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Denver, Colorado

PENROSE MEDAL

Presented to
Eric J. Essene

Eric J. Essene
University of Michigan
(deceased 20 May 2010)

Citation by John R. Bowman

It is a great honor and pleasure to present the citation for the Society's 2010 Penrose Medalist, Eric J. Essene. Over a distinguished and highly productive career of 40 years at the University of Michigan, Eric Essene and his students made numerous insightful and seminal contributions to broad areas of mineralogy, petrology, geochemistry, tectonics and regional geology. Of particular note are his contributions to the development and critical evaluation of new geothermobarometers and his innovative and careful applications of geothermobarometry and phase equilibria to evaluate quantitatively the pressure-temperature-time-fluids history of the Grenville Province in Ontario and the Adirondacks of New York.

A series of highly cited papers by Eric and a number of his students have dealt with high-grade metamorphism in the Adirondacks (Bohlen and Essene, 1977, 1978, 1979; Valley and Essene, 1980a,b; Bohlen, Peacor, and Essene, 1980; Valley et al., 1982, 1983; Bohlen, Valley, and Essene, 1985; Edwards and Essene, 1988; Moecher, Essene, and Anovitz, 1988; Valley et al., 1990; Anovitz and Essene, 1990). The first group of these studies provided some of the first reliable data on the pressure-temperature-fluids evolution of granulite facies environments and consequently of the roles of fluids and fluid pressure in these deep crustal environments. These studies were among the first to evaluate critically suites of geothermobarometers at granulite facies conditions, reaffirming the need for careful textural interpretation of mineral assemblages before applying thermobarometers, and the need for well-calibrated thermobarometers soundly based in thermodynamics. These studies established the necessary quantitative framework within which subsequent studies by John Valley and his students could evaluate the roles of crustal H_2O versus mantle-derived CO_2 in granulite facies metamorphism. These studies were also among the first to identify issues of differential resetting of mineral solid solutions (e.g., different closure temperatures for different thermobarometers) that remain central issues of current research in metamorphic petrology. These studies have had a major impact on our understanding of the processes associated with high-grade metamorphism and tectonics in the deep continental crust.

By initiating numerous collaborations with colleagues, Eric was both a pioneer and leader in promoting the integrated application of mineral equilibria, isotope geochemistry, structural geology and geochronology to natural systems. These applications and innovative approaches have set the standard for the careful evaluation of the complex pressure-temperature, fluid flow and uplift history of ancient orogenic belts and for quantitative evaluation of the roles of fluids in a wide variety of metamorphic, hydrothermal and tectonic processes in the continental crust. Some highly cited contributions from this multidisciplinary approach include: the origin and evolution of hydrothermal fluids in contact skarn environments (Bowman, O'Neil, and Essene, 1985); a reexamination of the arsenopyrite geothermometer (Sharp, Essene and Kelly, 1985); an evaluation of the metastability of illite in diagenetic and hydrothermal environments (Jiang, Essene, and Peacor, 1990); the use of $^{40}Ar/^{39}Ar$ thermochronology to constrain cooling rates and uplift/erosion paths in the Grenville Orogen (Cosca, Sutter, and Essene, 1991); an analysis of closure temperatures of the Sm-Nd system in metamorphic garnets (Mezger, Essene, and Halliday, 1992); definition of time-temperature paths to illuminate the thermotectonic significance of high-grade shear zones in the Grenville Orogen (van der Pluijm et al., 1994); and a critical perspective on clay mineral thermometry (Essene and Peacor, 1995).

Given the extraordinary breadth and great impact of Eric Essene's research contributions, it is no surprise that Eric Essene is widely regarded as one of, if not the, most creative and influential scientists in metamorphic geology over the past 40 years. Letters of support for this nomination from several distinguished scientists note that the high level of sustained excellence that characterizes Eric Essene's research contributions likely derives from attributes that set Eric apart from most others in undertaking research: his almost superhuman focus on what is important; a keen, adventuresome intellect; his generosity with ideas; a quick, critical mind; an insistence on 'getting things right' in a technical sense; his willingness to involve other scientists to add dimension and perspective to a research project; encyclopedic knowledge; competitive attitude; curious nature; and his great enthusiasm and energy. One measure of his significant impact on our science is that Eric is named as one of the *Original Highly Cited Researchers* of ISI. Citations of Eric's 190+ publications number about 6200, with an average citation per paper of 30 and an h-index of 43, an extraordinary record for a geologist. His highly cited papers (100+ citations) include contributions to fields as diverse as thermodynamics, mineral chemistry, Adirondacks geology, lunar petrology, and economic geology.

Finally, one of Eric's important and most enduring legacies was as an inspirational mentor to 40 M.S and 34 Ph.D. graduate students. All of these former Ph.D. students are still active in geology: 8 are research scientists, 12 hold tenured or tenure track positions in University or college earth science departments, and one is President of the Joint Oceanographic Institutions. Two are among the ISI highly cited researchers. In discussions with other former students of Eric's, we believe his success as a mentor stems from several factors. He demanded the highest standards for knowledge within one's field and for critical and honest evaluation of one's data and interpretations. He was creative and full of ideas, and shared his best ideas generously with his students. His infectious enthusiasm made science fun. He supported his students fully and consistently praised their role in his professional life's work. Not surprisingly, Eric remained a life-long friend to most of us.

Eric Essene's research contributions are a record of outstanding quality, sustained excellence and broad impact. He has been perhaps the most influential leader in developing new quantitative tools for metamorphic geology in the last half-century, he has had a strong impact on our quantitative understanding of petrogenetic and tectonic processes in the Earth's crust, he has been a superlative critic and honest voice in our

science for decades, and he has been an inspirational mentor to the next generation of petrologists. Eric Essene is most highly worthy of the Penrose Medal, the Society's highest honor.

Response by Joyce M. Budai on behalf of Eric J. Essene

I am honored to accept the Penrose Medal on behalf of Eric J. Essene, my husband, my children's father, my partner in life. Though it has been five months since he passed, his presence is still very strongly felt by our family, and I am sure by his colleagues in the Department at Michigan. His youngest daughter, Ren Essene, is here to share in the acceptance of this prestigious award. His eldest daughter, Michelle Haroldson, is celebrating this special weekend with her two children and husband in Minneapolis. Eric always loved Halloween and he would expect nothing less than a full out press of trick or treating for his grandsons. I remember when our sons, Adam and Zach, were in elementary school, and Eric would gleefully lead them out through our neighborhood, urging them to go for just one or two more houses before bringing them home. Much like his approach to field work, it didn't matter if it was raining or snowing, warm or freezing, there were treats to collect and they would not be heading home until an appropriate number of stops had been successfully endured.

John Bowman and John Valley have and will share with you Eric's professional contributions far better than I could. I would like to say that I, like so many other former Michigan students, have benefitted in countless ways from long association with Eric Essene. It didn't matter that some of us were soft-rockers, we still received his critical attention. In almost all cases, his suggestions proved most valuable, and sometimes life-changing. He was a remarkable man, unusually honest, absolutely in love with life. On behalf of Eric, I want to thank the Awards Committee, the Geological Society of America, John Bowman, John Valley, and all the wonderful students who gave such joy and meaning to Eric's life. I often see the world through his eyes and I know what he would say at a time like this. Enough already Budai, let's get some beer.

