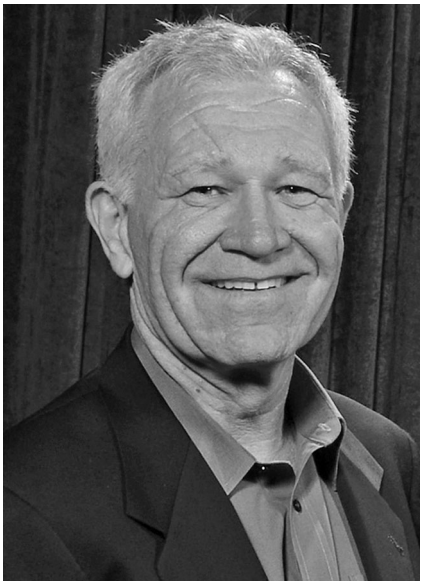
AAPG Honorees, 2015



PAUL M. "MITCH" HARRIS
Sidney Powers Award

Citation—To Dr. Paul M. "Mitch" Harris, geologist, scientific leader, researcher, mentor, teacher, and colleague—in recognition of distinguished and outstanding contributions to, and achievements in, petroleum geology. Through his long industry career, numerous publications, and passion around field schools, Mitch has positively impacted the state of our science and understanding of carbonate rocks in our industry.

AAPG's Sidney Powers Award is limited to those very few individuals who have so distinguished themselves in science, service and leadership that they honor them with this highest honor in the Association. It is altogether fitting that the AAPG bestow the Sidney Powers Award upon Dr. Paul M. "Mitch" Harris.

One cannot think about carbonate sediments and rocks without thinking about Mitch Harris. He pervades the discipline: from research to publishing to teaching to service; Mitch is a man of the rocks, and he has been so for more than three decades. If we can borrow a quote from H.H. Read "…. the best geologist is the one who has seen the most rocks." This certainly applies to Mitch and his lifelong history with carbonate sediments and rocks.

Harris received B. S. (1971) and M. S. (1973) degrees from West Virginia University, where he studied Holocene sediments and stratigraphy of marshes at Chincoteague Inlet, Virginia, under the supervision of A. C. Donaldson. He received a Ph.D. (1977) from the University of Miami, Florida, where he studied sedimentology of the Joulters Cays ooid sand shoal, Great Bahama Bank, under the supervision of the great Robert Ginsburg. Mitch recently retired as a senior research consultant and Chevron Fellow at Chevron Energy Technology Company in San Ramon, California, after a 36-year career, where he performed carbonate research, technical service projects, consulting, and training for various operating units of Chevron. Presently, Mitch is a visiting scientist and adjunct faculty at the University of Miami CSL—Center for Carbonate Research. He is also adjunct faculty at Rice University. He has been a Certified Petroleum Geologist since 1995.

Mitch began his career in the mid 1970s with Getty Oil Company in Houston, as a research associate in exploration and production research. He provided carbonate technical service and served as lab supervisor, conducting core and petrographic studies supporting development and exploration programs in the Permian Basin, US Gulf Coast, and offshore Spain.

From 1978 through 1985, Harris worked for Gulf Research & Development Company in Houston, as project geologist and senior project geologist in the Technology Center and senior project geologist in the Exploration Research Division. Mitch focused on carbonate technical service and training, expanding his geographic horizons to include the Mesozoic of the Middle East and the US Gulf Coast. It was at Gulf that he began to develop the carbonate training programs that are a hallmark of his career.

In the mid 1980s, Chevron acquired Gulf, and Mitch joined the Chevron Oil Field Research Company (now Chevron Energy Technology Company) and its divisions in San Ramon and La Habra, California, and Houston, Texas. Mitch served as a senior research geologist, senior research associate, staff research scientist, senior staff research scientist, carbonate reservoir consultant, and

most recently senior research consultant and Chevron Fellow. Mitch has performed carbonate core, petrographic, and seismic studies aiding development and exploration programs in the Permian Basin, U. S. Gulf Coast, Wyoming and Montana Thrust Belt, Alberta Basin, Middle East, Kazakhstan, Russia, Spain, India, the Philippines, and China. He has conducted research in carbonate stratigraphy, facies, diagenesis, play types, and reservoir modeling; led carbonate-training programs for his company and overseas affiliates; and headed up Chevron's Internal Technical Group on Carbonate Geology.

Harris goes out of his way to interact with students. He has lectured at numerous universities, including Rice University, the University of Houston, the University of Miami, the University of Texas at Austin and the Bureau of Economic Geology, the University of Kansas, the University of South Carolina, the Colorado School of Mines, and University of Colorado, and several California universities (Stanford, California State Fullerton, Caltech, and California at Davis and Riverside). Abroad he has lectured at Trinity College (Dublin), Free University (Amsterdam), Ain Shams University (Cairo), King Fahd University (Dhahran), and Royal Holloway (University of London). Harris has also served on many graduate committees and/or has been adjunct professor at four universities. For these efforts he was nominated to the University of Miami's Iron Arrow Honor Society, and he received West Virginia University's Alumni Recognition Award from the Department of Geology and Geography.

Mitch serves the profession broadly as a member and leader of several professional societies. For AAPG, he served on the Publication Committee; as technical program chairman for the GCAGS Convention; Advisory Board for Treatise of Petroleum Geology; Research Committee; co-chairman of the technical program for the AAPG International Meeting; and Editorial Board member for Search and Discovery. Mitch has been co-chairman of over 50 oral sessions and poster sessions at the AAPG Annual Convention and International Conference.

For SEPM Mitch has served on the Research Council; Carbonate Research Group; Continuing Education Committee; Core Data and Lending Ad Hoc Committee; New Programs Committee; Publications Committee; Research Concepts Committee; and Annual Meeting Committee. He was also vice-chairman for SEPM at an AAPG Annual Convention; served on the Headquarters and Business Committee; chair of Shepard Medal Selection Committee; and chair of the Twenhofel Medal Selection Committee. The capstone of Mitch's SEPM service was his presidency in 2010–2011.

Mitch is widely known for his outstanding leadership in workshops and seminars. He began three decades ago as convener of the SEPM Core Workshop, co-convener of the SEPM Research Symposium, Chairman of the SEPM Technical Sessions, and co-leader of the SEPM Field Trip at the 1983 AAPG/SEPM Annual Meeting. Since then he has convened or co-convened 10 core workshops, numerous short courses, and conferences; led or co-led dozens of field trips; and chaired/co-chaired dozens more technical sessions. These are always high-quality, thought-inspiring, and well-attended events that often result in a special publication. Remarkably, as recent as 2012 he was co-organizing an SEPM Research Symposium for the AAPG/SEPM Annual Meeting; a SEPM Research Conference; and an AAPG Hedberg Conference Core Workshop. In 2014, at the AAPG/SEPM Annual Meeting, he was co-awarded Best Oral Presentation Award.

