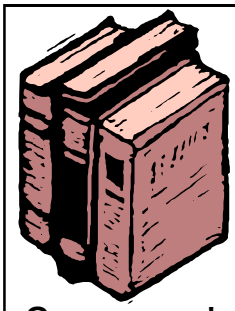
STRUCTURAL GEOLOGY AND TECTONICS DIVISION Newsletter

Volume 27, Number 1 February 2007



CHAIRPERSON'S MESSAGE

"Laissez-faire" and the Elephant in the Room

Welcome to the "spring" newsletter of the largest division in the Geological Society of America. We have been such most years since our formation in 1980. The comfort of being largest has certainly allowed us the apparent luxury of just letting events happen and not worrying about the Division and its role in GSA. And just what is the role of the Division? "To serve the membership by creating a strong technical program at GSA venues and strengthening disciplinary recognition inside and outside GSA." Given that GSA will "always" have national meetings and that we are many in number, the work of the Division would seem to be in hand without too much effort. Yet…

One could say, as the Division goes, so goes GSA. Well, if some signs are to be believed, we are going to AGU. Compare the technical program in structural geology and tectonics (SG&T) of GSA Philadelphia '06 to AGU San Francisco '06, which had a very interesting string of sessions laced with field geology. At the same time, on a personal level, I have lost count of the number of conversations that my colleagues started in technical sessions, bars and business meetings about how the technical content of SG&T at GSA is "losing its edge." The lament continues with discussion of the drift of colleagues to the AGU winter meeting. A reasonable prediction could be that over the next 10 years, the center of mass of SG&T technical presentations will be at AGU meetings. The issue here is not AGU, but rather what do we, the membership, want to do about having a strong and intellectually challenging SG&T presence at GSA meetings?

Is there a problem? Let me play the devil's advocate. Let us suppose that GSA is an organization that focuses on processes very near the Earth's surface as proposed by last year's GSA president. While practitioners of tectonics and structural geology investigate near-surface processes, we are so much more, with interests extending to the center of

continued on p2

Quick Links

Need to get there fast, click on the WWW button and to the web you will go!

Chairperson's Message *(continued from p1)*
the planet and off-world to related systems on other planets and moons. So, to pose the counterpoint: Is GSA the best organization for us? Instead, is strengthening the sections of AGU, particularly tectonophysics, the best path for us? In posing these questions, I am not here to offer answers, but instead to challenge, us, the membership, to take an active role in our fate as a professional group within larger professional organizations. We can certainly drift along, changing directions with currents generated by opinion makers or situations. Alternately, we can continue and strengthen the work of those who have gone before us to make the SG&T community a strong voice in the geosciences. We can choose the professional venue in which we wish to voice our efforts. We can advocate the exciting scientific problems in and around our discipline. Please note the use of the plural! As a one-year officer chairperson of our division, I cannot engineer a transformation in a moment even if desired by the membership. We need us all to lead and succeed.

The management board is taking procedural steps to help (see elsewhere in the newsletter). We are rebuilding membership involvement for developing technical programs at GSA meetings through a re-invigorated program committee. We are proposing a series of organizational changes through revised bylaws to assist. The board can start this ball rolling, but the membership will make it happen if it does. What can you do? Help us to start the planning now for Houston '08 and Portland '09. Start working in person or via messages with colleagues to develop sessions that will link the field-centric strength of GSA to experimental work, computer simulations, industry perspectives and other disciplinary intuitions, while drawing in our international colleagues. In the crazy work day schedules that so many of us enjoy, these requests could be tough to fit, but we and you will appreciate the result if you do.

The good news is that the fate and status of the SG&T Division is in our hands. As a unit of GSA, we have many advantages on which to build, including rotating locations facilitating a field-based component to national meetings, an abundance of opportunities for oral presentations, a strong commitment to the involvement of students at all levels, and a strong variety of disciplinary interests centered on geology. I encourage you and challenge you to provide leadership and assistance to the management board for the purpose of building outstanding technical programs at GSA meetings. This can only be a win for everyone. Thanks for your attention and I look forward to your energy, ideas and leadership.

Bill Dunne
February, 2007, Knoxville

SG&T Division Activity Coming Your Way!!

1) **Reactivation of the Division Program Committee** – We are looking for motivated division members to help craft and recruit technical programs that take advantage of the opportunities provided by national GSA meetings in Houston '08 and Portland '09. Houston is a great opportunity given that it is the center of mass for the petroleum geosciences. Portland offers the opportunity to attract collaborative presentations with our geoscience colleagues around the Pacific Rim and in eastern Asia.

We are also looking for division members to develop Pardee symposia, topical sessions, short courses, and field trips for these meetings. So, if asked, please help! Better yet, please go ahead and start developing technical contributions. If you wish to check for division interest, please contact Bill Dunne wdunne@utk.edu or Eric Erslev erslev@warnercnr.colostate.edu. Thanks.

2) **Revision of Division Bylaws and Creation of Division Rules and Regulations** – The Management Board will be asking the membership to consider and vote on a major overhaul of the structure of the Division bylaws. The primary purpose of the revision is to separate the operational details of the Division into a separate document, "Rules and Regulations," that can be easily revised by the Division without requiring GSA Council approval. At the same time, the revision offers the opportunity to better map the governing documents of the Division onto the actual functioning of the Division. The Bylaws were last officially amended in 1994, and practice has drifted away from official procedure. The result is that we need to return to official procedure in some cases and in other cases make current practice the official policy. Examples are:

a) Strengthening the role of the Program Committee by defining its role and by folding the Short Course committee into the Program Committee;
b) Resolving the large difference between "practiced rules" and "stated rules" (more than 15 years old) for the Best Paper Award.

The management board will be sending out a blast email with URLs at the Division website for the existing and proposed bylaws in the near future. Please give them a look. We will have a comment period of about one month, from which the management board will consider revisions to the proposed bylaws and rules & regulations. After that comment period, the proposal will be put to the membership for a vote. In advance, thanks for your participation in this process.

3) **Moving the Division as completely as possible into the Electronic Age –** As you know, many organizations are shifting to electronic-only communication to save costs by eliminating paper communications and to increase flexibility. The Division would like to do the same. Presently, the Division has about 100 members (less than 10% of the membership) who receive all communications from GSA in paper form, including division newsletters, ballots, etc. The Division would greatly appreciate it if you converted to having your GSA communications in an electronic form (email). Please contact GSA and change your status. Also, for members who know members that are unable to acquire an electronic form, if you can provide access through mechanisms such as institutional email accounts, it would be appreciated. Thanks in advance for your help. Thanks very much for your consideration! The Division very much wants to move out of costs and time delays associated with the "paper world" so as to better serve the membership.

Call for Nominations
Career Contribution Award and Best Paper Award

Important roles for the Division membership are to nominate worthy colleagues for the Career Contribution Award and to nominate exciting contributions for the Best Paper Award. The criteria for the awards are:

Career Contribution Award: The award shall be made to an individual who throughout his/her career has made numerous distinguished contributions which have clearly advanced the science of structural geology or tectonics. Candidates may or may not be members of the Geological Society of America and may be citizens of any country. The award may not be given posthumously unless the decision to give the award is made before the death of the awardee. Please send nominations to Peter Hudleston hudle001@umn.edu, chair of the Career Contribution Award Committee. **Deadline – March 14, 2007.**

Best Paper Award: The award shall be made to the author or authors of a published work (paper, book, or map) of exceptional distinction which clearly advances the science of structural geology or tectonics. Candidates may or may not be members of the Geological Society of America and may be citizens of any country. The award may not be given posthumously unless the decision to give the award is made before the death of the awardee(s). Please send nominations to John Weber weberj@gvsu.edu, chair of the Best Paper Award Committee. **Deadline – April 30, 2007.**

Minutes of GSA Structural Geology and Tectonics Division Management Board Meeting; October 24, 2006; Philadelphia, PA

Board members present: John Geissman (Chair), Bill Dunne (1st Vice-Chair), Eric Erslev (2nd Vice-Chair), Peter Vrolijk (Secretary/Treasurer), Tim Wawrzyniec (Newsletter Co-Editor), Darrel Cowan (GSA Council SGT Division Liaison), and Basil Tikoff.

1. Announcements
   - Election Results: Claudia Lewis elected to 2nd Vice-Chair position.
   - Division Awards: John Dewey to receive Career Contribution Award (with citation by Celal Sengor). Tim Dixon received Best Paper Award, but time conflicts led to deferral of award until GSA 2007.
   - Student Research Awards: Supplemental research awards given to William Amidon (Cal Tech), Frances Cooper (USC), and Lars Hansen (Univ. Wyoming) to recognize exemplary research proposals.
   - Student Field Trip/Short Course Awards: One award presented to Caroline Setchell (Imperial College). Few students avail themselves of this opportunity.