ARTHUR L. DAY MEDAL

Presented to
George E. Gehrels

George E. Gehrels
University of Arizona

Citation by Peter G. Decelles

It is a pleasure to introduce George E. Gehrels as the 2010 Arthur L. Day Medalist for "distinction in contributing to geologic knowledge through the application of physics and chemistry to the solution of geologic problems." Over a nearly 30-year career, the man known affectionately as Robochron has made significant contributions in the fields of U-Th-Pb geochronology and tectonics. George has been a tireless force in developing and applying U-Th-Pb geochronology to a variety of tectonic problems worldwide. His staggering publication record (>250 and counting) stems in part from his generosity and collaborative spirit. Over the past ten years, he has developed the Arizona LaserChron Center and made available to the broader geoscience community a pair of multicollector-laser ablation-inductively coupled plasma mass spectrometers. Under direct supervision by George, these instruments have generated more than 1,000,000 U-Th-Pb ages, and they serve as a test-bed for experimental development and application of techniques to measure Hf, Li, and B isotope ratios, and trace element and REE concentrations in accessory minerals along with U-Th-Pb ages. This work includes custom design to enable more efficient and higher precision data collection. Through the development of the LaserChron Center, George has ignited a revolution in detrital provenance and chronostratigraphic studies aimed at determining amalgamation histories of continents and associated continental-scale sediment transport systems. Literally hundreds of scientists, from undergraduates to full professors, have collaborated with George to generate an extraordinary amount of geochronological data. George's development of the LaserChron Center and the numerous discoveries that have come from it are important research accomplishments that demonstrate the power of engaging the geoscience community in fundamental geochronology over a wide range of problems. This work continues to demonstrate a conviction that the community is doing good science and that any serious scientist should have access to state of the art facilities with equal opportunity to discover something big.

George is equally well known for his work in tectonics, contributing significantly to understanding of the tectono-magmatic histories of key orogenic systems throughout the world. In the American Cordilleras, George has been a stalwart in assessing the origin and accretion history of Cordilleran "suspect" terranes from South America to Mexico to Nevada to Alaska, working out the geological evolution of the Coast Mountains batholith and adjacent terranes, documenting provenance of Paleozoic-Mesozoic miogeoclinal strata, and helping to constrain models for the Baja-BC hypothesis. The four-paper series with Bill Dickinson on the Colorado Plateau sets the standard for how detrital zircon studies should be done.

In Nepal, George began to work on the problem of Himalayan tectonostratigraphy in the mid-1990's by analyzing hundreds of detrital zircons from the Neogene foreland basin deposits and various bedrock outcrops throughout the orogenic belt. Although this work was done by the laborious thermal ionization method, it represented at the time of publication an order of magnitude increase in the size of the available of U-Th-Pb database from the Himalaya. From this work George and his collaborators were able to work out relationships among Himalayan tectonostratigraphic units at unprecedented levels of detail and accuracy, in some cases completely inverting erroneous concepts that were entrenched in the Himalayan literature. This work has profoundly influenced our understanding of pre-Himalayan Greater India and northern Gondwanaland, and how structural cross-sections of the Himalaya are constructed and retrodeformed. George then turned to northern and central Tibet and worked out Mesozoic and Paleozoic paleogeographies and tectonic histories of these central Asian fragments.

Above all these research accomplishments stands George's legendary collegiality, generosity, and humility. He teaches classes with more than 1,000 undergraduate students (in a single lecture hall). He is a wise and thoughtful mentor to graduate students. He is particularly dedicated to helping disadvantaged and returning students at all levels. He has involved platoons of undergraduates in research over the years. He routinely teaches short courses to educate the geosciences community in potential applications of U-Th-Pb geochronology. His attention to precision, accuracy, efficiency and spatial resolution is remarkable. It is not entirely about regional applications—it is about making sure that these regional applications have the advantage of the best analyses available. He works around the clock, leading many of us to wonder if he ever actually sleeps.

George Gehrels is among the few who may accurately claim to have generated a revolution in the way we do science. From his early work using TIMS technology, to his ongoing deployment of high through-put LA-MC technology, to the establishment of the most productive geochronology laboratory in the world, George has almost single handedly made it possible for hundreds of scientists to generate absolute blizzards of high-quality data on *any geologic topic* involving U-Pb geochronology.

For all of these accomplishments and more, George Gehrels is truly deserving of the Day Medal.

Response by George E. Gehrels

It is a great pleasure and honor to be awarded this year's Arthur L. Day Medal. I am truly humbled to see the list of previous recipients of this award, and to receive this award among such distinguished company.

It is noteworthy that one of Dr. Day's intentions for this award was to inspire further effort. This is a relief to me, as I have not yet figured what I really want to do as a geologist. I've always wanted to be a structural geologist, like George Davis, my undergraduate mentor, and be able to describe faults and folds in a way that makes them come alive in your imagination. I've also wanted to be a tectonics guru, like Greg Davis, my MS advisor, and develop his ability to recognize important relationships in the field and then decipher the tectonic

processes that they record. I also really admire Jason Saleeby, my Ph.D. advisor, because he is so creative in the way that he pieces together geologic information. And nowdays I look around at my colleagues at Arizona, and I think: I should try to be as scholarly as Pete DeCelles — he's at the top of his game as a sedimentary geologist, but he's constantly learning how to incorporate new information from other disciplines. Or I should follow in the path of Joaquin Ruiz, who as College Dean is amazingly effective at facilitating the research of others. Some days I even imagine that I can keep up with Bill Dickinson, but of course that will never happen ….

I truly have been fortunate to be able to learn from and work with such an impressive array of geologists, although this has made it challenging to settle on the ideal career path. But in the meantime, I gotta tell you, I am having a blast doing the research that Pete described. Who would ever have guessed that U-Pb ages of detrital zircon crystals would have such a huge impact on so many different types of studies? I'm also having a lot of fun looking after a geochronology lab that supports the research of faculty members and students from across the country. For me the highlight is when a student sits down to run the first sample from their thesis area: they take backgrounds … fire the laser … watch the ages come in … and exclaim "wow, I never expected **that** age from this sample!"

So I'd like to finish by thanking my colleagues for providing such amazing learning opportunities, for inviting me to collaborate with them on their research projects, and for their nomination for the Day Medal. And of course I'd like to thank the Geological Society of America and Dr. Arthur Day for making this award possible.

YOUNG SCIENTIST AWARD (DONATH MEDAL)

Presented to Dana Royer

Dana Royer
Wesleyan University

Citation by Peter D. Wilf

Dana Royer is a brilliant, prolific, and highly visible geoscientist. I first met Dana as his TA when he was a Penn freshman in 1996, and subsequently worked with him as my field assistant in the Green River Basin of Wyoming. He later took his fascination with fossil plants and climates to Yale and completed a Ph.D. there in 2002 with resounding success, working with Leo Hickey and Robert Berner and also collaborating extensively with David Beerling at Sheffield. Dana then became my postdoc for three productive years at Penn State and has been a close colleague ever since. Dana is a true innovator who successfully tackles important questions in paleoclimatology and paleoecology, in part using paleobotanical proxies calibrated from a remarkable series of careful modern analog studies using growth chamber, greenhouse, and field experiments. His work lies at the poorly known intersection of plant paleoecology and ecophysiology, paleobotany, paleoclimatology, and environmental science. And he really writes the papers. Dana's very first article, in *Geology* (1999) and begun as an undergraduate, was already an important contribution because it dispelled the prevailing notion that depth to pedogenic carbonate is a reliable quantitative indicator of paleoprecipitation.

