AAPG Honorees, 2014

ERNEST A. MANCINI
Sidney Powers Memorial Award

Citation—To Ernest A. Mancini, geoscientist, teacher and leader, for novel combination of sequence stratigraphic and petroleum system concepts to further the understanding of sedimentary basin geohistory and timing of hydrocarbon processes in the onshore and offshore basins of the Gulf of Mexico; for comprehensive analysis of microbial carbonate reservoirs; for innovative teaching of aspiring and experienced petroleum geoscientists; for exceptional vision to design and implement integrative geoscience and engineering teaching programs; and for extraordinary leadership and commitment to advance the science of petroleum geology.

Ernest A. Mancini or Ernie is a very worthy recipient of the Sidney Powers Memorial Award. His distinguished and outstanding career is highlighted by significant achievements in research and teaching in petroleum geology. Ernie was born in Reading, Pennsylvania. He earned his B.S. in biology from Albright College (1969), M.S. in zoology from Southern Illinois University (1972), and Ph.D. in geology from Texas A&M University (1974). His dissertation involved combining stratigraphy, sedimentology, geochemistry and paleontology to interpret depositional environments and faunal conditions in Cretaceous strata of Texas.

Ernie began his career as an exploration geologist in 1974 with Cities Service Company where he was a team member that integrated geological, geochemical and geophysical information preparing for the OCS lease sale scheduled for St. George Basin in the Bering Sea. In 1976 he accepted a call to teach and continue research interests through dual appointments at the University of Alabama as assistant professor in the Department of Geological Sciences and petroleum research geologist with the Mineral Resources Institute. In 1982 Ernie was appointed Alabama's state geologist and oil and gas supervisor and became director of the Geological Survey of Alabama and State Oil and Gas Board of Alabama. He served in those capacities until 1996. During his tenure, the first new statewide geological map of Alabama since 1926 was published, and the state became a major producer of natural gas with the advent of production from deeply buried reservoirs in state waters and coalbed methane from the Black Warrior Basin.

Ernie was appointed Distinguished Research Professor by the Board of Trustees of the University of Alabama System (2005) and was named the Blackmon-Moody Outstanding Professor (2007). He received the Burnum Distinguished Professor Award and became Professor Emeritus in 2010. He served as interim director of the School of Mines and Energy Development (1988–1989) and was appointed as the first director of the Eastern Gulf Region of the Petroleum Technology Transfer Council in 1995. Ernie founded the UA Center for Sedimentary Basin Studies, an interdisciplinary geoscience research center focused on sedimentary basin and petroleum geology research in 1998 and served as interim chair of the Department of Geological Sciences (2008–09).

At the Geological Survey and University of Alabama, Ernie strived to further the understanding of geoscientific concepts and methodologies and to apply fundamental knowledge to solve practical problems. In 1989 he assembled a multidisciplinary

integrated team of geoscientists and petroleum engineers to undertake a carbonate reservoir characterization project. This was the first of 10 U.S. DOE-funded, multi-year, interdisciplinary projects involving reservoir characterization, modeling and simulation; advanced diagnostic reservoir imaging; petroleum system characterization and modeling; sedimentary basin analysis; and resource assessment.

The findings from these projects have influenced discovery thinking in industry. Research accomplishments include designing an integrated chronostratigraphic and sequence stratigraphic (transgressive-regressive sequences) framework for intra- and inter-basin correlation to facilitate the recognition and mapping of potential petroleum reservoir and source beds; characterizing deeply buried carbonate and eolian sandstone reservoirs; combining sedimentary basin analysis and petroleum system modeling to assess deep gas resources; characterizing and modeling the development and distribution of microbial carbonate facies and reservoirs; applying an integrative carbonate reservoir characterization, modeling and simulation methodology to improve hydrocarbon recovery; and employing an approach that combines the concepts of petroleum systems and transgressive-regressive sequences to interpret basin geohistory and timing of hydrocarbon processes of generation, expulsion, migration and entrapment and to characterize and delineate oil and gas plays.

Ernie's research on transgressive-regressive stratigraphic sequences, chronostratigraphy, microbial carbonates, and petroleum geology of onshore and offshore basins in the Gulf of Mexico resulted in international acclaim.

These research achievements have led to recognition by his peers with the awarding of high honors: the distinguished GCAGS Don R. Boyd Medal for excellence in Gulf Coast geology (2011), the prestigious GGS-SEPM Doris Malkin Curtis Medal for contributions in the development of concepts for understanding the geology of Gulf of Mexico basins (2013), AAPG Levorsen Petroleum Geology Award (1980), four Best Paper Awards on Norphlet and Smackover petroleum geology from GCAGS (1980, 1982, 1985, and 2001), Best Poster Award on Paleogene stratigraphy from GCS-SEPM (1981) and AAPG Award of Excellence, Top 10 Oral Presentation on microbial carbonates, International Conference (2010). He was also selected as AAPG Haas-Pratt Distinguished Lecturer on Norphlet eolian reservoirs for 1988–1989.

Ernie has demonstrated a truly exceptional willingness to share his knowledge and expertise. He has supervised 32 theses and dissertations in petroleum geology, stratigraphy and paleontology. He has given scores of technical presentations, technology workshops and short courses to academic, industrial and governmental organizations. Serving as a leader for numerous geological field trips, he shared experiences with other geologists at the outcrop. Ernie has co-organized and co-convened a host of technical sessions and conferences, including three AAPG Hedberg Research Conferences on carbonate reservoir characterization and modeling, sequence stratigraphy, and microbial carbonate reservoir characterization and an AAPG Research Conference on the origin of petroleum. He has authored or co-authored hundreds of geoscientific publications, abstracts and reports, including 13 papers in the *AAPG Bulletin*. Ernie has co-compiled AAPG Getting Started Series 19 on microbial carbonate reservoirs; co-authored a paper in AAPG Studies in Geology 37 on petroleum source rocks; and co-edited a special volume of the *AAPG Bulletin* on microbial carbonates. He was an associate editor for the *Bulletin* and served as AAPG elected editor (2004–2007). Ernie has served on the editorial boards for the *Journal of Stratigraphy* and *Environmental Geology and Water Sciences*.

In 2010 he was appointed the first director of the Berg-Hughes Center for Petroleum and Sedimentary Systems at Texas A&M University, an integrative petroleum geoscience and engineering education and research center. At TAMU he was a research professor in geology and geophysics and holder of the Dan Hughes Endowed Chair. His focus was integrative education, which he maintains is critical to the professional success of petroleum geoscientists. Ernie reasons that although we generally understand the importance of integrative teams

of geoscientists and engineers in exploration and development projects and for solving complex problems through interdisciplinary research efforts, integrative team teaching is equally important. This teaching approach enhances the education experience of aspiring petroleum geoscientists and sharpens the skills of seasoned oil and gas finders.

For his remarkable teaching, Ernie received the Outstanding Educator Award from GCAGS (1998) and was awarded the Grover E. Murray Memorial Distinguished Educator Award by AAPG (2000). In teaching, he stresses the importance of observation and comparison, critical thinking, utilization of integrated solutions, and the ability to communicate effectively. He emphasizes the teaching of concepts and the applications of these concepts through a team problem-solving approach.

Ernie has served in important leadership positions in academia, government, and geoscientific organizations. These include president of the American Geosciences Institute, president of the Association of American State Geologists, president of GCS-SEPM, chair of the North American Commission on Stratigraphic Nomenclature, and president of the Alabama Geological Society. He was appointed by the Secretary of Interior to the U.S. DOI OCS Policy Advisory Board Committee, serving as chair (1987–1989) and receiving a Resolution for Outstanding Contributions in Public Policy (1996). He served as scientific advisor to four governors of Alabama (1982–1996).

In 2004 Ernie received the highest honor awarded by the American Geosciences Institute, the prestigious Ian Campbell Medal, for research and teaching accomplishments and commitment to public service. He was awarded Honorary Membership to GCS-SEPM (1991), AASG (1996), GCAGS (2003) and AAPG (2008). He received the AASG Distinguished Service Award (2010), AAPG Award of Merit for serving as chair of the Research Committee and AAPG Award of Excellence for service as elected editor.

Ernest A. Mancini's significant research contributions to advance the science of petroleum geology, commitment to excellence in the education of petroleum geoscientists and exceptional leadership and outstanding achievements in academia, government and geoscientific organizations are recognized with our highest esteem and appreciation by the bestowing of the 2014 Sidney Powers Memorial Award.

Ernie has been my mentor, colleague, and, most importantly, my friend, for over 30 years. Over these years, I have observed directly his abundant contributions to the geosciences in research, teaching and service, and I have been privileged to work along with him and our colleagues in conducting research to advance knowledge of the petroleum geology and stratigraphy of the Gulf of Mexico. I greatly admire and respect his knowledge, abilities, work ethic and capacity for achieving important and substantive goals and objectives and hold Ernie in the highest regard. Therefore, it is my great honor to provide this citation for the Sidney Powers Memorial Award to a most deserving recipient.

Berry H. (Nick) Tew, Jr.

Response

I thank the AAPG Executive Committee and Advisory Council and all those who were supportive of my nomination and receipt of this high honor of the Sidney Powers Memorial Award. Particularly, I thank Berry H. (Nick) Tew, Rick L. Ericksen, Bennett L. Bearden, Robert R. Jordan and William T. (Tom) Watson for their long-time friendship and counsel. I thank the University of Alabama and Texas A&M University for providing me with the resources to teach and pursue my research interests and the petroleum industry and US Department of Energy for research assistance. I am especially grateful for the sacrifice, support and understanding of my family, my wife, Marilyn, and daughters, Lisa and Lauren, over these many decades.

Over the past 42 years, I have had the opportunity to be involved in the fields of petroleum geology and stratigraphy in many capacities: teacher, researcher, author, editor, center director, state geologist, state oil and gas supervisor, scientific advisor to four Governors of Alabama, chair

of the U.S. Department of Interior Policy Advisory Board Committee to the Secretary of Interior on Outer Continental Shelf matters, petroleum exploration geologist, and president of geoscientific societies and geoscience organizations. In all of these I have used science as the bedrock for decision-making.

Of all my experiences, I value my teaching the highest. That moment in the classroom when you are explaining a concept and a student looks up and has eye contact with you and you know he or she grasps the concept, well, that moment is worth all the effort and all the years of work.

But, the privilege of teaching comes with responsibilities. I teach mainly graduate courses and I do not use textbooks. Also, I integrate my research experiences, successes and challenges into the discussion and analysis as first hand practical examples. I hold that a scientist-teacher has the obligation to communicate research results in a timely manner and publish the findings. A scientist-teacher should strive to facilitate the dissemination of information resulting from research initiatives by organizing technical sessions, workshops, short courses and conferences and publish summaries of these events. One of my most rewarding teaching and learning experiences was conducting technology workshops with Don Goddard from LSU for independent companies in Alabama, Mississippi, Louisiana, and Texas through the Eastern Gulf Region of the Petroleum Technology Transfer Council. We would not only share our research findings with the workshop participants but also speculate on how these results might be used to find oil and gas.

Throughout my career, I have been very fortunate to have visionary giants in the petroleum geosciences, as Robert R. Berg, William L. Fisher, and John J. Amoruso, to serve as mentors; to have the honor to work with committed and talented students; to have collaborations with inspirational and understanding colleagues in the petroleum industry and academia, including D. Joe Benson, Robert J. Stanton, Wayne M. Ahr, Robert W. Scott, Charles C. Smith, Robert M. Mink, Michael C. Pope, Yuefeng F. Sun, Robert D. Schneeflock, Arthur D. Donovan, and Barry J. Katz; and to have the opportunity to work with dedicated members and staff of professional societies, like Paula Sillman, Debbi Boonstra, and Janice Scott with AAPG. Equally important, I had the challenge of studying the geology of the Gulf of Mexico, one of the most petroliferous regions in the world, and the satisfaction of contributing toward advancing our understanding of the petroleum geology and the stratigraphy and paleontology of the strata in the onshore and offshore sedimentary basins in this region. Clearly, significant geoscientific and oil and gas play concepts have resulted from the study of the basins in the Gulf of Mexico. These important concepts are not only transferable to other sedimentary basins but most likely have contributed greatly to new oil and gas discoveries globally.

My wife tells me I should never miss a teaching opportunity. So, as a teacher-scientist, I offer the following observations: We, the members of AAPG, need to maintain a strong advocacy for advancing the petroleum geosciences, to explore the opportunities and benefits of integrative education programs, and to support curiosity driven research to further our understanding of the petroleum geosciences. Why?

1. AAPG strives to advance the science of petroleum geology, promote the technology associated with petroleum and enhance the professional well being of AAPG members in a sound fiscal manner. In this regard, the petroleum geosciences require a strong advocacy by us to insure consideration in the decision-making and budgeting process of AAPG. To me, it is crucial that we continue to disseminate timely information to our members that advances the science and assists them in being successful in their profession.
2. Integrative education is critical for the professional success of petroleum geoscientists. We now understand and accept the importance of integrative teams of geoscientists and engineers in exploration and development projects; however, some of us remember the days when geologists and geophysicists worked separately. For many of us, interdisciplinary research is becoming the norm to address complex problems; but an

interdisciplinary research approach was not always preferred in the past. Today, just as important are integrative education programs. Such undergraduate and graduate programs are invaluable in the preparation of petroleum geoscientists. The critical elements of these programs include geoscientists and engineers teaching courses in tandem; geoscience and engineering students learning together in the classroom, in discussion sessions, and through class exercises; and students having both geoscientists and engineers on their thesis and dissertation committees. It seems natural that AAPG sponsor a workshop where universities with successful integrative education programs share with the membership the benefits of their programs and the success of their students.

3. Curiosity driven research offers a potential windfall for advancing the petroleum geosciences. Such research, sometimes referred to as theoretical, has high risk, but it provides the opportunity for a very high return on investment: like drilling a well in an unexplored basin. And yet, support for this research in the petroleum geosciences continues to decline. Many of these advances in science and engineering are being made by young professionals. The AAPG Foundation Grants-In-Aid Program is outstanding and has produced many success stories. However, the opportunity exists for AAPG, perhaps in partnership with other geoscience organizations, to establish a designated grants component in the Foundation Grants-In-Aid Program to support the research of Ph.D. students proposing potential breakthroughs in the petroleum geosciences.

As a retired scientist-teacher, I request that you consider these thoughts as AAPG moves forward to what most assuredly will be a prosperous future.

Thank you again, AAPG, for this prestigious award.

Ernest A. Mancini

PETER R. ROSE
Michel T. Halbouty
Outstanding Leadership Award

Citation—To Dr. Peter R. Rose, geologist known worldwide, who took teaching to a successful entrepreneurial conclusion, exemplary leader, unflagging activist for transparency and fair representation within the Association, who instilled energy in his cohorts while achieving much as a successful change agent in AAPG.

Dr. Peter R. Rose has demonstrated unusually strong leadership in many venues and situations over a long professional career. I will start with his singular service to the Association.

Like many awardees, Pete has served on a wide variety of AAPG committees and been recognized with Honorary Membership, Distinguished Service Award, DPA Life Membership and DPA Distinguished Service Award. He served as president of both DPA and AAPG, and played major roles in effecting changes in both. As president of DPA he caused the recovery of improperly diverted funds, thereby putting the division in strong financial shape.

Change is a reluctant partner at the AAPG dance. Most are content to listen to the same music and waltz to the familiar cadence. AAPG does not suffer from a shortage of visionaries, but few potential leaders are willing to not only look forward at the changing path but also to risk failure, and to lead through the anticipated challenges. Pete Rose earned this award by doing that.

The late 1990s were times of major change in the Association. As a critical player in the "AAPG Revolution", Pete, in his own

inimitable way, worked with a small group of like-minded members to reform governance and liberalize participation of members. This resulted in the House of Delegates effectively reducing the influence of “the old guard,” expanding the Advisory Council, and putting restrictions on the Executive Committee. Pete came out of the struggles with more than a few arrows in his back, but through his exceptional leadership the Association became more democratic and transparent, and much more hospitable to international members.

In 2004 and 2005, as president elect, Rose was instrumental in establishing the AAPG Washington office—a breakthrough for representation of our members on issues important to their profession and economic wellbeing.

And, in 2005 and 2006, as president, Pete established the principle that members had the responsibility to audit performance of headquarters staff, led the successful effort to create the position of international vice president and began the task of developing and adopting a graduated dues scheme to facilitate easier membership for those with lower incomes.

The development of leadership is a major subject in military schools and some MBA programs, and it is occasionally the focus of promotional courses sold to wide audiences. Military schools teach leadership as a formal learning course, often claiming success (after throwing in the exception of sudden births of necessity on the battlefield). However, many of us note emerging leaders by their early teens; perhaps it is a natural trait exposed by a simple thought "there is a better way and I can show you how to get there.” This encourages the thought that leadership is born and perhaps improved with learning.

Leadership requires vision, cooperation, concern, understanding, and risk taking. Certainly, many of us are content to follow, and indeed leaders develop in part by identifying and following good leaders. Pete Rose grew into leadership early, as his personal record illustrates.

As a young boy from central Texas with a ranching background, he was active in the Boy Scouts in Austin. He rose to senior patrol leader, earned Eagle Scout and was inducted into the Order of the Arrow, which in itself is leadership recognition. Clearly discipline and energy played a part, but desire to achieve and lead were very much evident.

At the University of Texas where he earned B.S., M.S., and Ph.D. in geology, he was an exceptional student, president of the Geology Club, and outstanding graduate student (1968).

After working for Shell Oil Company he joined the USGS as chief, Branch of Oil and Gas Resources in 1973, a time of great stress on the U.S. economy as a result of the Arab Embargo on crude oil. Pete conceived a modern program in petroleum exploration research, recruited a staff, and managed the entity. He organized and oversaw the first USGS group to appraise U.S. oil and gas resources, a program which continues today with focus on world wide petroleum resources—clearly, an excellent example of timely and effective leadership.

Perhaps seeing greener pastures in the non-governmental aspects of the oil industry, Pete joined Energy Reserves Group, Inc. in 1976 as chief geologist, recruited a substantial professional staff, oversaw their geological standards, especially in generating early-phase exploration projects, and measured staff predictive performance (a challenging task for rank wildcats!).

In 1980 Pete went on his own, founding Telegraph Exploration, Inc. (named after a hamlet near his Edwards Plateau ranch) and used this corporate vehicle thereafter for independent prospecting and consulting.

The near-collapse of U.S. petroleum exploration in 1986 caused AAPG members and associated professionals to lose their jobs and in many cases to abandon their chosen profession. Oil prices fell from approximately $25/bbl to about $10/bbl and resulted in the bankruptcy of numerous companies and the liquidation of large holdings of petroleum properties. There was a silver lining, however. Surviving companies turned inward and searched for what had gone wrong in their commonly underperforming exploration programs. Pete, himself nicked by the events, recognized and exploited that opportunity through an in-depth study of the factors involved in exploration risk analysis. True leadership, in the

sense that there was lemonade to be made by teaching how to more rationally and objectively evaluate risk and its relationship with reward.

This endeavor led in 1990 to his focus on exploration risk analysis, and in 1998 to the founding of Rose & Associates, LLP, which remained his main professional activity until his retirement in 2005. The firm continues today as the global standard consulting firm in that specialty. Pete's retirement was perhaps premature, but this was in keeping with his commitment as incoming president of AAPG, which to be done effectively required abundant energy, strong focus and total commitment–resulting in outstanding leadership.

Rose's leadership in AAPG is covered above, but in addition he led a group of Texas geologists in a state licensing campaign based on COPGO, a joint effort initiated by DPA and joined by AIPG, AEG and SIPES and counseled by representatives of the state geologists. It took awhile, but it got done!

In the mid and late 1990s he edited *Guiding Your Career as a Professional Geologist* (DPA publication), was general chair of the GCAGS Annual Meeting in Austin, co-convened an AAPG Hedberg Conference on International Exploration Risk Analysis in San Diego, and was awarded the Ben Parker Memorial medal from AIPG (for his work on Texas licensure of geoscientists).

During the early 2000s Pete was president of GCAGS and co-chair of the Joint AAPG/SPE Conference, "Delivering E&P Performance in Uncertainty: Best Practices and Barriers." His book published in 2001 by AAPG, *Risk Analysis and Management of Petroleum Exploration Ventures* is now in its 7th (!) printing, and has been translated into Japanese, Chinese and Russian.

In 2007, Pete co-chaired the International Interdisciplinary Conference on Reserves and Resources, jointly sponsored by AAPG, SPE, SPEE and the World Petroleum Council, which encouraged the U.S. Securities and Exchange Commission to revise its rules on reporting of reserves and resources, which positively impacted reporting of new "Shale Revolution" oil and gas reserves. This was followed by Pete's chairing AAPG's Ad Hoc Committee on SEC Reserves and Resources Revisions, which provided advice to the SEC on its new reporting rules.

As a powerful endorsement of his international reputation, in 2013, he was presented the Petroleum Group Medal by the Geological Society of London, the first American to receive this prestigious award.

In addition to the above-cited activities, Pete Rose also has been an active geoscientist, with more than 75 publications and several hundred oral papers, on a wide variety of topics, from micropaleontology to stratigraphy to E&P risk analysis, and in retirement, Texas frontier history.

Not mentioned often (perhaps desired to be forgotten!) was Pete's leadership in promoting reading. As president of DPA and the Association his quarterly or monthly recommendations for good professional/scientific books to read generally fell on deaf ears! This singular failure as a leader only proves he is human; it should not detract from his earning this Outstanding Leadership Award!

Best wishes to very supportive spouse Alice and especially deserving Pete Rose–congratulations!

Patrick J. F. Gratton

Response

What an affirmation! My sincere thanks to those friends who nominated me, the Advisory Council who recommended the award, the Executive Committee, who approved it, and the AAPG Foundation, who continue to fund this penultimate AAPG honor. Deep gratitude to my compadre, Pat Gratton, for long years of friendship, as well as his generous citation. And to the seven distinguished previous recipients of the Halbouty Outstanding Leadership Award, please know that I am humbled to be in your company; I'll try to be on my best behavior–after all, you guys are my heroes!

Sharing equally in your kind recognition must be Alice, my dear wife, loyal supporter, chief critic, and best friend. She has been, all along, the steadfast "wind beneath my wings."

Warm greetings and thanks also to many, many AAPG colleagues and friends who have diligently served AAPG's membership with me for many years now, in various

capacities—men and women from all over the world now, far too many to list here, but you know who you are. I like to think that together, over the last 12 to 15 years especially, we helped AAPG become the truly international association it is today, governed by the membership through their House of Delegates, overseen by the elected officers of the Executive Committee, advised by the Advisory Council, and operated by the executive director and his staff.

Looking back over a 55-year career, I can see that, in repeated professional settings, I have been an agent for change–with USGS, Energy Reserves Group, Rose & Associates, and AAPG. Change is rarely comfortable, either for those advocating it, or for those resisting it, but without change, we stagnate. Twenty years spent trying to change how companies evaluated their prospects and plays was good training for helping to bring constructive change to AAPG! But I was just one of many active members during 1998–2002 who worked to change the Association we loved. It is also clear now that some (mostly older) members were offended by some of us who sought change; Mike Halbouty, a great AAPG leader over many years, was one of those, and I suspect that Mike, rest his soul, would not have approved of my receiving this award. Some of the other Old Guard who are still around may also have not forgotten. So I want to express here genuine regret that I was not more respectful and diplomatic during that time of change. I shall continue trying to mend those fences.

A few years later, as president-elect, president, and chair of the Advisory Council, I was in a position to help build on those earlier changes, in the interest of enfranchising, empowering, and expanding our international membership. Among many heavy lifters in making this happen were Pat Gratton, John Brooks, Valary Schulz, Don Clarke, Dave Hawk, Lee Billingsley, and Larry Jones. International membership soared, and international participation at AAPG events blossomed. Now, for the first time in our 97-year history, our two candidates for president-elect are both international members! If you need to look further for tangible evidence of AAPG's constructive evolution, just witness the large numbers of students—from all across the globe—competing in the Imperial Barrel Award, Steve Veal's brainchild, and one of the best things AAPG has ever done. It gives me goose bumps—our annual meetings are now genuinely international meetings!

As president-elect and then president, if you want to bring positive change to a volunteer professional association such as AAPG, recognize that you don't have much time, so you'd better get your ducks in a row during your year as president-elect. Fortunately, Pat Gratton and I had similar viewpoints, and committed to help each other. Lee Billingsley followed up, so we had three years of policy continuity in leadership. Then, while you're president, you have to run like hell to bring about the changes you envision, while hidden agendas and organizational inertia exert their inexorable delays. You have to build trust, enlist other volunteer leaders in your causes, try not to get diverted by issues of lesser priority, and keep your eye on the main objectives.

In retrospect, I identify six key elements in successful leadership:

1. Have a clear vision, which requires breadth and a sense of history: "Where we've been, where we're headed, and why;"
2. Understand the Organization, how things get done and through whom;
3. Plan ahead, be well organized, and convey that sense of organization to your associates;
4. Articulate your goals, and persuade your associates to support them;
5. Have courage and good will, expressed as a balance between manifest determination and collegiality;
6. Delegate, follow through, and praise—give out lots of "atta-boys and "atta girls".

All of us have seen dramatic curves depicting the geometric increase in global population starting around 1800. Remarkable advances in medicine and agriculture have been two of the principal drivers of this dramatic increase, and we can justly celebrate how they have enriched and eased and extended the lives of billions of human beings. Of course, the third essential member of that trio of blessings is energy. Just as physicians and agronomists

take appropriate pride in their contributions to the advancement of mankind, petroleum geoscientists and engineers should take enormous satisfaction in what our profession has contributed to the welfare of people around the world. We should also forthrightly remind our many critics of our continuing gifts to society, as well as the compelling fact that per-capita energy consumption correlates directly with per-capita GDP—the more Energy a society uses, the more prosperous it is. Overall, the condition of mankind continues to improve. And despite the somber jeremiads of the persistent doomsayers, the world is not coming to an end. Matt Ridley has every reason to be *The Rational Optimist*—and so do we.

It has become timeworn to say that we stand on the shoulders of those who have gone before, but as scientists, we know how true it is. We can all look back with gratitude to friends, teachers, supervisors, and mentors who encouraged, taught, and admonished us. Our progress reflects the quality of their support. AAPG has provided such a professional framework for me, over more than 50 years: It provided many powerful learning experiences, an expanding network of business contacts and professional friends. AAPG published my papers, and sponsored my short courses. So I am deeply grateful. I stumbled recently on a passage by Harry Overstreet that fits:

"Gratitude is the mature emotion that human beings cannot feel until they have grown into it. A sense of stewardship can be experienced only by those who have grown into deep gratitude for both receiving and giving: For it is in essence, a conviction that something of great worth has been given to them, to use with respect, to care for, to improve if they can, and to pass on to others".

I am immensely grateful for your high affirmation, and generous good will, in giving me the Michel T. Halbouty Outstanding Leadership Award. Thank you.

Peter R. Rose, Ph.D.

JOHN ARMENTROUT
Honorary Member Award

Citation—To John Armentrout for his leadership with style, poise, intellect and respect. And for his prolific contributions integrating diverse data into a unified interpretation of the earth.

Knowing John Armentrout and serving with him on committees and boards is so refreshing and invigorating. His respect for other people and their ideas, his deliberate and personal touch with every decision or action has created a legacy of lasting positive results for AAPG and every organization lucky enough to have his involvement.

John is a class act. He attends to the business assigned to him with consideration, integrity and with an amazing intellect. He unfailingly credits others for their mentoring, contributions, and support. What is not to like about that!

This Honorary Membership acknowledges John both for his scientific contributions and for his leadership roles in AAPG as well as his abundant contributions to our profession in other affiliated societies. His eclectic career, multidisciplinary in approach and global in scope, has its roots in the geology of the Pacific Rim of North America. His interest in petroleum geology was stimulated at the University of Oregon by long-term AAPG member Walter Youngquist. Professor Youngquist designated John as recipient of the 1965 SEPM Student Chapter Membership Award when SEPM was a division of AAPG.

John became an AAPG student member in 1971 while at the University of Washington. He presented his first AAPG paper in 1974 titled "Oligocene biostratigraphy of the Lincoln Creek Formation, southwestern Washington", the focus of his Ph.D. dissertation. His first AAPG publication, co-authored with David Suek, was in the 1985 *AAPG Bulletin* and titled "Hydrocarbon exploration in western Oregon and Washington".