Mitch has been a Distinguished Lecturer and International Distinguished Lecturer for AAPG; received the Wallace E. Pratt Memorial Award for best original article published in the *AAPG Bulletin* (1998); received the Robert H. Dott, Sr. Memorial Award, twice, for best memoirs published by AAPG (2004, 2006); and received the John W. Shelton Search and Discovery Award for best contribution to the AAPG Search and Discovery website (2009). He was awarded Honorary Membership from SEPM in 2002; received an Honorary Life Award from the Permian Basin Section of SEPM in 2011; and was awarded Honorary Membership from AAPG in 2012.

Mitch Harris is a mentor, scientific leader, teacher, and

colleague. I was truly honored when he asked me to serve as his biographer. On behalf of the AAPG, Chevron, and our profession, thank you for your lifelong commitment to advancing our science. Many generations, around the globe, have benefited, and will continue to benefit, from your tireless and unique contributions.

Paul Siegele

Response

The AAPG Sidney Powers Memorial Award is given "in recognition of distinguished and outstanding contributions to, or achievements in, petroleum geology." As such, I am truly humbled and honored by this recognition and especially to be joining a list of recipients that includes many prestigious petroleum geologists. Thank you AAPG, to those who championed my award, and to Paul Siegele and Chevron for the warm biographical comments.

Were it not for my university training and strong support from my employer, I would not be receiving this award. I would like to thank West Virginia University and especially the University of Miami (CSL—Center for Carbonate Research) for preparing me for life in the world of carbonates. My management and co-workers at Gulf, ChevronTexaco, and ultimately Chevron have been extremely supportive of my AAPG and SEPM involvement throughout my career. Thank you so very much! I gravitated to these societies as, from my perspective, they created the most opportunities for interaction between industry and academia.

One of my passions over my career, which probably more than anything has led to this award, was to organize and actively participate in publications, core workshops, short courses, conferences, and field trips that created opportunities for earth scientists from industry and academia (both professors and students) to focus on varied aspects of carbonates. Very few of these career activities were individual efforts! I cannot thank enough the long list of coworkers and colleagues that I was privileged to interact with and learn from as we worked on preparing talks, posters, and papers for various meetings and publications. I was fortunate to be very active in AAPG and SEPM, and would like to warmly acknowledge several of my colleagues for their collaboration as:

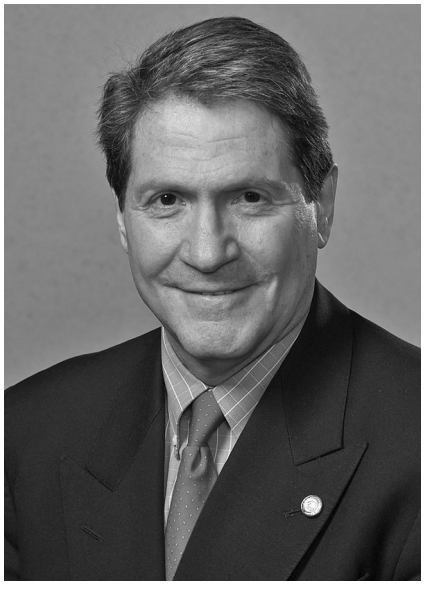
- Co-editors for Memoirs and Special Publications—Nahum Schneidermann, Don Bebout, Dave Budd, Art Saller, Toni Simo, Bill Kowalik, Brenda Kirkland, Sal Mazzullo, Rick Abegg, David Loope, Wayne Ahr, Bill Morgan, Ian Somerville, Gregor Eberli, Mike Grammer, Jim Weber, Annett George, Julie Kupecz, Rick Sarg, Ernie Mancini, Bill Parcell, Klaas Verwer, and Ted Playton.
- Co-organizers of Core Workshops—Paul Crevello, Tony Lomando, George Grover, Charlotte Schreiber, Emily Stoudt, Gregor Eberli, Mike Grammer, Jim Weber, and Bill Morgan.
- Co-presenters of Short Courses—Clyde Moore, Bill Precht, Jim Ellis, and Sam Purkis.
- Co-organizers of Research Conferences and Symposia—Nahum Schneidermann, Art Saller, Dave Budd, Ray Mitchell, Toni Simo, Peter Scholle, Lynton Land, Wayne Ahr, Bill Morgan, Ian Somerville, Robert Stanton, Ernie Mancini, and Bill Parcell.
- Co-developers for Field Trips and Guides –Stan Frost, Lloyd Pray, Toni Simo, Gregor Eberli, Mike Grammer, Don McNeil, Eduardo Cruz, Charlie Kerans, and John Grotzinger.
- Collaborators on Slide Sets and Videos—Al Hine, Conrad Neumann, Peter Scholle, Noel James, Gene Shinn, Bob Halley, George Grover, and Ray Garber.

I joined AAPG and SEPM in 1974 while I was a Ph.D. student, being attracted by the annual meetings, conferences, journals and other publications—seeing all of these as the perfect opportunity for potential scientific interaction and personal growth. Now, as I look back and reflect, I find myself still attracted for the same reasons, but realize that it was the interaction with other members that provided me with the most enjoyment and personal growth. I thrived from this interaction, whether it was gained from collaborating on papers and abstracts, editing and writing

papers for volumes, organizing and participating in technical sessions and research symposia, participating in lecture tours, or running field trips and short courses.

I close by reminding the younger members of AAPG that you are an important part of the society right now and are the future of AAPG. I hope that you find the same attractions to AAPG that I did; it will be worth your effort to stay involved with and be active in this great society. I can only hope that you find an employer as supportive as mine was, and colleagues as interesting as mine were, to make your career as fun and satisfying as mine has been.

Paul M. (Mitch) Harris



ALFREDO EDUARDO GUZMÁN
Michel T. Halbouty
Outstanding Leadership Award

Citation—A paradigm breaker through the application of good science, leadership, planning, and innovation. A natural-born leader, Alfredo has proven his capabilities not only by his contributions to the long-term success of Méxicós oil and gas industry, but to the global petroleum geoscience community.

It is with great honor and pride that we present the Michel T. Halbouty Outstanding Leadership Award to Alfredo Eduardo Guzman, Mexican geologist and petroleum industry executive. Alfredo is a highly energetic individual with the abiding drive and enthusiasm required to pursue the most complex and challenging tasks and activities. His multitasking ability has played a critical role in his being recognized by the international geoscience community as one of its most able natural leaders, not only in the Americas but across the globe.

Alfredo started working for Pemex in 1974 after having spent a couple of years at the Mexican Petroleum Institute doing carbonates research. He then went on to work for 33 years with the National Oil Company where, through hard work and dedication achieved the positions of North Region exploration manager in 1995, North Region planning and evaluation manager in 1997, vice president of exploration for all of Pemex in 1999 and vice president of the North Region in 2002, in charge of all E&P activities; having been the first geologist to reach this highest operational management level from which he retired in 2007.