Dana is probably best known for quantifying pCO_2 through time from many proxies, including his own major line of research estimating paleo-pCO_2 from fossil plant cuticles. Dana's work on pCO_2 through time connects the deep-time record to the present day in societally relevant ways. In a striking set of papers, Dana demonstrated more convincingly than anyone that pCO_2 and temperature are well correlated on geologic time scales, and quantified the long-term sensitivity. His high-profile articles in Science and Nature are widely cited in the modern climate-change literature, including several IPCC and NRC reports. At a time when it was fashionable to generate paleo-pCO_2 estimates from tiny sample sizes of almost any fossil-plant cuticle, Dana kept the community aware of high interspecies variation and the need for replicate measurements, without which he showed that results are unreliable. He demonstrated the value of emphasizing as proxies species such as Ginkgo adiantoides and Metasequoia occidentalis that appear unchanged since the Late Cretaceous. Using this approach, based on carefully constrained observations of living analog plants, he made a provocative argument from fossil cuticle data that globally warm intervals of the Eocene and Miocene had low pCO_2, similar to today. This showed that we may still lack a credible explanation for some periods of past global warmth, and that raising pCO_2 alone may not be sufficient to bring typically "cold" paleoclimate models in line with geologic proxy data.

Dana used his paleoplant physiology approach to provide several other, startling new insights into ancient ecosystems and climates. Again using experiments on living analogs, he showed that high pCO_2 significantly lowers the freezing tolerance of frost-sensitive plants such as palms. Given the high-latitude distribution of these taxa during past warm intervals, this result implied that "paleofreeze lines" for paleoclimatic reconstructions need to be moved and further increased the ongoing disparity between proxy data from fossils and climate-model outputs. From a different set of long-term experiments on analog species, Dana led the first rigorous examination of carbon budgets in polar forests, a major paleo-biome that does not exist in today's icehouse world. This work showed for the first time that the carbon costs of respiration during dark polar winters, long considered to be the main selective force against evergreen trees that were rare in polar forests, were in fact not significant in comparison to other aspects of the carbon budget such as the leaf fall of deciduous species. These results opened up many new lines of inquiry into the paleoecology and selective regimes of polar forests, which may appear once again in a greenhouse future.

Dana has made important advances that link plant paleoecology to neoecology in exciting ways, for example the new proxy for leaf mass per area derived from easily accessible variables: petiole width and leaf area. Leaf mass per area is a critical variable for understanding ecosystem function that was previously inaccessible from fossils, and it has further implications for quantifying nutrient turnover in ancient forests. Recently, Dana has made breakthroughs in better understanding classic correlations of leaf-shape traits, such as having marginal teeth, with climate variables that are widely used to estimate ancient climates. Once more using an experimental approach, he demonstrated that leaf teeth in the Eastern Deciduous Forest perform significant carbon uptake early in the growing season relative to the rest of the leaf, and that this effect is magnified in colder climates. This was the first quantitative, experimental explanation for why leaf teeth might be evolutionarily advantageous at colder temperatures: in this biome, they help to jumpstart photosynthesis when both temperature and leaf size are limiting. Dana also quantified climate-related variation in leaf morphology within single species, generated massive extant and fossil data sets documenting how numerous leaf-shape variables vary with climate around the world, and showed that in an Australian rainforest the classic increased prevalence of toothed species near streams is correlable with a continuous topographic gradient, not binary as previously assumed.

There is no doubt that Dana Royer is a gifted scientist with abundant future potential, who has already achieved many notable breakthroughs. I can think only of very few who have made comparably high-impact contributions in geosciences at such an early career stage or with such diverse interests. Simply put, without Dana's contributions we would know much less about Earth's climate history and its great importance to today's world. I am immensely pleased to see Dana's achievements and potential recognized by the Geological Society of America and the Donath Family.

Response by Dana Royer

Thank you, Peter, for your kind words. We first met when I took Geology

101 my first semester at the University of Pennsylvania and Peter, a graduate student then, taught the lab section. This means that I have known Peter longer than any other scientist. Peter's broad vision, attention to detail, and emphatic love-of-life have been an inspiration and guiding force for me ever since. My three years as a post-doc with Peter at Penn State were some of my most fulfilling. At Penn (University of, that is), Art Johnson and Robert Giegengack planted the seeds of love for the earth sciences and of desire to pursue research. Art, in his subtle way, shepherded me to the door of unlimited possibilities. At Yale, where I pursued my PhD, Bob Berner and Leo Hickey were my co-advisors, and they were the ideal mix of knowledge and personality. Their histories of mentorship serve as a how-to template as I begin my own mentoring. And now that I am back in Connecticut, I continue to develop formal and informal collaborations with Yale faculty, for which I am grateful (note to students: never burn any bridges!). At Wesleyan, my current home, my colleagues feel like an extended family. An advantage to a modest-sized department is that, owing to the lack of multiple colleagues in a single subfield, I am regularly forced to think outside the confines of my regular teaching and research activities. The twin lights of research and teaching shine brightly at Wesleyan, and I am proud to participate in the tradition.

Ever since my undergraduate days, I have straddled the geology-biology divide. While this can pose challenges at times (e.g., funding, job hiring), the highs from unexpected discovery have been so worth it. As is often noted, the intersection between fields is dripping with opportunity. Peter mentioned my penchant for long-distance running. When you are running 50 or 100 miles, raw talent takes a back seat to desire and will. I quite like this aspect of the sport, and it carries over into my professional life. We all know to take one step at a time, but in ultra-running this is wrought literal. When I begin a project I usually don't know what the next phase is, but it always comes. And it's always fun.

I am forever indebted to my parents for enabling my love of the outdoors and of science. All of those visits to our awe-inspiring national parks and forests had a tangible outcome, after all. I thank Jenny, my wife, for being a prescient sounding board and for keeping me pointed in the right direction. Finally, I would be remiss not to thank Fred Donath and the Geological Society for supporting this award. It has been exhilarating, but humbling as well, looking at the list of past medalists. I have big shoes to fill. Where to next?

GSA PUBLIC SERVICE AWARD

Presented to
Jonathan G. Price

Jonathan G. Price
University of Nevada and
Nevada Bureau of Mines & Geology

Citation by Stephen M. Testa

I am deeply honored to have this opportunity to share a few words with you in recognizing and celebrating Jon Price as this year's recipient of the GSA Public Service Award. To provide some foundation, Jon's academic credentials are exceptional, with expertise in geology and geochemistry of ore deposits, igneous petrology, aqueous and environmental geochemistry, solution mining and geologic hazards, and public policy. Jon received his B.A. in Geology and German from Lehigh University in 1972, with highest honors, and his M.A. and Ph.D. from the University of California at Berkeley in 1975 and 1977, respectively. Jon spent his early professional career working as a geologist for The Anaconda Company in Nevada and later with the United States Steel Corporation in Corpus Christi, Texas, and as an Adjunct Assistant Professor at Bucknell University in Lewisburg, Pennsylvania. Jon began his state survey work in 1981 with the Bureau of Economic Geology at the University of Texas at Austin, and in 1988, his professional career would undergo a significant change when he accepted the position of State Geologist and Director of the Nevada Bureau of Mines and Geology (NBMG).