Joining Mobil Oil Corporation's Alaska Division in Denver in 1973, John delighted in being part of the field parties investigating southern Alaska, western Oregon and Washington. This work lead to a series of papers on North Pacific correlations, including co-authored papers in collaboration with Japanese, Russian and USGS scientists and Mobil co-workers. In fact, John's technical contributions include more than 50 papers, 3 field trip guides, 6 edited volumes, and more than 130 abstracts resulting from efforts with more than 100 different co-authors.

This publication record reflects John's broad range of curiosity and effective collaboration in multidisciplinary science resulting from team projects within Mobil, in multi-company projects, and from cooperative efforts with scientists from other nations met at international meetings where John represented Mobil. The range of published topics include regional stratigraphic correlations, molluscan, foraminiferal and nannofossil biostratigraphy, magnetostratigraphy, organic geochemistry of source rocks, sedimentology of deep-water sands, and sequence stratigraphy and seismic facies analysis. John considers his "scientific expertise" to be integration of multiple data sets applied to basin analysis. As a person who has had a career-long frustration with geoscientists who like to ignore the importance of biostratigraphy for reconstructing geologic history and tectonics, I greatly appreciate someone of John's reputation and stature emphasizing this in his research and publications!

In 1978–1979 John was appointed a National Research Council research associate with the U.S. Geological Survey in Menlo Park, California. That postdoctoral work, mentored by Warren Addicott, resulted in the 1981 publication of GSA's Special Publication 184 *Pacific Northwest Cenozoic Biostratigraphy*, with John as volume editor and author of the synthesis paper, and the 1983 "Correlation of Cenozoic Stratigraphic Units of Western Oregon and Washington," a component of the AAPG-GSA COSUNA Project (Correlation of Stratigraphic Units of North America).

In 1979 John returned to Mobil and transferred to Mobil's Dallas, E&P Technical Services Division where he participated in a global project analyzing the petroleum systems of 100 basins worldwide. His work involved distillation of the paleogeographic distribution of organic richness in time and space and development of a predictive model. Predictions resulting from this model were tested against confirmed source rocks in more than 50 basins with statistically significant success. Based on a presentation of this work at the 1984 AAPG Annual Meeting titled "Source Rocks in Time and Space," and subsequent source rock papers, John was selected as an AAPG Distinguished Lecturer for 1992–1993.

Between 1992 and 2000 John worked as a Mobil internal consultant in deep-water exploration and retired from ExxonMobil in 2000. Since then he has taught industry courses and consulted both domestically and internationally. He taught sedimentary basin analysis at the University of Washington in 2002 and petroleum geology at the University of Oregon during Winter Quarter 2014.

John's leadership service to AAPG began in 1980, when Mobil co-worker Clem Bruce, then chair of the AAPG Student Grants-in-Aid Committee, invited John to participate. John served on this committee from 1980 to 1990 including committee chair 1985–1990, and with Clem's help, revised the application process and with AAPG Foundation's increased funding expanded the program.

Subsequent AAPG service has included Convention Committee 1982–1983 and 1990–1995, chair 1991–1995; *Bulletin* associate editor 1992–1996, 2005–2007; Committee on Research 2005–2009, chair 2005–2008; International Distinguished Lecture Sub-Committee 2002–2008; Visiting Geologist Program 1999–2002; DPA Councilor for the Pacific Section 2003-2009; and the Professional Women in Earth Science Committee 2006–2009. John has also chaired numerous technical sessions at AAPG Annual Meetings and International Conventions, and taught AAPG training courses 2004 to 2008. He has represented the petroleum industry on two Ocean Drilling Program panels 1998–2002 and as "external observer" at two ANTOSTRAT (Antarctic Research) conferences 1994 and

2001. John most recently served as AAPG vice president sections 2007–2008.

John is renowned for his passionate approach to earth science. This was perhaps most strongly demonstrated at the 2006 AAPG Leadership Conference in Tulsa where, in support of Rebecca Dodge's suggestion that AAPG revisit the climate change position paper, John advocated fiercely the need for AAPG to look carefully at the science behind suggested anthropogenic climate change, and to consider revising AAPG's position on climate change based on the science. The proposal was accepted and President Lee Billingsley appointed the Committee on Global Climate Change where John immediately served as a member and later served as co-chair with Priscilla Grew. He furthered the revised position as a co-moderator for global Climate Change Forums held at the 2008 South Africa International Conference and Exhibition, and the 2009 and 2010 Annual Meetings.

Service to the petroleum industry has included SEPM (Secretary and Treasurer 1983–85; President 1996–97); Gulf Coast Section SEPM (President 1993); Pacific Section AAPG (DPA Councilor 2003–06 and Alternate 2006–09); and Northwest Energy Association (House of Delegates 2007–14). He has been elected Honorary Member by Gulf Coast Section SEPM (1999); SEPM (2004); and Pacific Section AAPG (2008). John's technical presentations have received recognition with 1992 AAPG Ziad Beydoun Memorial Award; 1995 AAPG Levorsen Memorial Award; 1995 PS-AAPG Denali Award; 1998 Houston Geological Society Best Paper Awards; and 1987 Society of Exploration Geophysicists' Best Poster Paper Award. John is a 1995 Elected Fellow in the Geological Society of America.

John and his wife of 48 years, Kae, live along the Clackamas River near Portland, Oregon. They have two sons and five grandchildren, and enjoy traveling with family and friends discovering and learning about natural wonders and diverse cultures.

Robbie Gries

Response

I am honored to be selected an AAPG Honorary Member. AAPG has provided a format to meet and learn from industry leaders, and a platform through which I have enjoyed giving back to our profession. Two AAPG issues where I feel I made a useful contribution were DPA Counselor endorsement for implementation of the AAPG-DC office and passionate support for reconsideration of the AAPG Position Paper on Global Climate Change.

This recognition of my service to the petroleum industry, and more specifically AAPG, facilitates acknowledgement of those who have provided training, collaborative support and managerial encouragement. It is often stated that scientists build their careers "standing on the shoulders of their predecessors." In my case, it is more that I have been lifted upward by family, teachers, mentors, co-workers, managers and friends.

My first 30 years were spent in the Pacific Northwest where immersion in the natural sciences was fostered by a mother who majored in botany and a father who worked five summers as a ranger naturalist at Crater Lake National Park while attending medical school. My high school science fair projects varied between geology and biology subjects, unknowingly preparing me for the future poster paper format at AAPG and GSA.

Enrolling at the University of Oregon I pursued a degree in biology but during my junior year I discovered that through paleontology I could combine my passion for biology and geology. I was fortunate to have two professors that took both intellectual and personal interest in their students' success. Ewart Baldwin taught stratigraphy with a strong component on applications from his state survey background. Walter Youngquist, teaching paleontology and petroleum geology, infused an interest in an industry career. Both these men arranged visits from recruiters and of the 18 classmates between 1966–1968 most were hired and have had a successful career with oil companies.

Following graduation with B.S. degrees in biology/chemistry and geology, and while finishing a M.S. in geology, I took a job teaching 7th grade life science near the university. One day I received a phone call from Oregon Museum of Science and Industry's (OMSI)

outdoor science director, Jim Anderson, inquiring if I would like to interview for his job. Without hesitation I did and spent 1967–1970 running natural science field trips, summer camps, teacher workshops and a high school science laboratory. I still remain in contact with several of those then "teenagers."

Two unforeseen events in 1970 redirected my pathway. An adult volunteer at OMSI's Camp Hancock encouraged me to consider "career interest evolution," the possibility that as I aged (matured?) I would want more challenging opportunities for applying my science. Stimulated by that idea I arranged an interview at the University of Washington Geoscience Department inquiring about a Ph.D. program in paleontology. To my surprise Dr. Standish Mallory, invertebrate paleontology professor, was the father of one of the Camp Hancock youth in whom I had taken a special interest. With that personal connection I became one of Dr. Mallory's students. Also on my committee was Professor Harry Wheeler, whose instruction in "stratology" laid the foundation for my interest in sequence stratigraphy.

Graduating in 1973, I joined Mobil's Alaska Exploration Division in Denver. The summer of 1974 was spent as a member of a multi-company field party in Alaska, joining John Rogers of Arco and Fred Rosenmeier of Shell. What a fantastic beginning to my professional career, with each of the next two summers in the field gathering data for evaluating basin geology in preparation for offshore lease sales. As I cycled through assignments, I returned to Alaskan projects sitting wells testing the geologic interpretations of several basin studies in which I participated.

The variety of Mobil assignments provided opportunities to work with a broad spectrum of scientists. I have benefitted greatly by learning from these co-workers and friends. Several that stand out are Ron Echols in biostratigraphy, Richard Moiola, Shan Shanmugam, Jim Markello, and Ron Kreisa in sedimentology; Jim Stinnett, Doug Waples, and Ken Peters in geochemistry; John Winston, Steve Malecek, and Charlie Beeman in geophysical interpretation; Rick Sarg and George Gail in basin analysis; Doug Kirkland and Al Koch in source rock sedimentology; Kris Meisling and Jim Helwig in structural geology; Robert Clarke in training; and Lee Kuang Leu in cultural enlightenment during our work with China. Outside the Mobil community those who have been especially helpful include Judith Parrish, Joseph Clement, Les Magoon, Gerard Demaison, and Paul Harrison. This list is totally inadequate for I have published papers and abstracts with more than 100 different co-authors. Those collaborations evolved from team studies in which my role has often been to integrate specific data sets into a unified interpretation. Thus, my professional success has been largely built on my synthesis of the contributions from my co-authors and co-workers, all friends, over the past 40 years.

Mention needs to be made of my Mobil managers. My eclectic career and especially the AAPG/SEPM activities and technical publications are "beyond the norm" for many industry employees working in operational and service units. I frequently sought opportunities to attend conferences and for interaction with scientists in other Mobil divisions and outside the company. I have retained much of my career development correspondence and in reviewing that material it is gratifying how often I received valuable council and encouragement during the 27 years at Mobil. Thus, I thank among the many managers those that both mentored me and facilitated my career success: O.B. Shelburne, Bill Sinclair, Al Koch, Phil Braithwaite, Roy Roadifer, John Marshall, Lee Gibson, Ray Flurry, Elroy Lehmann, Pam Luttrell, Steve Comstock, John Cousins, Gordon Baker and John Krueger.

And last and most importantly I acknowledge my wife and family. Kae is my high school sweetheart and wife of 49 years this August. She has been steadfast in her love and patience as we pursued our dreams and aspirations, raising two wonderful, loving sons. Jeff and Jimmy recall family vacations such as those proclaimed the "Basins-and-Ranges" and "The Slumps." Life has been an adventure for us and AAPG has been a traveling companion.

John M. Armentrout

ISTVÁN BÉRCZI
Honorary Member Award

Citation—To István Bérczi, an outstanding leader in petroleum industry, teacher and advisor to many students and petroleum geoscientists, for his commitment, loyalty and dedication to European Region of AAPG.

István Bérczi was born in Budapest, the city on Danube River, surrounded by all of the Hungarian culture and history, with medieval palaces, churches, great classical music, and famous csardas dances or Tokai wine. Knowing this kind of environment and country located in the Central Europe where history really "speaks" one can imagine—and knowing István passion for history now—this person will be attracted by all of this. And yet as many of us being in love with Mother Nature István was captivated by natural sciences and finally became passionate about geology. He finished his studies at Eötvös Lorand University in Budapest in 1967 receiving his M.Sc. in geology and his Ph.D. from the Miskolc University.

István began his career as a sedimentologist in the Hungarian National Oil & Gas Trust, where he stayed for a decade learning all he could about the oil and gas Industry. From 1980 to 1988 he spent his time at the Hungarian Hydrocarbon Institute, working his way up to vice president. During the period of 1988–1993 he was working as senior reservoir geologist in HOT Engineering in Leoben, Austria. At more or less the same period of time (1974–1997) he was invited as researcher and an expert to work on projects in Nigeria, the United States (USGS), New Zealand, and Egypt.

Working for HOT on projects in Libya he gave many courses in reservoir geology. He went back to Libya many times later on, conducting on the job training programs to young professionals (mostly petroleum engineers) and advising for oil companies working there. He wrote a course note in English titled "Reservoir Geology," also used when he was teaching at Eötvös University. As a teacher István was honored in 1998 by receiving the title adjunct professor (part time) in petroleum geology at Miskolc University and in 2003 ordinary professor (part time) in petroleum geology at Miskolc University. István was visiting professor at the Mining University of Leoben, Austria for two years and at Ain Shams University, Cairo, Egypt for a shorter period, giving ordinary courses and five-day training courses respectively.

He continues to teach at Miskolc University with the Erasmus Program for the course titled "Geology of Fossil Fuels," which includes the resources and the future of oil, gas and coal provinces of the Earth, formation of fossil fuels, exploration and production methods of petroleum fields, tectonic and lithological aspects of petroleum exploration and production, static and dynamic models of petroleum fields. Back in Hungary in 1993 he held two consecutive managing director positions in E&P Division, MOL Hungarian Oil & Gas plc and the Institute of U.S. Engineering, MOL Group. Before his retirement in November 2013 his positions included chief advisor in E&P to Group CEO, MOL Group, Hungary with responsibility of heading the Reserves & Resources Committee, contacting international professional organizations and educational institutions.

István Bérczi is an author of over 60 peer reviewed publications alone and with co-authors about clastic sedimentology (including the first-ever book *Sedimentology* in Hungarian, 1992) between 1970 and 1992, about 100 confidential company reports on reservoir geology and resource, reserve assessment, and presentations at AAPG conferences and World Petroleum Congresses. He is also listed in the "Hungarian Who's Who" (Ki kicsoda, Budapest, 2003)

As well as a very impressive working background István has an equally impressive list of associations and committees he has

served, and many he is still serving on. These include Hungarian Geological Society with all board offices between 1972 and 2000 including two terms as president (1994–2000); Hungarian Society of Mining and Metallurgy; Hungarian National Committee of the World Petroleum Council; House of Doctor Delegates, Hungarian Academy of Science; European Federation of Geologists (EFG, President: 2005–2007); Energy Institute, London; Croatian Academy of Science & Art; Hungarian National Committee of the International Union of Geological Sciences (IUGS); Expert Group on United Nations Framework Classification (UNFC); World Petroleum Council; and Oil and Gas Reserves Committee of SPE (2007–2009).

István Bérczi joined AAPG in 1986 and is also member of DPA. During the last 27 years, he has served as a delegate in HoD representing Europe and in key leadership capacities for the European Region of AAPG including president-elect (2005–2007), president (2007–2009), and past president (2009–2011). Recently he served on the AAPG European Region Past President Advisory Board and his voice is more than valuable. His continuous support for IBA program, student education programs, as well as international petroleum industry arena is very remarkable.

István has been honored by many associations for his services over the years. He holds the Distinguished Service Award, Hungarian Office of Geology 1976 and 1985 and the Distinguished Service Award, Hungarian Association of Scientific and Technical Societies, 2000. He is an Honorary Member of the Hungarian Geological Society, 2000, and was awarded Distinguished Service Award in Professional Geology (VITÁLIS Sándor Commemorative Medal of the Hungarian Geological Society, 2002). The list cannot be complete without AAPG Certificate of Merit from 2009.

I have known István both professionally and as a good friend and colleague since 2004 when I have been involved in AAPG activities in Europe for the first time. István has been a staunch supporter of AAPG and a leading exponent of the role and reputation of geosciences in our society. He has long advocated the integration of multi-disciplinary aspects (eg geophysics and basic engineering knowledge) in the teaching of petroleum geology. As President of the European Region during the period of 2007–2009, Istvan initiated many student chapters and personally inspired hundreds of students (and future society members) by giving talks, lectures and encouragement to our younger geoscientists in Hungary, Russia, FSU and other European countries. He set high standards for his successors including myself and used his senior role within MOL to ensure strong support for the chapters not only by MOL but also by other NOC's in the European Region.

I believe most of the European Region members have the greatest respect for István and all recognize him as a gentleman, a scholar and true International player. István has exemplified great strength of character in his leadership and effective communications. He has demonstrated time and again a unique ability to translate challenge into opportunity; vision and aspiration into action and result. István's commitment to our society and its globalization strategy was demonstrated by his willingness to stand for vice president regions, and despite not being elected to that position, he has indicated his continued dedication to working with European AAPG leadership and other members of our international leadership to further those initiatives. His sense of humor breaks the barrier and helps to establish the potential for rational discussion if needed. His enthusiasm when leading or advising is very remarkable and inspiring.

István Bérczi is truly a gentleman of high integrity and a wise leader who has used his energy, technical skills, and networks to benefit our association and the geosciences community. His professionalism and expertise is always very valuable and is very respected by all categories of both professionals and students. His international credits are very respectful and help to "open the door" particularly in the FSU arena and business.

I consider István a great geologist, a great friend, and a colleague whose long service and dedication to our AAPG needs to be recognized.

Vlastimila Dvořáková

Response

It is a a great honour to be here at this extraordinary event. Although I was notified of this award by our highly esteemed president more than about six month ago, I can still hardly believe to be decorated with this prestigious award. Colleagues from Central and Eastern Europe are seldom acknowledged by such an award across the ocean. Since a year ago I had the privilege to receive the Life Work Award of my company, this coincidence obliged me to assess of my professional career.

Going through the kind words of the citation I was surprised to see that my colleagues look up to me as a kind of superman when it comes to my professional qualities. I feel, that I have not done anything extraordinary in my 47 year service: I simply did what I understood to be my duty every day, what I felt obliged to do with clear conscience in order to multiply the talent provided by God. It is not very complicated:

- You always have to do your best to correspond to the highest professional standard;
- You have to pass on your knowledge to the younger professionals as a mentor to compensate the assistance you got from your professors;
- You have to use your high position to assist your subordinates advising them even in the challenges in their private life;
- You have to retain both professional and moral integrity.

In this very citation and on other occasions my sense of humor is frequently referred to. Partly it is the result of my professional career spent mostly in the Bermuda Triangle of geologists, geophysicists and petroleum engineers in the challenging, stimulating atmosphere well known for the geologists. About 40 years ago we carried out heated debates not infrequently shouting; recently, as a "recycled teenager" I have learned that the politically correct term for that is "integration". Similarly, the jokes done at each other's expense, particularly on All Fool's Day to release cramp/spasm or simply to feel fine, is code named today as "team building".

The challenges in general and the historical challenges in particular always offer unique opportunities in the life of a person. But they are to be discovered. Having been brought up and lived 45 years in Central Europe under Communists rule and in the atmosphere of the Cold War, the voluntary work in professional organizations offered such a unique opportunity. It was the tool of getting rid of political organizations of the Communists and to earn an international reputation in among the professionals behind the Iron Curtain and in not pro-western countries in North Africa as a guy who was able to build bridges to the West through his connections. The participation in USGS projects since 1980 and my AAPG membership since 1986 have added a lot to this reputation.

After the changes in the 1990s the "flow direction" has changed: The introduction of the values of the Eastern Countries (Central and Eastern Europe and the FSU countries including but not restricted to Russia) to the West became more important. The key element to improve the mutual understanding between the two "bridgeheads" to draw the attention of the cultural differences rooted in the different traditions, religions and history reflected partially in the respective languages as well.

I have never been told but I feel, that this activity of mine has led to a number of international assignments including but not limited to the presidency of the European Federation of Geologists between 2007–2009 (the European counterpart of the American Institute of Professional Geologists), to the membership in the UN Expert Group on Resources Classification, SPE Oil and Gas Reserves Committee, Program Committees of three World Petroleum Congresses (2008 Madrid, 2011 Doha, 2014 Moscow) and—last but not least—to the positions in the management of the European Region of the AAPG culminating in my presidency between 2007–2009.

It is important to transmit these values to the next generation to develop a new era of cooperation and understanding between the different cultures and countries. An excellent tool to achieve this is my favorite AAPG brand, the Imperial Barrel Award. With the growth of the competing teams in Europe from 5 in 2008 to 20+ in 2013 from Lisbon to Tyumen, i.e., from

the Atlantic Ocean to Western Siberia, indicates the appeal of this event to the young. This is an excellent occasion to deliver the message to them that the technical excellence must be combined with ethical integrity as the only way to be a recognized member of the petroleum industry.

The alumni of this competition are a specific group among the young professionals who by now keep in touch, occupy AAPG positions, and even act as faculty advisors for the next generation. And do not forget that this competition is the first step of student members to develop into active members under the guidance of AAPG and future employers represented by the members of the panel of the judges.

The 4th dimension is time but it is a tricky dimension: It runs but we seldom look at the display. Then suddenly the outside world assists you in discovering that the greater part of your "personal history" is over. This assistance may take the following forms:

- Good, if you have to look up to your grandchildren since they are a head taller than you.
- Bad, if an illness or physical weakness indicates the lapse of time.
- Shocking, when your favorite student announces that she is to become a grandmother.

All three happened to me, thus I resigned as a full-time employee. With this decoration, the Honorary Award of the AAPG, I feel my contribution to the social side of the profession has been recognized.

Thus I am touched and obliged to thank you.

If a referee whistles three times it may mean that it is half time, or the game is over or the extra time is coming. I am over the half time, but I hope, that my referee in Heaven allows an extra time.

I am ready to prolong playing.

Thank you

István Bérczi

DONALD D. CLARKE
Honorary Member Award

Citation—Naturally curious, a vivid imagination predicated upon science and an undaunted spirit. All whose paths he crosses are better geoscientists and persons.

The distinction of being selected and named Honorary Member of any organization of size and noble purpose is rarely sought, but when received, always a well-deserved recognition. For one to be nominated for consideration for Honorary Member of the AAPG means their book of scientific endeavors, service to the profession, and activities on behalf of the Association must be full.

Donald Clarke is an unassuming gentleman who wears his enthusiasm for the profession, the Association and all of geosciences on his sleeve. He has an uncanny ability to accept a full plate of activities, be in several places at the same time and make a lasting impact or difference if you will. His leadership style of involving all and building consensus has long been a much-sought commodity for committee chair roles, leading to chair of the House of Delegates, officer candidate, Section and Society leadership.

Don graduated from California State University, Northridge with a Bachelor of Science in geology in 1972. He went on to do graduate studies through a program offered by a consortium of California state universities. In 1974, Don went to work for the California State Lands Commission and after 6 1/2 years he took a new position with the City of Long Beach, Department of Oil Properties where he held the position of city geologist. In 2005, Don left government employment and entered life as a consultant. His clients have ranged from *Glamour* magazine to Occidental Petroleum and include Tidelands, Signal Hill, Terralog, MidCon Energy, the City of Beverly Hills, and others.

In addition to his consulting Don has been a geology instructor for 14 years at Compton Community College. From 2003 through the present he has taught petroleum geology at the University of

Southern California, Viterbi School of Engineering. A well-known Occidental Petroleum geologist and AAPG/Pacific Section activist, Kurt Neher had this to say about Don Clarke: "He is truly an ambassador for our profession. He has a passion for the geosciences, and takes every opportunity to spread his enthusiasm to students of all levels in the Los Angeles area. He has singlehandedly had an impact on the local high schools, colleges and universities and has guided many students into careers in the oil and gas industry."

An AAPG Member since 1986, and a AAPG Foundation Trustee, Don has been chair of the House of Delegates, an officer candidate for AAPG President and Treasurer and served two terms on the Advisory Council. He has served in the House of Delegates for over fifteen years and has chaired and served on numerous House Committees. He has served on numerous AAPG committees such as Public Outreach, Membership, Professional Women in Earth Science, and Astrogeology. He has served as committee manager for a number of committees reporting to a member of the Executive Committee upon which Don has also served. He has been active in the Division of Environmental Geology within AAPG and the Pacific Section. Don has been recognized as a Distinguished Member of the House, received the House Recognition of Service Award, numerous AAAPG Certificates of Merit, the DEG Public Outreach Award, and the AAPG Distinguished Service Award.

Don is a past president of the Pacific Section and the Los Angeles Basin Geological Society. He has chaired a Pacific Section AAPG Annual Convention and co-chaired the joint meeting with the Western Region of the SPE. He has co-chaired the Geological Society of America Cordilleran Section Convention. He was on the board of directors for PTTC and is vice president of the Dibblee Foundation. He has appeared as a geology expert in the movie *A Crude Awakening* on National Geographic and local television channel documentaries on the industry. He has contributed to geoscience knowledge through more than 60 published abstracts and papers on the Los Angeles Basin Geology and computer mapping techniques. He has participated in the generation of three geologic guidebooks on the Los Angeles Basin. Don's recent work on the National Research Council's Committee on Induced Seismicity Potential in Energy Technologies has resulted in a new book of the same name and a series of talks on the subject. He was asked to continue the talks as AAPG's Distinguished Lecturer on Ethics (2013–2014).

Donald Clarke is a respected geologist, dedicated to the science and its application for the betterment of people worldwide. He believes in the growth and relevance of AAPG as the best way to support universities, the advancement of science and technology, create awareness and factual knowledge of the hydrocarbon industry. He is a friend to all with whom he comes into contact and is a mentor to those seeking to grow. He and his wife, Cynthia, share field trips and meetings with enthusiasm and their scientist/engineer daughter, Holly, currently assists Don with his consulting. The apple does not fall far from the branch. It is most appropriate Donald Clarke is receiving this high distinction in AAPG. He is clearly one among the special few who ascribe completely to the results producing mantra of science, sharing, and effort.

While the book on Donald Clarke is full, it is not, nor will it ever be complete. Pages of contributions and significance are added annually for such is the man, such is the geologist.

David H. Hawk

Response

I am thrilled to receive the 2014 AAPG Honorary Member Award! Thank you AAPG! Thanks to the person who nominated me, to the Advisory Council and to the Executive Committee. And most of all thanks to all the wonderful AAPG people that I've worked with over the past decades. AAPG has given me the opportunity to share my ideas with other geologists and at the same time allowed me to learn from others. Where else can I meet with all of the creative thinkers who have opened the door to a new oil boom.

Over the years I have led field trips conducted short courses and webinars, chaired conventions and served on the Executive

Committee, the Advisory Council, and chaired the House of Delegates and represented AAPG in Washington D.C. and as a member of the PTTC Board of Directors. Each of these activities introduced me to new geologists and people who were deeply involved in the energy industry. In the last two years I have been fortunate enough to travel around the country and speak on induced seismicity in energy technologies. I represented AAPG on a committee of the same name for the National Research Council. The experience and interactions with the many groups, politicians and the public have enlightened me on how important it is to do outreach outside of our industry.

As I grew over the years, my society work was shaped by many individuals. Bob Countryman suggested I get more involved; Bud Reid pushed me to lead my first field trip. Tom Wright and Steve Testa moved me to chair my first convention. Dan Smith put me on to my first HOD committee (Constitution and Bylaws Committee). Robbie Gries showed me how good ideas can make a difference. Pat Gratton, Pete Rose and Clint Moore showed me a passion for making a difference. Doug Patchen, Jim McGhay, Charles Sternbach, Larry Jones, Ed Dolley, Patrick Gooding and many others showed me that much of the heavy lifting at AAPG was done quietly by a group of solid people. Bob Lindblom and Rick Fritz taught me about how AAPG works. David Hawk and Ernie Mancini showed me that good humor and wise decisions guided by vision will always prevail. John Armentrout gave me a boost of confidence that I dearly needed. Deborah Sacrey, Don Jucket, Carl Smith, and some others showed me that we need to take our knowledge to Washington D.C. I thank all of this group and the many more too numerous to name here for your friendship, guidance and help. This award is yours too. To my fellow rocketmen, thanks for the fun.

It has been a great pleasure working with all of you and thanks again for the honor you bestow on me. I really appreciate it.

Don Clarke

MARTIN D. HEWITT
Honorary Member Award

Citation—To Martin D. Hewitt, professional geologist, inspiring leader, friend to many, for his exemplary dedication to the Association, the membership, and to our science

Martin Douglas Hewitt was born July 6, 1959 in Hamilton, Ontario Canada and grew up in Canada's "steel town". Marty developed a strong interest in both urban and physical geography in his high school years and decided to become a geologist when his cousin, Brian Pratt, a professor of geology at the University of Saskatchewan, had excited Marty about the science. This, combined with his love of the outdoors from his many trips with his parents, Joan and Douglas Hewitt, to the New England states as a child sealed his fate.