2. Division support for new structure/tectonics journal
   - New, integrated, international, GSA-sponsored journal for Structural Geology and Tectonics.
   - Division supports the development of a proposal to GSA Council

3. Report on opportunities for structure/tectonics in major, NSF-funded, integrated studies
   - ISES summer schools (e.g., 1-week course at Colorado College for Master's and PhD level students a good model) – Basil Tikoff
   - GeoEarthscope – report on opportunities for studies with major equipment components (e.g., LIDAR, INSAR, or geochronology – Basil Tikoff
   - Geoframe – Ben van der Pluijm

4. Division topics
   - Budget: The fiscal year ended June 30, 2006 with the division accruing a budget surplus of $2,119.13. This surplus resulted from an annual expense of $8,644.28 against income of $10,763.41. Increased income ($1,810.10) resulted from contributions made at the Division booth at the Fall, 2005 annual meeting, and is offset by an expense of $1,981.14 for the items purchased by the Division for this event. Additional expenses come from continued increased support of student participation in GSA-sponsored meetings. Unrestricted net division assets on June 30, 2006 were $23,979.32 (two-and-a-half times annual dues income).
   - Membership in the division stands at 1628, with 32.5% of members student members.
   - Newsletter editors – Tim Wawrzyniec and Barbara Sheffels
   - Webmaster – Kevin Smart (SWRI)
   - Division Board undertakes a more active role in promoting and defining SGT technical program for GSA annual meeting. Board members commit to helping develop several Pardee proposals and technical theme topics.
   - $3000 committed to support the travel of 6 students from North America attending the 2007 Peach and Horne celebration - Continental Tectonics and Mountain Building in Ullapool, Scotland, during May 12th to 20th, 2007, which is sponsored both by the GSA and the Geological Society of London. Additionally, the GSA subsequently allocated $2000 for additional student support. This is the second year in a row that the division has committed a significant fraction of the Division budget to supporting student attendance at a GSA-sponsored international meeting.
   - Recommitted to update division bylaws, including separation of Division bylaws and Rules and Regulations of the Division. Work to be completed by spring, 2007.

Submitted by Peter Vrolijk, SG&T Secretary and Treasurer

Tectonics Program

The Tectonics Program supports a broad range of field, laboratory, computational, and theoretical investigations aimed at understanding the evolution and deformation of continental lithosphere through time. Proposals to elucidate the processes that act on the lithosphere at various time-scales and length-scales, either at depth or the surface, are encouraged. Because understanding such large-scale phenomena commonly requires a variety of expertise and methods, the program supports integrated research involving the disciplines of structural geology, petrology, geochronology, sedimentology, stratigraphy, geomorphology, rock mechanics, paleomagnetics, geodesy, and other geophysical techniques.

Please note that the Tectonics Program Solicitation (NSF 06-544) has recently been updated and can be found at the following URL: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf06544.

Continental Dynamics Program

The Division of Earth Sciences (EAR) will consider proposals for multidisciplinary research that focuses on an improved understanding of the processes governing the origin, structure, composition, and dynamical evolution of the continents and continental building blocks. The program is particularly oriented toward projects whose scope and complexity require a cooperative or multi-institutional approach and multi-year planning and execution. The intent of the program is to fund only relatively large projects that do not fit easily within other Earth Sciences programs and that have broad support of major sections of the Earth Science community.

The Continental Dynamics Program Solicitation can be found at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf04512

EarthScope Program

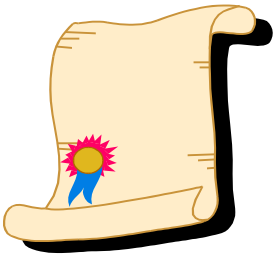
EarthScope is an Earth science program to explore the 4-dimensional structure of the North American continent. The EarthScope Program provides a framework for broad, integrated studies across the Earth sciences, including research on fault properties and the earthquake process, strain transfer, magmatic and hydrous fluids in the crust and mantle, plate boundary processes, large-scale continental deformation, continental structure and evolution, and composition and structure of the deep-Earth. In addition, EarthScope offers a centralized forum for Earth science education at all levels and an excellent opportunity to develop cyberinfrastructure to integrate, distribute, and analyze diverse data sets.

The nucleus of the Program is the EarthScope Facility, consisting of the Plate Boundary Observatory (PBO), the San Andreas Fault Observatory at Depth (SAFOD), and the USArray. The EarthScope Facility is a multi-purpose array of instruments and observatories that will greatly expand the observational capabilities of the Earth Sciences and permit us to advance our understanding of the structure, evolution and dynamics of the North American continent. The Facility is designed to continually incorporate technological advances in geophysics, seismology, geodesy, information technology, drilling technology, and downhole instrumentation.

This Solicitation calls for single or collaborative proposals to conduct scientific research associated with the EarthScope Facility and support activities that further the scientific and educational goals of EarthScope. The solicitation can be found at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf06562

Attention Students – Free $$$

Student members of the SG&T Division are eligible to apply for grants to supplement the cost of field trips and short courses associated with the upcoming GSA Annual Meeting in Denver, 28-31 October 2007. Applications should be sent to Bill Dunne wdunne@utk.edu. Include your name, institution, class, specialty, poster or talk title, field trip title, and indicate why the field trip or short course is important to your research/professional development. Deadline: September 1.



GEOLOGICAL SOCIETY OF AMERICA
STRUCTURAL GEOLOGY AND TECTONICS
2006 CAREER CONTRIBUTION AWARD

Presented to John F. Dewey
Citation by Celâl Şengör

Today, we are here to celebrate the career one of the greatest geologists of our times, who, during the last three decades of the twentieth century, has put his stamp on the tectonic interpretation of Earth's behaviour. How fortunate it is for geology that he is still active and, by all appearances, is likely to remain so for years to come. It is an immense honour for me as a fellow geologist but, even more so, as his pupil, to present Professor John Frederick Dewey to you as the career awardee of the Structural Geology and Tectonics Division of the Geological Society of America this year.

Fortune favours the prepared mind. John's career as a structural geologist was about a decade old when plate tectonic theory burst upon the geological science in the late sixties. He read geology at Queen Mary College and obtained his doctorate in Imperial College with a thesis on the Ordovician and Silurian rocks of western Ireland. Although not his thesis advisors, Dewey has always regarded John Ramsay and Janet Watson as his most important teachers and mentors.

In the late sixties, few geologists grasped the significance of plate tectonics because a broad view of the geological behaviour of our planet was the first necessity. In the sixties, there were a number of such geologists with an encyclopaedic knowledge of global geology, yet not one of them became a John Dewey, because they lacked the other, in my view the more critical, component of a broad world-view of geology: A critical rational approach, i.e., to dare to ask the question: *What ought it to be like?* Such a question had long been anathema in twentieth century geology because of the prevalent silly Baconianism. As Tuzo Wilson wrote, 'more geological mapping was both the method and the aim of geology' in those days.

Indeed, when I started my geological education, I was instructed to learn 'the basic principles' first and then be ready to question the data. However, my previous reading in the history of geology had taught me that those very 'principles' that I was advised to learn (implicitly, without questioning) were the mistakes of tomorrow. When I met John Dewey, after my first year in geology through a short course he was giving together with Walter Pitman, I instantly recognised a teacher who not only allowed, but actively encouraged, questioning even the most basic 'principles.' On the day we met (10th June 1975), I told him, as a freshman, that I thought his model for the tectonics of Turkey as published in the classical 1973 Dewey et al. Alpine System paper (*GSA Bulletin*) was wrong. John said "I know, but tell me how we can correct it." This reaction, pronounced with a genuine interest and smile during lunch, led to much scribbling on several paper napkins and, during that conversation, John conceived the idea that the Aegean grabens might have been created by east-west shortening and offered to write a paper with me, which appeared in 1979 in the *GSA Bulletin*. What really impressed me was John's incredibly quick and inqiusitive mind, his genuine love for and determination to seek the truth and his generosity and kindness towards a freshman. I decided that I must continue my studies with him. That decision turned out to be the most important and the luckiest I have made in my life. To this day, I have been a constant beneficiary of John's kindness and generosity towards me. I probably owe him almost as much as I owe my own parents. His generosity and kindness to all his students and colleagues have been no less.

When the kinematic theory of plate tectonics was almost complete in 1969, very few geologists dared to reinterpret geological data from an entire mountain belt in terms of it. I know of five papers that came out in 1969 on this topic: John Dewey's on the Appalachian/Caledonian System and on the conversion of Atlantic-type continental margins to Pacific-type continental margins, Warren Hamilton's on Mesozoic California, Hans Laubscher's on mountain-building (but essentially on the Alps) and Mitchell and Reading's on geosynclines in terms of plate tectonics. Of these only Dewey's and Hamilton's papers dealt with the motion of the plates not only to explain why the mountains were where they were, but also got into the bowels of the orogens to show us what the single lines geophysicists were drawing along convergent boundaries in reality were and how they worked to create the real geological record. Recently, I had to remind, in a book review on the Lake District in northern England, that Dewey's 1969 paper had explained the individual Lakes elements already in his 1969 Nature paper! I could have done the same for parts of Ireland, Newfoundland, and the northern Appalachians!