Jon has served in the capacity of State Geologist since 1988, during which time he took a short intermission being on loan to the National Research Council from February 1993 to February 1995. For those not familiar with the National Research Council, a unit of the National Academy of Sciences, this council primarily advises the federal government on science issues, use of science and technology in society, and policy. The Board on Earth Sciences and Resources addresses issues relating to solid earth sciences and to natural resources such as petroleum and minerals. During Jon's two-year involvement, eighteen reports would be released.

Public service can take many forms, but it's not uncommon for recognition of public service to be granted to a state geologist, but Jon is unique among state geologists. Public service is what serving in the capacity of a State Geologist and Director of a geological survey is all about; however, with exceptional academic credentials, he brought his deep seated core understanding that public service is fundamental to what geoscientists do. For those that venture into the arena of public policy he recognized early on that this area of our science can have profound impact in fulfilling essential societal needs and improving the quality of life for us all. Jon has throughout his career been persistent and unrelenting in his pursuit to address societal and public policy issues related to mineral resources, geologic hazards and professionalism. Jon's outreach and mentoring efforts in developing sound policy have extended to federal and state government, academic institutions, industry, professional societies, local geologic clubs and societies, and communities through such venues as the American Red Cross and Habitat for Humanity. There has been no venue in which Jon has not shown a desire to reach out and engage the public about the role of geology in their lives. Despite his busy life, he remains accessible to colleagues, staff, friends, and family, while constantly pursuing avenues to provide visibility for NBMG and to explore new opportunities for NBMG to better serve the public.

What is truly striking, however, is his behind-the-scenes work and contributions on countless committees, teacher workshops, elementary and secondary science school fairs and field trips. Committee work is not commonly characterized as glamorous work, and for the most part it is simply work; much of it is not readily recognized or visible. In roles of Committee Chair, Committee member, session organizer and moderator, field trip leader, and officer, he participated in no less than 250 such activities. This energy and persistent outreach effort stems from an individual who wants to get things accomplished.

Eugene and Carolyn Shoemaker, for whom this award was established, would be proud to have an individual of Jon's caliber and character to receive this award. And I am proud to call this man my colleague, my friend and my mentor. Winston Churchill once stated that *"We make a living by what we get, but we make a life by what we give."* Jon with his wife Beth have, and continue to live, a public life that is rich and full of giving and mentoring, and we are all enriched by their ceaseless efforts.

2010 GSA Public Service Award — Response by Jonathan G. Price

Thanks to Stephen Testa for his citation, to Jeff Rubin for his nomination, and to Beth Price for her support and talents. The volunteerism of these individuals exemplifies the commitment to public service that GSA recognizes with this award in honor of two remarkable public servants, Eugene and Carolyn Shoemaker. Stephen's volunteer work with the American Institute of Professional Geologists, American Association of Petroleum Geologists, and American Geological Institute has helped the profession immensely. Jeff's volunteering with the Red Cross in part led to a career path that helped bring field safety to the attention of our profession through the Geological Society of America and the Society of Economic Geologists. Beth's volunteer work has introduced great elements of K-12 education from the American Chemical Society to teachers' workshops sponsored by the Nevada Mining Association. A key to motivating volunteers is to make sure that they enjoy what they do. Stephen, Jeff, and Beth have certainly motivated me.

As a general rule in the geological profession, we geos (geoscientists) all serve the public in tangible and noble ways, whether by helping to provide mineral, energy, and water resources used in everyday life; reduce risks from natural and man-made hazards; protect the environment; assure that development is undertaken in ways that achieve goals of economic growth, social stability, and stewardship of the Earth; pursue the frontiers of science; or educate the next generation of scientists, opinion makers, and decision makers.

In other words, in my opinion, there isn't much distinction between geos in industry, government, academia, and non-governmental organizations with special

interests. Although at times one group may be at odds with another (government versus industry; fundamentalist religion versus fundamental science; or NGOs versus developers), an underlying motivation for nearly everyone is public service—helping people and the Earth. I thank you all for your service to the public.

Working with a state geological survey provides great opportunities for those interested in public service. The job includes scientific investigations of the geologic framework and history of a region—fundamental information that underpins nearly all basic research in geology and nearly all applications for society.

As Jim Davis, former New York and California State Geologist, has said, state surveys aren't just producers and wholesalers of scientific information, we are also retailers who translate that information for use by the public. This gives us great opportunities to engage the public through such activities as testifying before city councils, county commissions, state legislatures, and Congress; publishing books and establishing EarthCache sites for the general public to learn about geology; guiding K-12 teachers on the use of content material in their classes; leading field trips for the public during Earth Science Week; giving talks at local service clubs; and participating in the activities of local, regional, national, and international scientific and professional organizations.

I've had the pleasure of working with experts in hazards and emergency management (through the Western States Seismic Policy Council, the Nevada Earthquake Safety Council, the Nevada Hazard Mitigation Planning Committee, and the advisory committee for the USGS's earthquake program); with economic geologists, mining and chemical engineers, metallurgists, and other professionals dedicated to finding and responsibly developing mineral and energy resources (first in industry then through the Society of Economic Geologists; Society for Mining, Metallurgy, and Exploration; Geological Society of Nevada; Nevada Mining Association; Mining and Metallurgical Society of America; and Nevada Petroleum Society); with professors, fellow survey employees, and others dedicated to high standards and altruistic goals in science (through the Texas Bureau of Economic Geology, the Nevada Bureau of Mines and Geology, Association of American State Geologists, Geological Society of America, National Research Council, and National Science Foundation); and with colleagues who volunteer much of their time to issues of professionalism and the health of geoscience professions (through the American Institute of Professional Geologists, Association of Environmental and Engineering Geologists, and American Geological Institute).

I thank all who have made my volunteer work enjoyable, and I am both humbled and honored by GSA to be included among the previous Public Service Award recipients—a group of highly regarded scientists, engaging authors, and friends.