Marty concluded his undergraduate schooling at McMaster University in Hamilton, Ontario and completed an undergraduate thesis with AAPG Distinguished Educator Dr. Gerry Middleton. During his time as an undergraduate, Marty worked for McMaster's Dept. of Geology on the tidal flats of the Bay of Fundy, exploring for uranium with Urangesellschaft near Baker Lake, Nunavut and for Petro-Canada in Calgary, Alberta in the summer of 1981. After that summer with Petro-Canada, his mind was made up and Marty knew that he would pursue his career in the oil and gas industry.

After graduating in 1982, Marty accepted a job with Petro-Canada working as a geologist in its Calgary office exploring and developing assets in northeast British Columbia and northwestern Alberta. In 1987, Marty was assigned to Petro-Canada's Frontier Development Group to work on the Petro-Canada operated Terra Nova development project,

offshore Newfoundland. For the next five years, Marty was the geoscience lead for the Terra Nova Project and was involved in the geology, reservoir modeling and development of the field.

During that same period, Marty returned to school and obtained an MBA from the University of Calgary. In 1992, Marty was assigned a planning role in Petro-Canada's Frontier & International Strategic Planning Group. In 1994, Marty returned to Petro-Canada's Frontier Exploration Group assessing new opportunities offshore Newfoundland and Nova Scotia as well as in selected international basins, most notably in Norway. In 1997, Marty moved back into the Frontier Development Group and was the geoscience lead for Petro-Canada's non-operated East Coast and Norwegian assets.

In 2000, Marty moved to PanCanadian to work for Gerry Macey's highly successful Gulf of Mexico exploration team, initially as a geologist, then as a Team Lead working on exploration and development in the deepwater Gulf of Mexico. During this time PanCanadian participated in several of ChevronTexaco's discoveries including Tahiti in 2002. After the formation of EnCana Corporation in 2002, Marty moved from the Gulf of Mexico team to manage EnCana's Alaska assets until 2004 when he moved to the role of development Group Lead for the EnCana operated Weyburn miscible flood in the Williston Basin, southeastern Saskatchewan.

Marty resigned from EnCana in 2006 to join Nexen where he worked in the International Business Development group evaluating new country entries as well as leading their International Planning and Economics group. In 2008, Marty was recruited by Nexen's US Division to the role of exploration manager for the Gulf of Mexico in the company's Plano, Texas office. In 2012, Marty moved with his team to Houston, Texas as Nexen consolidated its two Texas offices. He remained with Nexen until October 2013 at which time he repatriated to Calgary.

Marty's involvement with AAPG began early in his career. He was recruited by longtime CSPG Delegate Bob Mummery and was elected as a CSPG Delegate in 1987 and has continued to play significant roles within the AAPG House of Delegates throughout his career. Marty has also served AAPG as a member of the Distinguished Lecture Committee, and was Canada's second Region President from 2000 to 2001.

Marty's list of leadership responsibilities within the House of Delegates has been substantial. Through the years, Marty has served on most of the standing committees; a number of ad-hoc committees and in 2001–2002, Marty served on the HOD executive as the secretary/editor and was elected chair elect and became the chairman of the House of Delegates in 2007. Marty is a recipient of the House Long Service Award (2013) and was presented with the House's highest honor, Honorary Member of the House, in 2010.

Beginning in 2002, Marty served as the Canada Region representative to the AAPG Advisory Council were he completed a three-year term in June, 2005. He was also a member of the Advisory Council representing the House and DPA in 2008 and 2011 respectively.

Another of Marty's notable contributions was in the role of general vice chairman of the AAPG 2005 Annual Convention in Calgary. Marty and his team worked diligently on the organizing committee and he was directly involved in the sponsorship committee which raised over $500,000, a first for AAPG.

More recently, Marty has been very active in the Division of Professional Affairs, where he has served on a number of committees, culminating with his election to DPA President in 2011.

Marty's contributions to AAPG were recognized in 2006 when he received the AAPG's Distinguished Service Award.

Continuing his long and dedicated service to the AAPG, Marty became a member of the AAPG Foundation in 2012, establishing a named grant awarded annually to a deserving geology graduate student at McMaster University, Marty's alma mater. This is the first Foundation named grant established for a student at a Canadian university.

Along with his AAPG service, Marty has been a tireless worker for his local society, the Canadian Society of Petroleum Geologists, where Marty has been a significant

contributor throughout his career and was awarded the CSPG President's Award in 2005.

Today, Marty has returned to Calgary with his wife, Anne, joining their two children, Joey and Katie, who live in Calgary and Lethbridge, Alberta respectively. Marty and Anne are passionate golfers and are members of Pinebrook Golf and Country Club just west of Calgary and Pinnacle Peak Country Club in Scottsdale, Arizona. Neither Marty nor Anne (a native of Australia) are winter folk and spend a great deal of their holiday time together in the Scottsdale area.

As my friend, I'm honored to prepare this brief summary of the life and career of Marty. Marty is a very caring person, who is both respected in the geological community and is known by all as an honest, intelligent, business-like geologist that works hard and gives back to this community in a way that very few others have done and he is very deserving of Honorary Membership in the AAPG.

John Richard Hogg

Response

To be recognized by my peers with Honorary Membership in the world's preeminent geoscience organization is something I would never have thought possible. I would like to thank the AAPG's Executive Committee and Advisory Council for selecting me for this honor and my colleagues in the Canada Region for nominating me. Joining the ranks of friends and mentors—my citationist, John Hogg, Andrew Baillie, Dick Bishop, George Bole, John Brooks, Ed Dolly, Marlan Downey, Ned Gilbert, Pat Gratton, Will Green, Robbie Gries, Jeanne Harris, Chris Heath, Skip Hobbs, Terry Hollrah, John Kaldi, Bob Lindblom, Mike Party, Ed Picou, Pete Rose, Dan Smith, Charles Sternbach, and Dan Tearpock. Each of you has made an impact on my personal and professional life and I am truly grateful and proud to join you as an Honorary Member of the AAPG.

What better place for a geologist to grow up than in Hamilton, Ontario? The Niagara Escarpment splits the city into the lower and upper city ("the mountain") with several of the city's main roads providing an opportunity to traverse Upper Ordovician through Middle Silurian shales, sands, and dolostones. These are some of the best Siluro-Ordovician exposures in the world.

Little did I know it as a young boy, but driving with my parents up and down the escarpment to visit my grandparents gave me my first exposure to geology. My parents were always very supportive. They provided me with several options in life and exposed me to so much as a child. I am very thankful to them for this.

While growing up, my favorite subject was geography. Unfortunately, there was very little exposure to the geosciences in school until the last year of high school, when my class was introduced to glaciology in a physical geography class. That kindled my interest. By this time my cousin, Brian Pratt, now a geology professor at the University of Saskatchewan, was studying for his master's degree. At that point, I realized that geology could be a potential career option. So when I went to McMaster University I enrolled in a general science program and took first year geology as an elective. I was fortunate to be able to stay at home, attend McMaster and study under professors such as Drs. Gerry Middleton and Roger Walker, both AAPG Distinguished Educators. Their focus on providing a strong theoretical grounding in the science despite student protestations of wanting a more applied approach has served Mac geology grads well over the years.

It was also at McMaster that I met my citationist and friend John Hogg. In fact, I actually met John before McMaster, during high school. I happened to be dating John's cousin; met John, who had just begun his studies at McMaster and coincidentally, had decided to pursue geology. The relationship with his cousin didn't last, but my lifelong friendship with John did! John is the prototype explorationist—a strong geoscientist, always optimistic, a broad thinker, a natural leader and above all passionate about his science and profession. I have always admired these traits in John but what I cherish most is his friendship. Thank you John.

My 18 years at Petro-Canada grounded me in the industry. Great training, good mentoring, and a wide variety of jobs in different basins around the world. Colleagues such as Jeff Bever,

Doug Lehto, Pete Rudakas, and Ian McIlreath helped steer me in the right direction while supervisors such as Fred Calverley, Ernie Pratt, Duncan Robertson and John Knight provided me with great work assignments and added increasing responsibilities over the years. Plus, the best part, I met my wife Anne.

My move to PanCanadian/EnCana was driven by the opportunity to work in the Gulf of Mexico and to get back to exploring. As difficult as it was to leave Petro-Canada, it was one of the best decisions of my life and turned out to be one of the most productive times of my career. Being part of a team that built a Gulf of Mexico business that was eventually monetized for $2 billion was the experience of a lifetime. Colleagues such as Glenn Karlen, Ian Shook, Paul Myers, Denis McGrath, and Petra Buziak made it a pleasure to go to work every day. Leadership from Jeff Rose and Gerry Macey created the environment for success. Gerry, Jeff and Paul provided me with my first opportunities to lead teams—GoM Appraisal and Alaska Exploration. I tried to learn from each of these gentlemen and any success I've had as a leader is attributable to their example.

As EnCana pared its global portfolio to focus on unconventional resources in North America, my desire to continue to work on high-risk conventional projects led me to Nexen and its International Business Development team. Working with Ted Bogle and Tim Jeffery was a pleasure, and exposure to projects in the UK, Norway, Oman, Brazil, and West Africa refocused my career. In 2008, the opportunity to get back into the Gulf of Mexico presented itself and I jumped at the opportunity. The complex geology coupled with a fascinating commercial overprint makes the Gulf, in my opinion, the most exciting basin in the world to work in. The move to the Gulf also gave Anne and I the opportunity to move to Texas, first in Dallas and then for a brief time in Houston. I was part of a great exploration team lead by Ron Manz and colleagues such as Jack Gregory, Jim Fulcher, Lee Lehtonen, Robert Strauss, Sue Rader, and Tom Lee were not only very welcoming to Anne and me after our move from Canada but were talented professionals with whom I was proud to be associated. We will always treasure the experience of living and working in Texas for the past 5 years.

I have been so fortunate to work in this industry for 31 years. Lots of highs, not too many lows, but so many great friends and memories and more to come! One constant in my career has been AAPG. Since I was a new grad geologist in Calgary in 1982 and attended my first AAPG Convention, AAPG has been a source of technical education and inspiration, outstanding science, an opportunity to practice leadership and an invaluable source of mentors, colleagues and friends. When Anne and I moved to Texas, our transition was eased by the large network of AAPG colleagues I had met over the years. A special thank you to two of my mentors at AAPG, Pat Gratton and the late Tom Mairs. These gentlemen encouraged my involvement in the Association very early in my career and were great supporters and friends.

And finally to Anne, Joey, and Katie. You are what matters the most. I''m so thankful you came into my life.

Martin D. Hewitt

JAMES S. MCGHAY
Honorary Member Award

Citation–Leader, entrepreneur, oil-finder, and friend to geology and geologists. For his exemplary service to our profession and industry.

Jim McGhay is a successful petroleum geologist and is known for his great service to his professional community. McGhay is currently vice president and chief veologist of Mid-Con Energy in Tulsa, OK. Jim is at the top of his game but he readily admits it

was a long road especially with the up and downs of the oil business over nearly 40 years. He humbly points out that he grew and survived due to the assistance of many mentors and friends.

Jim was born in Enid Oklahoma and started grade school in a two-room schoolhouse on the outskirts of town. His love for nature and geology started at an early age and he got his first "Rocky Mountain High" in the mountains of northern New Mexico at the Philmont Scout Ranch. Through high school he loved sports and the outdoors and started spending summers and ski trips in the southern Rockies.

McGhay entered Oklahoma State University in 1968 and quickly developed an interest in technology and science. He was about to declare a major in meteorology but he took his first course in geology and it changed his mind. He was especially hooked after taking historical geology with Dr. John Naff. He said, "I found both the subject and the faculty to be more interesting than others I had met and was hooked on the puzzle of the earth." He spent the remainder of his years at OSU immersed in geology. He was especially assisted by teachers and mentors Dr. John Shelton and Dr. Gary Stewart. Through these mentors he met Oklahoma State alumnus Herb Davis—a working petroleum geologist. Jim said, "This trio introduced us to the real world of petroleum geology and also to professional organizations like OCGS and AAPG." Jim went to his first AAPG annual meeting in 1974 with financial assistance from Herb Davis.

McGhay completed his B.S. in geology at OSU in 1973 and started his M.S. program. However, marriage and a job offer soon changed his course. In 1974 the oil business was starting to boom and Jim took a job with Henry Gungoll Associates. Like the two-room schoolhouse Jim started small but worked up quickly in the grassroots of petroleum geology. He had a two-room office in Oklahoma City with a large drafting table, access to the OCGS library and a truck. During those beginning years Mr. Gungoll and his uncle Everrett Reed, a micro-paleontologist, were great instructors in the oil and geology business. Another significant influence was Jack Ferchau, an Enid consulting geologist.

McGhay had a major turning point in his career in 1976. Mr. Gungoll gave him the opportunity to do some outside well site work and a consultant/independent was born. Geo-Logic Consultants quickly expanded to a staff of 11 by 1980. Work included prospecting, well site consulting and commission work.

One of Geo-Logic's most important discoveries came as a Christmas present in late 1980 when they discovered the East Kremlin Misener Field with Mr. Gungoll. The initial well's IP was 400 BOPD on a 1/16th choke. Many good Misener wells followed.

A new chapter started in 1983 when Jim was asked to be exploration manager for newly reorganized Petromark Resources. Jim interviewed Charles Olliphant for the job as Ceja was a partner with Petromark. Petromark Resources drilled 12–20 wells per year for several years but the early 1986 decline in oil prices soon made success difficult. One of the hardest jobs as an exploration manager is a reduction-in-force especially when it is an entire reduction. Jim said this was his most significant career failure but is proud that all of the young geology team went on to successful petroleum careers.

Jim then joined with Diamond Energy when another previous client, Ray Penick, asked him to guide the waterflooding of the East Kremlin Field. This was the first of many secondary projects that Jim would be part of for the next 10 years, developing up to 30 MMBO with another group of young geologists. Jim said during this period he found that "finding oil is easy, but producing is a more difficult matter" as they tried to maximize recovery from existing fields. It was during this time that McGhay became involved with local professional organizations like the Tulsa Geological Society and AAPG.

Jim went back to consulting in 1998, and recalls the value of these organizations when he was in a client's office who had some well proposals in California after an acquisition. They needed help with the acreage and he remembered Don Lewis who was on the AAPG Advisory Committee with Jim. After a quick call Don gave him the name of a California consultant and within an hour he had details on the geology and the operator. He said his client was delighted and the project turned out well. It

was soon after this that Jim had another turning point in his career.

In 2004 Jim teamed up again with Ray Penick and Randy Omstead to develop a business plan for a company based on oil production and secondary recovery. Mid-Con Energy was conceived and Jim was into the world of private equity again. They soon found Yorktown Energy for funding and started developing properties. From an initial staff of 6 Mid-Con has now grown to more than 100 in several companies including private equity, public MLP and service companies.

Jim says that, "As a geologist, I believe the future should be a reflection of the past–in my own case, a continuation of working with good people focused on good works in energy development. Oil and gas will continue to be the principal energy source of our society for the near future, perhaps another generation or two at least, and so I will anticipate that my later career years will continue to be focused on producing these resources and developing the younger professionals involved with us. There is something about this career, what some have called the 'creation of wealth' that is greatly satisfying–to know that your ideas, concepts and efforts in a combination with other good and knowledgeable people will in a great many instances lead to the development of energy for the community and a new source of income for the royalty owners, investors, service vendors and our companies; what an incredible way to participate in and 'give back' to our society. This, the wonderful people and the creation of opportunity and wealth, is petroleum geology and it explains why I have and why I still enjoy this career."

Rick Fritz
Ted Beaumont

Response

Surprised and overwhelmed, honestly unbelieving—this was my initial and lingering reaction to President Krystinik's letter of congratulations on this selection for AAPG Honorary Member Award. Today I am greatly humbled by this recognition, even more so when I think of all the excellent geoscientists and leaders, who I have so much respect for, that have earned this award in the past.

But it is so, and now I first would like to thank all of you who have been involved in this process of getting me to this point–to the Executive Committee of course for the final approval of this award; to the Advisory Council for somehow getting me through the selection process, to those who nominated me and found a reason to do so. Many of you are my geo-friends, and I appreciate this kind consideration. Also, let me thank the members of AAPG for allowing me the opportunity to serve with you and for you; and our association staff as well, they keep so much of our effort organized and are always there to guide and assist us. I have learned a few things in the past 30–40 years as a member and sometime participant in this organization… and that is what a wonderful community and family we have together, and I have been blessed to be a part of it. I truly want to thank each of you for the opportunity to participate with you and the incredible support that I have been given throughout my career. Most of all I would thank, and express my great appreciation for my wife Carolyn. Without her support of my efforts, and her resilience at following me to all things "AAPG", my efforts could never have occurred, nor been so enjoyable.

I have always believed that I was, or could be, an average to good geologist and oil-finder, and also knew that I was dependent on others, most of who knew more than I. A brief glimpse of my personal history will show, as I deeply believe, that any success that "I" might have had has truly been because of the support of the "we" that I have known from my very beginning until today. I grew up in a reasonably small town in northern Oklahoma, and during this youth my parents allowed and encouraged participation–in school and church groups, in sports and scouting; all within the community and family of which taught a mix and balance of personal independence and service to the group and others this is what I learned from those who were my earliest support team, and I continue to owe them for this experience. Like most of you I was drawn to the outdoors and nature and the landscape and the mountains from an early age, and this continues to this day. The following college years were no

different, though now the teachers and mentors and coaches were our professors, leading us into the fascinating puzzle of the earth and all its complexity and subtlety, and into the professional world. With these teachers and the other students and the alumni, again I've been blessed to have been a part of another wonderful family–the Department of Geology at Oklahoma State University, to all of who I continue to be indebted. Many of these people too have continued to be constant supporters and good friends all of these years.

The early years of my own career, unlike that of most geologists of my generation, was with small, family-owned companies that I enjoyed so much, for the variety of work, the teamwork of a few individuals, for the opportunity to learn and where one person could have a tangible impact. These are organizations where continued professional growth, and economic success, meant developing a network of mentors and peers of various disciplines, increasing our teamwork and interdisciplinary skills and knowing that our goal was not only to unravel the details of the basins and reservoirs we approached, but to apply together our concepts and interpretations to economically produce these energy resources for our companies, partners and communities. It was through these early years, and even now, that the real value of our professional organizations became apparent to me–beyond the meetings and publications and papers and education opportunities to learn how to apply our science. And that value is the individual relationships that we make and share as members of this 'tribe' of geologists.

These last 20 years or so, which I trust will become the middle years of my career, have given me greater appreciation for the opportunities both in my efforts with our independent energy companies and within our societies and association; opportunities to develop skills in teamwork, to develop resources for ourselves and our communities, to mentor the next generation of geoscientists and oil-finders, and to create opportunity for success for these and others, and to begin to embrace the challenges of our organizations and have a meaningful impact in all of these entities. This surely is the peak of my career and I hope that I will be able to pass on the blessings that I have known in this occupation and industry.

In closing and again, let me express my heartfelt thanks to each of you, members, leadership, staff and "families" for all of the support, encouragement, assistance, and opportunity that you have blessed me with these past four decades, this award is due to you and for all of you. Finally, let me leave you with this promise–that I will strive to live up to your expectations of honorary membership, learning how to apply our ever-growing concepts to develop our resources, to support and encourage others in these endeavors, to create opportunities for our members to succeed professionally and economically, and where allowed, to serve you and our association. Thank you all again for this award and recognition, and in the closing word of a good friend, "Onward".

Jim McGhay

ORION L. SKINNER
Norman H. Foster Outstanding Explorer Award

Citation—To Orion Skinner, earth explorer, admired mentor to many geoscientists, and petroleum geologist who has demonstrated to our profession that adherence to the scientific method and attention to detail yields positive results and significant new discoveries of oil in a mature basin.

Orion Lea Skinner was born on Dec 21, 1956 in Sun Valley, Idaho. As a child, walking was followed rather directly by snow skiing. Orion's dad was a ski instructor during the winter at Sun Valley and like father, like son, Orion raced competitively from grade school to college. The Skinner

family split their time between Sun Valley in winters and Pinedale, Wyoming the remainder of the year where the family ran a wilderness survival school for kids and led guided hunting and fishing trips in the Wind River Mountains. Orion spent every summer from age 9–19 helping out with the family business and ultimately taught wilderness survival courses, climbing, and led pack trips and fishing trips. Having to routinely deal with stubborn horses, difficult terrain, and demanding clients (all presenting their own unique challenges), this wilderness-based working experience imparted upon Orion important life skills such as self-reliance, creativity, and innovation for real-time problem solving. As a young man, Orion clearly demonstrated a love for the outdoors and for Earth exploration above the surface. Orion's love for rock climbing and mountains turned into a passion, leading to mountaineering expeditions in Alaska, Ecuador, Argentina, and Bolivia. He was a member of the Wyoming Centennial Everest Expedition in 1988, otherwise known as "Cowboys on Everest." Orion made it up to an elevation of nearly 26,000 ft before altitude won and he retreated to base camp. He further utilized his outdoor experience for five years as a search and rescue volunteer with the Alpine Rescue Team out of Evergreen, Colorado.

Orion's love of exploration in the subsurface began when he entered the University of Wyoming in 1975 and was enrolled in the petroleum engineering program for his first 2 ½ years. As part of the engineering program, Orion was required to take historical geology, taught at the time by Dr. Don Boyd. Dr. Boyd's passion and enthusiasm about geology ignited a very similar response in his young student, who changed majors to geology and never looked back! Dr. Boyd instilled a love and respect in Orion for the importance of fossils, paleontology, and biostratigraphy in sedimentary geology. Most importantly, Dr. Boyd's attention to detail and adherence to the scientific method in his approach to geology made a lasting imprint on Orion and impacted the way he has evaluated geologic hypotheses and exploration opportunities throughout his professional career. He received a B.S. in geology from the University of Wyoming in 1980 and an M.S. in geology (also from Wyoming) in 1982 under Dr. Frerichs studying the micropaleontology of upper Cretaceous foraminifera of the Hilliard Shale in western Wyoming.

Over the course of 31 years as a petroleum geologist, Orion has had exploration and development success covering five states, six basins and rocks ranging in age from Ordovician to Cretaceous. Orion's first position as a geologist was with Tenneco Oil in Denver in 1982 where he was assigned the Lower Cretaceous Muddy and Dakota of the Wind River and Powder River basins. Team discoveries were made in Wind River Basin (including Wild Horse Butte Muddy field and North Grieve Muddy field) and further development and unitization of Sand Dunes Field in Converse County, Wyoming. After Tenneco was sold in 1988, he moved to Axem Resources (Denver) for the next decade working the Powder River Basin, the Mesa Verde and Lewis of the Green River Basin, and had his first assignment in the Williston Basin, working South Fryburg field (Tyler and Madison pay). At Axem, Orion was involved in the discovery of the Lodgepole mound pay at Eland Field in Stark County, North Dakota and helped develop that field through unitization. Axem was acquired by Westport in 1998 and Orion stayed on with Westport, continuing to work the Green River Basin and Williston (including Duperow, Nisku/ Birdbear, and Red River zones).

After a brief stay at Cimarex Energy in Denver in 2002, where he worked Nisku / Birdbear in North Dakota and Burnt Bluff (Devonian) in the Michigan Basin, Orion joined Whiting Petroleum Corp. in 2004 to assist with their ongoing Nisku A horizontal program. He had several small Red River discoveries in Montana early in his Whiting tenure. During his first year at Whiting, Orion was assigned the task of exploring for Bakken potential in North Dakota to find an Elm Coulee-type accumulation. A state lease sale in early 2005 prompted Whiting to assemble a team to evaluate potential of the North Dakota portion of the Williston Basin. Soon thereafter, Orion mapped shale thickness and matrix sweet spots in Mountrail County, and up to 100,000 acres were ultimately leased for as little as $25/acre. The

Bakken discovery well for Sanish Field was drilled in 2006 with full field development starting in 2007. There are now 438 productive horizontals in the Middle Bakken and Three Forks with a maximum field wide production rate of 1,956 MBOPM.

In 2007, our geologic team began a comprehensive basin-wide study of the Bakken petroleum system, heavily dependent on core work. Low accommodation, low relief depositional basins require a special attention to detail and a different mindset. Workflows that work well for passive margin or foreland basin settings might be far too coarse to yield insights necessary for recognizing exploration opportunities in a slowly subsiding internal sag basin. Cores need to be evaluated in detail and map contour intervals as small as 1–2 ft are often required. But in details lies opportunity and Orion has always been a splitter. Orion excels in integrating core observations, detailed stratigraphic, and wireline log data.

In 2009, when working the limited core data from Stark County, North Dakota, we encountered an unexpected interval positioned between the Lower Bakken Shale and the Three Forks that appeared to have some reservoir potential. Orion immediately recognized the exploration potential and began regional mapping of the zone, now known as the Pronghorn Member of the Bakken (Uppermost Devonian). The Pronghorn interval unconformably overlies the Three Forks. It has pervasive, low-diversity burrowing suggestive of deposition within brackish-to marine environments, in contrast to the laminated and evaporate collapse-brecciated Three Forks which was deposited in peritidal hypersaline settings. The Pronghorn consists of silty, detrital dolomite with detrital provenance linked to the nearby Cedar Creek anticline across which Ordovician through upper Devonian dolomites were being eroded during Pronghorn time. Within a couple of weeks, he had mapped and subdivided the interval and identified a potential tight-oil sweet spot in Stark County. Important variations in clay content further subdivided the Pronghorn isopach thick into areas of greater and lesser reservoir potential. After a presentation to Whiting senior management, the green light was rapidly given for aggressive leasing in 2009 and nearly 100,000 acres were leased in the new target area. Early in 2010, we drilled our first two horizontal wells with 9500 ft of lateral length in our "Pronghorn Prospect", the Kubas 11–13TFH and Froelich 44–9TFH, which came in for an average IP of 2021 BOEPD after multi-stage hydraulic fracture stimulation. Over 130 productive wells have been drilled in the Pronghorn Project area to date, with a maximum monthly production of 609 MBOPM. This core-based team approach has subsequently allowed Whiting to identify other Bakken petroleum system sweet spots within McKenzie County, North Dakota and Billings County, Montana.

Orion's deep appreciation for sequence stratigraphy and powerful mapping skills enhanced Whiting's position as a first mover in the Williston Basin. Additionally, Orion serves as a mentor and inspiration to our entire geologic staff. At in-house technical gatherings, his talks range from the details of his latest mapping and play ideas, to deeply considered reflections on the art and science of resource play exploration.

Orion has been married to Lauren Smith Skinner for 29 years. Lauren is also a geologist and a graduate of the University of Wyoming. They have three children, Rebecca (23), Alyssa (21) and Robert (18). The family regularly enjoys camping in western Wyoming and shares dad's (and mom's) love of exploration and fossil-hunting on these family trips.

Lyn Canter

Response

I am deeply honored and humbled to receive the Norman H. Foster Outstanding Explorer Award. Those who know me know that I am uncomfortable in the spotlight. I prefer to let my work and results speak for me and don't seek any recognition beyond that. To be selected for such a prestigious award is beyond any expectations I could ever have imagined. Although it was ultimately my responsibility to weigh all of the input and data and put the X on the map for leasing and drilling, many of my co-workers had significant contributions that influenced the key initial maps. In particular, I would like to thank Lyn Canter

and Mark Sonnenfeld for their invaluable guidance and expertise, which significantly aided our Williston Basin successes. Working with a close knit synergy, the three of us have reviewed nearly 230 cores to date, identified different facies within the Bakken and Three Forks formations, and recognized key regional surfaces to merge with my detailed mapping of nearly 4500 wells in North Dakota and Montana. This effort was later expanded with nearly 6000 additional wells from Canada to give an even better perspective of the Bakken system. I am also indebted to Whiting's management who gave me their trust, the tools, and the resources and turned me loose with their blessing to map anywhere and everywhere.

We are often influenced by our experiences and at times certain people can change the whole course of one's path in life. I didn't start my college education as a geology student. The petroleum part of petroleum engineering initially caught my eye as a path to address my curiosity about rocks and it wasn't until the start of my junior year at the University of Wyoming that I took my first true geology class. It was historical geology taught by Dr. Donald W. Boyd. His obvious passion for geology, and paleontology in particular, ignited a similar passion in me to the point that I officially transferred into the geology program for the remainder of my college education. I ultimately took several other classes with Dr. Boyd which were challenging and required the development of perseverance, self discipline, and attention to details that benefit me to this day. I continue to carry the passion and love of geology, all because I took that one class taught by such an exceptional professor.