Once these initial papers were written, John's research forked: he continued to explore the theoretical implications of plate tectonics and he got into the field to test his and others' models. Therein we see how his critical rationlism was working. Dewey not only falsified many models by others, but also some of his own (including those dating from pre-plate tectonics days from the British Isles). Initially, for example, he thought ophiolites could glide down as gravity nappes. After work in Newfoundland with his students and visits to many ophiolites in the world, he changed his mind. In fact, his team's ophiolite research created such a sturdy edifice, that much of what is going on now on ophiolites is icing on its cake.

John spent the early seventies exploring plate tectonics in many mountain belts and, together with his colleague and life-long friend Kevin Burke (another awardee of this section), in rift valleys, along continental margins and on continental plateaux. These years saw the birth of the still-used models of uplift-generated triple-junctions on plume heads, of Tibetan-type plateaux in continental evolution, of cracking continental plates along complex zones of deformation. Through these studies, John reached a conclusion that horrified both him and those who read it and tried to come to grips with it. He documented, in an ingenious paper in the John Rodgers (another awardee of this section) volume of the *American Journal of Science* in 1975, that plate tectonics must destroy geological evidence on such a scale as to render unique reconstructions of the past impossible! Anybody who understood the reality of subduction would have guessed that, but John showed, on hypothetical worlds masterfully draughted on Wulff-nets how a continuously-evolving network of plate boundaries must behave and which kind of evidence would get destroyed in what sequence and at what stage of plate boundary evolution. This kind of rigorous analysis, while forcefully driving home to geologists that they cannot hope at the end of the day to be all-knowing, rescued them from despondency by showing them what systematic clues they can hope to find to fill the gaps, albeit hypothetically, that open up during plate boundary evolution. John has repeatedly emphasised the chance aspect in geological evolution. Anybody who has not read John’s 1975 *Am. Jour. Sci.* paper and its offspring his 1976 *Tectonophysics* paper is at a serious disadvantage in interpreting geological history in terms of plate tectonics. John showed that, while much evidence is lost, history may still be testable as much as physics is, and that geologists must strive to erect testable hypotheses to reconstruct the past.

In the middle and the later part of the seventies we see John, with his colleagues, getting into the Precambrian (which he had already touched in 1969, with Kevin Burke, in a paper on the

reinterpretation of the Pan-African 'tectono-thermal' event of Kennedy, which first appeared in 1972). They showed that the naive interpretation of the greenstone belts as little deformed synclines was hopelessly wrong and resulted from not appreciating how the structures of the Phanerozoic orogenic belts had been unravelled by a judicious combination of detailed biostratigraphy and structural geology. In the Pre-Cambrian, the lack of biostratigraphy had crippled structural interpretations much more than most Precambrian geologists seemed to have recognised. John took a position akin to that adopted by Eduard Suess a century earlier; he was willing to be actualistic but without losing sight of the fact that the terrestrial globe had an irreversible history. Today, Precambrian, especially Archaean, tectonic research rises on the pillars that John and Kevin erected.

In the eighties, John returned to the more detailed structural evolution of the orogenic belts and considered arcs, collapsing orogens, and "terranes." About terranes he initially had a most tolerant approach, adopting graciously the terminology of those who reinvented what already Tuzo Wilson and he had clearly said in the late sixties and the seventies. My fellow students from our Albany days will recognise that those papers fundamentally say nothing that we had not been hearing in the mid-seventies in John's lectures. When terranology became an end in itself, he revolted. The papers I wrote on that subject and those that we co-authored were all written in close communication with John. Later, his interests became concentrated around complex strain histories and they culminated, in 2002, in his masterly analysis of transtension. Here we see one of the best examples of John’s method of approach to geological problems. He first lays out all the theoretically possible aspects of a problem, then takes individual geological objects, such as hand samples, outcrops, entire orogens, and tests the models using observations. Observations inspire further generalisations, correct errors, and lead to further questions. Then, he returns to the drawing board and tries to answer the questions first theoretically, laying out the basis for the next field-checks by modifying the original model, the iterative, networking, approach.

Most recently, his research has centred on 3-5 Ma transtension along the eastern side of the Sierra Nevada and the pre-Carboniferous history of the US Cordillera west of the ”706” line, where he takes the superexotic view that all terranes with pre-end Devonian deformation originated in the Appalachians. He has also been mapping and describing mega-boulder deposits generated by freak waves and tsunamis, especially in New Zealand and western Ireland.

He has never been seduced by the deceptive numerical pseudo-precision of simplistic physical models derived from the application of elementary engineering concepts to geology. He has long warned against the bogus air of precision that one may obtain by ignorant application of ideal models, developed on unreal objects and for unreal circumstances, to real geological objects and processes evolving in inscrutable complexity in the abyss of deep time. He has been rightly intolerant of those producing numbers from either computers not tied to field reality or samples collected in the absence of a carefully-constructed geological map. While we were his students, he allowed none of us to obtain a degree without making a detailed geological map. Later, he allowed those with physical handicaps or of a more geophysical bent to do so but, even then, he made sure that they studied and understood geological maps und used them in their work. For John, geology is the ultimate natural science and unforgivable that a geologist should adopt the methods and theories of only one of its hand-maidens such as physics, chemistry or engineering.

I could go on and on about John the geologist, but time fails us. He is far greater than the limits of a single citation could possibly read. Without him, the geology of the latter half of the twentieth century would have been very much poorer.

Of the man John Dewey, I wish to say much, but I am deeply biased, as he and his wife Molly have always treated me as an older son and my affection, respect and indebtedness to them both are boundless. However, as no son should be barred from speaking about his father, so no grateful student should be prohibited from talking about his mentor. In John Dewey, all his students have found a wonderful, concerned and engaged teacher. His ability as a teacher and as a lecturer is legendary. His readiness to drop everything to answer a question has always impressed me. One day in Albany, when I asked him why he used a certain size Rotring pen while draughting a certain line, he dismounted the entire figure from the light table, walked across campus with me to the only reducing xerox machine we had on campus just to show me what it would look like when reduced! This reminds me what a superb draughtsman John is. He draughts all his own figures, now in Adobe Illustrator, and has always insisted that, when writing a paper, one should always first draw the figures: Of geological objects and processes, he was fond of saying 'If you cannot draw it, it does not happen!')

There is no more affectionate and considerate friend. A model family man, he invited me, after I had met him in Maryland in the Summer of 1975, to stay with him and his family during the coming Christmas. While the presents were being unpacked, he noticed that I had no present. He walked up to his bookshelf, picked up a rare 19th century geology book from his collection (T. Mellard Raede's, *The Origin of Mountain Ranges*) and handed it to me saying 'And this is your present!' I shall never forget that gesture. John has been a great teacher and a mentor to all his students.

I have often written that top scientists very seldom make good teachers. Dewey is one of those rarities. Not only is he a superb lecturer, a great discussion partner, and an inexhaustible well of information, but he has that great knack of making his students discover things for themselves. One evening in the mid-seventies, I remember his telling Gary White, who had just arrived in Albany to become one of his graduate students, that he did not inflict help upon his students. He has always refused to spoon-feed us. As a graduate student, one had to come up with one's own research topic and to make it acceptable to John. This was tough. Even tougher was the complete freedom one enjoyed as his graduate student. John laid down no guidelines in research, although he was always available with advice if asked. However, he encouraged his graduate students to talk to each other (we do, to this day!) If one was able to stand all that, one became an independent researcher in one's own right and not a Dewey clone. John has had 56 graduate students who, except for two who have sadly died, are now distinguished geologists across the globe.

Colleagues, I present to you, with much pride and immense satisfaction, this year's Career Contribution awardee of the Structural Geology and Tectonics Division of our society, Professor John Frederick Dewey.

Response by John F. Dewey

I am deeply honored and touched by this award. Celâl has been most generous, but I am approaching 70 and “retirement” is looming in the not-too-distant-future. The career contribution award suggests thank you and goodbye, but I promise that I will keep on doing field-based geology in structure and tectonics, but I do have some new interests in the deposits of tsunamis and freak waves mainly in New Zealand, Ireland, Aruba, and Cyprus.

First, the negative. I will outline some of my profound concerns about the present state of Geology and academic life. I may be considered a grumpy old man but I can say whatever I choose at my age because I am seeking neither a job nor NSF funding.