GSA PRESIDENT'S MEDAL

Presented to Keyhole, Inc. Developers of Earth Viewer (now Google Earth)

Founders:
John Hanke, Chikai Ohazama, Mark Aubin, Phil Keslin, and Avi Bar-Zeev

Advisory founders:
Brian McClendon, Michael Jones, Chris Tanner, and Remi Arnaud

Citation by Jean M. Bahr

The President's Medal was established to recognize individuals, groups, or entities whose impact has profoundly enhanced the geoscience profession both through advancing our science and through promoting geoscience in the service of humankind. The founders of Keyhole, Inc., are most worthy recipients of this honor. In 1999, they began developing software for Earth Viewer. Now known as Google Earth, their 3D virtual globe has emerged over the past decade as a transformative technology for geoscience research, teaching, and outreach to the public. Geoscientists use Google Earth as they are planning field expeditions, to post photos and other field observations, and to create virtual field trips for classes, colleagues, and the public. Geologic and topographic maps downloaded to Google Earth are accessible on desktops, laptops, and iPhones. Coupled with GPS, these Google Earth layers allow us to keep track not only of where we are, but also of what fascinating rocks lie beneath our feet. Displays of recent earthquakes, locations of volcanoes, hydrologic features, and historical imagery facilitate scientific monitoring and public appreciation of our dynamic planet. New applications for sharing, accessing, and displaying remote sensing data are expanding exponentially, and availability of these data has facilitated emergency responses to natural disasters. Diverse applications of Google Earth were highlighted in a Pardee Keynote Symposium at the 2009 GSA Annual Meeting in Portland. Continued collaborative developments to address needs of the geoscience community will be the topic of a Penrose Conference to be held at Google headquarters this coming January.

Response by Mark Aubin

I am honored to represent my fellow Keyhole founders in accepting the President's Medal of the Geological Society of America for our role as inventors of Google Earth.

Our original intentions were to provide education and entertainment to a newly connected generation of internet users, but this award highlights the reality that Google Earth has become an indispensable tool for scientists, providing the ideal platform for their own research and publishing efforts.

What started out as two guys working on a demo in their garage has become something way beyond what any of us could have dared to imagine. When Chris and Rémi coded up their first spinning globe demo with texture paging techniques inspired by the super computers they helped invent at Silicon Graphics, their goal was to impress investors enough to fund their gaming company start-up. The demo succeeded, which resulted in the company shifting focus to building their gaming engine. But it was not to be put on a shelf and forgotten. Eventually Keyhole was formed as a spin-off with the goal of making an earth viewer that would stream endless satellite and aerial imagery over the internet to people's homes. Then one day Google noticed us and thought that our technology would fit in well with their goal of organizing the world's information. Now we could finally make our product free as we had always hoped it would be. And having the resources to acquire vast amounts of imagery was pretty cool.

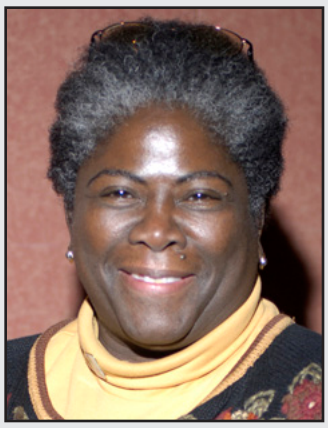
Today, with over 700 million unique activations, Google Earth is being used in some pretty amazing ways. Like the Amazon Surui tribe in Brazil to help in monitoring their territory for illegal logging. Or high school students in Barrow, Alaska, the northernmost city in the USA, to visualize whale shark movements. Or National Geographic explorer Sylvia Earle to advocate for the preservation of our oceans. Or science news reporter, Declan Butler, to show the spread of avian flu. The list goes on and on.

Being a part of the creation of Google Earth has, and continues to be, very fulfilling. But it is also humbling to realize that what we created has become the canvas for others much greater than us to build upon. People all over the world use Google Earth to explore, search, discover and tell their own unique stories. We all have one thing in common, which is that we call this planet our home. If Google Earth has played a part in making this a better planet then we have succeeded.

Again, thank you on behalf of my fellow Keyhole founders for selecting us all as this year's President's medal recipients. We are honored.

BROMERY AWARD FOR THE MINORITIES

Presented to
Marilyn J. Suiter



Marilyn J. Suiter
National Science Foundation

Citation by Rex C. Buchanan

Marilyn Suiter, the recipient of the Geological Society of America's 2010 Bromery Award for Minorities, has worked tirelessly on behalf of education in the geosciences. She is a particularly determined and effective advocate of diversity throughout the Earth sciences. Marilyn is a role model, mentor, and proponent for change.

Marilyn's career encompasses an incredible range of teaching, industry, and organizational experience, everything from the classrooms of Philadelphia, to the plains of southwestern Kansas, to the corridors of Congress and the White House. After receiving degrees from Franklin and Marshall and Wesleyan University, Marilyn taught science in grades 5-12 in the Philadelphia Public School System. She then spent four years with the U.S. Geological Survey, primarily in geologic mapping, then four years in exploration in the Hugoton Embayment for Cities Service Oil and Gas. From 1987 to 1998 Marilyn held several positions at the American Geological Institute. Most involved Earth science education and under-represented populations, and included acquisition of more than a million dollars of funding for the educational program, Earth Science in the Community, and increasing the level of AGI Minority Participation Program scholarships.

Since 1998, Marilyn has been at the National Science Foundation, serving as a Program Director for Education and Human Resources. She is responsible for geoscience education and diversity programs, and has been the lead program officer for various NSF efforts, including managing the Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring, and the Historically Black Colleges and Universities Undergraduate Program.

In addition to those formal roles, Marilyn has been an active volunteer for Earth science education, serving on committees for AGI, NSF, the Association for Women in Science, the National Research Council, the National Association for Black Geologists and Geophysicists, and the National Science Teachers Association. She has been chair of GSA's Geology and Society Division, and president of the Association of Women Geoscientists.

Marilyn is a Fellow of the American Association for the Advancement of Science, of the Association for Women in Science, and the Geological Society of America. She has been given various other commendations from AGI, NSF, and the Association for Women Geoscientists.

This listing of positions, offices, and awards does not, however, begin to capture what Marilyn has brought to the causes she believes in so deeply. She is consistently thoughtful, giving expression to new ideas that reach out to others, that especially engage and include those who are sometimes forgotten. She is articulate and enthusiastic, expressing her ideas in ways that make others want to help. She is agreeable and good-natured; she listens carefully to what others have to say. She is persistent, making it clear that she is committed to the things she wants to accomplish. Finally, she believes in following through. She does what she says she is going to do, and only commits to those things that she can, and will, accomplish.

And she has accomplished much. She is a constant presence on panels and podiums, tirelessly carrying her message. She has written extensively and published widely. She is the "type section" of a visible and effective leader.

And yet, at the end of the day, what mainly matters are the things she has accomplished and the people whose life she has touched. I have known Marilyn since her time AGI, but every time I see her at an Earth-science function, I'm struck by the number and range of people she knows. She seems to recognize, and hug, just about everybody. Walk with Marilyn through the exhibit hall at GSA, and you won't go more than a few steps before she encounters someone who wants to talk to her. When I was collecting materials to nominate Marilyn for this award, it was easy to find people who wanted to contribute, people who considered her a mentor, people who would testify eloquently to Marilyn's impact on their careers and on the Earth sciences.

All of us believe in what we do. We believe that the Earth sciences are critical to providing energy, minerals, and water, to helping to solve the environmental issues that society faces. We believe that knowing about the Earth, and the way it operates, is intrinsically interesting. We believe this knowledge is important to others throughout society.

We also know that hearing from a diversity of viewpoints can only improve our discipline. We know that different voices bring new and creative ideas that make the earth sciences better. We know these things. Yet the Earth sciences have long failed, frankly, to reach out, to include women and minorities, to make the Earth sciences demographically representative of the society we live in. And we are all the poorer for it.