Among his many contributions to Pemex, the following are the more significant to the continuous growth and development of the company:

- He implemented a new risk evaluation process for exploration that resulted in an exploration portfolio of more than 2500 opportunities, when previously it had less than 40;
- In 1994-1995 he led the integration of Pemex's first multidisciplinary high performance team resulting in an increased gas production in the Burgos Basin from 180 MMcfgd to 1,650 MMcfgd and the discovery of over 90 new pools. EUR for the basin went from 10 Tcf to 26.5 Tcf;
- Again under his leadership, the first offshore gas province in Mexico was brought on line with the discovery of the Lankahuasa field, with about 500 Bcf of reserves and initial production in March 2006 of over 100 MMcfgd;
- He implemented the rejuvenation of the onshore Veracruz gas basin, increasing its production from 150 MMcfgd to over a Bcfd. This increase came from nine newly discovered fields and when moved to the central offices he left it with an additional 250 MMcfgd at the wellhead waiting on facilities;
- He led the discovery of six new pools in the offshore Tampico and Poza Rica areas, with 300 MMb of new light oil reserves, reversing a 50-year decline in the region's oil production;
- In 2002, Alfredo initiated a development project for the Chicontepec Paleochannel, a

resource play in northern Veracruz with over 100 Bb of OOIP and 50 Tcf of OGIP.

It should be noted that Alfredo was one of the champions of modernization that made Pemex one of the most important oil companies in the world, and has maintained Mexico among the world's premier oil producing and exporting countries.

I was Alfredo's student in 1979-1980 in the Department of Geology at the University of Sonora, in northeastern México where he taught petroleum geology, organic geochemistry, and sedimentary petrology. Back in the 70s, Alfredo was a young, recent graduate from Texas Tech University on loan from Pemex to the University of Sonora. As a professor, he was very enthusiastic and energy-driven, and loved the field always giving the best of himself to encourage us to appreciate geology. His love for the geosciences was reflected by his involvement in the teaching process, and in geological fieldwork. Without a doubt, he is an amazing geoscientist. His service to academia also includes having taught at the Autonomous University of Chihuahua (1983-1984), and the Autonomous University of San Luis Potosí (1987-1989), thus, having influenced several generations of geologists, including myself, who, in many ways, have followed his professional pathway.

Alfredo's continuous activities both outside and inside Mexico are exemplified by his involvement with AAPG, where he became a member in 1969. He was general chair for the Cancún, Mexico Conference and Exhibition in 2004, president of the Latin American Region, 2003–2004, Regions vice president (International) 2009–2011, more recently technical co-chair for the International Conference and Exhibition of Cartagena, Colombia, in September 2013, and has served on several committees, particularly those that promoted AAPG's internationalization.

I have always admired Alfredo Guzman, because despite holding demanding positions of great responsibility at Pemex, he always found that "extra" time to contribute to the geosciences, as proven by the fact that he was president of the Mexican Association of Petroleum Geologists (1999–2000), and was always participating in conferences at the international forum level, and published of more than 50 papers on petroleum geology and hydrocarbon exploration. He has also given over 200 personal presentations to organizations all over the world.

Alfredo has twice been a candidate for president of the AAPG (2004 and 2014) and among the honors he has received are AAPG's DPA/SIPES Heritage of Petroleum Geologist Recognition (2002), AAPG Distinguished Service Award (2007), the AAPG Excellence Award (2008), and AAPG Emeritus Status (2014). In 2004 he was awarded the Miguel Angel Centeno Medal of the Association of Mexican Petroleum Engineers and in 1999 obtained the same association Mexican Petroleum Institute Award. He was also recognized by the Mexican Academy of Engineering (2000), and received the GCAGS Statesmanship Award (2007).

A natural-born leader, Alfredo has proven his capabilities not only by his contributions to the long-term success of Pemex, but also in academia by forming several generations of new geoscientists, and in the global petroleum industry where he has contributed to the geoscientific community in many ways.

This a very important day in my life, because I have the opportunity to honor one of the geologists who has made very significant contributions to the petroleum geology and exploration of Mexico. I am delighted to present the Michel T. Halbouty Outstanding Leadership Award to Alfredo Eduardo Guzman.

Claudio Bartolini

Response

I want to thank AAPG for 45 years of supporting my professional needs, the Executive Committee and the Advisory Council for considering me for this prestigious award and my wife, Kitty, and daughters for having put up with a life of itinerancy.

To be presented with the Michel T. Halbouty Award for Outstanding Leadership is an honor that humbles me as it puts my name in a list with some of the most prominent and influential petroleum geologists of our time. I read the list of the names of the

people that have received this recognition and its predecessor award, albeit known by a different name, and I find names that are much more than just that, they are icons in the application of the earth sciences to the search and extraction of the energy that has furthered mankind in the last 100 years.

When I wrote these lines I was tempted to name some of these outstanding leaders but I feared that if I didn't mention all of them I would be doing a great disfavor to those I was leaving out and naming all of them would make me feel still more undeserving of the award.

Nevertheless it is a great feeling to be recognized with such an important award when all I was doing was just what I thought was right and/or necessary. For me it was a natural thing and just part of my job to search for excellence, to push my colleagues to join not only AAPG but as many professional groups as they could, to learn the English language so that they could interact with other international professionals, to apply the best technology and concepts to their problems, and read journals and bulletins and find those answers, to envision a future where everything could be possible like the participation of third parties in México's upstream sector and to work towards making AAPG a truly international organization.

A colleague and I used to say that when somebody said that something could not be done it was precisely because it could be done. It was that challenge of finding an answer for things that apparently were not possible that drove me through my professional endeavors.

I'm one of the lucky ones to have met and known Mike Halbouty well as he invited me to be a director for Mexico at the Circum Pacific Council for Energy and Minerals Resources. I still remember him well presiding a meeting in Honolulu in his early nineties with the energy and enthusiasm that you would expect from a person half his age, and I also remember after having read his biography, *The Wildcatter* by Jack Donohue, as well as his many notes and articles, the influence his philosophy had on me and in my career. That is the kind of leadership that Mike Halbouty inspired and that led me to become the kind of professional I turned out to be.

Alfredo Eduardo Guzmán

ABDULRAHMAN ALSHARAHAN
Honorary Member Award

Citation—To Abdulrahman Alsharhan, a remarkable geologist and one of the most knowledgeable and prolific publishers on the geology of the Middle East, in recognition of his outstanding contribution to the profession of petroleum geology in the Middle East and for his dedicated service to AAPG professional affairs through volunteerism on committees and as past AAPG Middle East Region president, his outstanding efforts to promote AAPG in universities and industry in the region.