EarthScope, IRIS, and programs like them are expensive boondoggles. Random data collection, of course, is always useful as would be a proposal to map the whole of Africa at the 1:10,000-scale, but it is not the way to do science. Actually, any surface random data collection like Quadrangle Mapping is much more useful than EarthScope because of the small filter size and direct access to rocks. It is peculiar how large-scale geophysical random data collection, which homogenizes at a very large pixel scale is considered to be superior to geological mapping at a small resolved pixel scale where one can actually see the rocks. Large expensive programs, driven by program managers and geopolitical activists, are, generally, appalling and costly nonsense. At an early stage, we needed less sycophancy from the geological community, such as "how can we adapt and use EarthScope to our geologic advantage" and more straight talk such as "please stop this nonsense and put all that cash into the responsive mode where all funds should reside." It is not too late, but important that geologists now inject some science into the program.

What started out as a new and vibrant marine geophysics that completely changed our geo-world in the 1960's has been used to denigrate and diminish the central and critical role of geology in the Earth Sciences. Geology is becoming like a puffball; the core of the science is rotting out inside a thin hard shell of the avant-garde and fringe. There is more than one Professor of Geology who has never made a geologic map, looked down a microscope, or studied rocks, minerals, fossils, or seismic sections, or logged a core. Classic field-based observational geology is being squeezed out. Microscopy and optical mineralogy are being phased out and students are not taught to map properly and make field observations. How can one do serious petrology without optical mineralogy? The Universal Stage is a powerful tool in petrography yet is now scarcely taught or used. Whole departments are ignoring the fundamentals, and undergraduates who want to study geology are being cheated. The future of geology is now at serious risk because the young are not being properly trained in the basics, especially in the field. Francis Pettijohn said "The field is where the truth resides; rocks do not lie, and there is nothing as sobering as an outcrop." Field geology can be intellectually and physically very demanding, sometimes hot and sweaty or freezing and wet but without it, a resulting map, and observations of rocks, minerals and fossils, nothing much useful can be done.

Another problem is the seductive pseudo-precision and accuracy of numbers that come out of machines. Simple basic geology 101 tells us that the Sierra Nevada went up in the late Cenozoic, yet new and untested geochemical arguments are used to counter this. The established stratigraphic position and order of Ordovician sediments in western Ireland are challenged by zircon numbers with no micro-mineralogy or serious discussion of lead loss/gain. We have been seduced by and begun to believe implicitly in the sometimes bogus results of some of these methods. Rb/Sr was once considered the "bee's knees" of geochronology but is now realized to be almost worthless. Quantitative mensuration methods are important but have to be weighed as a component of all the evidence rather than considered to be the definitive truth. Numerical modeling is important in constraining ideas but is not the touchstone of veracity.

I am not suggesting that only hard rock field-based geology is worth studying. To understand the Earth, its processes and evolution, we need everything from all kinds of observation, experiment,

numerical and analog model building, analysis, synthesis, and lateral thinking. My complaint is that the techniques of the core of geology are being progressively reduced and eliminated in favor of trendy and probably ephemeral topics. Environmental geology is a buzzword that conceals a lot of shallow and poor science; as Kevin Burke once remarked “I am an expert in this area, I have lived in the environment for seventy years.” The ultimate piece of nonsense is astrobiology/exobiology, the only subject that I know that has no observational base and no material. Its rationale seems to be an excuse to study the Archean and the origin of life (why find an excuse?) and plenty of NASA money.

I am deeply concerned about the modern university obsession with accountability, assessment and review, but only of course of academics not administrators. The intellectual tradition of scholarship is decaying as the corporate business mode takes over with all its attendant money-based decision-making. The faculty, who perform the basic and essential university mission of teaching and research are paid substantially less than administrators. The recent history of some major universities involves devious and secret actions in wasting public money at the highest administrative levels; partners hired and given newly-defined and highly-paid jobs, massive funds spent on upgrading housing, expensive sabbaticals taken just before retiring, being fired, or relocating, exit golden handshakes, and secret unaccountable housing loans given to un-named individuals. The wasted money of “hands in the till and noses in the trough” is of less concern than the arrogance of putative importance and entitlement shrouded in secrecy. This kind of stuff, of course, is not available to academics and has to be stamped out. Faculty need to take over universities again; administrators should obey their instructions. We are in trouble when Chancellors, Vice-Chancellors, Provosts, and Presidents think of themselves as top dogs and CEO of their institution in the corporate business mode.

The overhead is a drug to which administrators have become addicted; it gives Chancellors and Presidents slush funds. Grants and overheads are corrupting serious scholarship. The overhead pours in, the faculty who generate it are rated by their ability to obtain it, while administrators, who do not and cannot generate it, cream it off to spend it in unaccountable ways. They are even beginning to tax research gifts to department and individuals.

The NSF funding system, especially in Structure and Tectonics, is moving away from the field base. It is no different internationally; the system is run largely by people who do not go into the field and have no sense of or interest in the field base of geological reality. Funding goes to safe research that has already been done, and to the ongoing support of large laboratory systems in which the funding agencies have an investment and a vested interest. The risky, innovative and clever is doomed to grades of good and very good, the kiss of death. Funding commonly goes to research that has already been done. I have thought for some time, and for many reasons, that the geo-funding activities of NSF should be transferred to the NAS, where they would be awarded to the best and most original research. The NSF Program Manager position, in its present form, is a position that should be disbanded in that managers have too much power to influence and steer, if not direct, the kind of science that that they regard as important. Program Managers do not have a fatidical and exclusive knowledge and understanding of what is and may become important. Everything is important. The proper way to proceed is for all the money to be in the responsive mode, for the panels to consist of the best people, and for the panels to make decisions, not recommendations, that the Program Managers administer.

To the young, I say “take up the challenge to preserve geology and our universities if you care about them.” You have the power through your faculty senate, to take charge. Don’t get sucked into the

system; remain uncorrupted but remember "the ruling clique in the funding system and administrations may try to get you through funding, tenure, and promotion. Your university does not care about scholarship and what research you are doing; they are concerned mainly with the overhead, the number of papers that you have published in refereed journals, and external recognition through medals, awards, and prizes. Your promotion and tenure depend upon these factors while only scant regard is paid to university service, teaching, and serious scholarship. Universities should be about scholarship, a semi-forgotten word that means academic achievement and learning at a high level, exemplified *par excellence* by my citationist and many of my students. There have been great scholars who have spent many years developing a fundamental piece of research while publishing little or nothing but teaching superbly at the highest intellectual level. Such people would not have a chance in today's universities. Vertebrate paleontology, for example, is a field that demands an immense amount of work before something sensible can be published. Universities have to change the way in which faculty are assessed for tenure and promotion to promote scholarship rather than the present slavish dependence on an absurd algorithm.

Another problem is the scant attention paid to the literature and history of geology. The vulgar modern trend is to search and refer only to the digitally available literature of the last five years. Consequently, there is much "rediscovery of the wheel," commonly in elliptical or hexagonal form.

Now the positive. I am excited by some of my new research interests and students in UC Davis. Dave Benner and Tatia Taylor, top-class field geologists, have worked with me and taught me a lot about neotectonics and transtension in the East California Shear Zone along the eastern flank of the Sierra Nevada, especially in the Coso geothermal field. Frank Monastero, Director of the US Navy Coso Geothermal Program has been a tower of strength and knowledge in supporting our research, while Jeff Unruh of Lettis Corporation has generously shared his ideas and data, and Don Turcotte is a dependable intelligent counsel and pillar of strength in quantifying the difficult in elegant and simple ways. This Coso transtensional research will be published soon and will change the way in which we think about vertical axis block rotation in both plane and non-plane strain regimes. There are so many problems in structure and tectonics world-wide. All involve an eclectic range of techniques from the thin section to the solar system but most involve field work, laboratory measurement, experiment and modeling.

The USA has been central in my life as the best place in the world to do geology. My ten years in Albany during the 1970's and the last six years in Davis have been wonderful with a small but excellent faculty and top-class carefully-selected and excellent graduate students. Both periods in the USA have generated an intellectual rejuvenation in me. I advise the young of the world to come to America to forge, at least the early stages of, their career.

Hans Laubscher, Greg Davis, Jan Tullis, Tanya Atwater, and Kevin Burke are all hard acts to follow as recipients of this award and illustrate the great range of ideas and techniques in our science. There are many Kevin stories but the simplest and most persistent is the best. If you tell Kevin something that you think is original, he will respond with "there's a lot of it about."

There have been many great people who have been important in my career for whose friendship, influence, and guidance I am deeply grateful: Janet Watson, Robert Shackleton, Chuck Drake, Teddy Bullard, Jim Gilluly, Warren Hamilton, Bill Dickinson, Bill Kidd, Kevin Burke, Hank Williams, and

all my 56 graduate students, who I will not list. I have been very lucky and am very grateful for receiving lots of research funding for forty six years, from many companies, trusts, and funding agencies.