Marilyn Suiter has done more to change that, to improve the range of voices heard in the Earth sciences, than anyone I know. The Earth sciences, the Geological Society of America, and all of us are better today because of Marilyn and what she has done. I think all of us want to make things better. Marilyn has actually done it.

Response by Marilyn J. Suiter

Thank you. I very much appreciate Rex's kind words, the support of the nominators, and the significant honor of receiving the GSA 2010 Bromery Award for the Minorities.

The goal of achieving increased diverse participation — in the geosciences, in science, and in education and employment opportunities — is something that has been a natural pursuit for me. This may have stemmed from the encouragement of my parents who always told me that I could pursue any career that I chose. I was fortunate enough that my interest in science was always acknowledged and supported — by my family and friends, by my K-12 educators, and by various faculty and professionals along the way. This is not to say that the path was easy for me, but easier by far than it is for many young people. Making sure that others have the kind of support that I received — and receive — is probably the driving force for what I do.

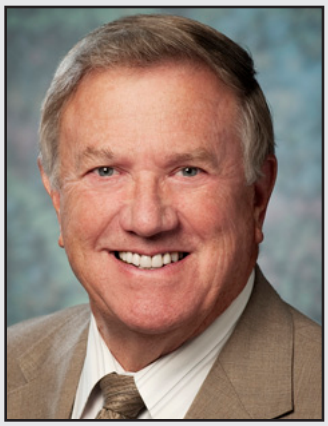
But it is very important to note that no one does or achieves such outcomes alone. Therefore I thank the many people in this room with whom I have worked over the years to extend opportunities to those individuals lacking sufficient support. "Thank you" also to those not present — some by simple absence, or some who have passed away like Marcus Milling and Nick Claudy at AGI, Mack Gipson and Patricia Hall at NABGG, and Suzanne Takken at AWG. And you who as you hear or read this message recognize the importance of mentoring and offering opportunities — with you I hope to work in coming weeks and months.

In closing, I extend a special thank you to the Bromerys who had the foresight and generosity to establish this award, and who have long stood as role models for inclusion and leadership, and for the partnership and support of the GSA Foundation. With talented colleagues engaged in the effort, we are unlimited in what we can achieve.

Again, I thank you.

GSA DISTINGUISHED SERVICE AWARD

Presented to
David A. Stephenson



David A. Stephenson
The Geological Society of America Foundation

Citation by Robert J. Sterrett

David Stephenson has been an active member of GSA for over 40 years, giving countless hours to further the core activities of GSA, its Hydrogeology Division, and the geologic profession. Contributions and honors include: Fellow of GSA; associate editor of *GSA Bulletin*; GSA's representative to UNESCO; GSA Hydrogeology Division's Birdsall Distinguished Lecturer; chair of the Hydrogeology Division; convener of two Penrose Conferences and several GSA Symposia; chair of GSA's Committee on Education; GSA vice president, president, and past president and member of GSA Council; acting executive director of GSA in 2001; and for the past several years, president of the GSA Foundation. In 1999, Dave served as president of the American Geological Institute.

Dave received the Ph.D. from the University of Illinois in 1965 under George Burke Maxey. From 1965 until 1979, Dave was a professor of geology at the University of Wisconsin–Madison where he established the hydrogeology program; he was also pivotal in founding the Water Resources Management Program at the university. Dave was mentor to more than 25 graduate students and later to many other young hydrogeologists when he entered the consulting profession in 1979. In 2001, Dave was tapped to lead GSA as its acting executive director. From 2004 until July 2010, he served GSA as president of the GSA Foundation. During his tenure at the Foundation, annual donations increased by 20%, and bequests increased substantially.

Dave has served as a model to others for his devotion and service to the geological profession.

Response by David A. Stephenson

Thank you Bob for being my citationist and, more importantly, for being my friend and colleague over the years. Frankly, it doesn't seem like 49 years ago when I joined GSA and started accepting calls to service. No one ever told me I was that age-challenged.

Receiving the GSA Distinguished Service Award is both an honor and sobering experience. I am privileged to join those who previously received this award and I certainly remember many of their contributions: from Cam Craddock (a former faculty colleague at the University of Wisconsin and Madison neighbor), to Sam Adams, Sue Beggs, Pete Palmer, Royann (Gardner) Cygan, Tony Reso, David Dunn, Bob Fuchs, and Jamie Robertson—just to name a few. That's good company to join! I thank those who nominated me for this recognition.

Some of you don't know (and may not even care), but the presence within GSA of the Stephenson name reaches back to 1888 and John James Stevenson, one of the Society's Founders. John and I share being known as very active members of the Society and for serving as its President. It's just possible that there is something in an Irish/Scottish lineage.

I'll pass on my advice to any of you who seek to do more than work within your specialty: "Get involved." Join committees, volunteer, and serve. Such activity carries many rewards.

I'm pleased to have been of service to the Society and its Foundation, especially as President of both organizations and Acting GSA Executive Director. It has been an interesting, varied, sometimes exhilarating, albeit sometimes exasperating ride.

I wish to specially acknowledge those family, friends, and colleagues who joined this event tonight. Your presence is also an award.

Thank you.

SUBARU OUTSTANDING WOMAN IN SCIENCE AWARD

Presented to
Kateryna Klochko

Kateryna Klochko
Carnegie Institution of Washington

Citation by Alan Jay Kaufman

Public awareness of the consequence of the buildup of greenhouse gases on global climate and shallow ocean acidification puts pressure on geoscientists to construct viable records of CO_2 variations in the atmosphere and world ocean through ancient time. This is relatively simple for the last half million years or so where ice cores provide archives of atmospheric inventories; older records remain elusive but for the potential of reconstructing CO_2 concentrations and seawater pH through boron isotope measurements. Many paleoceanographers are racing to make these difficult isotopic measurements, but few at any level have stepped back to ponder the myriad of proxy assumptions.

One who has is the 2010 Subaru Outstanding Woman in Science recipient, Kateryna "Katya" Klochko—currently a Postdoctoral Associate at the Carnegie Institution for Science—who set out to test several of the poorly constrained assumptions of the critical boron isotope proxy for her dissertation research. Upon arriving at the University of Maryland in 2003, Katya initiated an ambitious project to develop a laser ablation ICP-MS technique for the boron isotope measurement of carbonate rocks as a potential seawater pH barometer. Development of a laser ablation technique on solid carbonate is considered important because boron is ubiquitous in surface environments, and is therefore a common contaminant in solution chemistry.

Although initial laser ablation experiments showed promise towards the analysis of a variety of natural carbonates, the interpretation of the boron isotope data and its use in the reconstruction of pH and CO_2 concentrations in past oceans nagged Katya who delved deeper into several critical assumptions associated with the pH proxy. This approach is characteristic of this focused scientist who assumes that nature is understandable and that she has the capacity to understand it. Furthermore, Klochko is constantly searching for deeper rather than superficial knowledge.