People have often asked me how I originally got interested in geology. I grew up spending every summer in the outdoors and in the wilderness areas of the Wind River Mountains in Wyoming. When I was young, my parents, brother, sister, and I spent many weekends over the years exploring the broad uninhabited areas around my hometown of Pinedale, Wyoming and elsewhere in the western part of the state (a tradition I have carried on with my wife and kids). As part of this family adventure we would often come across fantastically beautiful and interesting rocks where I would always ask myself "I wonder what this is, with the answer of I don't know". After 7 years in college and nearly 30 years as a professional petroleum geologist I continue the family tradition, we still find other beautiful rocks and ask that same question—with the same answer. Although hard rock was never my forte, the intense curiosity initiated in my youth to explore and see what is over the next hill or river and to try to answer the geologic mysteries imbedded in the rocks continues to be at my core. It is what drives me to map the next township, the next county, the next state, or into the next country trying to understand the stratigraphy at all levels and how the basins were filled in. If I can better understand the big picture of what happened before and after a target horizon was deposited, I believe I have a better chance of finding the big play or prospect area.

I am also a detail-oriented person at heart. I am often kidded by my co-workers about how many subdivisions that I break all formations into (essentially anything and everything that can be correlated) and about my one- or two-foot contour intervals on my maps. It is often those fine details that suggest key differences in depositional units contrary to the thoughts of the rest of industry. In those differences lie opportunities. A case in point was our early recognition of an unusual interval of rock identified in cores between the Lower Bakken Shale and the Three Forks Formation in the southern Williston Basin. That section, now formally called the Pronghorn Member of the Bakken, is commonly non-reservoir and clay rich. There is a trend of concentrated dolomite reservoir in this interval, though, nearly 800 square miles in extent, which was mapped once the unit was identified. Ignored by industry since it was near the Middle Bakken truncation, Whiting has now drilled over 140 wells on the concept since 2010 with IP's as high as 3611 BOEPD.

The explosion of exploration efforts into unconventional reservoirs in the past 8–10 years has created a steep learning curve for all of us. In many cases the clues to identify higher productivity areas are subtle and take significant effort to uncover. Contrary to what most people like to think, geology really matters as much, or more, than in

conventional plays. Most of our evaluation toolboxes we have used through our careers need to be thrown away and new ones developed. I am eternally grateful that I have such a fantastic and talented group of co-workers at Whiting to learn from during this significant change in our industry, to debate ideas, to test completion strategies, to have an in-house rock lab to get answers quickly, and to have management ready and willing to put money into the bit to test ideas and concepts. It is definitely an exciting time in our industry and I look forward to many more years of prospecting and exploring ahead of me.

Orion Skinner

KEVIN M. BOHACS
Robert R. Berg Outstanding Research Award

Citation—To Kevin Bohacs, for innovative and wide-ranging research revealing the complex sedimentology and stratigraphy of mudstone, and for sharing this work through innumerable professional activities.

Kevin has paved the way for the detailed stratigraphic and sedimentologic characterization of mudstones. Initially this work was undertaken when few thought these efforts would be fruitful, or possible. But as the industry appreciation for variation in fine-grained rocks evolved, first from the recognition of various source facies, to an understanding of bed seals, and finally to the recognition of great reservoir potential, Kevin's work has proven increasingly valuable. He has been at the forefront of understanding important differences in depositional environments and facies in what others had called "monotonous black shale." As Kevin is fond of saying, "In the early days one of the quickest ways to clear a room was to announce that today I am going to talk about mud." Those who have attended technical meetings recently know that these talks are now often delivered to standing-room-only crowds. Through careful attention to detail, and by integrating data from many sources, including sedimentology, geochemistry, biology, seismic and sequence stratigraphy, and micropaleontology, Kevin has enlightened us to a new level of understanding mudstones.

Kevin spent his early years in southwestern Connecticut. A front yard of sillimanite grade metamorphics wasn't particularly conducive to his ultimate career specialty–but long walks with his father on Sunday afternoons sparked an interest in nature and geology, and his mother and uncles encouraged his curiosities through schoolwork and discussion. Kevin's first formal introduction to sediments occurred as an undergraduate at the University of Connecticut, where Professor Randy Steinen utilized nearly every lab session to examine the outcrops of the Hartford Basin. The relatively small Geology Department at UConn encouraged a deep grounding in basic and allied sciences, so that upon graduation Kevin had amassed enough credits to be a math major, and was well versed in p chem and fluid mechanics. This preparation would serve him well in his future endeavors. At UConn Kevin met his wonderful future wife, Susan Mitterling. Kevin and Susan established the "Nugget Fund" at UConn, a permanently endowed fund providing financial assistance to support student fieldwork and research.

Graduate school took Kevin to M.I.T., where his advisor John Southard saw to it that he spent significant time in civil engineering (with Ole Madsen) and arranged a year of study at Woods Hole and another year at Harvard (with Ray Siever). His research involved building and running the world's largest flume with graduate student colleague Bill Corea to study the kinematics and dynamics of large-scale bedforms; it also involved shoveling over 90 tons of sand into and out of the apparatus! These efforts reinforced the importance of sound fundamental science, careful and consistent observation, and

concept integration that characterize Kevin's work to this day.

Exxon's research lab became his new playground in 1981. His early years in the clastic facies group introduced Kevin to sequence stratigraphy during the days of Vail, Mitchum, Van Wagoner, and others. The challenge then was integrating seismic scale observations with the growing database of core and outcrop observations. Sequence stratigraphy provided the framework to develop process-based facies models that could be tested with real-world data. In 1986, Kevin moved to the Petroleum Geochemistry section, with the often-stated goal of "keeping the geo in geochemistry." This was a fortuitous event, as he was able to apply his fundamental understanding of sedimentology and stratigraphy to the often-neglected world of mud with great success over nearly three decades (and counting). Much of the early project work was in the form of integrated regional studies, which exposed Kevin to areas as varied as offshore Brazil, the Monterey Formation of California, offshore west Africa, the North Sea, the North Slope of Alaska, Australia, and Malaysia. The source rocks range from marine to non-marine and from deep-basin to shelf to paralic settings–what a great opportunity for observation and synthesis. Fieldwork also plays a continuous role in Kevin's research–from long weeks in Rock Springs, Wyoming, to Australia, Libya, Alaska, China, the UK, and Brazil – he has conducted field studies on six continents. Funny how often these adventures occur during some of the hottest months in Houston! The effort has paid off in approximately 100 scientific contributions on the stratigraphy and sedimentology of mudstone and source rocks. Kevin is recognized for his expertise in coal sequence stratigraphy and lacustrine systems models with numerous best paper and poster awards and Distinguished Lecturer appointments.

Few people have had more impact on the tools and thinking of geoscientists today working with mudstone. Kevin's work is truly innovative and important, and his willingness to share his insights is commendable. Kevin Bohacs is extremely deserving of the Berg Research Award.

Jon Schwalbach

Response

A few years ago, I was introduced by a younger colleague to a class we were teaching as having the best job at ExxonMobil—and, the more I thought about it, the more accurate her assertion proved. The research lab (EPR, later URC) is just about the perfect setting for geoscience research in many ways—I most appreciated the blend of fundamental and applied work on exploration, development, and production challenges in many basins of many ages around the world, access to a wide range of data, the mix of laboratory investigations, field work, and teaching, and the opportunity to work with (and learn from) a lot of very smart people, both inside and outside the company, especially through AAPG and GSA. All of these factors enabled me and my teams to assist with the growth of seismic stratigraphy into fully integrated sequence stratigraphy and to extend and apply our sequence-stratigraphic approach and process-based models to mudstones in a wide range of settings, from ocean-basin floor, up the slope, onto the shelf and shoreline, through coal swamps, up into lake systems, and onto Mars.

I am honored to receive the Berg award recognizing "singular achievement in petroleum geoscience research" and our contributions to general knowledge of Earth systems. For example, our work on marine and lacustrine mudstones yielded many insights into the global carbon cycle, records of paleo-oceanographic and paleoclimatic conditions, and the role of lake systems in biological evolution. I am blessed to have participated in two big advances in sedimentary geology: First, sequence stratigraphy, where we codified that surfaces are as (or more) important as rocks in recording earth history and learned that the rock record is fundamentally discontinuous at all scales, even in distal mudstone-dominated environments. Second, the ongoing "mudstone" revolution, where we have learned that mudstone deposition is every bit as complex as that of sandstone or limestone, but still can be understood using an integrated sequence-stratigraphic approach. And through it all, having a great time doing what I love.

I was blessed to join Exxon in the early 1980s as we added well-log, core, outcrop, and biostratigraphic data to seismic stratigraphy to cook up sequence stratigraphy. I had the great fortune to work with many of the Memoir 26 co-conspirators: Peter Vail, Bob Mitchum, John Bubb, John Sangree, and Bob Todd, along with experienced hands like Bob Dewitt, Chuck Campbell, and Danny Horowitz, and the next generation: Kirt Campion, Steve Greenlee, Tom Loutit, Victor Rahmanian, Kurt Rudolph, Rick Sarg, and John VanWagoner. What wild and wonderful times those were, with extensive fieldwork throughout the western United States, up to Alaska, and down to Australia. In 1985 I was given the marvelous opportunity to join an integrated team to work on petroleum source rocks, help make maps of their global distribution, and, in general, keep the geo- in geochemistry. The team included plate tectonicians, oceanographers, climate modelers, paleontologists, geochemists, and sedimentologist-stratigraphers, all focused on understanding fundamentals of source accumulation and devising practical methods for mapping and prediction. Our work over the last 28 years contributed to the capture of many exploration opportunities from offshore west Africa, Brazil, and Australia, to onshore U.S.

Our advances were enabled by our consistent approach: Our field teams comprised 4 to 8 people so we could fully describe the physical, biological, and chemical attributes of the outcrops in a common format. We accumulated surface and subsurface observations across many basin and ages, extracted common elements, characteristic scales, and essential attributes, and quantified these properties. At that point, we had useful tools for correlation, mapping, and evaluation, but to be confident in extending these tools to a wide range of situations, we looked more deeply into causative processes. We soon appreciated that it was important to understand modern processes, but also to look at modern systems through the geological filter that determines which products of which processes are preserved in the rock record. For example, modern lake systems have been classified in many dozens of ways, but we observed only three main end members. We could characterize those end members in terms of the rates of sediment and water supply relative to potential accommodation, and plot their stability fields on a phase diagram. We cast our hypotheses in equation form to discipline ourselves to be explicit about the relative weight of each factor and consistent in their treatment. We could then cast these functions in non-dimensional form through relations with competing processes or characteristic scales of mass, length, or time. This gave us confidence in extrapolating to new basins or plays, and ways to quantify our predictions and uncertainty.

All of this was made possible by the support and encouragement of my family, friends, teachers, colleagues, and critics. My father, mother, and uncles were essential in setting me on the path. At the University of Connecticut, Randy Steinen, Tony Philpotts, Norman Gray, Ray Joesten, Pete Geiser, and Bob Black taught me much about being a scientist. At M.I.T., W.H.O.I., and Harvard, John Southard, Ole Madsen, and Ray Siever were great advisors and mentors. I especially thank my co-conspirators (in vaguely chronological order): Jon Schwalbach, Alan Carroll, Jack Neal, Paul Mankiewicz, Steve Creaney, George Grabowski, Jr, Steve Oliveri, Gary Isaksen, Mark Richardson, Jesse Yeakel, John Suter, Claus Diessel, Paul Potter, Kurt Rudolph, Joe Macquaker, Penny Patterson, Art Donovan, Ted Lukas, Tim Demko, Remus Lazar, Juergen Schieber, John Guthrie, Rene Jonk, Kimberlee Miskell-Gerhardt, Karen Glaser, Pete McLaughlin, Jim Russell, Blair Sutherland, David Sutherland, and Ian Skirpan. Exxon's management provided support through many ups and downs, and we returned the favor by translating our fundamental understanding into practical guidelines for effective, efficient, and environmentally safe exploration and extraction. Even more essential support came from my wife Susan, who enthusiastically encouraged me, tolerated my expeditionary absences, helped with the ever-daunting reference lists, and, in the field, was always able to find fossils that made the story and had eluded me. I am deeply thankful for all her support, love, and chocolate chip cookies.

Kevin M. Bohacs

ROBERT G. LOUCKS
Robert R. Berg Outstanding Research Award

Citation—To Robert G. Loucks, for his key research in characterizing pore systems in hydrocarbon-bearing sedimentary successions and his ability to enthusiastically communicate these findings to the geoscience community.

Bob Loucks was born and raised in Syracuse, New York. After graduating from SUNY Binghamton with a B.A. degree in geology, he accepted a position with Texaco in Midland, Texas. During his tenure with Texaco he joined the Marine Corps Reserves and served as a Lieutenant for six years. In 1972, Bob left Texaco to begin studies for his Ph.D. at the University of Texas at Austin, where he was fortunate to learn from four of the icons of sedimentary geology: Robert Folk, Earl McBride, A. J. Scott, and Lynton Land in the Department of Geology. After completing his dissertation research, a study of depositional facies, diagenesis, and porosity development in the Lower Cretaceous Pearsall Formation shelf carbonates in south Texas, and receiving his Ph.D. in 1976, Bob took a full-time position at the Bureau of Economic Geology where he worked with Don Bebout, a former Exxon carbonate sedimentologist. While at the Bureau, Bob's research interests expanded into studies of diagenesis and porosity formation in Tertiary Gulf Coast sandstones. He also began at this time a remarkable record of research publication, which now comprises more than 150 research papers, including 18 in the *AAPG Bulletin*.

In 1980, Bob left the Bureau and took research geologist positions with Mobil Research Lab and then Cities Service Research Lab in Tulsa, Oklahoma where he continued his research on the origin and preservation of porosity in deeply buried sandstones and modern and ancient carbonate and evaporite systems.

From 1983 until 2000, Bob both conducted and directed research efforts for ARCO Research and Development in Plano, Texas. One of his most significant research accomplishments at ARCO was the characterization of karst features in Lower Ordovician Ellenburger Group carbonates. This research resulted in landmark papers on karst processes and their implications for reservoir development published in *AAPG Bulletin* in 1999 and 2004. He was awarded the highly prestigious Wallace E. Pratt Memorial Award for his 1999 paper "Paleocave carbonate reservoirs: Origins, burial-depth modifications, spatial complexity, and reservoir implications" in recognition of its importance.

In 2000, Bob returned to the Bureau of Economic Geology as a senior research scientist where he has been involved in conducting and leading research efforts for four major research programs. As principal investigator for the Bureau's State of Texas Advanced Resource Recovery program, Bob worked with Frank Brown, whose accomplishments in sequence stratigraphy are widely known, to publish important papers in *AAPG Bulletin* on the sequence stratigraphy of the Gulf Coast Tertiary in 2004 and 2005. In 2006, Bob helped launch the Bureau's Mudrock Systems Research Laboratory. Along with Bureau scientist Robert Reed, Bob first recognized the critical importance of argon-ion milling for imaging of mudrock pores using the scanning electron microscope. This methodology has since been adopted by nearly all researchers studying nano- and micro-pore systems. Using this technique, Bob developed a classification system for mudrock pores that was published in 2009 and 2011, the latter in the AAPG Bulletin. More recently, Bob has also taken on the role of co-principal investigator of the Bureau's Carbonate Reservoir Characterization Laboratory (with Charlie Kerans) and has opened yet another research door, being one of the first researchers to delve into the origin, character, and distribution of micropores in carbonate rocks.

With more than 450 papers and abstracts to his credit, Bob is a prolific publisher and has received 34 awards for his research including two Wallace E. Pratt Memorial Awards for best *AAPG Bulletin* paper. In 2014 he will receive the Karst Waters Institute Award for his research on paleokarst systems.

Bob has also found time to support his profession. He has been involved in nearly 50 committee and related activities including 18 for AAPG and another 27 for sister societies including service as president of the Gulf Coast Section of the GCAGS in 2005.

During the many years I've known Bob I have found him to be tireless in seeking out and confronting new questions in geoscience research. Typically his efforts produce important new understandings, as they have in reservoir pore systems. He has a tremendous desire to learn–from previous and current workers alike.

It would be easy to categorize Bob as a research leader in carbonate, sandstone, or shale (mudrock) systems. But to do so would sell him short. He has been, and continues to be a key contributor to the science in all of these disciplines. His thirst for investigating problems in sedimentary geoscience is insatiable. I thus can think of no one more suitable to receive the Robert R. Berg Outstanding Research Award than Robert G. (Bob) Loucks.

Steve Ruppel

Response

First I want to express my gratitude to AAPG for awarding me the Robert R. Berg Outstanding Research Award. This recognition is a real honor. I met and interacted with Bob Berg early in my career and was impressed with his breath of geology and his ability to inspire students. Secondly, I would like to say that I consider myself a "lucky" geologist. I was lucky in picking an exciting career, attending several excellent universities, and working with the best geologists. My neighbors always express surprise that someone could have a job where they run modern carbonate field trips to the Caribbean, climb the mountains in Tunisia, and receive a good salary looking for holes in rocks.

My journey began with being assigned to a geology course at the brand-new Onondaga Community College in Syracuse, New York. Half of the incoming class had to take biology and the other half had to take geology. I often wonder where I would be today if I had been assigned biology. My first geology professor, Mr. Norbert Faltyn, was one of those teachers who brought geology alive—particularly glacial geology, the forces that sculpted the Finger Lakes region around Syracuse. From there I went to Harpur College, now SUNY Binghamton, where I was introduced to a wide range of topics, especially sedimentology. Following this I spent 4 years with Texaco in Midland, Texas, where I learned how to start applying geology and, more importantly, how much I didn't know. My stay at Texaco made me realize that more education was needed to get the most out of geology. This led me to The University of Texas at Austin.

I really got lucky coming to The University of Texas at Austin, where I chose to study carbonates and sandstones. I look back on those years with great fondness and realize I could not have had a better group of professors, who included Bob Folk, Lynton Land, Al Scott, Bill Fisher, Frank Brown, and Joe McGowen. These people not only taught me geology, but how to use it. I also didn't just learn what was known, but what wasn't known and the importance of that concept in terms of research.

Mentors who helped me move along in my career and made available exciting opportunities included Don Bebout and Roger Slatt. They provided an education that combined academic geology and the real world. Much of my success at doing research is based largely on the exceptional researchers that I worked with through the years. I have been fortunate in working with some of the best stratigraphers, sedimentologists, and petrographers. Also, listening to experienced explorationists made for an easier research career as they supplied many ideas for research to pursue. I will always be appreciative of the Director of the Bureau of Economic Geology, Scott Tinker, who allowed me to return to the Bureau, where I have incredible academic freedom to pursue research in carbonates,

mudstones, and sandstones. The opportunities at the BEG are endless.

My positions in the oil companies and at the Bureau introduced me to many interesting research questions. I was lucky to work on cores from the Ellenburger in West Texas early in my career. This led to years of research on ancient and modern carbonate karst systems and later to evaporite paleokarst systems. In the late 1970's the Bureau provided me the opportunity to investigate the sandstone diagenesis of the complete Tertiary section along the Texas Gulf Coast before much was published on the reservoir quality of this thick clastic section. This was a valuable experience that led to similar research I am currently conducting with Shirley Dutton on reservoir quality of deeper targets in the GOM. At Cities Service I stumbled onto micropores in carbonates and this research continues to this day, where I believe I have finally settled some questions that have haunted me for more than 30 years. At present I am active in the BEG Carbonate Reservoir Characterization Research Laboratory and the Mudrock Systems Research Laboratory. I co-lead the RCRL group, which I consider a great honor. This worldwide-recognized research consortium was started by Charlie Kerans and co-led by Jerry Lucia for over 25 years. When Jerry Lucia semi-retired I was asked to join the group. With an opportunity of working with this group, I don't ever plan to retire. As I hinted earlier, working with the best researchers makes it much easier to pursue ideas. The MSRL group came out of research that Steve Ruppel and I did on the Barnett Shale. Again, I was lucky that Steve found several cores in the Barnett Shale (while that play was starting) that were part of the BEG core inventory and that he let me describe. From this we produced papers on mudrock sedimentology and, more excitingly, this led to our hunt for pores in the Barnett. With a strong and creative effort by Rob Reed, we came up with the idea to use Ar-ion milling to prepare our mudrock samples for SEM analysis. This method allowed us to see the organic-matter pores in the Barnett and it also led to recognition of mineral pores in other types of mudrock plays. This was one of the most exciting research efforts in my career and, like so many of my other research efforts, it was done as part of a team.

As you can see above, I have been lucky as a geologist. I have also been very lucky to have a beautiful wife and three wonderful daughters; they have supported me and are happy to see me enjoying myself in my career.

Robert G. Loucks

HUSSAIN M. AL-OTAIBI
Distinguished Service Award

Citation—Champion of Professional Societies in the Middle East Region, Hussain distinguishes himself as a dedicated leader and a committed worker in the enhancement of the oil industry and the geoscience community. He has played a key role in the dissemination of geoscience knowledge through his inspiring initiatives undertaken during 28 years of service.

Distinguished Service Award is presented to members who have distinguished themselves in singular and beneficial long-term service. Hussain fits into this category very well, as he has been an active member of AAPG since 1985, making major contributions and instrumental in providing help and support to the geoscience community at large.

Hussain graduated in geology from King Fahad University of Petroleum & Minerals in 1984, and started his career with Aramco that

same year. In 2011 he finished his executive management program at Wharton Business School at the University of Pennsylvania. His work include comprehensive multi-disciplinary work and management experience in oil and gas exploration and development in geology, geophysics, petrophysics and reservoir management. Over the years he played a lead role in the oil and gas exploration business in conventional and unconventional resources and new developments and increments; in managing advanced reservoir characterization, a focus of coordination among reservoir management, simulation, drilling and workover, and production engineers; and in comprehensive knowledge of reserves, project management, risk management, geostatistical modeling, development, drilling, and reservoir management. He achieved unprecedented success in reserves replacement programs by laying out solid technical and managerial foundations. Working diligently from the start, he was soon appointed well site supervisor, followed by chief geologist for one of the major divisions, Reserves Assessment, in 1999. Also served as member of the SPE/AAPG/WPC Oil and Gas Reserves Committee. Hussain's considerable ability, hard work, and determination saw him rise rapidly through the ranks, and he was appointed manager of the Upstream Ventures Department in 2007, followed by manager for Exploration Technical Services Department in 2008. Currently, he is holding the position of manager of the Exploration Resources Assessment Department.

Hussain started his healthy and active involvement in volunteer work and professional societies early on, when he created the KFUPM Geology Club in 1983. It was the first society of its kind to serve the geoscience community. He did not stop there, for in 1987, he initiated the idea of establishing a geosciences society. He worked tirelessly as the youngest member of four volunteers who were instrumental in establishing the Dhahran Geoscience Society (DGS) within Aramco, the first professional society in the Middle East Region. He was elected 2nd president of the DGS in 1989.

With regard to AAPG related activities, Hussain has been extremely active both inside and outside the Middle East Region (MER). He has been enrolled in the Region Council for the past 6 years serving the region's members, and promoting AAPG among professionals and university students. His service to AAPG has provided him with a wide spectrum of knowledge and in-depth experience about the professional organization, its objectives, structure, and its many different business profiles. His involvement as a participant or technical committee member in so many conferences, forums, seminars, and technical workshops has deeply enriched professional understanding, and has granted him a unique experience and brilliant network with people from academia and the industry worldwide.

Hussain became a member of SPE Oil & Gas Reserves Committee in 2005 (one of three experts chosen worldwide) playing vital role in formulating 2007 SPE Petroleum Reserves Classification, Definitions and Guidelines. He was SPE Distinguished Lecturer during 2005, invited to several countries to speak on "Minimizing Uncertainty in Petroleum Reserves".

The following have been the highlights of his AAPG activities to date.

First elected president of the AAPG in the Middle East Region 2009–2011: The main objectives of the Middle East Section is to improve communication between AAPG and its members in the Middle East, assist in implementing AAPG programs and enable them to participate effectively in the Association's programs. His responsibilities involved running all activities and programs related to AAPG. Other activities involved participating in the monthly meetings, Geo, ACE, ICE, and travelling to visit local universities, IOCs, NOCs and service companies.

Promotion of the IBA program in the Middle East region from 2010: One of the closest issues to Hussain's heart. This resulted in the Middle East universities being able to compete on an international level and remarkably win 3rd place for three out of four years in international competitions. They were King Fahd University of Petroleum and Minerals in 2010 and Sultan Qaboos University in 2011 and 2013.

Establishment of Seven Student Chapters: Hussain realizes the importance of tapping

into the future of the industry by ensuring that more and more students are a part of the association and educating them on the benefits of becoming AAPG members.

Technical Events: Since Hussain's involvement in the MER council, a number of Geosciences Technology Workshops and conferences have been held in the region, covering a wide range of topics and held in different locations in the Middle East. This further showed Hussain's commitment and involvement to the geosciences community.

Outreach Program: In his role as MER President, Hussain conducted visits to Jordan, Lebanon, UAE, Saudi Arabia, and Qatar, where he presented to geological associations and universities. These visits were extremely important to the success of the outreach program, to strongly brand the AAPG name in the region and educate potential members on the benefits of being part of the association. The Outreach Program has proved to be an integral factor in introducing and enforcing the AAPG brand in the region. It is a continuous effort that remains in Hussain's future plans.

First Newsletter: The first edition of the Middle East newsletter, "The Discoverer" was made available to the members in early 2011. The newsletter's mission is to keep the members updated on technical topics as well as newsworthy events taking place within the Middle East geosciences community.

Middle East AAPG Awards: Hussain also proposed hosting regional awards in order to ensure that professionals in the region are recognized for the continuous efforts and commitment to the geoscience community within the Middle East. Hence, a subcommittee, headed by the past president, Hussain Al Otaibi, will be formed with active members serving on the committee. Awardees will include professionals, affiliated societies, students, young professionals and teams. He believes that this initiative will be very successful in enhancing AAPG's name in the region and will encourage members' commitment to the organization.

Young Professionals and Students Support: Hussain is very much aware that the future of the geoscience community is dependent on the students and young professionals; therefore, a sub-committee of young professionals was formed. The subcommittee is in charge of all students and young professional activities, such as the IBA, student chapters, programs and activities during the 2012 GEO Conference and Exhibition.

Council Meetings: The Council regularly meets once a month to ensure that targets and objectives are met; showing full commitment to the region and its members.

Membership: Hussain recognized the importance of having more active members on board and came up with the initiative of contacting associate members, in his role as regional president, encouraging them to become active members.

Overall, the Middle East Region grew substantially over the past 6 years. There are now 924 AAPG members officially registered in the AAPG Middle East Region.

This serves as a testimony to Hussain's dedication and commitment to the geoscience community over the years, and proves he is a person of considerable ability and promise, trustworthy and dependable at all times. A person, truly deserving of the 2013 AAPG Distinguished Service Award.

Sa'id A. Al-Hajri

DONNA S. ANDERSON
Distinguished Service Award

Citation—To Donna S. Anderson, dedicated geologist, mentor and instructor, for her outstanding volunteer work and leadership in the AAPG, especially in the Rocky Mountain Section.

Growing up near Miocene fish fossils, alluvial fans, earthquakes, and oil pump-jacks on surrounding hills in southern California

propelled Donna into earth science. She often mentions that her pathway to petroleum geology was circuitous. But what a breadth of experience and perspective that route afforded her!

Following her B.A. in earth science and geography with high honors from California State University at Fullerton, Donna's first jobs provided basic opportunities in research, technical writing, and engineering geology for wastewater treatment expansions, domestic water supplies, nuclear power plant site locations, pipeline corridor projects, and irrigation projects in southern California. Early on, she actively participated in professional societies such as the South Coast Geologic Society, holding various offices and arranging local geologic field trips.