I see the embers of a fire in the rise of a new generation of brilliant young field-based geologists such as David Chew, Paul Karabinos, and Alex Kisters, supported by the middle-aged generation such as Mike Brown, Peter Cawood, and Alan Glazner, and the older generation such as Art Snoke and Carl Anhaeusser, to name but a few. I have learned so much from many geologists, especially from Maria Mange, who showed me the power of high-resolution-heavy-mineral-analysis in tectonics, from Paul Ryan who is world-class at combining field-based geology with numerical modeling, and from my citationist who has demonstrated what can be done with a phenomenal memory, a keen kinematic sense, a fine analytic and synthetic ability, and a complete knowledge of the geology of the world, its history, and its literature.

The Career Contribution award suggests a career coming to its close. I have been teaching for 46 years (about 9,000 lectures, 6,000 hours of practicals/labs, 5,000 hours of field courses, a total of some 20,000 hours or 2.283 years of instruction) in Manchester, Cambridge, Albany, Columbia, Durham, Oxford, and Davis. It does not sound like a lot but try standing on your feet teaching continuously for 2.283 years. I now feel the need to give up full-time teaching. I may be coming to the end of my full-time teaching career but not of my research career. I hope to spend the rest of my life doing lots of geology around the globe in the field, skiing, cricket, watercolour painting, playing the piano, model railroading, walking, consorting and drinking fine wines with old friends, gourmet cooking, and listening to British and Irish classical music. My geology will be mainly in western Ireland, Newfoundland, Norway, California, South Africa, and New Zealand, and the topics will be arc-continent collision, mélanges, transtension, and tsunamites and freak wave deposits but, who knows, I may be seduced into any kind of geology that takes my fancy, the only truly fundamental and the very best science. Thank you all so much for having been my friends for so many years and for being here tonight.

Division Members

If you're doing great stuff, we want to hear about it! When news happens, let us know! Send your updates and announcements to your friendly SG&T Newsletter co-editors Tim Wawrzyniec *tfw@unm.edu* or Barb Sheffels *barbsheffels@comcast.net*. If we can't print it, Kevin Smart *ksmart@swri.org* can put it on the web page!

2007 GSA Annual Meeting & Exposition
28-31 October • Colorado Convention Center • Denver, Colorado

Earth Sciences for Society
Beginning of the International Year of Planet Earth

Abstracts due 11:59 pm PDT, 10 July 2007; abstract form online approximately April 1 at:
http://www.geosociety.org/meetings/2007/

Call for papers
Active faulting, Neotectonics, and Paleoseismology
Theme session for the 2007 GSA Annual Meeting

Wanda Taylor (UNLV), Keith Sverdrup (NSF and UW-Milwaukee) and Vince Cronin (Baylor) have proposed a theme session on "Active faulting, neotectonics, and paleoseismology," co-sponsored by SG&T for the GSA Annual Meeting in Denver, October 28-31. The session is part of a 4-session tribute planned for Dr. James E. Slosson, former State Geologist of California.

Slosson's pioneering efforts to protect the public from earthquake hazards are many, including his work on the development of California's Alquist-Priolo Earthquake Fault Zoning Act, service on the California Seismic Safety Commission, work to strengthen building codes to mitigate seismic shaking, publication of state guidelines establishing the standards of professional practice for geologic reports and seismic evaluation, and a great many papers and consulting reports relevant to the identification of active or potentially active faults.

As one of Slosson's former employees at the California Division of Mines and Geology once noted, "It's a good thing we mapped the San Andreas when we did. There are too many houses there now to be able to find the fault."

We solicit abstracts from all who have information about active/seismogenic faulting that is ready to present, including those who have not yet had a chance to meet or work with Jim Slosson.

Authors who submit abstracts to the Slosson-tribute theme sessions will be encouraged to contribute a manuscript to a special issue of the GSA journal "Environmental and Engineering Geoscience," to be published in Slosson's honor in late 2008. Manuscripts will be due in January 2008.

Ores and Orogenesis:
Circum-Pacific Tectonics, Geologic Evolution, and Ore Deposits

A Symposium Honoring the Career of William R. (Bill) Dickinson
24-30 September 2007 at the Hilton El Conquistador Golf & Tennis Resort
Tucson, Arizona

The Ores & Orogenesis conference is focused on tectonics, geologic evolution, and ore deposits in the circum-Pacific region. The conference will consist of four days of talks and posters, pre-meeting and post-meeting field trips and short courses, a core shack, a vendor exhibit hall, luncheon speakers, short courses and workshops, a reunion night, a Tectonics Luncheon talk by Bill Dickinson, and a banquet honoring Bill Dickinson (Sept 27). The meeting seeks to attract industry, academic and government geologists from around the world as both technical presenters and attendees. *The Ores & Orogenesis Symposium aims to be one of the premier events of 2007 for both the tectonics community and for economic geologists.*

The technical sessions specifically devoted to tectonics, with session chairs noted, will include:

- Plenary Session – Jon Spencer, Arizona Geological Survey, and Bob Kamilli, USGS
- Island Arcs and Back-Arc Basins - Brian Taylor, University of Hawaii
- Circum-Pacific Orogenesis I - Steve Graham, Stanford University
- Circum-Pacific Orogenesis II - Darrel Cowan, University of Washington
- NW Pacific Tectonics - Mark Brandon, Yale University
- SW Pacific Tectonics - David Foster, University of Florida, Gainesville
- South American Tectonics - Susan Beck, University of Arizona
- North American Tectonics - George Gehrels, University of Arizona
- Southwest US - Northwest Mexico Border Region – Steve Reynolds. Arizona State University
- Hot Topics in Tectonics (Special Session) – George Zandt, University of Arizona
- Also, a UNESCO IGCP Symposium on "Palaeoproterozoic Supercontinents and Global Evolution,"

For more information, registration forms, presentation titles and authors visit the symposium website: www.agssymposium.org.

Spouses and families are encouraged to attend. The venue is a resort hotel offering numerous recreational activities in a spectacular natural setting, with numerous attractions available in the greater Tucson area.

GSA Section Meetings

Northeastern Section
12-14 March 2007
University of New Hampshire, Durham, New Hampshire
Wally Bothner, Dept Earth Sciences, James Hall, 56 College Rd., Durham, NH 03824-3578
1-603-862-3143; wally.bothner@unh.edu

Southeastern Section
29-30 March 2007
Hyatt Regency Savannah on the Historic Riverfront, Savannah, Georgia
Pranoti Asher, Georgia Southern University, Dept Geology & Geography, Statesboro, GA 30460-8149
1-912-681-0338; pasher@georgiasouthern.edu

South-Central and North-Central Sections, Joint Meeting
11-13 April 2007
Kansas Memorial Union, University of Kansas, Lawrence, Kansas
Greg Ludvigson
1-785-864-2734; gludvigson@kgs.ku.edu
Greg Ohlmacher
1-785-749-4502; ohlmac@kgs.ku.edu
Both at:
Kansas Geological Survey, University of Kansas, 1930 Constant Ave, Lawrence, Kansas 66047-5317

Cordilleran Section
4-6 May 2007
Western Washington University, Bellingham, Washington
Bernie Housen, Western Washington Univ, Dept Geology, MS 9080, 516 High St., Bellingham, WA 98225-5946
1-360-650-6573; bernieh@cc.wwu.edu
*Cordilleran Section Student Travel Grants
DEADLINE: **Student Travel Grant Application is due by Monday, 26 March 2007.** Visit the web site for more information: http://www.geosociety.org/sectdiv/cord/07cdmtg.htm#stu
*Cordilleran Section Field Trip Travel Grants
Both undergraduate and graduate student members of the GSA Cordilleran Section are eligible for subsidies to offset much of the cost of attending a field trip in conjunction with the Cordilleran Section meeting in Bellingham, WA, in May 2007. **The application deadline is April 2, 2007**. The link to the application form is available at: http://www.geosociety.org/sectdiv/cord/07cdmtg.htm#ft

Rocky Mountain Section
7-9 May 2007
Dixie Center, St. George, Utah
Jerry Harris, Dixie State College, Science Bldg, 225 South 700 East, St. George, UT 84770-3875
1-435-652-7758; jharris@dixie.edu

*NOTE: Student assistance is available from each Section for their respective Section meeting. Go to http://www.geosociety.org/sectdiv/ and click on the Section whose meeting you wish to attend.

GeoSwath and ISES Update

There is presently a lot of activity in the structural geology and tectonics community related to EarthScope. This article is meant to communicate some of these happenings, their motivation, and to urge your participation in them. The specific events are: 1) The EarthScope annual meeting in Monterey (and Margins/GeoSwath workshop on Salton Trough/Walker Lane); 2) A GeoSwath workshop on the western GeoSwath (Lewis and Clark megaswath; co-sponsored by IRIS); and 3) The ISES summer school on "Tectonic Exhumation."