Among the assumptions used in the pH proxy include knowledge of the boron isotopic difference between the two main boron-bearing species in seawater (i.e. boric acid [$B(OH)_3$] and borate ion [$B(OH)^{4-}$]). Previously this was only known from ab initio calculations insofar as it is not currently possible to quantitatively separate these species from seawater in order to measure their isotope differences. After thinking about the problem for several months, Katya reached out to theoretical chemist Jack Tossell in the Chemistry Department who introduced her to Robert Byrne, an oceanographer at the University of South Florida. Byrne suggested that a spectrophotometric technique he developed at USF might be used to empirically measure the boron isotope differences, and invited Katya to come to his laboratory. The result was spectacular. Katya was able to make the novel measurements and found a much larger isotope contrast than what was previously assumed (see Byrne et al., 2006, in Deep Sea Research and Klochko et al., 2006, in Earth and Planetary Science Letters) and which has propagated through the literature for over 30 years. Katya's research thus has an immediate and profound impact on carbonate-based pH reconstructions of past oceans.

Building on this success Katya moved on to a second long-standing assumption of the carbonate pH proxy – that the charged borate ion is preferentially incorporated into carbonate minerals relative to the neutral boric acid species. Given their large boron isotopic differences, the relative proportion of each has a strong influence on the measured boron isotopic composition of the carbonate rock. To test this proxy assumption Klochko contacted George Cody at the Carnegie Institution for Science and initiated NMR studies of modern biogenic carbonates. Contrary to previous expectations, Katya's NMR measurements revealed almost equal proportions of charged borate and uncharged boric acid in both aragonite and calcite precipitates (see Klochko et al., 2009, in Geochimica et Cosmochimica Acta). This unexpected result further underscores the view that controls on boron isotope composition in marine carbonates, and hence the pH proxy, are more complex that previously suggested.

Finally, in her continued efforts to find novel tests of the pH proxy, Katya started a series of carefully designed pH-controlled carbonate precipitation experiments with post-doctoral fellow Sang-tae Kim in the stable isotope facility at the University of Maryland and Gavin Foster at the University of Bristol. She believes that the next step to a better understanding of the proxy will be to isolate and constrain mineralogical effects on boron speciation and isotope compositions. These bench top experiments are on-going now at the Carnegie Institution for Science (where she is currently investigating the interaction of small organic molecules with mineral surfaces in collaboration with Robert Hazen and Dimitri Sverjensky) but preliminary boron isotopic results from samples precipitated at

Maryland under high pH conditions confirm Katya's spectroscopic observations.

Katya's successful integrated efforts towards a unified scientific goal are exemplary. She reveals a willingness to explore new techniques and analytical tools, and has developed the people skills necessary to reach out to the large number of both senior and junior scientists involved in her research.

Matching her research abilities, Klochko has the great ability to convey difficult concepts to both general and professional audiences, which is all the more impressive given that English is not her first language. She works hard on her presentations, which have been recognized by fellow colleagues at three American Geophysical Union annual meetings and by the Geology Department faculty during our bi-annual graduate student presentation day. During her graduate years Katya won first and second place in the Ph.D. category for her carefully crafted talks. In addition, Klochko was awarded a graduate student fellowship of $1500 by the Geological Society of America in 2005, and her final semester at the University of Maryland was funded by an Ann G. Wylie Dissertation Fellowship.

Kateryna Klochko has a bright future ahead of her, and the paleoceanographic community has already benefited from her groundbreaking dissertation. Her publications have been referenced by several leaders in the field, including Elderfield, McCulloch, Lemarchand, Hemming, and Broecker. Klochko's "pH.D." dissertation is causing leading scientists to rethink their assumptions about this important proxy, and its implications for charting the pH of ancient oceans and pCO_2 of ancient atmospheres. In a recent mini-conference on boron isotopes at Columbia University, Katya's work was front and center; the fact that her studies are making waves in the oceanographic community is testament to the significance of her small but growing body of work.

Response by Kateryna Klochko

I am deeply honored to be chosen this year's recipient of the Subaru Outstanding Woman in Science Award in memory of Doris Curtis, the first female President of the society. I thank the GSA committee for this award and Subaru for its sponsorship.

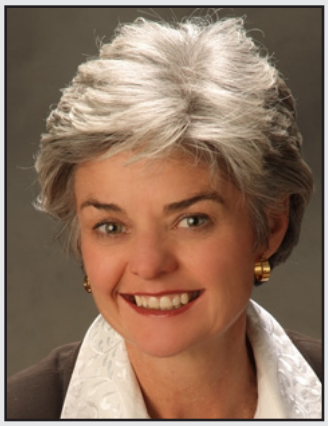
I share this award with very special people whose enthusiastic support and mentorship made my research possible. These include my two academic advisors: Jay Kaufman and Jack Tossell at the University of Maryland, who nominated me for this award, Bob Byrne at the University of South Florida, who generously opened the doors of his busy laboratory for my equilibrium constant experiments, and George Cody at the Carnegie Institution of Washington for his keen interest and insight in my project, as well as his state-of-the-art NMR for my speciation experiments.

I thank the Geology Department at the University of Maryland with the outstanding geochemistry program, faculty and students.

Finally, I share this award with my dear mother Valentina Ninova, whose unconditional love and support guided me to where I stand today.

AGI MEDAL IN MEMORY OF IAN CAMPBELL

Presented to Vicki Cowart



Vicki Cowart
Planned Parenthood of the Rocky Mountains
(formerly at Colorado Geological Survey)

Citation by Vincent Matthews

It is a pleasure and an honor to present the American Geological Institute's Medal in honor of Ian Campbell for Superlative Service to the Geosciences to Vicki J. Cowart. I first learned of Vicki's outstanding leadership abilities when we served together on the Board of Directors of the Association for Women Geoscientists Foundation (AWG) in the 1980s. Vicki helped found AWG and served as its first national President. In her real job at that time, she was District Manager for Schlumberger Well Services responsible for operations in the Gulf of Mexico.

Cowart grew up in the heart of Arizona's mining country. She traveled east to Worcester Polytechnic Institute where she received a B.S. in Physics *with Distinction*. Returning to her beloved west, she received an M.S. in Geophysics from the Colorado School of Mines (CSM). For the next three decades, she maintained strong ties with CSM by serving the Alumni Association in a variety of positions including President, receiving CSM's Young Alumnus Award, CSM's Distinguished Achievement Medal, and she currently serves on CSM's three-member, Board of Trustees.

Her service to her profession is not restricted to CSM. She doesn't just join organizations; she actively participates and contributes to them. These contributions are commonly significant and have been formally acknowledged by a number of organizations.

She served in positions of responsibility for the American Geological Institute, American Institute of Professional Geologists, Alliance of Professional Women, Association of American State Geologists, Denver Geophysical Society, International Women's Forum, Western States Seismic Policy Council, National Academy of Sciences/ National Research Council, and the Society of Exploration Geophysicists. Her contributions to the geosciences profession and society are recognized with various awards from the American Institute of Professional Geologists, Association of American State Geologists, Colorado Citizen's Leadership Excellence Award, Association for Women Geoscientists, Rocky Mountain Association of Geologists, Colorado Women's Forum, International Association of Geophysical Contractors, and YWCA Women of Achievement.

Vicki's career in the geosciences includes exploration work in the mining and petroleum industries. She was an Exploration Geophysicist for Skelly, Mobil, and Impel. She moved into management positions as District Geophysicist for American Quasar and Area Geophysicist for Atlantic Richfield. This background led to a successful, seven-year stint with Schlumberger. Perhaps her greatest contributions came during her decade as State Geologist of Colorado.