The lure of sedimentation, stratigraphy, and tectonics steered Donna to graduate school at the University of California Los Angeles where she earned an M.S. in geology, providing her with the academic background that led to a position in Denver with Mobil Oil Corporation in 1980. As an exploration geologist, she honed her skills in subsurface mapping, stratigraphic correlation, structural interpretations, and evaluation of reservoir potential of clastic rocks in California. Her previous engineering experience enabled her to become a lead production geologist for various waterflood and steamflood projects, presenting opportunities to work closely with reservoir and drilling engineering staff. These experiences led to advancement as an exploration supervisor and geological advisor in Rocky Mountain plays where she was responsible for subsurface technical evaluation from play concept to drillable prospect. It was during this period that she began serving on committees with local geologic societies in the Denver area.

When Mobil closed its Denver office in the early 1990s, Donna capitalized on her newfound and temporary freedom by enrolling in the Ph.D. program in stratigraphy at the Colorado School of Mines (CSM). While in the academic world, she traveled extensively, both in the Rocky Mountain area and internationally doing stratigraphic fieldwork. Upon graduation in 1997, she set out to consult for every oil/gas company in downtown Denver, a goal, fortunately, never reached. That same year, she held her first office in the Rocky Mountain Association of Geologists (RMAG). With her strong connection to CSM and a deep downturn in the oil/gas industry in 1999, Donna began her career as a research professor at CSM in 2000 doing stratigraphic fieldwork in west Texas. She leveraged that appointment into a part-time teaching role in the Department of Geology and Geological Engineering at CSM, began advising M.S. geology students, and served on myriad M.S. and Ph.D. committees in geology, geophysics, and petroleum engineering. She also held offices in the Rocky Mountain Association of Geology (RMAG) and the Rocky Mountain Section of AAPG (RMS AAPG), ultimately becoming president of those two organizations.

The excitement of petroleum exploration in unconventional plays encouraged her to take a position as a geologic advisor with EOG Resources in Denver in 2006, but remain part time at CSM to concurrently continue her teaching and advising. This dual "life" affords her the opportunity to mentor students and follow intellectual curiosity while leveraging her knowledge and experience in the applied world of exploration and exploitation. She says that one of the most delightful things at this stage of her career is to have been able to push the "boundaries of intellectual boxes" in tight gas/oil plays for the past 7 years.

Donna's involvement in professional activities and memberships, as well as the many honors, awards, and other forms of recognition she has garnered, are the ultimate reasons that she has received the AAPG Distinguished Service Award. She has served in an exhausting number of offices/committees in the AAPG, the RMS AAPG, the RMAG, and the Rocky Mountain Section of SEPM. As a Denver petroleum geologist, you have to be a proverbial ostrich with your head in the sand if you haven't heard Donna present at a conference, luncheon, or fieldtrip of one of the above organizations, at the Colorado School of Mines Van Tuyl lecture series, or on an industry fieldtrip. You should be relieved that her 75-plus publications, abstracts, and reports, as well as her editorships for four RMAG books, are not listed here!

Donna Anderson clearly deserves this recognition as one of

AAPG's finest and most deserving recipients of its Distinguished Service Award.

Laura Wray

WILLIAM P. BOSWORTH
Distinguished Service Award

Citation—Awarded to Dr. Bill Bosworth for his efforts to help earth science students in Egypt realize their potential and working with the Africa Region as delegate in the HOD.

After dune running for several hours in a particularly desolate part of the Western Desert of Egypt our caravan stopped at an outcrop of craggy black rock that, if the GPS is correct, should be Cretaceous age. Bill, or Boz to those who have consumed an undisclosed minimum quantity of distilled or brewed beverages with him, decided he needed to take some dips and strikes of this nondescript outlier of rock. In his signature hiking boots, shorts, belt loaded with a rock hammer, Brunton, field notebook, and wearing no shirt and a threaded baseball cap he scrambles 300 feet straight up to the craggy top. The rest of us baby boomers, on our self appointed safari, watch comfortably from the Land Cruisers as Boz, silhouetted against the afternoon sun, diligently measures sections and radios back, "The view is fantastic and the beds are dipping southwest." At the end of the day, over a malted beverage, we discuss the day's events and ponder the fate of General Cambyses and his lost Persian army of 20,000 souls who perished in the Western Desert.

Such is the determination of Bill Bosworth to collect data pertinent to the regional structural framework of Africa. He is well known for his weekend Egyptian forays to seek new outcrops to measure and note for future reference. However Bill is as comfortable working on his 1954 Chevy pickup truck in Alaska and retrieving a swamped boat from the Black River in upstate New York as mapping rotated fault blocks.

But his Distinguished Service citation is awarded primarily for working with the Africa Region as a delegate in the HOD and for his tireless efforts to help earth science university students in Egypt realize their potential. He is an expert on African rifts and has long worked on rifts in general. Although he has a young family, tremendous work demands and is always in the middle of writing a paper with, to name a few, Joe Lambiase, Manfred Strecker, Ken McClay, Chris Morley, Paul Crevello, Gifford Kessler, Rene Guiraud, and Kevin Burke, he is generous with his time for students. He gives lectures at universities throughout Egypt and Saudi Arabia and has been instrumental in advising students in setting up AAPG chapters. Since Bill arrived in Egypt in 2005, for his second expatriate assignment in this country, the number of student chapters went from 0 to 12 and student participation in the IBA program has commensurately soared. Dr. Bosworth also gives talks at the local Egyptian Petroleum Exploration Society where, when the talk ends, he is mobbed like a rock star by hundreds of students some of whom travel overnight to see his talk. He also guides field trips for students to Apache rigs to help ground them in the realities of drilling for oil and gas.

Perhaps part of Bill's affinity for working with students is rooted in the fact that after receiving his B.S. and M.S. from Rensselaer Polytechnic Institute and Ph.D. from the State University of New York he taught at Colgate University for 4 years. In 1984 he joined Marathon as a geologist working Egypt and East African concessions. As a structural geologist Bill was particularly intrigued by the East Africa rift system and participated in several field surveys to map the rift sequences for clues as to the geometry of faults and mechanics of rift development. He translated these field observations to subsurface application by rigorously analyzing logs, and in particular dip meter data, for clues

about structural domains and related fault geometries. In the Gulf of Suez seismic subsalt imaging was extremely difficult and Bill's methodical reconstructions of structure via log data were key to helping develop prospects that lead to oil discoveries.

Bill spent a few years working in Denver at the Marathon research center where he was able to capitalize on his mandate to identify rift basin play opportunities globally. His quest to gather field data included excursions to the Sudan, Kenya, Syria and elsewhere. Bill has been dropped from helicopter into remote areas of East Africa and "unofficially" mapped off-limit islands of the Red Sea. His latest contribution to our profession's understanding of rifts is as a contributing author to the book *The Red Sea: Its Origins, Structure and Environment*. Ultimately, he has helped lay a foundation to the understanding of rift systems.

Bill embodies the global geologist who has worked projects throughout the world and embraces the new transnational generation of young professionals and students. His friends have numerous stories to tell about his life and those of us whose lives he has intersected are grateful for his mentoring, good laughs, and companionship.

David Blanchard

PETER BURRI
Distinguished Service Award

Citation—To Peter Burri for giving geology a rational voice in the discussion on unconventionals and for his continuous efforts to bring high standard AAPG Distinguished Lectures to EuropePeter Burri was born in Switzerland; he went to school in Basel and graduated in 1968 with a Ph.D. in geology (carbonate sedimentology and basin development in the Central Jura Mountains) from Basel University. Like most geologists graduating in Switzerland at the time, Peter left his home country to see the world and seek work abroad as an explorer in the oil industry. It was the beginning of 35 years of gypsy life, where he put up his tent in about a dozen countries. He loved it since straight out of university he found himself working in the deserts of the Empty Quarter of Arabia.

Peter's career started with 28 years with Shell International. Initially he held technical and research assignments and was fortunate to be able to do a lot of fieldwork in southern France, the Alps, Morocco, the Bahamas and Florida. For Peter this was paradise: being paid for going to holiday destinations. Arriving in Tokyo in 1973, Peter was assigned a geologist's dream project in northern Japan which consisted of fieldwork and whatever he deemed necessary to come back after 18 months with a synthesis of the petroleum geology of the adjoining offshore basins. After operational jobs in Borneo he was entrusted with exploration management positions in Tunisia, Brunei, Thailand, and Germany before becoming chief representative and managing director for Shell in Beijing. Already in 1995, i.e., 10 years before the unconventional boom, Peter established Shell's first unconventional exploration activity in China in the tight gas play of the Ordos Basin, the first gas joint venture between the Chinese National Oil Corporation and a foreign company. Peter also served as exploration adviser for Shell, in charge of Shell's exploration activities in the Far East, the Pacific, and Latin America.

In 1998 Peter was invited to join Wintershall AG, the energy arm of the chemical corporation BASF in Germany, as senior vice president exploration and new business with the task to grow Wintershall's upstream business activities worldwide.

Peter thoroughly enjoyed his time as a worldwide wanderer in the E&P business; every country

meant a new geology, new colleagues, new environment, language, and culture. But it also meant a lot of personal challenges, not the least for his wife and three youngsters who, born in three different far-eastern countries, travelled the world with him. Also as a senior manager, he enjoyed the technical contact with the new generation of explorers. The nicest compliment received when leaving the industry was a remark by a younger colleague, stating that the main thing he had learned from Peter was to never give in to bending facts and observations in prospect evaluation, no matter how high the pressure from management was to have a drilling location.

In 2005, Peter returned to his hometown Basel in Switzerland, but has kept a link to E&P as an independent consultant, acting as a "sounding board" or second opinion to management teams.

It is, however, geothermal energy that became his passion upon returning to his home country. He saw plenty of potential synergies between hydrocarbon exploration and deep geothermal projects. He was a main promoter of a Swiss Centre of Expertise for Deep Geothermal Energy for Power Generation, an organization founded in 2010 by seven Swiss energy companies.

In 2006, Peter became president of the Swiss Association of Petroleum Geologists and Engineers, an affiliate society of AAPG. With over 300 members it was the main organization of oil and gas professionals in Switzerland. He initiated the broadening of this organization into the Swiss Association of Energy Geoscientists (SASEG), a professional home for all scientists involved in the field of geoscience and energy. This has given the association, for the first time, a voice in helping to shape the energy future of the country.

As president of SASEG, Peter is being increasingly drawn into discussions on unconventional exploration and hydraulic fracturing, a technology under attack in Europe from politicians and pressure groups. Appalled by the often fundamentalist and polemic discussion, Peter calls on the professional duty of geologists to stand up for scientific accuracy and facts as a voice against emotional dogmas and technical ignorance

Peter has been a member of AAPG since the 1980s and a representative of the European Section in the House of Delegates since 2007. He initiated distinguished lecture series in Geneva where this program is now firmly established in the scientific community. He has also put in a continuous effort in bringing more distinguished lecturers to Switzerland and promotes internal European lecture tours.

Bernhard Gunzenhauser

MICHAEL R. CANICH JR.
Distinguished Service Award

Citation—To Michael R. Canich, Jr., in appreciation of outstanding service, leadership and dedication to AAPG and the Eastern Section.

With over 37 years of membership Mike Canich has served AAPG with distinction at the local, section, and national level. Most recently Mike served as the general chair of the 2013 ACE in Pittsburgh, the first national meeting in the Eastern Section since 1986. Mike and his organizing committee produced a very successful meeting, with a sold-out exhibit hall, solid sponsorship support, packed technical sessions, and diverse and well attended field trips and short courses. While the numbers are not yet final, there is no doubt that Mike and his team proved that holding an ACE outside of the usual AAPG rotation can be done successfully.

Mike has served as the Technical Program Committee chair for two

very successful Eastern Section meetings, held in Pittsburgh, in 2003 and 2008. Both meetings were jointly held with the Pittsburgh Chapter of the Society of Petroleum Engineers and were well organized, well attended, and deemed successful by both the Eastern Section and the Pittsburgh Chapter of the SPE.

Affiliated societies are an integral part of the Eastern Section and AAPG and Mike is recognized as a founding member and the first president of the Pittsburgh Association of Petroleum Geologists. Mike has also served as president in the 10th and 20th anniversaries of the organization. (As an aside, nominations should already be closed for the 30th presidency, even though it is not until 2014–2015.)

Mike has also had numerous leadership roles in the Division of Proffessional Affairs, serving as Eastern Section councilor, and as national DPA secretary, treasurer, and vice president over the years. Within the Eastern Section, Mike is completing his sixth year on the Honors and Awards Committee, serving as chair for the last two.

Michael R. Canich was born in Beaver Falls, Pennsylvania in 1948. In 1970, Mike graduated with a Bachelor of Science degree in electrical engineering, from Pennsylvania State University. This, after attending Woodstock, no less. Mike was in the ROTC program at Penn State and served in the U.S. Army from 1970 through 1972. After his tour of duty, Mike went back to Penn State University, worked toward and received a Master of Science degree in geology in 1976. Workers of central Pennsylvania's geology often site Mike's thesis on the Tyrone-Mt. Union Lineament to this day.

After graduation, Mike moved to Houston to work for the Superior Oil Company. At Superior, Mike prospected in the Gulf of Mexico, especially in the shallow blocks of offshore Louisiana. Mike was also involved in lease sale evaluations and exploratory offshore drilling. Mike remained at Superior until mid-1978. Western Pennsylvania was home, and Mike came back to take a job at Cabot Oil & Gas in mid-1978. Mike remained at Cabot until 1989, mostly in Pittsburgh, but also working in the Charleston, West Virginia office for a couple years. At Cabot, Mike had numerous roles as both a development and exploration geologist.

In 1990, Mike had the opportunity to move to State College, Pennsylvania (What good "Penn-Stater" would not want to do that?) and take a position at Eastern States Exploration Company. As a tribute to Mike's worth as a geologist, Mike had remained there through a transition from Eastern States to StatOil Energy and a later acquisition by Equitable Production Company. Mike is currently the president of Sylvan Energy, LLC, an independent oil and natural gas company in Pittsburgh, Pennsylvania.

Mike's passions outside of geology include mountain biking, skiing, and backpacking. Even his passions outside of geology have geologic overtones. Mike recently took a ski trip to the site of his geologic field camp and went on a backpacking trek with his three sons in the Grand Canyon.

As citationist, I want to thank Katie, Mike's wife, for her understanding of Mike's passions and for not minding the 3:00 am well site phone calls, too much. Mike has been my mentor, colleague and friend and it gives me great pleasure to be his citationist for the AAPG Distinguished Service Award.

Dan A. Billman

DAVID R. COOK
Distinguished Service Award

Citation—For sustained contributions to petroleum geoscience, outreach, and governance that promote the globalization, diversity, and success of AAPG.

David Cook was born and raised in Lancashire, UK, and developed a love for geology during his

teenage years, when he went fell walking in the Lake District each summer. For the non-English among us, fell walking is defined as recreational walking on hills and mountains, often culminating in reaching their summits. Inspired by this hobby, Dave went on to earn an Honours B.Sc. and a Ph.D. in geology from the University of St. Andrews.

Dave joined Esso Exploration and Production UK in 1976 as an exploration geologist working in the Northern North Sea and West Shetland Basin. His mentor, Sandy Davidson, suggested that he join AAPG and Dave became a member in 1977. After 2 years, he was transferred to Exxon USA to join a very active production district in South Texas. Kingsville was quite a cultural change for Dave, but he rapidly adapted to his new environment after being told by the district geologist to remove his tie in the work place. His time in south Texas could explain his fondness for Shiner Bock and quesadillas. Dave never managed to acquire a Stetson or cowboy boots, which probably signaled to Exxon USA that he was not assimilating and that it was time to send him back.

Dave returned to the UK in 1979 and worked in various exploration assignments with Esso on the UK and Irish continental shelf. He became chief production geologist for the UK in 1987 and next transferred to Exxon Company International in New Jersey, United States, as an exploration advisor. In New Jersey, Dave was responsible for headquarters liaison with affiliates in France, Yemen, Colombia, and Australia. In 1991, Dave transferred to Esso Indonesia, in Jakarta, as exploration manager. On his return to the UK, Dave became geological manager and exploitation projects manager for UK operations.

Following the merger with Mobil in 2000, Dave joined ExxonMobil International in London as the Continental Europe exploration coordinator, primarily working with the Shell and ExxonMobil joint venture, NAM, in the Netherlands. This was followed by a brief period in the UK Acquisitions and Divestments Group and finally in the position of International Geoscience Recruiting Coordinator. In that assignment, Dave developed a wide network of relationships with universities and technical organizations throughout Europe. He retired from ExxonMobil in 2007 after 31 years of service.

Word of Dave's retirement spread quickly and when John Brooks found out, he decided it was time to get Dave more involved with the AAPG. Dave was elected president-elect of the European Region in 2007 and served the Region for 6 years as president-elect, president, and past president, during a time of rapid expansion of the Region's activities. AAPG moved its office from Imperial College to its current location in Soho and Jeremy Richardson succeeded Steve Veal as director. The number of office staff grew to cope with the increased number of conferences, GTWs, and educational events hosted by the Region. This was also a period of expansion of the Imperial Barrel Award (IBA) program and Dave, with Steve Veal, Jeremy Richardson, and John Brooks, dedicated a lot of time to the success of the program in Europe.

While serving the European Region, Dave found additional opportunities to contribute to AAPG globally through appointment to the International Regions Committee, the Global Corporate Structure ad hoc, the Public Outreach Committee, PROWESS, the House of Delegates (including service as secretary/editor and on the Constitution and Bylaws Committee), the Global Expo ad hoc, and the IBA, which he currently co-chairs. Dave is committed to making the IBA the most successful educational program for geoscience students.

Dave is a member of the Geological Society, the PESGB, and the Edinburgh Geological Society, but AAPG is the beneficiary of most of his volunteer efforts. Dave has presented papers at the 11th World Petroleum Congress in Houston, the 1987 Barbican Conference in London, the 1988 Offshore Technology Conference in Houston, and the 1993 Eastern Indonesia Exploration Symposium in Jakarta. More recently, he has helped organize local and regional conferences for AAPG and jointly with other organizations, such as the Geological Society.

Through his sustained and dedicated service to AAPG, Dave has made many friends, served as mentor, contributed to the science of petroleum geology, and helped

AAPG deliver on its promise of globalization while maintaining his distinctly English sensibilities.

Denise Cox

MARK COOPER
Distinguished Service Award

Citation—To Mark Cooper, for long and ongoing commitment and contribution to knowledge-sharing and communication in the geosciences, through his many years of diverse volunteer and professional activities.

Mark's dedication to the petroleum geoscience profession is evident in his long history of promoting excellence in the communication and sharing of geoscience expertise, in addition to his record of technical excellence and exploration success.

Mark has been committed unwaveringly to geology from the start; his desire to become a geologist at the age of 12 was pursued with the focus and energy that he has maintained ever since. His decades of research and industry work as a structural geologist specializing in thrust belts has provided a globally extensive experience from which he has published over 50 papers, contributed to a number of internationally notable exploration discoveries, built and delivered worldwide several professional training courses and supervised or mentored numerous university students and professional geoscientists. After distinguished academic and industry careers culminating in a position as vice president of new ventures at EnCana in Calgary, Mark has "retired" to work as a consultant providing global exploration expertise and professional training, but he also teaches part time at University of Aberdeen where he holds an honorary chair in petroleum geology. Mark has been continually involved in volunteer activities for the last 20 years, including editorial roles for publications for both the Geological Society of London and the Canadian Society of Petroleum Geologists, reviewing numerous journal manuscripts, acting as a technical advisor for the Newfoundland Geological Survey, and serving on several committees for the AAPG and for his "local" organization, the Canadian Society of Petroleum Geologists (CSPG).

His talent, commitment, and contribution to geoscience and professional organizations have been recognized through several previous awards. He was co-recipient of the CSPG Link Award (1997) and of the AAPG Matson Award (2002) for technical presentation excellence, and received twice both the CSPG Tracks Award (2000, 2003) and CSPG Presidents Award (2006, 2011).

His service to AAPG has included nearly a decade of service on the North American Distinguished Lecture Selection Committee, after serving as a Haas-Pratt Distinguished Lecturer himself in 1999–2000 by offering several talks on world-class exploration projects in thrust belts. In his 9 years in roles as committee member, vice-chair and then co-chair on the Distinguished Lecture Selection Committee he provided excellent leadership and organizational skills in working with all members of the committee to improve significantly many aspects of the Distinguished Lecture Program, and to continue to identify outstanding lecturers. Mark has also served on the International Distinguished Lecture Program sub-committee, contributing his global experience and contacts in addition to his other skills. He has also provided careful reviews of numerous papers for the *AAPG Bulletin*, as well as chairing conference sessions and contributing his own or co-authored presentations and papers, always superbly presented.

He is currently working to help the AAPG showcase worldwide examples of classic outcrop geology and global petroleum geological expertise through his role as co-editor of the "Traps" section of the AAPG's Centenary Field Guides project.

Mark not only is tireless in his own work but also does much to encourage others, particularly young geoscientists, to develop and share their skills at a high technical standard, both through participation in public technical forums and in volunteer activities. Whether as an industry manager, university lecturer, independent consultant, professional training provider, thesis advisor or volunteer, he continues to have a positive impact on several organizations and especially on the careers of many geoscientists.

Marian Warren

BRET J. FOSSUM
Distinguished Service Award

Citation—To Bret J. Fossum, for his singular, visionary, and long-lasting accomplishments in advancing AAPG's Geographic Information System services, which have unleashed geoscience and financial value in AAPG's geological database, to the significant benefit of both AAPG's membership, and the Association.

Bret Fossum has been on a mission to unlock AAPG's rich geological database, which dates back to the Association's founding, through the advancement of AAPG's Geographic Information System services. This singular pursuit has and will continue to have long-lasting benefits for the membership and the Association. With "singular" and "beneficial long-term" being two criteria for the AAPG Distinguished Service Award, Bret is truly deserving of this award.

Bret was born in Great Falls, Montana but grew up in in a small farming community in North Dakota—total population of around 125 people! His inspiration to become an earth scientist was based on two adults in his life–an uncle who responded to his teenage questions about rocks and a college professor who gave him the early direction and feedback to realize that his true interests were the geosciences. These influences, and his love of the outdoors, ultimately set him on his way to be a geologist.

Bret was admitted to the University of North Dakota in the electrical engineering program. Within a few months however, after taking a Geology 101 class, he changed his degree (How many of us can relate to that!) and graduated 5 years later with a bachelor of science in geological engineering. Following graduation, Bret began his career as a petroleum geologist with Conoco in New Orleans, Louisiana, exploring the Gulf of Mexico.

Bret's varied petroleum geology experiences, ranging from appraisal and development to exploration while working in some 25 basins during his 31-year career, are where he discovered the integrative power of GIS. This led to his involvement with and leadership of AAPG's GIS program.

Bret is the co-founder with Dick Bishop of the AAPG GIS Publications Committee and, for more than 10 years, has participated in and contributed to the many successful AAPG GIS projects. Creation of the committee was, in itself, a significant effort, requiring a year of planning, cajoling, and presentations to establish standards that are both comprehensive and practical.

The major accomplishments of this pioneering effort include building the open file vector libraries and the ongoing effort of capturing *Bulletin* illustrations in raster format. Some of the libraries currently available include *Basin Map of the World, Giant Oil and Gas Fields of the World, Source Rocks of the World, Impact Craters of the World, Tectonic Map of the World, Petroleum Systems of the Gulf of Mexico, Geologic Map of North America, Tectono-Strat of the Arctic, Tectonic Map of Mexico, the ExxonMobil GIS Attribute Templates and codified, hierarchical age codes*.

As these libraries become more widely used, they serve as time-saving examples and establish high standards for others to follow and

make future contributions to AAPG Open Files.

In addition to establishing the GIS Publications Committee, Bret's talents have also been enlisted to serve other AAPG activities, including as a

- Member, AAPG Datapages Board of Directors
- Member, AAPG-OSU GIS Advisory Board
- Member, AAPG Book Publications Editorial Board
- *AAPG Bulletin* Associate Editor
- Member, House of Delegates
- Member, AAPG Grants-in-Aid Committee

In his role as a member of the AAPG-OSU GIS Advisory Board, Bret has made a significant contribution in steering appropriate projects toward the OSU Cartography Department and in the wise stewardship of the annual $240,000 Pickens Grant that funds the consortium.

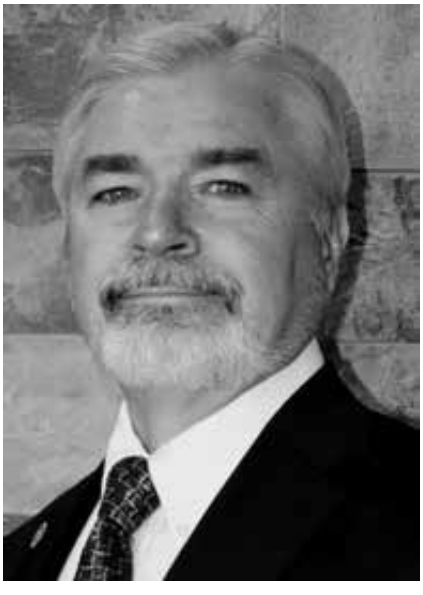
Bret has also supported AAPG both through technical presentations and, since 2008, as a Trustee Associate member of the AAPG Foundation, during which time he has established two AAPG Foundation Digital Product Fund endowments–one at the University of North Dakota in Grand Forks, and one at Lomonosov State University in Moscow, Russia.

Bret is an AAPG Certified Petroleum Geologist and a registered Professional Geologist in Texas, and he was honored in 2007 by his alma mater when he was inducted into the University of North Dakota Engineering and Mines Academy.

In summary, making data "instantaneously" available to geoscientists has been significantly advanced by the efforts of Bret Fossum. The path to these accomplishments has not been easy. However, with diplomacy and good humor, Bret has persevered with his vision of rendering AAPG data in a GIS format, thereby providing value for the membership and ensuring that AAPG remains at the technological forefront of the geosciences.

For his singular and long-lasting accomplishments in advancing AAPG's GIS system, Bret Fossum is truly deserving of the AAPG Distinguished Service Award.

William A. Morgan



STEVEN M. GOOLSBY
Distinguished Service Award

Citation—To Steven M. Goolsby for enthusiastic service to the profession and AAPG in fostering science through preserving cores, advancing publications and dedicated leadership in the House of Delegates

Steven M. Goolsby was born in Paris, Texas, and grew up in the Dallas-Fort Worth area. As a child, he and his brother, Mathew, both became fascinated with the rocks and fossils. They collected fossil shark teeth from nearby Woodbine Sandstone outcrops, gypsum crystals from shale outcrops in their neighborhood, and fossil echinoids from weathered road gravel of Austin Chalk Limestone, which was mined nearby. This fascination with geology led both brothers to graduate with B.S. degrees in geology from Stephen F. Austin State University. Steven later completed a Ph.D. in geology from the Colorado School of Mines in 2008.

Author and historian David McCullough said that "real success is finding your lifework in the work that you love." Steven was lucky enough to find his lifework in geology at an early age due to the mentoring of his eighth-grade science teacher. The teacher recognized Steve's fascination with the earth sciences and suggested that he do a science fair project on micropaleontology. The teacher contributed equipment and guidance for the project, and as a result Steven won a first place award from the Fort Worth Geological and Geophysical Society at the Texas State Science Fair that year. Mentoring from his teacher together with the encouragement of his parents led him to into geology as a career.

Steven began his professional career in 1976 as a student field

assistant with the U.S. Geological Survey, and has since held geological positions with Geoexplorers Associates, Inc., the American Stratigraphic Company, the Colorado Geological Survey, Aquarian Consultants, Ltd., and American Hunter Exploration. In 1981 he formed Goolsby Brothers and Associates, Inc. with his brother Mathew. The company provides geological consulting services to the oil and gas industry, and currently employees 20 consulting geologists. In 2005 he helped form and is a managing partner in Coyote Oil and Gas, LLC, which is an oil and gas exploration and producing company. In 2009 he also joined Vecta Oil and Gas, Ltd., as a limited partner and an exploration geologist. Vecta Oil and Gas, Ltd., formed a company focused on resource plays in 2011 named Foreland Resources, Ltd., which Steven also joined as a limited partner and an exploration geologist.