It is worth first addressing the genesis and goals of the GeoSwath initiative (formerly the GeoFrame initiative; a name change was required to avoid a trademark conflict). The promise of the EarthScope initiative is to promote integrated science, specifically linking geophysics and geology, addressing the geological evolution of North America. This possibility has been slow to arise for a variety of reasons, but a major reason is the lack of research funding for the EarthScope program. Yet, it is important that EarthScope becomes a success for the geoscience community as a whole, and the structural geology and tectonics community has an important role in providing a broad, integrated geologic framework needed to understand the "Building a continent". The GeoSwath initiative can also help our community in other ways, by becoming a transformative effort in how we interact, share, and integrate our data.

A February 3-5, 2006 workshop in St. Louis, Missouri defined a coast-to-coast plan for future work, consisting of 7 focus regions across the conterminous U.S. and a xenolith focus topic. These areas were identified specifically to address fundamental aspects of the growth, evolution and modification of the North American continent through time, with further focus on some of the major continent scale transitions between geological provinces. There is no question that important geological areas are omitted by this or any other selection. However, there was consensus that chosen focus areas, linked by questions posed at the continental scale, are compelling at a national scale for both scientific rigor and outreach to a broad community. This regional focus allows field-oriented geologists and tectonicists a portal into EarthScope, which is otherwise focused on areas larger than individual field areas. For more details on the target areas, see Tikoff et al., 2006, EOS.

It appears that the USArray component of the EarthScope Project is now potentially approaching a Margins model for community involvement and interaction. The GeoSwath initiative is therefore at the point for specifically planning the science targets, developing working groups of people that can collectively achieve what individual efforts cannot, and linking from one region to another across transitions (which are important and commonly overlooked). For these reasons, a series of workshops are planned in 2007.

The EarthScope Annual meeting is occurring on March 28-30, 2007 in Monterey, California. There is a one-day workshop, prior to the meeting, co-sponsored by Margins and GeoSwath focusing on two areas: Salton Trough/Walker Lane and Cascadia. The Margins group is interested in the Salton Trough/Walker Lane, as it extends their current work in the Gulf of California northward. This study would combine the offshore spreading centers to the onshore transcurrent faults. Susanne Janecke (Utah State) and Danny Stockli (Kansas) are the GeoSwath representatives for this region. The other area is the Cascades of Oregon and Washington, which is an affiliated focus region for Margins. This area is clearly important for seismic and volcanic hazards in the Pacific Northwest, and linkages with plate boundary observatory. Anita Grunder (Oregon State) and Paul Wallace (Oregon) are the

GeoSwath representatives for this region. While the deadline for this meeting will be past when this piece is published, you may want to keep track of the results if you have an interest in work in these areas.

A second workshop is occurring in Boise, Idaho, on April 27-29, 2007. This workshop examines a continuous swath from the northwest coast to the Great Plains ('Lewis and Clark' or Western GeoSwath), focusing on Cascadia, Northern Rockies and Black Hills/Great Plains focus areas. This is the beginning of a coast-to-coast transect. The workshop, cosponsored by IRIS, will bring together complementary segments of the U.S. geosciences community, including geologists, geophysicists and geochronologists. (www.globalchange.umich.edu/ben/geoswath). NSF's GeoSwath funding will partially support the costs of housing, food and a contribution toward your travel. The application deadline is March 1, 2007. For more information and application, go to the website or contact Randy Keller (grkeller@ou.edu) or Ben van der Pluijm (vdpluijm@umich.edu).

These workshops are the culmination of significant effort by members of the SG&T community to develop integrated geological, geochronological and geophysical (non-seismic and seismic) projects, under the EarthScope initiative. In my opinion, the "writing was on the wall" that some level of organization was eventually going to be necessary for our community. The organization of the geophysics community, for example, in developing and driving the whole EarthScope program, is impressive, as is the infrastructure and funding that supports their work. Interacting as a community under larger initiatives will never replace individual PI-driven science, but offers a different style of science that we should consider. The scientists involved in GeoSwath have gone to great effort to create a framework to let others become involved: This is an open shop. More important than any initiative, however, structural geologists and tectonicists can enhance today's science if we adapt to working in new and different ways, including dealing with large initiatives and technologies. These will involve tools that are expensive (LiDAR comes to mind as an example), but if we want to evolve and explore new options, we will benefit from some level of community organization. Ok, I'll now get off the soapbox.

On a separate note, the ISES (Integrated Solid Earth Sciences) is running it second annual summer school on July 27-August 3, 2007. The subject this year is Tectonic Exhumation. These summer schools follow the European model of summer schools, in which students from all over the country are invited to participate in a research-oriented workshop on an integrated topic. Last summer's workshop was on Rheology (co-lead by Jan Tullis, Hoger Stunitz, Luc Lavier, Scott Johnson, UBC; fieldtrip by Colin Shaw). Chris Siddoway (Colorado College) was the lead logistics person as well as the local scientific guru. The workshop was extremely successful, well beyond what was anticipated. So, thanks to all of the leaders and the participating students. Jan Tullis, as the lead scientific coordinator, deserves much credit for setting the tone and presenting great material.

This year's summer school is 7 days in duration, with lectures, activities, and fieldtrips addressing different aspects of tectonic exhumation. Art Snoke, Peter Koons, Barbara Carrapa, Donna Whitney, and Shari Kelley have all agreed to lead different parts of the summer school. The workshop will include the following topics: History of Uplift and Exhumation / Tectonic sedimentation / Thermochronology / Structural associations and controls / Metamorphic petrology / Numerical Approaches / Tectonic geomorphology. The deadline for applications is April 1, 2007. All interested graduate students are encouraged to apply, at both the Masters and Doctoral level. Please encourage graduate students you know to attend. If you have suggestions for future summer school topics,

please let us know. An NSF grant (Tectonics and Geochemistry) covers all costs except travel to the meeting (and requests can be made for travel support).

The website is http://acad.coloradocollege.edu/dept/gy/ises/ISESSummerProgram.php. Contact Chris Siddoway csiddoway@coloradocollege.edu or myself, Basil Tikoff basil@geology.wisc.edu, for more information.

Continental Tectonics and Mountain Building

12-20 May 2007, Ullapool, Scotland. Continental Tectonics and Mountain Building: The centenary celebrations for the "Peach and Horne" NW Highlands Memoir published in 2007. Website: http://www.see.leeds.ac.uk/peachandhorne/. Convenors: Rob Butler (Leeds), Bob Holdsworth (Durham), Maarten Krabbendam (British Geological Survey) and Rick Law (Virginia).

Testing the Extensional Detachment Paradigm: Scientific Drilling in the Sevier Desert Basin (Basin and Range Province, Western United States)

Proposed Workshop, June or July, 2008. Proponents: Nicholas Christie-Blick, Mark H. Anders, Georg Dresen, Gordon S. Lister, Gianreto Manatschal, Brian P. Wernicke

Low-angle normal faults or detachments are widely regarded as playing an important role in crustal extension and the development of passive continental margins. However, no consensus exists on how to resolve the mechanical paradox implied by such faults or on the general absence of evidence for seismicity. The purpose of proposed drilling in the Sevier Desert basin in the western United States is to test the extensional detachment paradigm through coring, downhole logging, biostratigraphic, isotopic and fission-track dating, magnetostratigraphy, and in situ measurement of pore pressure, permeability, fluid chemistry, temperature, and stress orientation/magnitude at an example for which evidence of large normal-sense slip on a detachment of particularly low dip (11°) is widely regarded as among the most convincing, and for which a case can be made for contemporary displacement. While no seismicity has been documented on the Sevier Desert detachment, its scale is consistent with earthquake magnitudes as large as M 7. Given a location ~150 km southwest of Salt Lake City, it rivals the more active but segmented Wasatch fault as a seismic hazard.

We propose to hold an international workshop on “Scientific Drilling in the Sevier Desert Basin” in June or July, 2008. The purpose of the meeting is to flesh out objectives, strategies and operational details, with input from a much broader constituency of interested scientists than is represented by the PIs, and to develop a consensus on the location of a drill site. This will be informed by an already comprehensive evaluation of existing subsurface data, and by the need to balance optimal science against cost. The most important product of the workshop will be a full drilling proposal to be submitted to ICDP in January, 2009. Please contact Nicholas Christie-Blick at ncb@ldeo.columbia.edu

---

For the Latest on Meetings and Field Trips go to
Upcoming Meetings

RESOURCE BIN

3DFM--New GIS Tool for Teaching and Research

3D Focal Mechanisms (3DFM) is a new tool for viewing earthquake focal mechanism symbols three dimensionally. This tool operates within the Environmental Systems Research Institute (ESRI®) GIS software ArcScene® 9.x. The program requires as input a GIS point dataset of earthquake locations containing strike, dip, and rake values for a nodal plane of each earthquake. Other information, such as depth and magnitude of the earthquake, may also be included in the dataset. By default for each focal point, 3DFM will create a black and white sphere or "beach ball" that is oriented based on the strike, dip, and rake values. If depth values for each earthquake are included, the focal symbol will also be placed at its appropriate location beneath the Earth's surface.