I have been a fan of the Colorado Geological Survey (CGS) since 1971, and was therefore delighted to learn in 1993 that Vicki had been named Director of CGS. She was never one to shrink from a challenge, but she inherited a daunting task.

In 1992, CGS' funding was unstable, its reputation was tarnished, and it faced an uncertain future. Vicki set to work with vigor to fix these problems. She developed a strategic plan, developed increased and new funding sources, and built a supportive constituency of staff members, citizens, and elected officials. She worked tirelessly to educate policy makers and citizens about the importance of geosciences and the natural resources industries to the people of Colorado. And, she was successful.

State funding was stabilized and increased three-fold. Federal grants increased six-fold under her tenure. The number of publications was increased dramatically and several won national awards. She established the CGS' first geologic mapping program which has now produced over 90 geologic maps. She established mineral and mineral fuel consortia, built an industrial constituency, and developed program funding for a revitalized natural resources program.

Vicki enhanced the effectiveness of CGS' traditional program in geological hazards by establishing the CGS Geological Hazards Conference, a regular public education and outreach meeting on geologic hazards, land use and development issues. The conferences raised the standard of practice of geotechnical engineering, and in the case of conferences in the Colorado Front Range, led to changes in county regulatory practices.

Under her leadership, CGS led the nation in research on the problems related to development on heaving bedrock and swelling soils in the Colorado piedmont. She directed publication and distribution of these research results. That award-wining publication, *A Guide to Swelling Soils for Colorado Homebuyers and Homeowners*, has sold over 250,000 copies.

Her re-establishment of CGS work in water quality and ground water led to the award-winning, Atlas of Colorado Groundwater. She reached out to Colorado citizens and students with publications on Colorado geology, including a popular publication *RockTalk* that is enjoyed by thousands of readers annually.

Vicki hired me in 2000, and I was again able to observe first-hand her outstanding leadership qualities. She developed internal management training systems to establish a cadre of young, effective managers from within the existing staff of scientists within CGS. She created internal communication and reporting mechanisms that significantly enhanced operational efficiency of agency.

I often observed her speaking to a variety of groups about the importance of geosciences. She was an articulate and effective advocate and I was always proud that she was my State Geologist. Her role in educating state and national policy makers on the importance of geoscience programs was extremely beneficial to CGS and the people of Colorado.

As State Geologist, she actively participated in the Association of American State Geologists and its educational activities for national policy makers. Her many significant contributions through this organization were recognized when she was elected President in 2001 and granted Honorary Membership in 2003.

In my judgment, Vicki Cowart's public service is the epitome of the stated purpose of this award "to recognize contributions by members of the Association to public

affairs and to encourage geologists to take a more active part in such affairs." She has been active in educating state and national politicians, the general public, and thought leaders through a variety of vehicles. This education has included the application of geology to the general welfare in the areas of petroleum, land use, and conservation of natural resources. Vicki's record of public service is one that can rarely be matched, is a challenge to the rest of us, and most certainly is a shining example of what one person can achieve in this arena.

Response by Vicki Cowart

Receiving the Ian Campbell Award is an honor I never imagined. I am touched by Vince Matthews' citation and thank the AGI nomination committee and Member Society Council for this recognition. I've known 16 of the past recipients of the Ian Campbell Award through my work with the Association of American State Geologists, and it is a singular privilege to see my name on a list with theirs.

Congratulations to all of this year's award recipients. To find myself among such illustrious company is an unexpected pleasure. I'd like to give a shout out to two special people I admire and am proud to call my friends. From our early days in the Association for Women Geoscientists, Marilyn Suiter, this year's recipient of GSA's Bromery Award for the Minorities, has been a source of inspiration and good times for me. Jon Price, who is being honored with the 2010 GSA's Public Service Award, was a mentor and pal during our time in AASG together. Special cheers to my good friends, Marilyn and Jon.

I left the position of Colorado State Geologist in 2003. Coming back for this surprising honor, seeing old friends from the geo-world, lets me imagine what it would feel like to watch myself receive a posthumous award.

It was hard to leave the Colorado Geological Survey. Being the Colorado State Geologist is one of the best, most fun jobs ever. The work is rewarding, and the community of State Geologists and people who care about geoscience-related public policy are smart, lively, and engaging. I left for a new world I didn't know much about but have found to be rewarding. Still, across the years, I think fondly of the people and the work I left behind. To be called back, to receive this honor, is a thrilling experience.

Leaving a 25-year career must be like leaving the land of your birth for a long ship voyage to new lands. At first, you wave to the people on shore. Then, leaning against the rail, you watch the land recede. Eventually, the old world disappears; you turn to new work at hand. You think about what they are doing back "home": budget, legislative session, the AASG Liaison trip. But soon, your new responsibilities take over. You adjust to a new world, with new routines, new people, and pressing new issues.

Eight years of engaging, rewarding "new" work is enough time to lose track of the details of the old world. I remember the people, the friendships, the sense of camaraderie and accomplishment, but Modern Health has replaced the SEG's Leading Edge as my plane time reading! I'm not current on the status of the Geologic Mapping Act – but I can give you great detail on what's up with Health Care Reform. I'm honored to be an Honorary Member of AASG and AWG, but as I scan the newsletters and emails, I recognize fewer names. My accent has changed and I've probably forgotten some of my old language.

Of course, I continue to admire geoscientists, who make significant contributions to the well-being of our world, finding or better using energy and resources, or through geological engineering, making it safer to live on our ever-changing world. I'm happy to have my work as a Trustee of the Colorado School of Mines as a place where I can still contribute to Colorado and geoscience education policy.

It was a great joy working with the people of the Colorado Geological Survey and I admire the work they do – providing the citizens and policy makers of this amazing state information to make good decisions. The work I do in my new world may seem different – but it actually is similar: working for good policies and providing useful information for people to make good decisions is the common language between my old and new worlds.

I vividly remember the time a woman called me as State Geologist to ask what to do about the rockfall near her house, and the large boulder perched above the house. "Ma'am," I asked, "are you calling me from inside the house?" "Yes," she answered. "Well, in that case, please gather up your kids, get safe, then call me back after you are out of harm's way. Then we'll talk."

That's not so different from the teenager who comes to Planned Parenthood to find out if he has a life threatening infection like HIV. First determine if he has the disease and get him treatment. Then provide the information and education he needs to protect himself and others going forward.

Useful, and sometimes life saving information that helps individuals, families and communities – and ultimately society as a whole - is what my old world of the state geological surveys and my new world of Planned Parenthood have in common. And, like geoscience, this work is a calling, not just a job. In both cases, it is important and rewarding work.

My admiration for the people from my old geoscience world make this award deeply meaningful to me. Groups like AASG, AWG, SEG, AGI, AIPG, CGS and CSM – and the extraordinary geoscientists of those organizations contribute much to the well-being of our world. Working with them was educational, inspirational, and rewarding back when I was a "real" geoscientist. I am humbled to be honored by these folks today. Whatever success and accomplishments I have in this world are rooted in what I learned from these people.

Being invited "back home" for this very special event evokes good memories and reinforces the pride I feel about my origins among you in the world of geosciences.

Thank you.