development and Growth
- Effects of Fissures on the Built Environment
- Mitigation of Fissures for Engineered Structures

For information, visit the conference website at <www.haneberg.com/fissure> or contact Bill Haneberg, bill@haneberg.com, 206-871-9359 or Jeff Keaton, jeff.keaton@amec.com, 714-779-2591 ext. 308.

2003 Burwell Award Citation - Seattle

> "How to Obtain Earthquake Ground Motions for Engineering Design," Ellis L. Krinitzsky (*Engineering Geology*, July 2002)

In order to properly design seismic-withstand qualities into engineered works, civil engineers and architects need to consider the most likely worst-case characteristics of ground shaking that will be felt by the structure. This evaluation must consider the actual seismo-tectonic region, with its most likely nearest assemblage of "capable" faults.

The engineering community currently is beset with a variety of non-standard approaches by which these ground motions can be specified for incorporation into seismic-withstand design. Most of the motions now actually specified either do not include true geologic evidence to support realistic ground motions, or the expert providing the input does not identify the procedure utilized.

Human lives are at stake! Ellis Krinitzsky has spent the last thirty years in a calling to correct this situation. Ellis' message has a duality, first to specify a rational and correct methodology and secondly, showing light on the abuses by those who would advise that design be based strictly on broad probabilities, and/or through methods that are not revealed to the designer, to public safety regulators or to the public at large.

Dr. Krinitzsky's paper should be considered by architects and design engineers in their roles to protect the public, and Krinitzsky's stated findings and methodology must be used in future inquiries concerning those engineered works that will fail to protect the public from earthquakes that can rationally be assigned to active faults within potentially-damaging distances.

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Here in this one economical technical paper Krinitzsky has come forth with all that is needed for an honest geoscientist to go about collecting and evaluating truths for the informed purpose of assigning dependable earthquake ground motions for engineering. Krinitzsky's courage is most bold in that his methodology stands alone. There is nothing like it in the broad literature of the subject for definitive prescription of the steps and analyses essential for engineers to incorporate into their seismic-withstand computations. In this sense he has met the test of professional responsibility and he has thrown all of his energies and capacities into this procedure for us. This methodology represents the highest order of calling to his profession and is furthermore a sterling example of responsibility as a practicing earth scientist.

Krinitzsky's contribution is even more important as it is the only alternative to the dominating practice in North America, which is a veiled, black-box dogma called “seismic probability.” The inherent failings of seismic probability have been exposed by Krinitzsky in a series of pathfinding papers beginning with publication of his GSA/AEG Richard H. Jahns Distinguished Lecture in 1993. Krinitzsky showed that seismic probability is a “black box” because it relies entirely on mistaken assumptions, faulty logic and statistical methods that are used improperly. It produces results that are opaque to rational understanding. It leaves no trail.

Never mind for the moment that probabilistic ground-motion predictions ignore much of the relevant geoscience evidence gathered by those who seek, track, record, measure and analyze Nature's stated, accumulated record of earthquake characteristics. In stark contrast, Krinitzsky's methodology incorporates only applicable scientific and technical evidence.

In Krinitzsky's method, one does not encounter the smoke and mirrors of seismic probability. Each step of assemblage, review, evaluation and interpretation of evidence is openly defined. The beauty of his methodology is that he has assembled every bit of it from not only his own endless effort, but from the valuable geological and seismological work of his colleagues. From 1973 through 1995 he managed and directed U.S. Army Corps of Engineers’ funding that paid for a series of 28 Waterways Experiment Station (WES) contract research reports that were awarded to a broad spectrum of talented researchers (not all of whom work within the realm of geologic credibility, but, nonetheless, capable researchers). From this, his own work and that of his WES colleagues, Krinitzsky's method can stand test of reality in after-event scrutiny. It is the gift of an honest and informed geoscientist, for the direct appreciation and use of his colleagues in the professions dedicated to saving lives in future earthquakes.

This single short paper stands also to call attention to the glaring need for earthquake ground-motion purveyors to have the courage to provide transparency in their analyses. More importantly, may Krinitzsky's statement of clear methodology become a *de facto* standard for truthful declarations of all workers in geoscience input for seismic-withstand design. We are dealing with nothing less than generating provisions for saving human lives.

Apart from providing a rationale having clarity, Krinitzsky's methodology is available to be employed henceforth in reviewing the honesty, worth, and applicability of every geoscience report of ground-motion inputs for engineered seismic-withstand design. The true usefulness for Krinitzsky's methodology will be its application in post-event inquiry to determine the competence of individual recommendations for every engineered structure that has failed during the next killer earthquake.

Krinitzsky’s message will not be welcomed by those who wish to hide their methodology from the inspection and criticism that is embodied in peer review by the scientific community. The opportunity to apply Krinitzsky’s method in the retrospection of the next huge, killer earthquake could come as early as "tomorrow".

Allen W. Hatheway
Fellow, GSA
Past Chairman, EGD (1980)

Helen Delano, the 2003 recipient of the Division's Meritorious Service Award, demonstrates her well-known sense of humor by showing a geologist relaxing in the field.

Helen Delano Chosen for 2003 Meritorious Service Award

After an education at Tufts University and SUNY at Binghamton, then a brief time with the National Park Service, Helen Delano arrived in Pittsburgh in 1980 as an employee of the Pennsylvania Geological Survey. With her friendly nature and "can do" attitude she quickly became immersed in the activities of the Pittsburgh Geological Society and served as President in 1986-1987.

In 1980, Helen joined EGD and, as usual, became a hard working volunteer. She reviewed abstracts for both Section and Annual Meetings. From 1993-1998 Helen served on the EGD Management Board as Member-At-Large, Secretary, Vice Chair, Chair and Past Chair.

In 1996, Helen organized a Symposium on the "Engineering Geology Application of Geologic Maps." She served on the JTPC in 1996 and 1997. Division committee assignments include:

- Burwell Award nominations - 1992-1995,
- Jahns Lectureship nominations - 1996-1998,
- Joint Technical Program Committee for Environmental Geoscience - 2001-2003

Helen was Citationist for the 1995 Burwell Award (Higgins & Coates) and the 1999 Distinguished Practice Award. She continues to serve as a reviewer for *Environmental and Engineering Geoscience* and EGD Books.

Helen has contributed in equal fashion to GSA's Northeast Section. She is currently President of the Association for Women Geoscientists. It is a great personal pleasure to participate in recognition of Helen for her meritorious service to GSA.

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