In addition to the default settings, there are several other options in 3DFM that can be adjusted. The appearance of the symbols can be changed by (1) creating rings around the fault planes that are colored based on magnitude, (2) showing only the fault planes instead of a sphere, (3) drawing a flat disc that identifies the primary nodal plane, (4) or by displaying the null, pressure, and tension axes. The size of the symbols can be changed by adjusting their diameter, scaling them based on the magnitude of the earthquake, or scaling them by the estimated size of the rupture patch based on earthquake magnitude. It is also possible to filter the data using any combination of the strike, dip, rake, magnitude, depth, null axis plunge, pressure axis plunge, tension axis plunge, or fault type values of the points. For a large dataset, these filters can be used to create different subsets of symbols. Symbols created by 3DFM are stored in graphics layers that appear in the ArcScene® table of contents. Multiple graphics layers can be created and saved to preserve the output from different symbol options.

Here is the reference to the tool, and the link to download: Labay, Keith A., and Haeussler, Peter J., 2007, 3D Visualization of Earthquake Focal Mechanisms Using ArcScene(r): U.S. Geological Survey Data Series 241 http://pubs.usgs.gov/ds/2007/241/ Comments and suggestions on the tool are also appreciated, and can be sent to Peter Haeussler,U.S. Geological Survey, 4200 University Dr., Anchorage, AK 99508, pheuslr@usgs.gov

The Climate Project—Speakers Available

SG&T Division member Mindy Kimball recently completed training as a volunteer presenter with the Climate Project, a nonprofit organization founded by Al Gore after the success of his movie "An Inconvenient Truth." Mindy joined 200 other volunteers at a 3-day training session in Nashville, and is now qualified and authorized to present "the slideshow" that was featured in Al Gore's movie. To date there are 800 volunteers from across the United States who have received this training. Mindy's goal is to present "the slideshow" at least 10 times over the next year. She lives in the Hudson River Valley area of New York and would be very excited to be a no-cost speaker for any group, club, school, or audience of any size. To contact Mindy about presenting, or to have her refer you to a presenter in your area of the country, please e-mail her at geomindy@gmail.com.

New Precambrian Research Center at UMD

A new research center focused on Precambrian geology is underway at the University of Minnesota-Duluth (UMD). The Precambrian Research Center (PRC) is designed as an integrated teaching and research center focused on geological mapping of Precambrian rocks. The PRC is a result of an identified and urgent, long-term need within the private and public sectors of the geological community, both locally and internationally, for geoscientists skilled in geological mapping and the study of Precambrian geology. Ancient shield areas that form the cores of the present-day continents

are important scientifically in terms of early Earth history and crustal evolution, and they are extremely important to global society because they host a very large percentage of the world's ore deposits.

A primary mission of the PRC will be to address the new demand for professional field geologists by providing training and support to upper-level undergraduate students, graduate students, and professional geologists in modern methods of geological mapping and map-making in glaciated Precambrian terrains. The concept for such a center evolved as a result of collaboration between three geosciences institutions within the University of Minnesota system — the Natural Resources Research Institute (NRRI), Minnesota Geological Survey (MGS), and UMD Department of Geological Sciences. Field and visualization training will be provided by a consortium of professional field geologists and University of Minnesota faculty (from NRRI, MGS, and UMD) in addition to geosciences faculty from other Midwest colleges and universities. The PRC will also provide a vehicle for synergistic collaboration between the public sector and private industry.

Our conceptual model for the PRC has received very strong support from the geological community in the US and Canada, including executives and geoscientists within the minerals industry, geological surveys, geological societies, and academia. The PRC will be guided by an advisory board of industry and academic geoscientists to assist the PRC in meeting its initial goals and to provide advice on how best to meet the future needs of the applied geosciences. Initial funding for the PRC is provided by the State of Minnesota, the University of Minnesota, and several private companies.

Our goal to train geoscientists in the field study of Precambrian terranes involves five basic program elements, designed to provide specialized training at several levels:

1. A new summer geology field camp in the Precambrian of northeastern Minnesota, primarily aimed at undergraduate students, to begin in 2007.
2. Research Fellowships and grants for field-based graduate research on Precambrian geology.
3. Continuing education in the form of professional workshops, short courses and field experiences in advanced methods of study.
4. Upper-level geology courses at UMD in the areas of advanced field geologic mapping, digital map-making, and 3D and 4D visualization.
5. Other education, outreach, mentoring and student career planning activities that will foster a culture in which geological mapping and Precambrian geology can flourish.

Details on these PRC programs are provided in a document that can be downloaded from our website http://www.d.umn.edu/prc/. We encourage students interested in field camp and graduate program opportunities to contact us. For further information, please contact Dean Peterson dpeters1@nrri.umn.edu, Jim Miller mille066@umn.edu or John Goodge jgoodge@d.umn.edu.

Student Exercises and Solutions for Instructors of Structural Geology Now available for downloading on the web

More than 200 individual problems for students, covering the concepts and techniques developed in the central nine chapters of the recently published textbook ***Fundamentals of Structural Geology*** **by David D. Pollard and Raymond C. Fletcher** (Cambridge University Press, 2005), and more than 170 pages of password protected solutions may now be downloaded by instructors. These exercises include those suitable for both undergraduate students in a first course and graduate students in a more advanced course. They include graphs, tables, and drawings to illustrate solutions methods and results; detailed derivations of all equations; and MATLAB m-scripts to reproduce all numerical and graphical results. There are also exercises that use a variety of real data sets from the field and laboratory to illustrate problem solving methods and research. Both the exercises and the solutions may be downloaded in either WORD or PDF formats from:
http://pangea.stanford.edu/projects/structural_geology/
Please send questions and requests for a password to:dpollard@pangea.stanford.edu

US Participation in the Indian Ocean Tsunami Warning System

Reported by Walter D. Mooney, USGS-Menlo Park, CA; Mooney@usgs.gov

The Mw9.3 26 December 2004 earthquake off the west coast of northern Sumatra, Indonesia, and the resulting tsunami caused massive loss of life and damage to property along the coastal belts of several Indian Ocean countries including Indonesia, Malaysia, Thailand, Myanmar, India, Sri Lanka, the Maldives, the Seychelles, Tanzania, and Somalia.

In response, the U.S Agency for International Development (USAID) launched the United States Government's Indian Ocean Tsunami Warning System (IOTWS) program, which serves as the U.S. contribution to the UNESCO Intergovernmental Oceanographic Commission (IOC) effort to foster the tsunami warning capacity of Indian Ocean countries. To date, the U.S. government assistance totals $841 million.

The US IOTWS Program is part of the international effort to develop tsunami warning system capabilities in the Indian Ocean following the December 2004 tsunami disaster.

The program is working to develop and strengthen 'end-to-end' tsunami warning capabilities which include installing and upgrading tsunami monitoring equipment, helping to develop programs and procedures for national agencies to transmit warnings from the national to the local level, and launching coastal community resilience programs to enable communities to better prepare for and respond to natural disasters. Critical detection and communications systems, including seismic stations and sea-level gauges, are already in place and are providing hazard data in real time.

Until a fully functional Indian Ocean tsunami early warning system is developed, the NOAA-operated Pacific Tsunami Warning Center (PTWC) in Hawaii, in partnership with the Japan Meteorological Agency (JMA), continues to monitor earthquake and tsunami activities for the Indian Ocean on a 24/7 basis and has provided bulletins to national focal points for major events. PTWC provides critical information both for real emergencies such as the July 17 tsunami in Pangandaran, Indonesia, and for numerous incidents where "no threat" is reported. The USGS National Earthquake Information Center in Golden, CO, operates 24/7 to provide earthquake notifications globally.

In cooperation with Thailand's National Disaster Warning Center (NDWC), NOAA successfully deployed a "DART" buoy station, the first system to provide deep-ocean tsunami observation data in real-time to the region, on December 4th, 2006 (Fig. 1).

It is located in the Indian Ocean Region between Thailand and Sri Lanka. A second DART buoy will be installed further to the south in Spring 2007 and will be operated and maintained by Indonesia.