In addition to his service in the AAPG, Steven is a member and has also been active in several other scientific societies. He has served as the first vice president, president elect, and president of the Rocky Mountain Association of Geologists, and was selected for Honorary Membership in 2010. He is currently a member in the HGS, WGA, SEPM, SPE, SPWLA, SIPES, and the DWLS. He was inducted into Sigma Gamma Epsilon, an honorary geological scholastic society, and Alpha Chi, a national honorary scholastic society.

Steven joined AAPG as a member in 1978, and is an EMD and DEG member as wells as a Certified Petroleum Geologist. During his 35 years with AAPG, Steven has served on the Publications Committee, the Preservation of Samples and Cores Committee, and the Membership Recruitment Committee. He is currently co-chair of the Membership Recruitment Committee. Steven also worked on the Convention Coordination Committees for several ACE meetings, including the 1993, 2003, and 2008 meetings in Denver and in Salt Lake. Steven will be the DPA vice chair for the 2015 ACE convention in Denver.

Perhaps Steven's strongest contributions to AAPG are his activities in the House of Delegates. Steven was first elected as a delegate in 2002, and has served in the House as either a delegate or an alternate delegate since then. He is currently the RMAG Delegate Group Chair for AAPG. During his years in the House, he has served on the Resolutions, Honors and Awards, Credentials, Newsletter, and the Constitutions and Bylaws committees. He was the vice chair of the Constitutions and Bylaws Committee in 2011–2012, the chair in 2012–2013, and is currently serving as the vice chair. Steven served as secretary/editor of the HoD in 2003–2004, and is nominated as chair elect of the HoD in 2013–2014.

Steven feels that the personal friendships and professional benefits he derives from his contributions to AAPG more than compensate for the time he spends working in the Association. His contributions are simply a reflection of his passion for the science of geology, for the oil and gas industry, and for the AAPG.

R. Randy Ray

JOSEPH A. CARTWRIGHT
Grover E. Murray Distinguished Educator Award

Citation—To Joseph Albert Cartwright for his passionate and inspirational education of students and for his dynamic leadership and innovative application of seismic interpretation to the analysis of sedimentary basins.

It is with immense pleasure that I write this biography about a person who for a long time I knew only by reputation based on his time in Shell, then as a close and trusted colleague at Imperial College and, most recently, as the second Shell-sponsored professor in the UK. Professor Joseph (Joe) Cartwright is now the Shell Professor of Earth Sciences in the Department of

Earth Sciences at the University of Oxford (since October 2012). This marks the latest chapter in a prodigious geological career, which has been spent largely within British universities, initially at Imperial College (1988–1999), followed by Cardiff University (1999–2012) and now Oxford (2012-present). The only break in this trend was at the very beginning of his career when, after graduating with a B.A. degree in geology from Oxford University, he took the unusual step of immediately joining Shell International as an exploration geophysicist. I say "unusual" because, firstly, Joe was definitely not (yet) a geophysicist and, secondly, in those days a British geology graduate joining Shell without a Ph.D. was almost unheard of. You will see that his tendency towards the unusual is, in fact, the norm when it comes to what Joe has achieved.

His early days in Shell (1980–1984) were pivotal in terms of much of what he has done subsequently. He started in The Hague at a time when the technical center of exploration was "king" and when "head office" was staffed with an array of home-grown "galácticos," to use the Real Madrid soccer team analogy, including the likes of Peter Ziegler, Peter Lehner, Roel Murris and Harry Doust, among many others. Joe was taken under the wing of one of these eminent explorers, Dan Griffin, who taught and mentored him in the art and science of petroleum exploration in general, but seismic interpretation in particular. Joe thrived in this new world and, once qualified as a seismic interpreter, he was transferred to Brunei Shell Petroleum (BSP), where he was involved mainly in prospect evaluation. However, his start in Brunei was again unusual: On arrival he was greeted by his new exploration manager, David James, with the unforgettable proclamation, "You're Welsh–you can write the coal section" (referring to the new book to be written on the geology and hydrocarbon resources of Brunei, first published in 1984). So, our newly qualified exploration geophysicist, was literally sent back to his coal-field roots because, as a mutual friend and co-author, Rhodri Johns, stated "Joe was earmarked for the coal resource section on the basis of his ethnic origin and presumed inclination towards coal bearing strata."

Notwithstanding this unconventional start, Brunei kindled Joe's latent interests in geological research, perhaps stimulated by being surrounded by so many Ph.D. geologists, and he returned to Oxford to complete his D.Phil. on the geological evolution of the Danish Sector of the North Sea Basin (in 1988). This was completed under the supervision of Dr. Harold G. Reading, who had a profound impact on Joe, as with many others, which extended from his undergraduate years and through to the present day. The essence of his doctoral research, combined with his work in Shell, has been the hallmark of much of what defines Joe's geological interests, namely seismic interpretation, tectonics and sedimentation, structural styles and fault evolution, and basin-scale sediment-fluid interactions. He has always been especially evangelical about seismic interpretation and the insight that this provides on improved understanding of basin-scale processes. He was one of the first academics to grasp the full value of 3D seismic data ("the Hubble telescope of sedimentary basins", as he would frequently say) and he has set up thriving 3D seismic labs in each of the three universities where he has worked, often leaving a legacy for others to develop further. He has always freely shared his vision and passion for geology with staff and students alike, including around 50 Ph.D. students and many research associates, who have invariably gone on to successful careers either within academia or in the petroleum industry. Equally he has always loved disseminating his knowledge with professional petroleum geoscientists from all round the world, with an extra buzz when it might contribute to drilling new exploration wells (his BSP experience is never far away!).

Joe has always been willing to pursue the unusual, and sometimes less fashionable, subjects, which invariably has resulted in new insight that has often been followed later by others. Examples of this innovation and leadership include his work on fault linkage and growth, polygonal faulting, soft sediment deformation, sand remobilization and injection, and, more recently, work on fluid flow through fine-grained rocks, diagenesis, carbon sequestration and the geological properties and integrity of caprocks. The latter

resulted in Joe and his co-authors receiving the Wallace E. Pratt Award for the best paper published in the *AAPG Bulletin* in 2007 ("Seal and Bypass systems", co-authored with M. Huuse and A. Aplin). He has been exceptionally successful in building active and extremely well-funded research groups, particularly well-supported by the petroleum industry. He has used this to the benefit countless students, who have been educated and motivated by a peerless practitioner in basin analysis.

Joe's contribution to education stems far beyond his own Ph.D. students and has a truly international dimension. His approximately 150 published papers cover an exceptionally wide array of subjects, which influence students and researchers alike in many parts of the world. He has always been generous in acting as external examiner in other universities, where he gives freely of his insight and wisdom in his own distinctive, warm and engaging style.

His research contributions have been rightly recognized by a raft of awards, including those from AAPG and the Geological Society of London. But to receive the Grover E. Murray will be very special for somebody who has such an engaging empathy with students and professional geoscientists alike. He has always shared his knowledge freely and passionately. His influence has been immense and this award is very richly deserved.

Joe now leads the newly established Shell Geoscience Laboratory at Oxford, where he has already started to motivate another new crop of students, who will soon realize how lucky they are to have their very own, albeit unusual, "galáctico" within their midst.

Howard D. Johnson

Response

Well, the only way I can start to find the words to express my gratitude to the AAPG for this honor, and to Howard for his kind words is with an untranslatable phrase we use in Wales at moments like this: Chwarae teg!

It is extraordinary how we find our way back to our roots in life, and for me there have been many homecomings along the path of a life in geology. Not least, being the chance to go back to my birthplace of Cardiff in 1999, to build a laboratory for 3D seismic interpretation, and to host there a truly great bunch of motivated young people whom I am proud to call my students. I feel rooted in my small country of Wales, because in our nation's story there is the constant theme of taking on challenges against adversity. Recognizing that many students strive hard to improve themselves and having a chance to help them along their way in their challenge to overcome individual obstacles has been a large part of my own personal motivation. There can be no greater blessing than to be a part of someone's personal growth, to help forge their toolbox of skills and critical thinking ability, and then to assist them find the next step on the career ladder.

My latest homecoming has been to Oxford, which is the magical place where I began to study geology as an undergraduate at Jesus College in 1977. In those days the college had very strong ties to Wales, and most of my lifelong close circle of friends stem from the rugby and cricket fields of college sport, and from my fellow geology students. I was lucky to have had the chance to study at Oxford but I also recall how hard it was sometimes to cope with the rigours of the course, and the high expectations of the faculty. These are memories that have served me well in my professional capacity as a tutor, and mentor to students. First and foremost, to think of the human dimension, and not just the statistics that so many universities nowadays rely upon for self appraisal. There was a turning point, which led me to think seriously that I could be a geologist, and that was a single piece of positive feedback from one of my tutors, Tim Palmer. Receiving a high grade for an essay was the timely boost to my confidence that I needed to propel me to work harder, and spend less time in the pubs and on the rugby field. Another object lesson in how to be a better teacher—give positive feedback even when being critical!

The other major influence in my career has undoubtedly been my early years in Shell as a young explorer. I'm not sure what can rival formulating your own drilling proposal, then being on the rig when the target is reached, and hey

presto the gas log goes off the scale! For this, a huge thank you to David James my exploration manager for giving me the responsibility to take a risk at a young age. My time in Shell exposed me to the technical brilliance of many of my colleagues, to the excitement and intellectual challenges of finding hydrocarbons, and also to the enormous value that a symbiotic relationship between the petroleum industry and academic research could yield. This has been my mainstay through the last 25 years in university posts.

I cannot express my gratitude enough to the many sponsors in the oil business that have supported my work with data and funding for research. If I have been fortunate in stumbling upon some interesting new geological avenues, it is only because of a continuous pipeline of amazing seismic data that has been made available for research usage, benefiting labs like my own all over the world. Long may this generosity continue, in the face of heightening competitiveness, because the relationship is precious and invaluable. It enables a new generation of potential explorers to come up through their university courses and grad schools with an intimate knowledge of the subsurface, gleaned from first hand practical experience. This is the legacy of many of the older generation who forged links between industry and academia, including pillars amongst them the late Pieter Ziegler from Shell and David Roberts from BP respectively, who led the way in a European context.

It is not always a simple thing to balance the many conflicting demands of a modern university career. Fund raising and administration increasingly seem to take pride of place above the hard unseen work of pastoral student support. I would like to acknowledge all my colleagues from Imperial, Cardiff and now at Oxford, whose "back room" dedication allowed me to pursue the course that I largely chose for myself. In particular, having very supportive department chairs, in Dick Selley and Michael Worthington (Imperial), David Rickard (Cardiff) and Gideon Henderson (Oxford), has given me the freedom I have needed at critical times to explore some less than fashionable ideas. In my early days at Imperial, I was fortunate in having true mentors in Howard Johnson, Graham Evans and Doug Shearman, and how invaluable all those conversations have been to me. In recent years, I have been so very fortunate in forming close collaborative bonds and personal friendships with two "legends" in their own fields, Martin Jackson (BEG, Austin), and Carlos Santamarina (Georgia Tech). From them I have learned the best lesson for any researcher: Humility in the face of complexity, particularly where Mother Nature is concerned. Their guidance and advice have helped me enormously in the past decade.

It is perhaps in my role as a graduate supervisor that I feel I have made my most personally fulfilling contribution over the years. For this, I owe a huge debt to Harold Reading, my doctoral supervisor, whose influence extends far and wide across academia and industry, and whose unassuming style embeds itself unknowingly in all who spent time under his canny tutelage. Whatever my wider achievements, none of these would have been possible without the support of my family; and without the dedication, argumentativeness, humor and forebearance of all my students.

Joseph A. Cartwright

GREGOR P. EBERLI
Distinguished Service Award

Citation—To Dr. Gregor Paul Eberli for being a superb teacher and mentor to young geoscientists, an educator to the industry, and insightful research and scholarly publications.

Dr. Gregor Paul Eberli from the University of Miami Rosenstiel School of Marine and Atmospheric Science is a 2014 recipient of the AAPG Grover E. Murray

Memorial Distinguished Educator Award, an honor that is most well deserved. Dr. Eberli has been a superb teacher and mentor to young geoscientists and an educator to those of us in the industry, while also establishing an outstanding record of insightful research and scholarly publications. He is a principal contributor and educator in the development of new approaches in understanding carbonate sediments and rocks, including seismic sequence stratigraphy, comparative sedimentology, physical properties and petrophysics, exploration of deep-sea buildups, and the utility of outcrop analogues in stratigraphy. He has been a member of AAPG since 1988 and has been particularly active with the Distinguished Lecture and International Distinguished Lecture programs, as well as at annual meetings.

A native of Switzerland, Dr. Eberli received his doctorate from the Swiss Institute of Technology (ETH) Zürich in 1985. The subject of his dissertation was the structural and sedimentological development of the Jurassic Tethys margin with an emphasis on extracting the evolution of the rift basins from carbonate turbidite successions. After his Ph.D. he came to Miami for 2 years as a postdoctoral research associate with Robert Ginsburg before returning to a research position at the ETH. In 1991 he again joined the University of Miami as a faculty member and has been there ever since except for one year sabbatical at Shell In Rijswijk. He has been principal advisor of over 20 Ph.D. and M.S. students and 12 post-doctoral students, as well as being associated with numerous other students through his teaching and as a research advisor. In Miami he is the director and principal investigator of the Comparative Sedimentology Laboratory–Center for Carbonate Research, an association between oil companies and the University of Miami which has been a model copied by numerous other universities. The CSL has continually grown to its current state of 5 PIs, 25 graduate students, and over 15 oil company sponsors.

Of particular note from an educator perspective is the extraordinary number of high-quality field trips and short courses that Dr. Eberli has presented to industry geologists and engineers working for various companies from around the world. He co-led an AAPG field seminar to Great Bahama Bank for over a decade; the seminar is still run through the University of Miami and since its inception nearly 400 industry "students" have been introduced to carbonates with a major focus on stratigraphy and heterogeneity issues in carbonate reservoirs. He is also active in classroom seminar courses at many companies with continuing education classes in carbonates.

Dr. Eberli's resume is complete with a long list of often-cited papers and abstracts that are a major contribution to our continued understanding in all aspects of carbonate rocks and reservoirs. At Miami, he and his students developed new concepts for the anatomy and evolution of carbonate platforms both in the Bahamas and in Italy. In a series of seminal papers they established a revolutionary new model of carbonate platform development in the Bahamas by (a) showing that originally separate platforms were welded together by progradation and (b) establishing the sequence stratigraphy of aggradation and progradation with a first calibration and chronostratigraphy of seismic reflectors to cores and downhole logs. In the Maiella Platform (Cretaceous/Tertiary in Italy) Eberli organized and led a detailed study of this well-exposed carbonate platform that connected seismic anatomy from platform to basin, provided detailed outcrop expression and compared the results with those from the Bahamas Banks. In several of his papers and those of his students, the applications and implications of their research results on carbonate platforms are directly focused toward the exploration and production of hydrocarbons.

Dr. Eberli has also had a long interest in petrophysics, focusing on the relationships between depositional and diagenetic features and petrophysical properties in carbonates including velocity, porosity, and permeability. His interest grew from his early experience as physical property specialist on the first ODP Leg (101) and his later interpretations of seismic profiles from the Bahamas. As a result of this interest, he and his student and later post-doctoral associate Flavio Anselmetti established a petrophysical laboratory as part of the CSL. Key results of his

research and that of his post-docs and students include establishing how variations of porosity/velocity are related to differences in pore types and utilizing synthetic seismic models from outcrops to establish criteria for identifying facies in seismic sections.

More recently his interest for understanding sedimentary processes has led him to investigate the influence of currents on distribution of carbonates and shales and the sub-orbital oscillation of sea level on the heterogeneity of shallow-water carbonates.

Paul M. (Mitch) Harris

Response

It is a truly great honor to receive the Grover E. Murray Memorial Distinguished Educator Award. Although growing up in Switzerland, it was not the mountains but the oceans that inspired me to study geology at the Swiss Institute of Technology (ETH) in Zürich. There I received a comprehensive education from excellent scientists and teachers in geology, geophysics, geochemistry and petrology. The two professors that were most influential for my professional life were Rudolf Trümpy and Kenneth J. Hsü. Rudolf Trümpy was my advisor for my Diploma thesis (Master's equivalent) and both served on my dissertation committee together with Heinz Furrer. Rudolf Trümpy was a gifted teacher both in the classroom and in the field. He and later Robert Ginsburg became my role models for teaching. Ken Hsü expanded my scientific reach. He had started the first lake research group in Zürich and I worked as a lab assistant in this group where I observed how seismic data, sedimentology, and geochemistry were integrated in research projects on Great Salt Lake and Lake Zürich. With the guidance and mentoring by Kerry Kelts and Judith McKenzie I had published my first scientific paper on the petrophysical properties of cored sediments from Lake Zürich. It was this paper along with the help of Ken Hsü that offered me the unique opportunity to participate on the first Ocean Drilling Program (ODP) Leg 101 to the Bahamas, which was my first project in marine geology. Wolfgang Schlager and Jamie Austin were the co-chief scientists and among the scientists on the vessel was Peter Swart, who became my friend and colleague in Miami. Years later Peter and I would be co-chiefs on the second ODP drilling in the Bahamas (Leg 166). Before boarding ODP Leg 101 in Miami, I visited Robert Ginsburg at the Comparative Sedimentology Laboratory (CSL) and with a fellowship from the Swiss National Foundation I returned later that year as a post-doc to the CSL. During these two happy years I had the opportunity to interpret the first seismic lines across Great Bahama Bank. Back in Switzerland I worked with Daniel Bernoulli on a Cretaceous-Tertiary Maiella carbonate platform in the Abruzzi. However, when a faculty position opened in Miami, I could not resist and applied. My return to Miami coincided with an exciting time in research at the CSL both in modern and ancient carbonates.

Robert Ginsburg and Peter Swart had secured funding for drilling two cores on the western margin of Great Bahama Bank and the results were the foundation for an ODP proposal to drill the slope and basin portion of what was later called the Bahamas Transect. Peter Swart, Don McNeill and myself were the proponents and we all sailed on ODP Leg 166 with a group of fine scientists. In preparation for the cruise we conducted a multi-channel seismic survey with John Anderson and André Droxler from Rice University. Flavio Anselmetti, who had already helped establishing the petrophysics laboratory, was instrumental in acquiring and interpreting the seismic data. While we embarked on these studies Peter Homewood initiated two exciting projects in the Paleozoic funded by French oil companies. Together with Frans van Buchem (IFP), Mike Grammer, Mike Whalen and many others we investigated the mixed system in the Paradox Basin and the Devonian of Canada.

As a new faculty member I was able to accept students. Over the years I was very fortunate to have a whole series of excellent students. I am very happy and proud of them as they all succeeded in their professional life. Their ideas and effort carry many of the research projects and they all help to make the CSL industrial associates program a success. I want to thank them all for their contribution.

In the 1999, I received an invitation from Shell Field in Rijswijk on the recommendation of José Massaferro to join the newly formed carbonate team for a one year sabbatical. This year in industry was important as I realized the problem of knowledge transfer between academia and industry. The recognition of this shortcoming prompted me to actively pursue existing and new venues for knowledge transfer. The Distinguished Lecturer Program within AAPG fulfills this role and I was more than happy to contribute to the program as lecturer and later on the committee selecting lecturers. Likewise, I was more than willing to organize a seminar in modern carbonates for AAPG. Together with my trusted colleagues and excellent co-leaders Paul M. (Mitch) Harris, Don McNeill, and Mike Grammer we have offered numerous seminars to the Bahamas and Belize for a variety of groups always with the goal to introduce the participants to the basic principles of the carbonate system and at the same time inform them of the latest development in carbonate research. For the same reason I accept most requests for classroom teaching at companies and other universities.

Being an up-to-date teacher requires being involved in research. I am fortunate to have four colleagues and their students as collaborators at the CSL with whom I can pursue an integrated research program in carbonates. In recent years the deep basins adjacent to Great Bahama Bank became a new exploration target. Mark Grasmueck and I got a grant to investigate the cold-water corals in the Straits of Florida with an autonomous underwater vehicle. Subsequent submersible dives and the scientific expedition (MSM 20–4) with Dierk Hebbeln as chief scientist revealed a thriving deep-water ecosystem in the Straits of Florida. The *Carambar* cruise in 2010, led by Thierry Mulder and Emmanulle Ducassou, and the M95 cruise in 2013 led by Christian Betzler will shed new light on mass gravity flow processes and the influence of ocean currents on slope and basin sedimentation. I am very grateful to have been invited to these scientific expeditions.

I thank AAPG for granting me this award and Mitch Harris for writing such an insightful biography.

Gregor P. Eberli

CHARLES KERANS
Grover E. Murray Memorial Distinguished Educator Award

Citation—To Charlie Kerans, a geologist and educator whose original work and data have made a permanent impact on the discipline of carbonate rocks and systems Every so often a geologist comes along who transforms the fundamental thinking in a field of study; an educator whose work and data are so original that they have a permanent impact on the way their colleagues understand their discipline. Charlie Kerans is such a geologist and such an educator.

The Grover E. Murray Memorial Distinguished Educator Award is "given in recognition of distinguished and outstanding contributions to geological education. Contributions will most often involve the teaching and counseling of students at the university level, and contributions to the education of the public." Charlie Kerans' career fits these criteria so well it seems the award was designed with him in mind.

It is often said, "They who see the most rocks win." Charlie wins.

Where carbonate sediments are deposited or carbonate rocks preserved, Dr. Kerans has likely worked there. He has been logging core, measuring section, and mapping big walls for over 35 years. His understanding spans from the pore scale to the outcrop; from sedimentology and diagenesis to sequence stratigraphy and regional depositional systems; from a sotol stalk used as a Jacob staff to airborne and ground-based lidar and UAV (unmanned aerial vehicle) photogrammetry.

Because Charlie has seen so many rocks, at so many scales, in so many locations, representing so

many ages, he has developed an exceptional understanding of how carbonate sediments are deposited, stacked, preserved, and modified. That rare perspective has allowed him to transform the way geologists understand and interpret carbonate systems.

I met Charlie 25 years ago; in the field, of course. Charlie was a research scientist at the Bureau of Economic Geology and had just begun his pioneering work on the San Andres of the Algerita Escarpment in the Guadalupe Mountains of West Texas and New Mexico. Although Dr. Kerans' early work in the Proterozoic of the Northwest Territories, the Devonian of the Canning Basin, and the Ordovician of West Texas had set the stage, I realized, even back then, that a unique person had collided with a unique geologic setting and that something different would likely result. It did.

Charlie brought the revolutionary seismic-stratigraphic work of Vail and others to the outcrop and gave it a rock context, and in so doing pioneered carbonate sequence stratigraphy. Publications such as 1992's *Characterization of a karsted, high-energy, ramp-margin carbonate reservoir: Taylor-Link West San Andres Unit, Pecos County, Texas* and 1995's *Sequence hierarchy and facies architecture of a carbonate-ramp system: San Andres Formation of Algerita Escarpment and western Guadalupe Mountains, West Texas and New Mexico*, represent this work.

As his thinking evolved, Charlie developed the concepts of indicator facies (facies associations that represent a specific depositional setting) and composite cyclicity (the hierarchy of meter-scale cycles, cycle sets, high-frequency sequences and sequences), which allowed him to give context to observed vertical and lateral facies changes. He was able to "map" the stratigraphy of whole canyon walls (representing several million years of rock record) and predict stratigraphic successions and facies tract positions within a sequence stratigraphic framework. Articles such as 1999's *Extrinsic stratigraphic controls on development of the Capitan Reef Complex* and *Stratigraphic correlation surfaces and 3-D reservoir model construction: Constraints from Walther's law models and outcrop analog data* and 2000's *Stratigraphic framework of the San Andres Formation, Algerita Escarpment, Guadalupe Mountains, New Mexico* capture some of this thinking.

In the decade that followed, along with his co-workers in the Reservoir Characterization Research Laboratory (RCRL) at the Bureau of Economic Geology, Charlie used his extensive field understanding to advance 3-D modeling strategies in countless carbonate oil and gas fields around the world. Such work is represented by articles and lectures such as 2004's *Characterizing chaos in a giant oil field—reservoir architecture of the Horseshoe Atoll Trend, Late Carboniferous (peak icehouse) of the Permian Basin;* 2011's *Seismic architecture of a Lower Cretaceous platform-to-slope system, Santa Agueda and Poza Rica fields, Mexico*; and 2012's *Facies architecture of Shuaiba Carbonate Reservoirs—Global Signal and Composite Sequence Framework*.

The more Charlie understood, the more the demand grew for him to educate. As a result, Charlie has developed, led and presented literally hundreds of

- Short Courses: for professional societies, companies, and students such as *Sequence Stratigraphy and Characterization of Carbonate Reservoirs*, whose 130-page SEPM Course Notes #40 continues to be reprinted and has been cited nearly 100 times.
- Field Schools: for professional societies, companies, and students, such as "Sequence framework and facies architecture of a Cretaceous carbonate ramp: late Albian of the Pecos River, West Texas"; "3D modeling of deep-water carbonate outcrops, Victorio Canyon; Cretaceous Rudist Reefs of Pipe Creek Area"; "Geologic setting of Wolfcampian carbonates, Apache Canyon, Permian Basin Section; and "Paleozoic Buildups and Associated Facies of the Llano Uplift, Central Texas."
- Distinguished, Invited and Keynote Lectures: including three distinguished lecture tours for the AAPG in 1990, 1995, and 2002, and talks and posters at conferences around the globe, for which he has received some 15 best talk or poster awards!

- University Courses: including graduate classes in "Carbonate Petrology/Diagenesis"; "Carbonate Depositional Systems"; "Sequence Stratigraphy"; "Modern Carbonate Systems of the Turks and Caicos Platform, West Indies"; and undergraduate courses in "Field and Stratigraphic Methods"; "Sedimentary Rocks"; and "Geology Field Camp."

In 2005 Dr. Kerans became a full professor holding the Goldhammer Endowed Chair in the Department of Geological Sciences in the Jackson School of Geosciences at The University of Texas at Austin. In this role, Charlie continues to educate a growing number of graduate students, many of whom now have successful industry and academic careers of their own.

There are many ways to educate; Charlie educates by example. He is still first up the outcrop and leaves most of his graduate students gasping for breath keeping up. He is still in the core lab long after others break for dinner. He is still developing and deploying the latest computer and field technology. There are no signs of slowing and those who are wise, tough, and lucky enough to be in Charlie's sphere have received the best education in the world!

Scott W. Tinker

Response

I am honored and grateful to accept AAPG's Grover Murray Distinguished Educator Award. Teaching is an extremely rewarding part of my career, and I am fortunate to have taught various audiences. Motivating many who dedicate their careers to education are their own remarkable, dedicated teachers. I too was fortunate in having many excellent teachers and the opportunity to research some world-class reef systems, from Precambrian to modern, from Arctic Canada to the Australian Bush to the deserts of West Texas and Saudi Arabia.

My high school earth science class inspired my search for a university with a strong undergraduate geoscience program. St. Lawrence University, a small liberal arts school in upstate New York, was a perfect fit. Mark Erikson introduced me to the fascination of conducting geologic research and delving beyond published material to derive my own research results. Bill Elberty and Bill Romey at St. Lawrence created a unique learning environment that showed me the human side of education. I graduated from St. Lawrence highly motivated and having the self-confidence needed to pursue geology wherever it led.

Entering the University of North Dakota master's program I was fortunate to have Tim Cross and Lee Gerhard introduce me to basin analysis, sequence stratigraphy, and modern carbonates, leading to my focus on field-based carbonate geology. A stint in the subarctic with Frank Karboski during my first years at St. Lawrence had given me a taste for adventure in frontier areas, so when I transferred to Carleton University, Canada, to work with Al Donaldson on Proterozoic carbonates of the Amundsen Basin, my dream came true. Donaldson risked signing up two "Yanks," Gerry Ross and me, to map and interpret the Middle Proterozoic section of the Amundsen Basin. Al Donaldson was a genius at regional geologic mapping, truly skilled in making astute sedimentologic observations. When Donaldson dubbed part of my Ph.D. project—constructing the stratigraphic framework for the upper 200 m of a 1.5 km supersequence across a 55 km stretch of the basin—as "microstratigraphy," I understood the scale of my project. Three field seasons of mapping and stratigraphic synthesis of this basin with Gerry Ross, a true renaissance geoscientist, provided an unforgettable experience. While in Ottawa I took short courses from Paul Hoffman, a hugely influential geoscientist then at the Geological Survey of Canada. I still point my students to Paul's ability as a lecturer and researcher when I explain how to write an abstract and how to introduce a geologic lecture.