Abdulrahman was born in the United Arab Emirates on September 15, 1954 and it was from here, he received his primary and secondary school education. He attended Cairo University and received a B.Sc. in geology in 1978. Following graduation, he was employed by the Ministry of Petroleum in Abu Dhabi, and resumed his studies for M.Sc. and Ph.D., which he received in 1983 and 1985 from the University of South Carolina. In 1986, he moved into academia and joined United Arab Emirates University where he shared his gift of imparting knowledge, firstly as an assistant professor (1986-1990) teaching sedimentology and petroleum geology to undergraduate and graduate students, then as associate professor (1990-1995), and was promoted to professor in 1995, becoming the first UAE national to hold this title and where he built his reputation for teaching, research, administration and consultancy.

During his 35-year tenure, Abdulrahman took key positions such as director of Desert and Marine Environment Research

Center, assistant deputy vice chancellor for Academic Affairs and dean of the Faculty of Science. Under his directorship, the center and the college grew rapidly in size and program content, while maintaining its traditional reputation for excellence. It was during this period, that Abdulrahman's research took off and he was known for his perception, judgment, and skills in projects related to the regional stratigraphy of the Middle East as related to the development and exploration for hydrocarbons using conceptual sedimentary stratigraphic model. His geologic interests broadened from his experience in coordinating special research projects of interest to the oil industry.

Abdulrahman's outstanding publications have provided a cachet few can match. He has more than 100 peer-reviewed publications and 120 abstracts on petroleum geology of the Middle East, many of them in *AAPG Bulletin*, special publications, and memoirs. He was a Reviewer for AAPG, *Marine and Petroleum Geology*, *Middle East Geosciences Journal*, and *Journal of Petroleum Geology*. He has a wide reputation as an authority/lecturer in Petroleum Geology of the Middle East and recent and ancient carbonates. He has published eight books of outstanding reference related to petroleum geology, hydrogeology and environment of the Middle East, one of which requires special mention:

A.S. Alsharhan and A.E.M. Naim (1997) "*Sedimentary Basin and Petroleum Geology of the Middle East*" published by Elsevier, contains the most comprehensive discussion on the petroleum systems, stratigraphy and paleogeography of the Middle East. It is used by many universities such as Kuwait University, United Arab Emirates University, and American University Beirut. Reviewers' comments are as follows: "A monumental book that contains a large and impressive compilation of all the stratigraphic data of the Middle East" (M.P. Searle); "A comprehensive volume that appeals to those interested in the geology of the Middle East in industry and academia" (Australian Mineral Foundation); "An essential reference book" (A.M. Ziegler).

As a much respected carbonates specialist who served on Advisory Council and country representative for International Association of Sedimentology, Abdulrahman conceived, proposed, organized, and co-lead along with Robert Scott of The University of Tulsa, the 1997 International Conference on Jurassic/Cretaceous Carbonate Platform-Basins Systems. This conference was jointly sponsored by the United Arab Emirates University and SEPM in Al Ain, United Arab Emirates. The conference was attended by 125 geoscientists from four continents. The conference proceedings were published by SEPM as Special Publication No. 69 in 2000.

Abdulrahman's involvement with AAPG began in 1981. As a university professor, he helped to bring many new students and young professionals to the organization. He became a member of the Advisory Council from 2007-2009 and member of House of Delegates, 2009-2010, culminating in president of AAPG Middle East Region from 2011-2013. In these roles, he has enthusiastically and respectfully represented and promoted the Association and the profession in general, wisely making use of opportunities to do so. He has served on many organizing committees of Middle East Conferences including GEO-94, GEO-2014, ADIPEC Abu Dhabi, SPE-MEOS, IPTC, etc.

Abdulrahman retired recently from academia and there is no doubt that he has distinguished himself as a much respected consultant on petroleum geology and petroleum systems of the Middle East for various organizations (regional and international). During his tenure, he held a number of business leadership positions on committees within UAE dealing with social and environmental issues, such as chairman of Ras Alkhaimah Cement Co., chairman of International Center for Biosaline Agriculture, Board of Trustees at American University of Ras Alkhaimah and Ajman University for Science and Technology and general secretary for Emirates Appreciation Prize for The Environment. Abdulrahman received the highest award in environmental research studies from the President of the United Arab Emirates, and also received the Personality Environment Award from the Gulf Cooperation Council (GCC) in Saudi Arabia.

Robert Scott, research associate at The University of Tulsa, had this

to say: "Dr. Alsharhan and I have remained in contact as his geoscience career has evolved. He has been a leader not only in the Gulf Region but among his colleagues in North America. He attends the annual meetings of AAPG and presents important scientific results. He regularly promotes the hydrocarbon potential of Arabian basins. For example, his 2005 AAPG presentations on the Mesopotamian Basin in Iraq and the Paleozoic system in the northern Arabian Platform were technically excellent and generated great interest in new exploration concepts."

Christopher Kendall, Distinguished Professor Emeritus at University of South Carolina, made the following comments: "Dr. Abdulrahman Alsharhan's professional interest in problem solving and the skilled way he practices his discipline as a sedimentary stratigrapher stand out. He is immersed in the application sedimentary stratigraphy to reservoir characterization and exploration. His clear articulation of the interface between the complexity of geological earth systems and hydrocarbon production are his métier. It endears him to his colleagues and those who are less familiar with these problems. He applies his skills to find innovative solutions in cooperation with other domain experts. His contributions to the hydrocarbon industry on practical methods and application of sedimentary modeling speak to his ability to identify and work with world experts with expertise other than his own. Being familiar myself with Middle Eastern Sedimentary stratigraphy, Dr. Alsharhan and his impressive and distinctive empirical approach to sedimentology embody his spirit. It exemplifies his ability to simply and intuitively present a complex package of intricate and complicated geologic models. Dr. Alsharhan uses language professional geoscientists understand, combining his own expertise with that of others who provide the depth and breadth required to supplement his own. He is a distinguished petroleum geoscientist for his prolific publications on Middle East geology and contributions and service to AAPG. In fact today, he stands out as the most published geoscientist in the region. He possesses the ideal personality of a true scientist characterized by his humble attitude and passion for the science."

Abdulrahman Alsharhan has put into practice, the goals and ethics of AAPG. The promotion to Honorary Membership not only will present the Association with an excellent role model for younger geologists, but will also honor the man himself and his contributions to the science of petroleum geology. Abdulrahman Alsharhan is not only the ideal earth scientist, but is a generous human being who is focused on passing on his skills and knowledge to those around him.

Said Al Hajri

Response

I am profoundly honored to be named an Honorary Member of AAPG and this is something I will always cherish. In looking over the roster of individuals who have previously received this award, I am proud to be included among them. I accepted with gratitude and express my sincere thanks to the Awards Committee, to the association and to the members of AAPG. I particularly want to thank my longtime friend Said Al Hajri (Saudi Aramco) who as my biographer was overly generous in his comments.