(continued on p22)

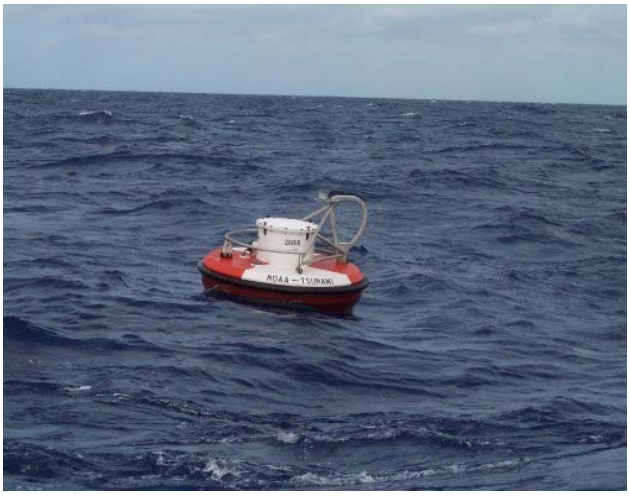


Fig. 1. Deployed DART II buoy (NOAA).

A wide variety of reconstruction projects are underway in the tsunami-affected countries. They include rebuilding of roads, building houses, helping individuals return to their original livelihoods, training individuals (particularly women) to develop new skills; strengthening the community governance and political infrastructure, and supporting host government-led early warning/disaster preparedness efforts.

In addition, the USGS and the IOC jointly completed seismology training workshops in Thailand, Sri Lanka, Indonesia, the Maldives, and Malaysia during 2006 (Fig. 3).

The focus was on building capacity for technicians to better identify and react to tsunami-generating earthquakes. To date, over 140 seismologists and other experts have been trained. USAID funding to the USGS and NOAA will make possible further technical assistance and training during 2007.

Greetings from Massachusetts, *where we are getting our first (!) snowstorm of the winter in February (see* ***Mindy Kimball****'s Climate Project item on page 19 of this newsletter). Here's the Spring 2007 news, getting back on track after missing the fall edition. Let us know how you like the new newsletter format that directs you thru links from the table of contents directly to the content of interest. Some of these links will take you to the website, so be prepared for the jump. And, as always, if you need a quick update or want to get your information out on the fly, contact me barbsheffels@comcast.net, Tim* tfw@unm.edu, *or Kevin ksmart@swri.edu, and we will get your information posted on the SGT website.*

Difficult news from SUNY Albany: It was announced in January that the Dept of Earth and Atmospheric Sciences will be closing. Following a 2006 decision to discontinue the BS undergraduate degree, it has now been decided that there will be no new admissions to the graduate program. Budget cuts and administrative decisions not to replace retired or departing faculty over at least a decade have left the department with four professors. As one of four university geological centers in New York, SUNY Albany focused on tectonics. Originally founded in 1962, the department has a long history of distinguished faculty and student research, with numerous honors and awards. SUNY Albany was once one of the top-ranked undergraduate and graduate geology programs in the US, and was listed by the NAS in the top 25 programs for Geological Sciences PhD programs in 1983. SG&T has a special link to SUNY Albany as three SG&T Division's Career Contribution Awards have gone to faculty from SUNY Albany: **Win Means**, **Kevin Burke**, and **John Dewey**.

Academic news: **Dr. Shoufa Lin** of the University of Waterloo has been elected as the Chairman of the Structural Geology and Tectonics Division of the Geological Association of Canada. The division gave three awards in 2006. **Dr. Paul F. Williams** (University of New Brunswick) and **Dr. Dazhi Jiang** (Univertsity of Western Ontario) won the Dave Elliott Award for Best Paper for the paper: "An investigation of lower crustal deformation: Evidence for channel flow and its implications for tectonics and structural studies", Journal of Structural Geology, v. 27, p. 1486–1504. The Jack Henderson Award for Best Ph.D. Thesis went to **Dr. Venessa Bennett** (Memorial University of Newfoundland) for the thesis: "A Multidisciplinary Investigation of the Formation, Growth and Evolution of Neoarchean Crust, Snare River Terrane: Southwestern Salve Province", supervised by **Dr. Toby Rivers**. The Jack Henderson Award for Best M.Sc. Thesis was awarded to **Ms. Fionnuala Devine** (Carleton University) for the thesis: "Geology of the southern Campbell Range, southeastern Yukon: Implications for the Tectonic evolution of Yukon-Tanana terrane", supervised by **Dr. Sharon Carr** and **Dr. Donald Murphy. Brian Horton** has left UCLA to join the faculty of the Jackson School of Geosciences at the University of Texas at Austin. He has a joint position as Associate Professor in the Department of Geological Sciences and Institute for Geophysics and will move to Texas in the summer of 2007 after completing a one-year sabbatical in Germany at the University of Potsdam. Horton received a Humboldt Research Fellowship from the Alexander von Humboldt Foundation to conduct research on tectonic and climatic interactions in northern Argentina. Humboldt Research Fellowships are awarded to foreign scientists under age 40 from abroad for long-term research visits in Germany. **Terry Pavlis** and **Laura Serpa** have moved from the University of New Orleans to the University of Texas at El Paso, after moving 8 times post-Katrina. A storm surge tidal gauge recorded a high water mark at 26 feet above sea level at their house in Bay St. Louis, MS. Then they bought a house in El Paso on the day of record flooding in El Paso, but at least the

house was high and dry. Is there a weather pattern following these people? It has been a great change, and they are feeling revitalized in the new setting within a great department. After 20 years at Duke University, **Jeff Karson** joined the faculty of the Department of Earth Sciences at Syracuse University last fall. He is very excited to be part of a very active hard rock geology program in the department including **Suzanne Baldwin**, **Pat Bickford**, **Paul Fitzgerald**, **Scott Sampson** and **Laura Webb**, and is feeling right at home in upstate NY, just down the road from where he received his PhD at SUNY Albany. **Rob Rogers** (Texas-Austin PhD, 2003) writes that he has left Puerto Rico and is now assistant professor at California State University, Stanislaus.

Industry news: **Nancye Dawers** reports that **Tim Sheehan**, her recent PhD student at Tulane, has accepted a job with Shell. **Tom Guidish** has joined the structure group at Geo-Logic Systems in Boulder, CO – please contact him (tom@geologicsystems.com) for information on academic access to the LithoTect restoration and balancing software. **Bob Ratliff** of Geo-Logic Systems writes that they typically provide LithoTect to universities for free. **Michael Quinn** (PhD, 1996, Rice University under **Jim Wright**) moved in 2005 from ExxonMobil Exploration Co where he was Senior Geologist in International Exploration. He joined Hess Corporation as a Geological Advisor in International Exploration and is now Exploration Manager, Gulf of Mexico. **Scot Kreuger** (Scot.Krueger@bp.com) is also working in the Gulf of Mexico, working salt tectonics and basin analysis, but for BP. He rejoined BP after six enjoyable years of global structural analysis for ConocoPhillips. From Turkey, **Alper Bozdag** writes that he has joined Tuprag Mining Company (a subsidiary of Eldorado Gold Corporation—Canada) after summer work there in 2006 and with GESOM Mining Company in 2005.

TOC

2006-2007 Structural Geology and Tectonics Division Contacts

Chair: Bill Dunne, Department of Earth & Planetary Sciences, University of Tennessee, Knoxville, TN 37996-1410 USA; (865) 974-2366; wdunne@utk.edu.

First Vice-Chair: Eric Erslev, Department of Geosciences, Warner College of Natural Resources, Colorado State University, Ft. Collins, CO 80523-1482 USA; (970) 491-5661; erslev@cnr.colostate.edu.

Second Vice-Chair: Claudia Lewis, Los Alamos National Laboratory, EES-1, MS D462, Los Alamos, NM 87545; (505) 665-7728; clewis@lanl.gov.

Secretary/Treasurer: Peter J. Vrolijk, ExxonMobil Upstream Research Co., PO Box 2189, Houston, TX 77252-2189 USA; (713) 431-4151; peter.vrolijk@exxonmobil.com.

Past Chair: John W. Geissman, Dept of Earth & Planetary Sciences, 203 Northrop Hall, University of New Mexico, Albuquerque, New Mexico 87131-0001 USA; (505) 277-3433; jgeiss@unm.edu.

Newsletter Editors: **Tim F. Wawrzyniec**, Department of Earth & Planetary Sciences, University of New Mexico, MSCO3-2040, Albuquerque, NM 87131-0001 USA; (505) 277-2740; tfw@unm.edu, ***and*** **Barbara M. Sheffels**, 27 High Rock Rd, Wayland, MA 01778-1903 USA; (508) 358-5461; barbsheffels@comcast.net.

Website Manager: **Kevin J. Smart**, Southwest Research Institute, CNWRA – Division 20, 6220 Culebra Road, San Antonio, TX 78238-5166 USA; (210) 522-5859; ksmart@swri.edu.

SG&T Division Website: http://rock.geosociety.org/sgt/index.html

TOC