My connections through Paul Hoffman and Sam Bowring led to my short stint at the University of Kansas, following after Mike Brady as a carbonate sedimentologist. A year at Kansas gave me a glimpse of geologic education and convinced me to move forward. Hoffman gave me a push by helping me land a post-doctoral position in Western Australia. There I worked with one of the most impressive geologists

and public servants I have ever met, Phil Playford, then the deputy director of the Western Australian Geological Survey. There I spent two years unraveling diagenetic and depositional patterns in the Devonian reef complexes of the Canning Basin, a veritable Smithsonian museum of carbonate sedimentology.

In Australia I met Mitch Harris, a carbonate specialist from Gulf Oil, a sponsor of my Canning Basin research. His help brought me to the University Lands team at UT's Bureau of Economic Geology, where I learned about the application of carbonate geology to the hydrocarbon industry. Don Bebout, an ex-Humble carbonate geologist, and Jerry Lucia, a 30-year senior Shell geological engineer and dolomeistro, were my teachers. Bureau Director Bill Fisher was our motivator, hammering us to locate and quantify the remaining mobile oil in University of Texas System Lands. Besides gaining an understanding of hydrocarbon reservoirs, I learned the benefits of applied research, a lesson I will never forget. Through the University Lands program I encountered the West Texas Geological Society/Permian Basin SEPM geological community, whose members have been generous and receptive to my research. On every trip to Midland I learn as much as I teach; Midland remains my favorite venue for presenting my research.

Within a year of joining the Bureau I decided to return to field geology. Being in the same state as the famous Capitan Reef system was too tantalizing to resist. Bebout, other carbonate geologists, and I started a Permian Reef Geology Trail project, while Lucia and I established one of the Bureau's first Industrial Associates programs, the Reservoir Characterization Research Laboratory (RCRL). I studied the San Andres outcrops of the Algerita Escarpment with singular focus. Early on, I teamed up with Scott Tinker, then at Marathon Oil, and he, Mike Gardner, Mark Sonnenfeld, and Bill Fitchen began to push the envelope in high-resolution outcrop stratigraphy. We had so much fun that Scott joined the Bureau as its director, and Scott continues to guide our research, at a different level.

The RCRL project continues to evolve, giving me and my colleagues Jerry Lucia, Bob Loucks, Chris and Laura Zahm, Xavier Janson, Steve Ruppel, Hongliu Zeng, and our students the amazing opportunity to investigate in detail the depositional and petrophysical architecture of carbonate outcrops and reservoirs. Through this program, and through the generosity of industry partners, we have guided numerous graduate students and introduced hundreds of industry geoscientists to some of the world's best carbonate exposures and their subsurface reservoir equivalents. With help from partners in the Middle East, including Aus Al Tawil, Walter Morrison, and Joachim Amthor, I've developed a thorough appreciation for carbonate reservoirs and can give my students a worldview of this critical resource system.

Recently I've begun teaching at The University of Texas at Austin, following in the footsteps of Bob Folk, Lynton Land, and Bob Goldhammer. I immediately gained a new appreciation for university professors. I enjoy demonstrating to my students their wisdom in studying sedimentary geology, a field that offers fascinating subject matter and welcoming cohorts. To all my colleagues, to my patient family and inspiring students, and to AAPG I offer my deepest gratitude.

Charles Kerans

DONALD R. LOWE
Grover E. Murray Memorial Distinguished Educator Award

Citation—To Donald R. Lowe, for decades of excellence in education of geoscientists in academia and industry through teaching and research in sedimentology and Earth history.

Donald R. Lowe grew up in Sacramento, California, where at an early age he developed a love of the outdoors. Scouting played a role, as he advanced to Eagle Scout. But he'd not yet discovered geology. Moving southwest 100 miles to Stanford University for his undergraduate education, Don dabbled with the idea of a major in math and physics, but as he puts it, "I didn't like doing problem sets." Fortunately, Don took an introductory physical geology class from the late Dr. Benjamin Page, a true gentleman and encyclopedic resource on California geology, and Don was hooked. As he neared graduation, Don began to inquire about graduate school opportunities, and he was told, "Go East, young man!" Taking that to heart, Don entered the Ph.D. program at the University of Illinois, only to be told by a UI faculty member that Illinois is in the Midwest, not the East! Clearly, Don had not yet developed the keen sense of place for which he's now known. Interestingly, his Ph. D. project brought him back to California, to a place where a Stanford prof had a few years previously told him he could collect ammonites. This choice set the stage for a major portion of the rest of Don's career: The ammonites occur in a Cretaceous mass transport complex displaced from the shelf downslope into the deep-marine environment of the Great Valley forearc basin. Ever thereafter, sediment-gravity flow deposits have been a central theme of Don Lowe's science.

Don subsequently held a post-doctoral position at the U.S Geological Survey in Menlo Park, California, studying phosphorites in what turned out to be a scientific tangent. In 1970, he took an assistant professor position at Louisiana State University, where he advanced to professor. In 1988, he returned to his California roots as professor in the Department of Geology of Stanford University. Stanford recognized his career achievements in 2012, when he became inaugural holder of the Max Steineke Endowed Professorship. Max Steineke, a Stanford graduate, is generally recognized as the driving force behind Standard Oil of California's discovery of oil in Saudi Arabia in 1938.

Don Lowe is widely known and respected for two rather disparate scientific themes, which he initiated in the 1970s: the processes and products associated with gravity-driven clastic sedimentation in deep water, and the evolution of the early Earth as recorded in Archean sedimentary rocks. Sedimentologists and AAPG members know him best for a number of seminal articles he has contributed to the turbidite literature, notably a 1982 paper in the *Journal of Sedimentary Petrology* titled, "Sediment gravity flows II. Depositional models with special reference to the deposits of high-density turbidity currents." This article is among the most cited of all turbidite papers. But an entirely different audience knows him for his important contributions to Precambrian geology, including early Earth atmosphere, depositional environments, life, and meteor bombardment. His numerous Precambrian papers include five published in *Nature* and three in *Science*.

Donald R. Lowe is deservedly receiving the Grover E. Murray Memorial Distinguished Educator Award. For over four decades, he has educated earth scientists, as well as a broad range of university students who now know a little more about the Earth thanks to his teaching. Don's contributions to education are of three types. As noted above, he educates through his published writings, and many of his publications have been extremely impactful. His classroom teaching at undergraduate and graduate levels at LSU and Stanford has reached a tremendous number of students, but notably, he has worked closely as a graduate advisor for 48 students (25 Ph.D. and 23 M.S.) at the two institutions. Some have gone into the petroleum industry, and a number have followed in Don's footsteps and taken academic positions. Don's influence radiates outward through the latter group, as they teach their own students. Finally, Don plays an extremely important role in continuing education in the petroleum industry. A vast number of professional geologists have benefitted from his short courses and core workshops on deep-water clastics. These folks in turn have used information gleaned from his teachings to make better decisions in drilling expensive offshore wells and thereby extracting the resource more efficiently and cost-effectively.

I have had the great good fortune to co-teach a Stanford

undergraduate course and an AAPG Deep-Water Field Seminar with Don for a number of years and thus am a first-hand witness to the quality of his instruction. Not a believer in passive learning, Don Lowe employs a Socratic approach by challenging students and drawing out observations and interpretations from them. He is effective no matter the setting: large classroom, small seminar, field school, individual advising.

Donald R. Lowe is a consummate educator who has affected the lives of thousands of earth scientists.

Stephan A. Graham

Response

It is truly an honor to be selected for the AAPG Grover E Murray Memorial Distinguished Educator Award. I would like to express my gratitude to those who nominated and selected me and to Steve Graham for his kind citation. I have been a teacher for over 40 years, first at Louisiana State University and more recently at Stanford. The choice of a dual career in teaching and research seemed then and seems today most natural: How can one teach at the university level without at the same time keeping abreast of developing knowledge through research; how can one pursue research without wanting to enhance and pass on the new knowledge and discoveries through teaching. My decision to become a geologist was inspired by my teachers, especially Ben Page and later Bill Dickinson, both at Stanford. At one point in my sophomore year, I became fed up with working endless problem sets into the wee hours of the morning and literally overnight dropped all of my math and physics classes and signed up for introductory geology and biology classes. The first geology course I took was Ben Page's physical geology. I was hooked, signed up as a major, and have never looked back. Bill inspired me to think about turbidity currents and so-called grain flows, not to mention the relationships between tectonics and sedimentation, providing an introduction to the concepts of deep-water deposition and sediment transport. My Ph.D. dissertation was more of an accident than a carefully crafted research project: I wrote a paper dealing with what we would now call a deep-water mass transport complex in California that I had studied as an undergraduate and later during summers at the University of Illinois and asked one of my graduate advisors to review the manuscript. He suggested that I use it as my Ph.D. thesis: A couple of months later I was finished.

The first 20 years of my tenure at Louisiana State University were strictly academic: The petroleum industry had not yet moved into deep-water, so virtually all of my students took industry positions as general sedimentary geologists, not deep-water specialists. I was always grateful that our students were able to get good jobs with industry and greatly valued industry's interactions with LSU students and faculty. When I went to Stanford, I thought that the industry aspect of academic life might disappear because of Stanford's reputation as an academic institution. It was a pleasant surprise when I discovered that Stanford had closer interactions with the petroleum industry than did LSU. And, with the increasing exploration into deep water at that time, industry was providing increasing levels of support for deep-water research. It was in 1992 that Steve Graham and I started the SPODDS consortium (Stanford Project On Deep-water Depositional Systems) to fund graduate and undergraduate student research on deep-water sediments and settings. Working with our SPODDS students for the past 21 years through this program, both in the classroom and in the field, has been one of the highlights of my career.

Another aspect of the developing interest in deep-water deposits in the early 1990s was the developing industry interest in having short courses, workshops, and field courses on deep-water sedimentation. I have for over 25 years enjoyed a close interaction with industry colleagues through these teaching activities. In teaching core workshops and field courses to young industry scientists, I like to stress that understanding the basic concepts of deep-water sedimentation is not rocket science but something that can be learned and applied by most persons with B.S. or M.S. degrees and is critical to developing predictive models, both general and for individual fields.

One of the main reasons that I became a geologist was because of

the historical aspect of our science: Geology is one of the two sciences where we can actually look back in time. In cosmology and astronomy, we can look billions of years back into the cosmos but with very poor resolution: In geology we have fabulous resolution when looking at rocks billions of years old but the bigger picture is often difficult to reconstruct. So the flip side of my teaching and research career has been an effort to understand and teach how the principles of sedimentary geology can be applied to interpreting the very non-uniformitarianistic surface environment on the early Earth, mostly before 3.0 billion years ago. While Archean hydrocarbons tend to be very mature, many students have joined in these research efforts and subsequently established successful careers in both the academic world and industry.

It is difficult for me to think of research without the involvement of students and teaching. Students stimulate thought, force us to keep abreast of new developments, and constantly prod us to think. Industry courses are no different. I prefer not to just lecture but to develop interactive discussions and to exchange ideas through questioning and provoking contributions from all participants.

It is always personally rewarding for a teacher to be acknowledged by his students and peers. The Grover E. Murray Memorial Distinguished Educator Award is particularly meaningful to me because I have always felt that sharing knowledge through teaching is the real end: Research, from one perspective, is just an effort to generate new data, ideas, and explanations to teach to students.

Donald R. Lowe

JOHN B. CURTIS
Public Service Award

Citation—To John B. Curtis – educator, honest and effective communicator and consistent preserver of the value of science and process integrity for the assessment of domestic natural gas resources.

John B. Curtis is professor emeritus of geology and geological engineering at the Colorado School of Mines and additionally serves as director of the Potential Gas Agency, which is also located in Golden at the school. He received a B.A. (1970) and M.Sc. (1972) in geology from Miami University before serving as a Minuteman Missile Launch Officer and Instructor Launch Officer in the United States Air Force from 1972–1975. Upon his departure from military service and while working in the petroleum industry, John subsequently earned a Ph.D. in geology from The Ohio State University (1989) focusing his dissertation on the *Evaluation of the Hydrocarbon Source-Rock Potential of Carbonaceous Shales: Upper Devonian Shales of the Appalachian Basin*. He later was credentialed as a licensed Professional Geologist (Wyoming) and earned certification as a Professional Geologist by the American Institute of Professional Geologists.

John's 15 years of petroleum industry experience from 1976 to 1990 included employment with Texaco, Inc., SAIC, Columbia Gas, and Brown & Ruth Laboratories/Baker-Hughes, before engaging in an academic career at the Colorado School of Mines beginning in July 1990. While committed to students, research and academic pursuits, John has continued to serve his profession by chairing several professional society and natural gas industry committees, as well as co-chairing the AAPG Committee on Unconventional Petroleum Systems from 1999–2004. In addition, he was an associate editor of the *AAPG Bulletin* from 1998–2010. In 2006, Dr. Curtis reached full professor at the School of Mines.

Teaching has always been a rewarding part of John's professional and academic careers. At the undergraduate level he has engaged students in earth and environmental systems,

stratigraphy, petroleum geology, multi-disciplinary petroleum design (for which he is a co-developer) and freshman success seminar. At the graduate level he has focused on organic geochemistry of fossil fuels (also co-developer), integrated exploration (co-developer) and various independent studies. For his efforts and commitment, John was recognized as a CSM Alumni Association Geology Outstanding Faculty Honoree five times between 1993 and 2010 and was named to the *Oredigger* Analysis of Student Evaluations, "Most Distinguished Professors" listing in March 2007.

John has published original studies and given numerous invited talks concerning hydrocarbon source rocks, exploration for unconventional reservoirs, and the size and distribution of U.S. and Canadian natural gas resources. He is an internationally recognized authority on natural gas resources and shale gas petroleum systems; is published in top-tier international geology and geochemistry journals; has presented numerous addresses and other presentations in multiple countries; and has testified before the U.S. Senate Energy Committee, the Federal Energy Regulatory Commission (FERC), California Energy Commission, Colorado Regional Air Quality Council, and Wisconsin Public Service Commission.

As director of the Potential Gas Agency, John has directed a team of 100 geologists, geophysicists and petroleum engineers (the Potential Gas Committee (PGC)) for two decades as they complete a biennial assessment of remaining U.S. natural gas resources. These assessments, when combined with the U.S. Department of Energy's estimates of proved reserves of natural gas, make possible an objective and credible appraisal of the nation's long-range natural gas supply. As director of the Agency and executive director of the committee, he performs both technical and supervisory roles deriving probabilistic estimates of the United States natural gas resource base, approving PGC's assessment criteria and methods, training members in proper assessment procedures, insuring maintenance of standards and objectivity, and publishing the assessments.

The June 2009 release of the Committee's natural gas assessments in Washington, D.C. resulted in unprecedented interest in the work of the committee and the assessment of a growing domestic natural gas resource base. With over 200 worldwide media citations, numerous interviews, and invitations to present at technical conferences ranging from Houston to Potsdam to Beijing, John carried a message that was beginning to be significantly influenced by the recognition of technically recoverable shale gas resources in the United States. This continued in 2010 and 2011, with high impact interviews given to Robert J. Samuelson of the *Washington Post* and *Newsweek* magazine and citations by the *New York Times*, *Financial Times* and *Wall Street Journal*. The PGC is the only organization that publishes natural gas resource assessments on a regular basis and has now been doing so for 50 years.

Christopher B. McGill

VINCENT MATTHEWS III
Pioneer Award

Citation—Vince Matthews is an excellent choice on all counts for the AAPG Pioneer Award because of the breadth of his contributions to industry, teaching and public service.

Born in Knoxville, reared in Pittsburgh, Vince discovered a love for the West at 14 working for Philmont Scout Ranch. He fell in love with geology at the University of Georgia where his M.S. thesis discovered several previously unknown mafic complexes.

Vince cut his teeth in the petroleum industry in the Gulf Coast for Pan American (Amoco). The pull of the West took him to the University of California, Santa Cruz for a Danforth Teaching

Fellowship. The results of his dissertation on the San Andreas Fault were published in the *AAPG Bulletin*. A reprint was included in an AAPG volume "Wrench Fault Tectonics," with an introduction stating, "All the skepticism [about large-scale displacement] was effectively removed by Matthews' correlations of a distinctive suite of Miocene volcanic rocks, now separated right-laterally 280 km (175 mi)".

Vince discovered a talent and passion for teaching as a teaching assistant at Georgia. He taught at the University of Northern Colorado, received tenure, and was elected chair of the Faculty Senate.

Vince's industry career spanned two decades and increasing levels of corporate responsibility. He served as division exploration manager for the Overthrust Belt at Amoco, Rocky Mountain division manager at Lear Exploration, vice president and regional manager at Union Pacific Resources, and president at Penn Virginia Resources.

Throughout his industry career Vince connected to education, serving on advisory boards at Virginia Tech, University of Virginia, University of Kentucky, and University of Texas at Austin. Following his industry career, he taught at Arizona State University and University of Texas of the Permian Basin where he also directed the Center for Energy and Economic Diversification. His AAPG involvement includes Academic Liaison and Corporate Advisory Committees, House of Delegates, and Trustee Associate.

In 2000, Vince joined the Colorado Geological Survey where he spent a dozen years, eventually becoming director and state geologist. Vince invigorated Colorado's geologic mapping program, and provided steady leadership during political uncertainty. Again, his passions for education manifested as he led efforts to educate citizens about their environment and particularly the importance of mineral and energy resources. He has given a data-driven talk on global resources to more than 35,000 Coloradans, including the State Legislature.

Although "retired," Vince continues educating today by posting a geology lesson each morning on his Facebook page, Leadville Geology, which is followed by 300–500 people daily. Vince has truly provided long and valued service to AAPG, the industry, and the public.

Vicki Cowart

THOMAS L. THOMPSON
Pioneer Award

Citation—To Thomas L. Thompson, for pioneering application of plate tectonics to petroleum exploration of continental margins, fracture migration paths in continental interiors and teaching at the University of Oklahoma and worldwide.

Born in Boulder, Colorado in 1927 and nurtured in childhood by loving parents, Thomas L. Thompson was exposed to the wonders of nature in the mountains of Colorado and along the shores of California and Cape Cod. His exploratory curiosity has persisted throughout his life and forms the cornerstone of his geological career. He was supported by his loving wife, Nancy, as they were blessed with 7 children and 14 grandchildren. Philosophically, he contends that each individual is uniquely blessed with a creative spirit that, if followed and nurtured, will provide satisfaction and ongoing purpose.

Thompson is a consulting geologist and president of Thompson's Geo-Discovery, Incorporated with over 60 years of varied industry, university, and consulting experience. He has focused on field and structural geology, geotectonics, and exploration for petroleum and other earth resources necessary to sustain an ever-expanding world population. This experience included 14 years with Amoco Production Company (1962–1976), teaching petroleum exploration at the University of Oklahoma (1976–1982), exploration manager for Fain-Porter Production Company in Oklahoma City (1983–1984), and travel to 23 countries. This travel included his work with Amoco, teaching industrial short courses for International Human Resource Development Corporation of Boston, and as a member of the International Safety Panel for Joint Oceanographic Institute for Deep Earth Sampling (JOIDES) (1968–1995). Representing Amoco at the Industrial Associates Program of the key oceanographic institutions, and participating in deep-sea coring on board the Glomar Challenger in the North Atlantic and JOIDES Resolution in the Indian Ocean contributed immeasurably to his understanding of plate tectonics.

While employed by Amoco, Thompson was honored as a distinguished lecturer on "Plate Tectonics in Petroleum Exploration of Continental Margins". He presented this lecture to professional societies and universities at 52 locations (1974–1975), and this led to teaching exploration courses concerning continental margins, field and structural geology, and petroleum geology at the University of Oklahoma. Many (perhaps all) of his 14 Master of Science students continue to pursue successful careers in the petroleum industry or in teaching; several serve on the alumni advisory committee to the University of Oklahoma.

Thompson holds a bachelor's degree in geology from the University of Colorado (1950) and a Ph.D. in geology from Stanford University (1962). His doctorate course work emphasized structural geology, stratigraphy, and ore deposits. The title of his field oriented Ph.D. thesis reads "Stratigraphy, Tectonics, Structure, and Gravity in the Rocky Mountain Trench Area, Southeastern British Columbia, Canada."

Since 1997, Thompson's work focused on interactions of intracontinental crustal blocks, fracture paths for fluid migration, and petroleum reservoir geometry. He stresses the importance of on-going field observations and four-dimensional thinking. He is currently pursuing several exploration projects with no plans for retirement.

Lou Bortz
Dudley Bolyard
John Kinard
Bill Pearson
Jim Howe

HARRY LYNCH

SCOTT W. TINKER
THE SWITCH ENERGY PROJECT
Geosciences in the Media Award

The Switch Energy Project is a documentary film and media outreach initiative that takes a look into the world's energy future. The Project includes an ongoing website, Facebook page, social media and the Switch Energy Lab. Accepting the award will be past

AAPG president Scott Tinker, who served as the film's co-producer and narrator, and Switch director and co-producer Harry Lynch.

Energy resources are undergoing profound changes. Overall, we are gradually shifting from coal and oil to the energies of tomorrow. Rather than advocate for how the transition should happen, the film *Switch* documents how it most likely will happen. *Switch* is also about the changing energy conversation and focuses on practical realities and encourages a balanced understanding. It is also about changing the way we use energy, to realize the many benefits of efficiency.

Switch has been seen by nearly 4 million viewers worldwide including showings in theaters, university auditoriums, classrooms, and on DVD and the web.

SCOTT D. SAMPSON
Geosciences in the Media Award

Scott D. Sampson is the consultant and on-air host for the Discovery Channel series "Dinosaur Planet" and is the author of "*Dinosaur Odyssey: Fossil Threads in the Web of Life*." Sampson attended the University of British Columbia and graduated with a B.A. in anthropology in1985. He earned an M.A. in anthropology (1988) and a Ph.D. in zoology (1993) from the University of Toronto.

Sampson has been an assistant professor at New York College of Osteopathic Medicine and at the University of Utah. From 1999 to 2007, he was at the Utah Museum of Natural History, first holding the position of curator of vertebrate paleontology, then chief curator. He was also an associate professor at the University of Utah from 2003 to 2007. In 2013, he was named vice president of research and collections and chief curator at the Denver Museum of Nature & Science.

Sampson describes himself as a paleontologist who studies Late Cretaceous dinosaurs in order to investigate how ecology and evolution work in a hothouse world. He is also interested in how humans form emotional bonds with nature, and how this process changes with age.

His current research project is the Kaiparowits Basin Project, an interdisciplinary, multi-institutional research effort with a geographic focus of Grand Staircase-Escalante National Monument in Southern Utah. The project, whose participants include the Denver Museum of Nature and Science, the Natural History Museum of Utah, and the Bureau of Land Management, has discovered dozens of dinosaur and other vertebrate species, most of which are new to science.

He is also conducting research for his Human-Nature Project, working to help bring ecopsychology into the psychological and cultural mainstream. In 2012, he proposed the "Topophilia Hypothesis," which postulates that humans possess a genetic bias to form emotional bonds with nearby nature. He is currently investigating how people form effective attachments with nature, and how this process changes from early childhood through adulthood.

SONJA SPASOJEVIC
Wallace E. Pratt Memorial Award

MICHAEL GURNIS
Wallace E. Pratt Memorial Award

The Wallace E. Pratt Memorial Award for the best paper published in the *AAPG Bulletin* is presented to Sonja Spasojevic and Michael Gurnis for "Sea level and vertical motion of continents since the Late Cretaceous" (v. 96, p. 2037–2064).

Sea level change is a vital geological process and a particularly important one for petroleum geology. Unfortunately, the cause of sea level change is among the most controversial topic in our science and for many years the debate has centered over the relative importance of eustatic (global) changes and relative sea level change from one place to another. For many years, the debate has been highly polarized, but over the last several decades there has been a progressive recognition that both processes are equally important. There has been substantial progress in understanding the mechanisms for both eustatic changes (driven by the carrying capacity of the oceanic basins from changes in the rates of sea floor spreading) and relative sea level changes (from continental stretching and from mantle flow, that is dynamic topography).

For the first time, Spasojevic and Gurnis have formulated a self-consistent model of sea level change in which both the eustatic and regional processes have been accounted for. The model is essentially a four-dimensional model of the solid earth in which detailed reconstructions of the oceanic and continents are combined with a simulation of flow and deformation through the entire mantle. Also, for the first time, the authors were able to account for the changing shape of the equipotential of the earth's gravity field (the geoid). The framework allowed a wide variety of observations to be combined, including seismic images of the mantle, plate tectonic reconstructions, estimates of global sea level, and the detailed patterns of marine sediment deposition on the continents.

The results were surprising. Despite the large amplitude changes in the topography from mantle convection, dynamic topography, the primary change for the average global seal level remains the average carry capacity of the sea floor. However, the regional sea level was dominated by the dynamic topography. Examples include the United States and Australia during the Late Cretaceous and SE Asia during the Cenozoic. The authors suggest that instead of only using a single sea level curve, that petroleum geologist could start to use time-dependent maps of sea level change and evolving topography that emerge when all of the relevant processes are self-consistently combined (plate tectonics, mantle convection, crustal stretching).

Michael Gurnis is a geophysicist who studies plate tectonics and mantle convection. Born in Boston and raised in Massachusetts, Gurnis received a B.S. from the University of Arizona in 1982 where he spent time working on planetary science topics. He pursued his further studies in Australia working under the guidance of Geoff Davies using geochemical observations to constrain the physics of mantle convection. Receiving his Ph.D. from the Australian National University in 1987, Gurnis followed with a post-doc at Caltech when he formulated some of the first models that coupled plate tectonics to mantle convection. Then as a faculty member at the University of Michigan, Gurnis started his work connecting sea level change to mantle convection. In 1994, he returned to Caltech where he is currently the John E. and Hazel S. Smits Professor of Geophysics and Director of the Seismological Laboratory. Gurnis has been honored for his work from many organizations, including medals from the American Geophysical Union, the Geological Society of America and the European Union of Geosciences.

At Caltech, Gurnis directs an active research program in

computational geodynamics. The team's goals are multifaceted with a strong emphasis on linking the principals of geodynamics to the rock record (especially the stratigraphy of sedimentary basins). They investigate the basic physics of geophysical phenomena, study the Earth's deep interior, and develop new computational methods. He has a long running collaboration with scientists at Sydney University in Australia and at the University of Oslo, a collaboration that resulted in the GPlates package for plate tectonics and plate reconstructions. He has a long-running collaboration with Statoil in Norway and is currently working with them to apply the coupled plate tectonic-geodynamic approach discussed in the *AAPG Bulletin* paper to better understand the tectonic controls in frontier hydrocarbon areas such as the South Atlantic and Southeast Asia.

Sonja Spasojevic received a B. Sc. degree in geophysics from the University of Belgrade, Serbia, in 2001, and an M.Sc. degree in exploration geophysics from the University of Houston in 2003. After working for 2 years as a geophysicist for BP in the deep-water Gulf of Mexico, she joined the California Institute of Technology (Caltech) in 2005 to work on research related to the dynamics of long-term sea level change, vertical motion of continents, and evolution of sedimentary basins, with Michael Gurnis as advisor. After receiving her Ph.D. in geophysics in 2010, she continued working as a staff scientist at Caltech during 2011. She returned to BP in early 2012, working as structural geologist in regional Brazil exploration, and most recently as exploration geoscientist in Gulf of Mexico.

JOHN A. BREYER
Robert H. Dott, Sr. Memorial Award

The Robert H. Doot, Sr. Memorial Award is presented to honor and reward the author/editor of the best special publication dealing with geology published by the Assocaiton. This year's award is presented to John A. Breyer for *AAPG Memoir 97 Shale Reservoirs: Giant Resources for the 21st Century*.

Shale reservoirs are not new. The first commercial hydrocarbon production in the United States was from a well drilled in 1821 in a shale gas reservoir. By 2000, more than 28,000 wells had been drilled in shale gas reservoirs. Rising gas prices and technological advancements in horizontal drilling and hydraulic fracturing associated with the development of the Barnett Shale led to a boom in shale gas development in the early years of the 21st century. Now the exploitation of shale reservoirs is turning to natural gas liquids, condensate, and oil.