I was born on September 15, 1954, in United Arab Emirates. I grew up eager to learn more of the earth, especially about nature, mountains and deserts, which brought me close to its wonders. I believe that all people know what the earth contains, but few are curious enough to develop a deeper understanding or observe how the earth has evolved.

I received my first degree in geology in 1978 from Cairo University and started my career as geologist with the Ministry of Petroleum and Mineral Resources in Abu Dhabi. In 1980 I was awarded a scholarship from United Arab Emirates University then I moved to the United States for graduate studies at the University of South Carolina (1981-1985), and gained both master's and Ph.D. degrees. From 1986-2011 I worked at the United Arab Emirates University as a professor, director of the Desert and Marine Research Centre and dean of the Faculty of Science.

Outside the University I have held many positions including chairman of the Ras Al Khaimah

Cement Company, the General Secretary of the Emirates Appreciation Prize for the Environment, and chairman of the International Centre for Biosaline Agriculture (ICBA), Dubai.

My research interests have concentrated on the petroleum geology of the Middle East; water resources and the integrated management, and climatic changes and desertification of the Gulf Region. I have published over 100 scientific papers in refereed international journals and 8 books on earth science subjects and over 120 abstracts which was presented at international conferences and meetings. I was the first UAE national promoted to professor, based on my academic teaching and administration, research and participation, organizing or chairing sessions in regional and international meetings. I also have served as a reviewer for international scientific journals including AAPG, and have been a member of advisory board for the *Journal of African Earth Sciences*, the International Association of Sedimentology, the *Arabian Journal of Geosciences*, and Middle East Petroleum Geosciences (GeoArabia).

I joined AAPG in 1981 when I was a graduate student at the University of South Carolina, and published my first paper in the *Bulletin* (as single author). Over these years I found that AAPG provided me with a great means to interact with and reduce the gap between industry and university. I have learned many skills and gained in experience through AAPG publications, conferences, continuing education opportunities, field trips, and networking during meetings. AAPG has given me the opportunity to develop and meet a large number of friends around the world, while maintaining contact with them and with my future professional activities. I have enjoyed all these professional interactions with all the geoscientists in the region. I have had in my long administrative and academic career had the opportunity to serve as president of Middle East Region for the AAPG (2011-2013). This caps my 35-year career with experience in oil industry and academia.

The success that I have achieved over the years has been due to being fortunate enough to have rubbed shoulders with some of the great academicians and researchers and to have been able to study under them, namely the late Alan Nairn and Christopher Kendall (University of South Carolina). I came under the influence of them and they played the major role in the molding of my geologic career and, like so many others; I had tremendous admiration for their ability and guidance.

I have been encouraged and helped toward a successful career by people and institutions and I have dedicated an important part of my career to assisting my students, colleagues, scientific organizations and professional societies. Therefore education, research, and administration have been the main theme of my career, whether in academia or professional activities.

The opportunity to attend conferences and give lectures in many parts of the world has taught me about the universal nature of earth science and the inherent good qualities of people who practice this profession and share common bonds of friendship and of scientific cooperation.

Geology is a continuing wonder to me and I am as fascinated by it today walking on the coastal areas of Abu Dhabi and studying recent carbonates and evaporites with Chris Kendall and applying this understanding to the subsurface reservoirs of the Middle East, as I did years ago, becoming a university professor. This has allowed me to expand my interests not only in petroleum geology but also in hydrogeology and the environment not that this has made me proficient but that it has captured my imagination.

Throughout the years I have had the opportunity to get to know, to work with and to learn from literally many bright and considerate people from different cultures and societies, and I am the product of that process and reflect on my career, which has been wonderful and exciting. The friendships evolving throughout these years have greatly enriched our lives.

My recent years have been devoted to writing books related to Middle East oil, but also they have been spent primarily in governmental, industry, environmental, and regulatory affairs.

My sincere thanks are owed to the many geologists who have worked with me at the university or allowed me to collaborate with them internationally. For years because of the nature of my job

and positions that have involved many absences from home, and I thank my dear and good wife, Mona, who shared with me the best of our life in the United States in the early 80s, when I was doing my M.Sc. and Ph.D. degrees and she was still working towards her first degree at the University of South Carolina. She supported my career in every possible way, and her tolerance of my activities is a debt that I can never repay.

Abdulrahman S. Alsharhan

WILLIAM J. BARRETT
Honorary Member Award

Citation—To Bill Barrett—as an explorationist, entrepreneur, and friend, your colleagues honor your contributions to geology, AAPG and business, and for providing a legacy for generations of geologists to follow.

Lauded as the AAPG Outstanding Explorer of the Year, with the AAPG Foundation Michel T. Halbouty Lecture Award, the AAPG Foundation L. Austin Weeks Memorial Award, the Rocky Mountain Association of Geologists Outstanding Explorer Award, the Independent Petroleum Association of Mountain States (now Western Energy Alliance) Wildcatter of the Year Award, awarded an Honorary Doctorate of Engineering from the Colorado School of Mines with induction into the Western Energy Alliance Hall of Fame, William Jay "Bill" Barrett has enjoyed a career of nearly 60 years, illustrious by any measure.

Born and raised in Kansas, Bill's early adulthood included two years in the Army in Fort Hood, Texas after getting drafted during the Korean War, but the GI Bill provided the means for earning his B.S. and M.S. degrees in geology from Kansas State University. With that he heeded Horace Greeley's advice, moving wife, Louise, and their family to Salt Lake City in 1958 to work as a stratigrapher in El Paso Natural Gas' Research Lab.

El Paso hooked the young geologist on exploration almost immediately through its dual discoveries: the 100+ BCF Desert Springs Gas Field followed by the giant Patrick Draw oil field, both in Wyoming's Red Desert Basin. A transfer to Farmington, New Mexico whetted his appetite further with his front row seat to drilling and development of the giant San Juan Basin Mesaverde/Dakota Basin Centered gas field.

The year 1962 saw a new job as an exploration geologist with Pan American/Amoco in Casper, Wyoming. Deemed "management material" by Amoco, Bill was to be sent to New Orleans for more training. He demurred, taking instead the chief geologist's job with Denver independent Wolf Exploration (later INEXCO) in 1966. Colorado was Bill's fourth Rocky Mountain state address in just a few short years, but the Centennial State has been home for him, Louise, and family of seven the last 50 years.

Wolf's on-the-job training meant exposure to not only exploration but to the land, legal, and financial components of oil and gas. When Wolf bought a small oil and gas company called Preston Oil, they put in some oil and gas properties and took the entity public at $0.06 a share. The public company, INEXCO, was later acquired for over $20 a share, in large part, on the strength of Bill's first two major Rockies discoveries: the 200 + MM BOE Hilight Field in the Powder River Basin and the multi-TCF Madden gas field in Wyoming's Wind River Basin.

Flush with success, Wolf moved to Houston. Bill stayed in Colorado, where he and three other principals formed Rainbow Resources with $250,000 from a 50 cents a share IPO in 1969.

The Rainbow team believed an odd-looking seismic anomaly in the Williston Basin, known for its predictable layer cake geology, justified another test well. With lease position established, the prospect was sold to True Oil Company of Casper, Wyoming. Rainbow received cash, a carried 25% WI and an ORR. The log on the discovery well encountered

2700 ft of potential oil pay in the Madison, creating a huge amount of excitement, expectations and speculation. Initially thought to be a pinnacle reef, the trap for the Red Wing Creek Field was actually an Astro Blehm, an ancient meteorite crater that trapped approximately 60 million BBL of recoverable oil. This was truly an unconventional discovery.

In less than a decade, Rainbow's 50 cent shares were worth $19 when Rainbow was sold to the Williams Companies in 1978. A three year noncompete gave Bill time to form Barrett Energy in 1981; it was renamed Barrett Resources when it went public in 1983.

In the late 90s Barrett Resources became 50/50 partners with Western Gas in an unconventional coal bed methane prospect (CBM) in Wyoming's Powder River Basin. With over one million acres, the two were the largest CBM players in the Rockies, netting each company over 2 TCF of reserves. As operator, Barrett Resources helped pioneer the technologic advancement of CBM production.

However, it was in Colorado where Barrett Resources became the country's best performing oil and gas company throughout the decade of the 1990s as measured by growth in shareholder value.

In the late 70s-early 80s, Barrett Resources acquired nearly 45,000 acres in the Wattenberg field of Colorado, drilling and completing over 200 straight successful "J sandstone" gas wells using massive fracturing technology, and in the process discovered the potential existing in the Upper Cretaceous Codell/Niobrara, presaging today's giant horizontal Niobrara shale play.

In 1982 Bill took his experience with the latest massive fracturing technology to the Piceance Basin of Western Colorado, where Barrett Resources completed wells with big, multiple fracs, becoming the first to establish commercial production from the Williams Fork tight gas sandstones there, a feat that even the detonation of nuclear devices previously failed to accomplish. Barrett Resources ended up with a 100% WI in over 130,000 net oil and gas leases, discovered the multi TCF Parachute and Grand Valley Gas Fields, acquired and developed the multi TCF Rulison Gas Field, developed over 1.2 trillion cu ft of proven gas reserves and added an additional 3 TCF of high quality probable/possible reserves.

When Williams acquired Barrett Resources in 2001, the $2.8 billion transaction created a lot of happy Barrett Resources shareholders. It was a long and rewarding 20 years growing from 38 cents a share in 1981 to $73.32 a share in 2001.

Restlessness and opportunity brought Bill out of retirement not once, but twice, the second time when he helped sons Fred and Terry form Bill Barrett Corporation in 2002. After taking yet another company public and creating a billion dollar entity, a third time attempt at retirement appears to have finally taken hold.

Aside from building companies, creating jobs and wealth, and raising a family, Bill has been an AAPG member since 1961. His support of AAPG has been unflagging as a Trustee Associates Member, as a team leader on the Foundation Financial Campaign Committee, Foundation Trustee Member of the Corporation, Legacy Society and a Trustee Emeritus.

James (Jim) Felton

Response

I was surprised but pleased and deeply honored to receive the AAPG Honorary Member Award. I am not sure how I was so fortunate to be selected for this honor among such a large number of worthy individuals but I humbly accept the honor. I wish to thank each person responsible for selecting me for this award.

I want to also thank my life's partner and spouse for over 64 years, without whom none of my success would have been possible. Louise has encouraged and fully supported me throughout my career, and has blessed me with 7 children, 16 grandchildren and 2 great-grandchildren. After all of our children grew up and left home, Louise worked by my side in business for over 15 years. She is the joy of my life.

My Mother and Father, both deceased, had a profound impact on both my life and any success that I was fortunate to have along the way. My Mother was first and foremost a mother, housewife, business women, and in her early years a grade-school teacher. She strongly believed in education and made certain that all of her 10 children understood the importance of education in their

lives and that each of her children received an education. My Father was a farmer and believed in a strong work ethic which he instilled in his children. Those two traits of education and work ethic has served not only me but all of their children very well.

In 1958 I received a B.S. and an M.S. in geology from Kansas State University, accepted a job with El Paso Natural Gas Company as a research geologist in their lab in Salt lake City Utah, loaded up Louise and our five small children in our five-passenger Chevrolet sedan and moved to Salt Lake City, Utah, where I started a 58-year career in the oil and gas industry. At the time I did not realize how lucky I was to have become part of the oil and gas industry's family. I was a very lucky person. I have had a very large number of mentors, a great group of colleagues to work with and have made a large number of lifelong friends during my career. There are so many individuals to thank I could not possibly list all of them. Any success that I have had is directly due to these wonderful people. I could not have entered a better profession.

I have been a member of the AAPG for over 50 years. I have also been a member of the Rocky Mountain Association of Petroleum Geologists, the Utah Geologic Association, and the Wyoming Geologic Association. I have received so much more from these organizations than I have given. During my career I have fully utilized the vast benefits that these organizations have offered its members including the publications, special reports and presentations, distinguished lectures series, the annual and local meetings, the many educational courses and field trips, and, of course the social networking and camaraderie.

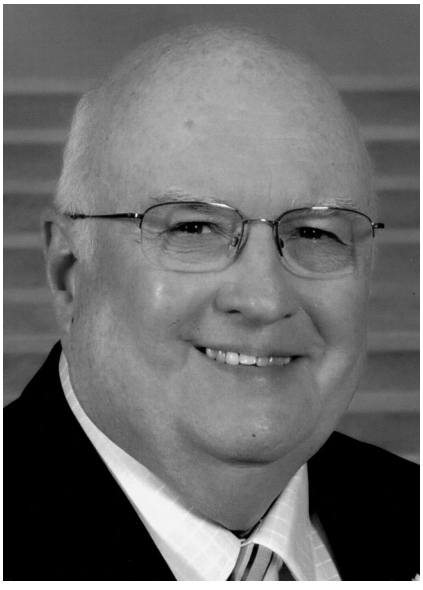
I spent the vast majority of my career working as an exploration geologist then later as a CEO/ chairman/founder of several successful public/NYSE oil and Gas Companies. My first love was and still is oil and gas exploration. I was fortunate enough to be successful in helping discover several significant oil and gas fields during my career thanks to my knowledge of geology and a lot of smart people, I was fortunate to be associated with. In 1989 I received the Rocky Mountain Association of Geologist Outstanding Explorer Award, in 2003 the AAPG Norman H. Foster Outstanding Explorer Award, in 1993 the Independent Petroleum Association of Mountain States Wildcatter of the Year Award and in 2004 was inducted into the Western Energy Alliance Rocky Mountain Hall of Fame. Like the AAPG Honorary Member Award, this recognition is very special to me because these are awards given to me by my peers.