Far from being isotropic and homogeneous, as once naively envisioned, shale reservoirs are complexly layered accumulations of fine-grained sediment. Geologic variation on scales ranging from that of stratal architecture to that of lamination within individual beds must be understood in order to locate and exploit areas of higher production within shale reservoirs. Shale reservoirs remain largely geologic plays—not merely lease plays or strictly engineering plays made possible by improvements in drilling and completion technology.

John A. Breyer is a senior technical consultant in the Subsurface Technology Group, Marathon Oil Company, Houston, and an emeritus professor of geology at Texas Christian University. John joined Marathon in 2011 after teaching for 33 years at TCU, where he won numerous teaching awards, including the Gulf Coast Association of Geological Societies Outstanding Educator Award in 2005 for "major contributions in the education and training of Gulf Coast geologists". Most of his former students are in the oil and gas industry. John has authored or co-authored more than 60 articles in international and national scientific journals. Based on his research contributions he was elected a Fellow of the Geological Society of America in 1991. His presentations at national meetings

have twice been recognized for excellence by his peers. John is an expert in the geology of shale resource systems. He edited and contributed to *AAPG Memoir 97 Shale Reservoirs—Giant Resources for the 21st Century*. A second AAPG Memoir with the working title: *The Eagle Ford Shale—A Renaissance in U.S. Oil Production* is nearing release. In October, 2013, John spent two weeks hiking in the Himalayas as a participant in the National Geographic Society sponsored trip, Bhutan: The Scared Valley Trek.

JOSEPH M. ENGLISH
J. C. "Cam" Sproule Memorial Award

The J. C. "Cam" Sproule Memorial Award, presented to the AAPG member 35 years old or younger at the time of submittal who authors the best paper published during the year by the association or any affliated society, division, or section, is award to Joseph M. English for "Thermomechanical Origin of Regional Fracture Systems" (*AAPG Bulletin*, v. 96, pp. 1597–1625).

As the world's remaining hydrocarbon reserves continue to be depleted, the rapidly increasing importance of unconventional fractured reservoirs for oil and gas is widely recognized. This paper demonstrates that thermal contraction due to cooling may be an important mechanism for creating tensile fractures in rock during major exhumation events.

Understanding the origin and distribution of these fracture systems is of great practical importance because they can control the flow of underground fluids, such as water, oil and gas, ore-forming fluids, and geothermal fluids. The paper also sets out to describe how this fracturing mechanism can be modeled and tested with field data, and hence can be utilized as a predictive tool for identifying zones of improved reservoir quality.

Joe English is a petroleum geologist with over ten years' experience in resource evaluation and petroleum exploration, having worked in a wide variety of geographical regions including North America, North Africa, West Africa, the Mediterranean and the Middle East. He received his bachelor's degree in geology at Trinity College, Dublin, Ireland (2001) and his Ph.D. from the University of Victoria, Canada (2004). Previously, he worked on regional geological mapping projects with the British Columbia Geological Survey and on shale gas exploration in North America with EnCana Corporation and Nexen Inc. in Calgary. His research interests include geomechanics, tectonics, structural geology, and basin analysis. He currently serves as the chief geologist at Petroceltic International plc, an oil and gas exploration company headquartered in Dublin, Ireland.

NEIL K. BASU
John W. Shelton Search and Discovery Award

GERVASIO J. BARZOLA
John W. Shelton Search and Discovery Award

PAUL R. CLARKE
John W. Shelton Search and Discovery Award

HECTOR BELLO
John W. Shelton Search and Discovery Award

OSWALDO VILORIA
John W. Shelton Search and Discovery Award

Neil K. Basu, Gervasio J. Barzola, Hector Bello, Paul R. Clarke and Oswaldo Viloria received the 2014 John W. Shelton Search & Discovery Award for the most outstanding contribution to the AAPG Search & Discovery website for their submission titled "Eagle Ford Reservoir Characterization from Multisource Data Integration."

This paper is the result of an extensive data acquisition program and integration effort ran by Pioneer Natural Resources and its subsurface team to characterize the Eagle Ford reservoir. Modern 3D seismic, well logs in vertical and lateral wellbores, chemical and radioactive tracers, microseismic, production logging, as well as production and pressure data were integrated with seismic attributes and geological concepts observed at Eagle Ford outcrops to come up with a model to understand reservoir performance drivers.

The Eagle Ford has emerged as one of the most prolific shale-gas discoveries in North America. Substantial industry activity and technology have been directed towards understanding this resource play to delineate the productive fairway, highlight potential sweet-spots, and unlock its economic potential. Activity rose from 94 well permits in 2009 to over 1000 permits in 2011. Currently in excess of 100 drilling rigs are

active across this trend.

Pioneer Natural Resources is using a combination of well logging (pilot and lateral), core, seismic attributes, production logging, micro-seismic, and outcrop observations to provide an integrated analysis of the critical performance drivers and uncertainty within this shale-play. The use of technology is fundamental to our visualization

and characterization efforts, including scale, vertical and lateral variability, and an

assessment of matrix and natural fracture contribution. Our goal is to accelerate the learning curve and effectively impact development strategies for this resource play.

While the Eagle Ford is a recent discovery (2008), many hundreds of older legacy wells were drilled, and logged this source rock section. The Eagle Ford is a classic example of an unconventional resource play, hidden within a seemingly mature petroleum basin. With advances in drilling and completions technology the industry is unlocking this multi TCFE/BBOE resource potential.

Neil Basu is geoscience supervisor for the South Texas asset team at Pioneer Natural Resources. Previously, his roles included Senior Business Analyst reporting to the president and chief operating officer, and senior geologist for the South Texas asset team with a focus on reservoir characterization in the Eagle Ford Shale through multiple-dataset integration applied to effectively plan appraisal and development wells. Additionally, Basu's experience includes basin analysis and operations geology in the Permian Basin, regional geology of Rocky Mountain basins, and exploration in the Niger Delta Basin. Basu holds a B.A from Hamilton College and an M.S in igneous geochemistry and volcanology from The University of Texas at Dallas. He is currently pursuing an M.B.A at Southern Methodist University.

Gervasio Barzola is the subsurface and development vice president of the South Texas Asset Team with Pioneer Natural Resources, Irving Texas. He graduated as a geologist from Cordoba University, Argentina in 1988. Barzola joined Occidental Petroleum, OXY, in 1989 where he worked in Buenos Aires, Mendoza, and Bakersfield, California in multiple exploration and exploitation projects. In 1998 he joined Pioneer Natural Resources in Buenos Aires, Argentina, relocating to Texas in 2002. He worked multiple basins, where he had a key role in multiple discoveries in Argentina, as well as onshore/offshore U.S. and West Africa. In 2008–2009 he led the team that successfully extended the Eagle Ford play into Dewitt, Karnes and Live Oak Counties. Since then, he manages the multidisciplinary team appraising and developing the Eagle Ford play for Pioneer Natural Resources. He has participated in multiple industry events, e.g., AAPG, SPE, URTec, etc., as speaker and key contributor.

Hector Bello is an engineer geologist who has over 13 years experience with strong abilities in geological and geophysical data interpretation for conventional and unconventional reservoirs. Hector is currently working for Pioneer Natural Resources in their Las Colinas office on the South Texas Asset Team.

Paul Clarke is a geoscience advisor with Pioneer Natural Resources, Irving Texas. He graduated with a B.Sc. Honors degree in geology and holds a Ph.D. in petroleum geology and sedimentology, both from The University of Birmingham, United Kingdom. Clarke followed a career opportunity and relocated to the United States in 2002. Since then his industry experience has focused on all aspects of unconventional resource plays and geologic characterization efforts working projects in Colorado, New Mexico, Utah, Kansas, Mississippi, Louisiana and Texas. From 2009 to 2012, he was the regional geologist for the Eagle Ford shale play, responsible for early exploration efforts, appraisal and ultimately full-field development, drilling over 250 wells. In his current role, he brings his subsurface characterization skills and data integration expertise to the Midland Basin, where Pioneer is appraising and developing multiple horizontal objectives.

Oswaldo Viloria, originally from Caracas, Venezuela, has more than 20 years of experience in the oil and gas industry. Before joining Midstates Petroleum Company as petrophysics advisor, he worked for Marathon Oil Company, Pioneer Natural Resources Company, Schlumberger Oilfield Services (Data and Consulting Services, Schlumberger-Doll Research, GeoQuest, Wireline & Testing), Halliburton, and Petróleos de Venezuela S.A. PDVSA (Intevep S.A., Maraven S.A., and Corpoven S.A.). As a student, he also worked for the Craft and Hawkins Department of Petroleum Engineering at Louisiana State University and for Escuela de Ingeniería de Petróleo at Universidad Central de

Venezuela. Viloria earned a B.Sc. degree in petroleum engineering from Universidad Central de Venezuela, an M.Sc. degree in oil refining, gas and petrochemistry from Universidad Metropolitana, and a MBA degree from University of New Orleans. He is a member of SPE (Society of Petroleum Engineers) and SPWLA (Society of Petrophysicists and Well Log Analysts).

STEPHEN HOLTKAMP
George C. Matson Memorial Award

The George C. Matson Memorial Award for the best paper presented during an AAPG oral technical session is presented to Stephen Holtkamp for "A More Complete Catalog of the 2011 Youngstown, Ohio Earthquake Sequence from Template Matching Reveals a Strong Correlation to Pumping at a Wastewater Injection Well." The coauthors are Brian Currie and Michael R. Brudzinski

In this presentation the authors tried showcase the advantages of the multiple-station (or network) matched filter (or "template matching") technique to consistently identify low level repeating signals in continuous seismic data. Traditional seismic techniques utilize each observation independently, usually by identifying P- and S- waves at each station, and this requires that the signal is large enough at several stations to identify these phases. This template matching technique utilizes the actual waveform information of the largest amplitude phases, and does so at multiple stations simultaneously. In stacking multiple observations of the same source signal, the signal to noise ratio increases and allows for more consistent detection and detection of smaller signals. The authors applied this technique to the Youngstown, Ohio earthquake sequence, and did so using only regional seismic stations which are part of the backbone observational network in the United States and freely available online. They were able to turn a catalog of 11 located earthquakes into a catalog of 282 earthquakes. This 25-fold increase in detected seismicity allowed them to test the hypothesis that injection was causing the earthquakes. They found (1) clear earthquake rate changes that almost exactly mirror the injected volumes, including before and after injection, (2) evidence for a short delay (one to several days) in earthquake productivity from the time of injection, indicating the amount of time it takes for the fluid pressure pulse to diffuse to the earthquake source region, and (3) a progression of earthquake locations along the fault plane from directly beneath the injection well to ~1 km WSW of the injection well throughout the course of the sequence.

Stephen Holtkamp was born and raised outside of Cincinnati, Ohio. After graduating from high school in 2003, he attended Miami University in Oxford, Ohio. He received his B.S. in physics from Miami in 2007, and moved to upstate New York to study geophysics at Cornell University. He received a NASA graduate research fellowship while at Cornell, and finished with a M.Sc. in geophysics in 2009, researching earthquake swarms in South America. He moved back to Ohio to work on geophysics and seismology at Miami University, where he has been working on his Ph.D. He has been studying earthquake swarms all over the world and induced seismicity from wastewater injection in Ohio. He received a National Science Foundation post-doctoral fellowship to study earthquake swarms and aseismic fault slip in Alaska, and will be affiliated with the University of Alaska, Fairbanks.

SATINDER CHOPRA
Jules Braunstein Memorial Award

RITESH SHARMA
Jules Braunstein Memorial Award

The Jules Braunstein Memorial Award for the best AAPG poster presentation is presented to Satinder Chopra and Ritesh Sharma for their poster "New seismic attributes for determination of lithology and brittleness."

The key elements of a successful shale gas reservoir are the type of shale, its depth, thermal maturity, total organic carbon content, permeability, mineralogy and brittleness. An optimum combination of these elements leads to an accurate estimate of the gas-in-place as well as the success of the completion and so higher productivity. Faced with the challenge of picking up sweet spots in unconventional shale gas plays, the authors decided to explore as to what could possibly be done better. As their primary customers are the completion engineers, and much of their geomechanical experience is based on the Young's modulus vs. Poisson's ratio templates, they decided to bring in Young's modulus (E) in the determination of brittleness and its estimation from seismic data. However, for moderate offset data they cannot estimate E by itself from seismic data, but they can accurately estimate E-rho, where rho is the density. For long offset data, they can often estimate density, which then can be used to compute E by itself. They found that E-rho computation displays look very similar to E displays for long offset data, which gave them reason to believe that E-rho can be computed even when they do not have long offsets and they would be equivalent to the E attribute. Their results show that brittleness can be estimated qualitatively from the E-rho attribute, which can be estimated from seismic data.

Satinder Chopra received M.Sc. and M.Phil. degrees in physics from Himachal Pradesh University, Shimla, India. He joined the Oil and Natural Gas Corporation Limited (ONGC) of India in 1984 and served there till 1997. In 1998 he joined CTC Pulsonic at Calgary, which later became Scott Pickford and Core Laboratories Reservoir Technologies. Currently, he is working as chief geophysicist (reservoir), at Arcis Corporation, Calgary. In the last 29 years Satinder has worked in regular seismic processing and interactive interpretation, but has spent more time in special processing of seismic data involving seismic attributes including coherence, curvature and texture attributes, seismic inversion, AVO, VSP processing and frequency enhancement of seismic data. His research interests focus on techniques that are aimed at characterization of reservoirs. He has published 8 books and over 300 papers and abstracts and likes to make presentations at any beckoning opportunity. He is the editor of the *AAPG EXPLORER* Geophysical Corner, the past chief editor of the *CSEG RECORDER*, the past member of the SEG *The Leading Edge* Editorial Board, and the past chairman of the SEG Publications Committee.

He received several awards at ONGC, and more recently has received the prestigious designation of Fellow by Geoscientists Canada, in appreciation of contribution to the geoscience profession, the AAPG George C. Matson award for Best Oral Presentation for his paper entitled "Delineating stratigraphic features via cross-plotting of seismic discontinuity attributes and

their volume visualization," presented at the 2010 AAPG Annual Convention held at New Orleans, Best Poster Presentation Award for their poster entitled "Determination of elastic constants using extended elastic impedance" presented at the 2012 GeoConvention held at Calgary, the Top 10 Paper Award for his poster entitled "Extracting meaningful information from seismic attributes," presented at the 2009 AAPG Annual Convention held at Denver, the Best Poster Award for his paper entitled "Seismic attributes for fault/ fracture characterization," presented at the 2008 SEG Convention held at Las Vegas, the Best Paper Award for his paper entitled "Curvature and iconic Coherence-Attributes adding value to 3D Seismic Data Interpretation" presented at the CSEG Technical Luncheon, Calgary, in January 2007 and the 2005 CSEG Meritorious Services Award. He and his colleagues have received the CSEG Best Poster Awards in successive years from 2002 to 2005.

He is a member of SEG, CSEG, CSPG, CHOA (Canadian Heavy Oil Association), EAGE, AAPG, APEGGA (Association of Professional Engineers, Geologists and Geophysicists of Alberta) and TBPG (Texas Board of Professional Geoscientists).

Ritesh Sharma is from a small town in India. He received his B. Sc., degree from C.C.S University Merrut, India in 2004 and his master's in applied geophysics from Indian Institute of Technology Roorkee in Roorkee, India in 2007. In 2008, he went to Calgary to pursue his studies at the University of Calgary with CREWES group, and received his M.Sc. in geophysics in 2011. Before going to Calgary, he worked with the Vendanta group, Udaipur, for one year as a geophysicist. He joined Arcis Seismic Solutions in 2011 and is working there as a reservoir geoscientist. His areas of interest include reservoir characterization, seismic imaging and inversion. He won the Best Poster award for his presentation titled "Determination of elastic constants using extended elastic impedance" at the 2012 GeoConvention held in Calgary.

IRENE ARANGO
Gabriel Dengo Memorial Award

The Gabriel Dengo Memorial Award is given each year in recognition of the best AAPG paper presented at the previous year's international conference. This year, the award is presented to Irene Arango for "Evaluating Hydrocarbon Expulsion Efficiency from Shale Reservoirs."

The study focuses on evaluation of the impact of total unit thickness on expulsion efficiency and how this parameter may influence the amounts of hydrocarbons generated and retained within shale reservoirs.

One of the main aspects that define a successful shale gas play is the presence of enhanced production intervals or sweet spots. Sweet spots are intervals within the shale reservoir that contain elevated quantities of natural gas. Successful pre-drill prediction of the location of the sweet spots in a given play requires understanding of the geologic processes conducive towards the concentration of economically-relevant gas volumes in the unit of interest. Of particular importance is the understanding of the kinetics of gas generation: Gas generation within a given source rock requires adequate amounts of organic matter and enough time for the thermal breakdown or "cracking" of the organic matter to take place (maturation). Although kerogen can be transformed directly to gas (primary cracking), cracking of liquid hydrocarbons to gas (secondary cracking of oils or condensates) appears to be a process of significance in shale gas systems, requiring low liquid hydrocarbon expulsion efficiencies.

In the case of type II kerogen-rich rocks (e.g., most shale gas units), the initial products of maturation are liquids. With increasing maturity, higher amounts of liquids within the shale

pores results in increasing pressure, driving fluid expulsion out of the rock and into the surrounding carrier system. The expulsion efficiency of liquids from a source rock is facilitated by the availability of and proximity to porous media (Leythaeuser *et al.*, 1988; Lafargue *et al.*, 1994). In traditional systems, source rocks are generally considered to have high expulsion efficiencies. However, shale gas systems are considered self-contained (both a source and a reservoir); therefore, expected to behave less efficiently from an expulsion stand-point. Following on the aforementioned rationale, a shale-gas unit is expected to retain more of the liquids generated.

As proximity to porous media favors expulsion, the total thickness of the unit is expected to play a major role in the overall retention of liquids and subsequent amounts of gas generated. Larger concentrations of hydrocarbons should occur towards the center of thick shale reservoirs, while expulsion should increase towards the bounding porous units. This study focuses on the evaluation of the impact of total thickness on expulsion efficiency and how this parameter may influence the amounts of gas generated and retained within shale gas plays.

Irene Arango graduated with a bachelor's degree in geology from the Universidad Nacional de Colombia (Bogota) in 1998, received a Master of Science degree from Indiana State University in 2002, and obtained a Ph.D. in geology with emphasis in geochemistry from Indiana University in 2006. Prior to pursuing her graduate studies, Irene worked at Ecopetrol (Colombia) as a development geologist. She joined Chevron in 2006 as a subject matter expert in geochemistry with the Hydrocarbon Charge Team. Her responsibilities include providing consulting services to strategic business units (e.g., source rock characterization, charge studies, shale gas projects), working on strategic research projects, and acting as instructor and/or developer of various chevron internal geochemistry courses.

VICTOR CASTRO
Ziad Beydoun Memorial Award

JAMIE O. CASTILLO
Ziad Beydoun Memorial Award

ALFREDO RAMIREZ
Ziad Beydoun Memorial Award

CARLOS MORA
Ziad Beydoun Memorial Award

CLAUDIA CEBALLOS
Ziad Beydoun Memorial Award

JOHANA PAOLA BLANCO MARTINEZ
Ziad Beydoun Memorial Award

The Ziad Beydoun Memorial Award is given each year in recognition of the best AAPG poster presented at the previous year's international conference. This year, the award is presented to Jamie O. Castillo, Victor Castro, Alfredo Ramirez, Carlos Mora, Johana Paola Blanco Martinez, and Claudia Ceballos for "Cupiagua Sur XN1z - Drilling Experience. Response and Uncertainty Management for Unexpected Overburden Sections."

The geological environment of the Colombian Foothills is among the most complex and difficult in the world due to thrust faulting in an active tectonic setting. Compounded by the depth of the reservoirs, drilling new wells becomes very difficult, requiring close cooperation between geologist, geophysicist and drilling engineers. The case in point for this poster presentation was the XN1Z appraisal well, which was targeting a narrow and deep anticline (less than a 0.7 km wide at 15000 ft MD) with associated high overburden complexity. The highly faulted sections above the reservoir, combined with the relatively narrow structure, make it difficult to image and position the target with existing seismic data. When unexpected anomalous stratigraphic sections were encountered above the reservoir levels, the well started to deviate significantly from the original prognosis in the intermediate section. The difficult decision to sidetrack early was made after integrating new drilling and seismic information to build and consider several potential subsurface models and their remaining uncertainties. The final result was a successful geologic sidetrack that reached the original target optimizing the cost compared to other potential options.

Jaime Castillo was born in Manizales, a small town in the coffee region of Colombia, where he lived until finishing his bachelor studies in 1991. He has 20 years of industry experience in development geology and exploration. His career started as exploration and new ventures geologist in Ecopetrol S. A., and after 5 years he was appointed to be part of the Ecopetrol´s Cusiana Field Development Team in the Llanos Foothills of Colombia. Jaime was research assistant at the Bureau of Economic Geology at the University of Texas at Austin in the first half of 2000, while completing his master's in geology (1998–2000). Between 2000 and 2005, Jaime worked as Cusiana Field development geologist and

subsurface team leader for Ecopetrol, and after that, he worked as new ventures coordinator for Perenco Colombia (2005–2006). In 2006 Jaime joined BP Colombia, and was Cupiagua Field development geologist, lead geologist, and geo-modeler for some of the fields in the Llanos Foothills of Colombia, and for the Cerro Negro Field in the Heavy Oil Belt in Venezuela, until 2010. He has been with Equion Energía Ltd from 2010 to the present, working as exploration senior geologist and team leader, assigned to the projects in the Caribbean Offshore and the Llanos Foothills regions of Colombia. His professional interests lie in uncertainty analysis and its impact on decision-making process for exploration and development projects. Jaime has a B.S. in geology from the Universidad de Caldas, and a M.S. in geological sciences from the University of Texas at Austin.

Victor Castro has 24 years of experience in petroleum engineering including 10 years leading multidisciplinary reservoir management teams; he is currently the development subsurface manager at Equion Energia. He has a B.S. in petroleum engineering from the Universidad Nacional de Colombia at Medellin and has industry experience in well testing, well logging, well stimulations, base management and reservoir management at Schlumberger, Oxy, BP and Equion.

Alfredo Ramirez received a geology degree from the Universidad Nacional de Colombia in 2005. From 2005 to 2010, Ramirez worked for BP Exploration Colombia as a well site geologist, a Cusiana Barco and Guadalupe Reservoir geologist, and a Cusiana development geologist. Since 2010, he has worked on the Cusiana Subsurface Team as an operations and development geologist for Equion Energia Limited.

Carlos Mora is a petroleum engineer at Ecopetrol SA. He has 17 years experience in well productivity and reservoir engineering. He holds a B.S. degree in petroleum engineering from America University in Bogota and M.S. degree in petroleum engineering from Texas A&M University.

Johana Paola Blanco received her B.Sc. degree in geology from Universidad Nacional de Colombia in 2004. She joined Ecopetrol in 2005 as a reservoir geologist working on reservoir characterization and formation evaluation for different fields in Llanos, Piedemonte and Catatumbo basins.

Claudia Ceballos has more than 20 years of industry experience, primarily in production geology. She is currently working in the production department of ECOPETROL SA, the Colombian national oil company, assigned to the structurally complex fields of the Llanos Foothills Area. During her career she has participated in defining development plans for some of the more important fields in Colombia, as well as in reservoir characterization, formation evaluations and prospect analysis in different Colombian Basins. During the last years her work has been focused on risk reduction for well planning in structurally complex areas, using different structural models and including dynamic information.

JAMES A. HARTMAN
L. Austin Weeks Memorial Medal

The L. Austin Weeks Memorial Medal is given in recognition for extraordinary philanthropy and service directed to advance the mission of the AAPG Foundation. The 2014 recipient is Dr. James A. Hartman. Jim has been a Trustee Associate since 1992, and has been a strong supporter of university students. Hartman's most recent passion was establishing the James A. Hartman Student Chapter Leadership Summit. Because of Hartman's generosity, twelve students in leadership positions are able to attend AAPG's leadership days and benefit from networking, training and development. During the summit, attendees also collaborate with other leadership throughout the AAPG and

establish mentoring relationships. This program encourages and supports the future leaders of the petroleum geoscience community.

Hartman is a retired independent and divides his time between Des Moines, Iowa and Venice, Florida with wife, Molly. Hartman received a B.S. from Beloit College in 1951 and a Ph.D. in geology from the University of Wisconsin. His career history includes Reynolds Jamaica Mines, Union Carbide Ore Co. and Shell Oil Co.

CHARLES WEINER
Chairman's Award

The AAPG Foundation Trustees unanimously selected Charles "Chuck" Weiner as the 2014 Chairman's Award recipient. It is to be given to recognize persons who have made extraordinary contributions (monetary or service) to the AAPG Foundation, and also to call attention to the role and value of the Foundation.

Weiner is married to Anita Weiner and they reside in Houston. He has been an AAPG Foundation Trustee Associate since 1979, and has supported a variety of Foundation programs including K-12 Education, Grants-In-Aid and the General Fund. Some of his contributions were made in memory of dear friends such as Fred Dix, Jr., Paul Moore Hardwick, Jr., Merrill Haas, Bruno Hansen, Don R. Boyd and James M. Forgotson, Sr.

Weiner received a Bachelor of Arts in geology from The University of Texas at Austin in 1948. He was a founding partner of the original Texas Crude Oil Company in 1941 and assumed chief operating responsibility in 1962. Mr. Weiner is presently Chairman Emeritus.

Weiner and his brothers, through their various drilling companies, pioneered in the development of underbalanced drilling, in drilling with hydraulic drilling efficiency, completion techniques using hydraulic fracturing, and in the initial design and development of jack-up and semi submersible drilling rigs. In 1967, various Texas Crude properties and associated drilling entities were merged into The Fluor Corporation. In 1969, Charles Weiner became a member of the Board of Directors of Fluor Corporation and served in an advisory capacity in Fluor's exploration activities until his resignation in 1984. In the period 1940 through 1998, Texas Crude participated in thousands of wells, both wildcat and development, and more than 180 oil and gas discoveries in the Texas, Louisiana, New Mexico, Arkansas, Mississippi, California, Oklahoma, North Dakota, Australia and Canada. Mr. Weiner continues to be active in wildcat exploration and oil and gas development.

Weiner is a Certified Petroleum Geologist with worldwide exploration experience. He is a member of the American Geological Institute, the Society of Petroleum Engineers, the America Geophysical Union, the Geological Society of America, the American Institute of Professional Geologists and other professional organizations. Weiner also serves on the Geology Foundation Council of The University of Texas at Austin and is a member of the President's Associates.

Weiner was elected to The Permian Basin Petroleum Museum Hall of Fame in 1989. In 1998, the Gulf Coast Section of the Society of Petroleum Engineers awarded him their Legion of Honor Certificate for 50 years of membership.

In 2005, Weiner became the founder and sole owner of Westerly Exploration.

HEATHER McARDLE
Teacher of the Year Award

Mahopac High School geosciences teacher Heather McArdle from Ossining, New York has been named the 2014 AAPG Foundation's Teacher of the Year.

Heather McArdle is an award-winning geoscience teacher from Mahopac High School in Mahopac, New York. She is the author of three published geoscience lab manuals, creator of "Living the Earth Sciences" web page and has taught both high school and college aged students in fields of geoscience for more than 17 years.

A colleague at her school gave praise of her teaching methods, sharing that Ms. McArdle's students "are taken into the field, taught to research and read primary resources and to write in the scientific style, and they are introduced to real world examples of careers in the geosciences." She was described as selflessly dedicated to high standards of geoscience education both inside and beyond her classroom. In her own words, she describes herself as enthusiastic about teaching the geosciences.

McArdle is passionate about helping young students connect with earth science already at their fingertips. "Few teenagers are aware of their individual impact on society–and as consumers, their economic choices are modified with improved awareness," said McArdle. She shared that she enjoys "demonstrating what the geosciences are, what geologists do, and laying out the burgeoning job opportunities." Her inspiration encourages her students to become aware of opportunities and global concerns that they may have otherwise not considered.

Her own educational pursuits led her to earning a Bachelor of Science dual degree in geology and secondary science education from SUNY Oneonta and a Master's of Science degree with an emphasis in secondary science education from Syracuse University.