Although an AAPG member and monetarily supporting the various industry organizations during my career, my work, and my family took most of my time. Over the years I have had a great appreciation for the many individuals who have given so much of their time, effort, and leadership to making these organizations run smoothly and efficiently for the benefit of its members. It has been only during the last 15-20 years that I have had the opportunity to give back some of my time to my profession. On 6/19/2002 I became a Trustee Associates Member. On 7/001/2006 I became an AAPG Foundation Trustee participating as Rocky Mountain Team Leader in the Foundation's successful five-year fund-raising effort "Meeting Challenges—Assuring Success." The hard work and dedication of our team raised over $35 million, an amount that should go a long way toward assuring the viability of AAPG well into the future.

As a Trustee I enjoyed working under the tutelage of Trustee Chairman Bill Fisher and fund raising co-chairman Jack Threet and Larry Funkhouser and Executive Director Rick Fritz. These individuals along with the AAPG permanent staff members and the other team leaders did a remarkable job. The other team leaders included John Amoruso, Bob Ardell, Bill Crain, Marlan Downey, Jim Gibbs, Bill Gibson, Michael Party, Ed Picou Jr. and Marta S. Weeks-Wulf. I learned so much from working with this team, but best of all, I was able to become acquainted with and establish lifelong friendships with these special people. The AAPG owes these individuals a large debt of gratitude for their service. Unfortunately, I regret that time and space doesn't permit me to acknowledge so many others deserving recognition and thanks for their contributions. In closing I want to again say "Thank You" for this special Honor. I wish AAPG's

continued success and hope America's geology professionals receive the gratitude from our country they so richly deserve.

William J. Barrett



WALLACE G. DOW
Honorary Member Award

Citation—Wallace G. Dow, father of the petroleum system concept, scientist, teacher, mentor, and entrepreneur. A true leader in the field and application of organic geochemistry.

Modern geochemistry and the term "petroleum system" are in the forefront of exploration for new sources of petroleum largely due to Wallace (Wally) G. Dow. Wally is the father of the concept of the petroleum system (originally "oil system"). Dow's intuitive, scientific and practical approach to the search for oil and gas has provided oil exploration companies with a systematic approach to evaluation and assessment of petroleum resources.

Wally began his career by studying geology at The State University of New Jersey, Rutgers University, from 1955 to 1959 where he earned his bachelor's degree. He continued his education by pursuing a master's degree at the University of North Dakota in geology, which he completed in 1964. An important part of the journey through the M.S. program was meeting his future bride, Marlys, who also played a major role in Wally's entrepreneurial efforts in the 1980s-1990s. In August 2015 they will celebrate their golden anniversary. They have two sons and five grandchildren.

After a three-year stint in the U.S. Army, Wally's early profession career was spent with Amoco Production Company and Amoco Research Company in Tulsa. The Amoco connection was special for Dow as it connected him with exploration geochemistry, chemistry and lab analyses, and colleagues such as Jack Williams, Bob Thompson, John Winters, and many others. While at Amoco, Wally and his colleague, Jack Williams, effectively launched the petroleum system approach in the Williston Basin. Dow's 1974 seminal publication on the oil systems of the Williston Basin is the foundation for the petroleum systems approach in exploration today.

Wally continued his education pursuing his Ph.D. at The University of Tulsa. However, in the midst of this pursuit, he was offered a position at The Superior Oil Company in Houston where he established a geochemical laboratory. There he met many of his long term colleagues such as Dolores O'Connor and John Allen, both of whom worked with Wally later in their joint professional journeys. Wally moved to Getty Oil after Superior, but an offer from Robertson Research as vice president extracted him from Getty. However, one of the 1980s business downturns resulted in Robertson closing their Houston laboratory and Wally set out on his own establishing his own geochemical laboratory, Dow Geochemical Services, later changing the name to DGSI.

Running his own business from 1984 to 2000 was a difficult assignment for anyone in the petroleum sector including Wally, his family, and colleagues. However, the business succeeded on the strength of Dow's energy, perseverance, and financial contributions. While many geochemical laboratories were data factories for oil companies, DGSI succeeded on the strength of Dow's ability to provide data with an integrated interpretive report that assisted the success of clients in assessment of conventional and unconventional plays.

After selling DGSI in 2000, Wally became an independent consultant for several years. In 2006 he joined EOG Resources as chief geochemist, where he assisted in identifying the best areas for oil production in the Eagle Ford Shale play. After leaving EOG in 2011, Wally became chief geochemist with Cimarex and he and Marlys returned to Tulsa.

Working with Wally over the years, it was obvious that his innovative and technical skills were always advancing as shown by his willingness to try new ideas and concepts. His company, DGSI, was the first to transmit geochemical data electronically. Also, while capillary chromatography had gained popularity, it was not widely used in the petroleum industry including at major oil companies and Wally's DGSI offered very high resolution whole oil analysis in 1984. Further to his credit, DGSI was also one of the first companies to demonstrate use of one-dimensional basin modeling to assess petroleum prospects. A paper given in 1987 at the AAPG Annual Convention featured Arif Yukler's basin modeling work with DGSI's kinetic analysis. DGSI was also first service company to have the Rock-Eval 6 and an internet website.

Wally was always willing to share his knowledge with others, but he expected such students to work at understanding the basis for such concepts that he related to them. He would provide references for colleagues or students to read and later sit down and discuss what they learned and thought. I consider Wally my mentor in organic geochemistry providing the foundation on which to build a career in the field.

Perhaps one of the key contributions of Wally's career was joining Les Magoon of the US Geological Survey as a co-editor and joint instigator of AAPG Memoir 60, *The Petroleum System—From Source to Trap*, which was published in 1994. This is one of the most popular books ever published by the AAPG. In fact this publication won the editors AAPG's Robert H. Dott Memorial Award for the best special publication dealing with geology.

Although Dow's work on petroleum systems is a well-known association, he has published numerous papers and given innumerable presentations and courses. His oil and gas generation bubble chart featuring oil and gas windows with thermal maturity measurements is widely utilized. In addition Wally and his good friend and colleague, Prasanta Mukhopdyay (Muki), were co-editors of a 1994 ACS Symposium Series book titled *Vitrinite Reflectance as a Maturity Parameter: Applications and Limitations*.

Wally has also received numerous awards and honors such as the Arthur Gray Leonard Medal from the University of North Dakota for outstanding achievement in the geosciences. He has been recognized with a variety of awards from groups in North and South America. Wally is a long time and emeritus member of AAPG as well as an AAPG Charles Taylor Fellow. He is also a member and active participant in the Society for Organic Petrography (TSOP), the European Association of Organic Geochemists (EAOG), the Latin American Association of Organic Geochemists (ALAGO), and Sigma Xi.

In 2014 a session was organized at the AAPG ACE deservedly honored Wally Dow for his 50 years of service in the field of organic geochemistry.

Wallace G. Dow, the father of the petroleum system concept—a true leader and innovator in the field of organic geochemistry.

Daniel M. Jarvie

Response

Wow! That was unexpected! The phone call and letter from AAPG President Randi Martinsen notifying me that I had been selected to receive the 2015 Honorary Member Award was a total surprise. I am truly humbled to be so recognized and grateful to the person who nominated me, the Executive Committee and the Advisory Council for honoring my 50-year petroleum industry career in this way.

I liked chemistry in high school and began my college career at Rutgers University majoring in chemistry. When my chemistry lab partner, Larry Balthaser told me he was going to talk to the Geology Department, I went with him, liked what I saw, changed majors on the spot, and graduated in 1959 with a B.A. in geology. The ROTC got me into the Army Artillery for three years and I was discharged just before Vietnam due to extra time served because of the Bay of Pigs in Cuba and the Berlin Crisis of 1961. I was prepared to go to geology graduate school at Michigan State University when a last minute telegram from Wilson Laird at the University of North Dakota offered me free tuition and fees plus $1,800.00 per year for teaching labs and a summer job at

the Geological Survey to work on my thesis. I went to UND where my mentor, Dr. Walt Moore, introduced me to the wonders of petroleum geology and my career direction was set. I graduated in 1964 with an M.S. in geology and a year later married one of my lab students, Marlys Olson, who typed my master's thesis the old fashioned way on a portable typewriter making seven onionskin copies.

My first job was with Pan American Petroleum Corp. (later Amoco) in Casper, Wyoming and a year later in Denver, Colorado where I sat wells, did field work, and colored land maps by hand. In several years of well site work, I collected hundreds of oil samples for the new Geochemistry Group at the Research Lab in Tulsa. When I asked what they were doing with them, Jim Momper transferred me to Tulsa in 1969 to help figure out what all the new analytical data meant. One of my first projects was with chemist Jack Williams on the Williston Basin. We got to present our findings at the 1972 AAPG ACE in Denver and publish it in the 1974 *AAPG Bulletin* because management could see no practical value to our oil systems concept. The Denver presentation got me a job at The Superior Oil Company in Houston, Texas in 1972. I left Amoco because VP Don Mathews had just installed a reflecting light microscope and I immediately recognized vitrinite reflectance to be the kerogen maturity missing link that geochemists needed so badly. A management change in 1977 drove me off to a brief stint at Getty Oil Research in Houston before joining Robertson Research in Houston in 1978 to build their geochemistry lab. Robertson closed the Houston office at the beginning of the 1984 recession and moved back to the U.K., leaving most of us looking for work.

There were few jobs to be had, so we got some of the Robertson folks together, pooled our money, hired Dan Jarvie, and started Dow Geochemical Services (later DGSI because the Dow Chemical Company claimed the use of my name was unfair competition!). After 16 years surviving the worst of times in the petroleum industry, we sold out to Baseline Resolution in 2000 with the notion of retiring. Some of our best clients insisted I continue to interpret their geochemical data, so I did consulting work for six years before Loren Leiker hired me to be chief geochemist at EOG Resources in Houston. Five years later I retired again but was immediately talked into joining Cimarex in Tulsa by Tom Jorden where I worked for almost three and a half years until retiring for the third (and final) time on August 1, 2014 on my 50th work anniversary date.

At an Amoco Research performance review in 1972, I was told that I had no future with the company unless I got out of geochemistry, a discipline management hadn't yet come to accept. I had to decide whether I wanted to climb the corporate ladder as a geologist or do something that I really enjoyed. The poet Robert Frost wrote in The Road Less Traveled: "Two roads divided in a wood and I, I took the one less traveled by and that has made all the difference." I chose the road less traveled (geochemistry) and was fortunate that it was a small discipline in the early developmental stages where I could meet most of the geochemists around the world and make some important contributions of my own. Seminal papers include the Williston Basin Oil Systems with Jack Williams in 1972 which later developed into the Petroleum System Concept with Les Magoon in 1994, and the 1977 Kerogen Studies paper in the Journal of Geochemical Exploration detailing my Superior Oil Company work on vitrinite reflectance.

My philosophy has always been to find something you enjoy doing, work hard at it, and don't be afraid to take chances like changing employers or work locations when opportunities present themselves. Build your reputation by attending and presenting at conferences, publishing as many ideas as you can get your employer to release, communicating with others in your field, and giving back by volunteering and mentoring others (I taught geochemical courses and edited a lot of professional books and papers). And when you encounter potholes along the way, go around them because greater rewards always present themselves further on down the road.

Finally, I would like to thank the Amoco executive who saw no value in petroleum systems and set me on my road less traveled which truly has made all the difference; all the wonderful, talented people I encountered and learned from

along the way; and the AAPG for the forum in which to meet these people, to present my ideas, and especially for this high recognition at the end of my career. It's been a wonderful and rewarding journey.

Wallace G. Dow

DAVID H. HAWK
Honorary Member Award

Citation—A dreamer, who has, with his wit, charm, and enthusiasm, combined with his natural leadership abilities to distinguish himself among AAPG visionaries of our industry.

David H. Hawk has been an active member of AAPG since 1969. His wit, leadership, foresight and dedication to AAPG is worthy of honorary membership. He is a brilliant communicator with a natural charm that helped him forge needed change in AAPG for the future. Once David sets his sights on a goal, he masterfully finds a way to complete the task through dedication and passion. His humor gets people's attention, but his intellect helps him build consciences so everyone involved feels like they are contributing to the greater good.

David is well known for his work in the House of Delegates (HoD), where he has served since 1984. He has worked on most of the HoD committees as both a member and chair. He served as chair of the House in 2010-2011. In 2013, he received the Honorary Member of the House Award. He has also received both the House Recognition of Service Award and House Long Service Award.

He has been a delegate from the Idaho Association of Professional Geologists from 1984-1994 and from 1997 to the present. He served on the HoD Constitution and Bylaws Committee from 2004-2007, was vice-chairman from 2004 to 2005 and chairman from 2005 to 2007. David served on the HoD Honors and Awards Committee, HoD Resolutions Committee and the HoD Credentials Committee.

David has been very active on the Membership Committee for many years, helping to shape how AAPG attracts new members and supports our diverse membership. David is especially keen on attracting and involving our young professionals and students. He is a man that "walks the talk," when it comes to mentoring and inspiring younger geoscientists to excel in their professions. I am one of many who were fortunate to have benefited from David's guidance, from my first summer job through the last 35 years in this business.

David Hawk, an Idaho Registered Professional Geologist, earned a B.S. in geology from the University of Idaho in 1967 and an M.S. in geology from the University of Oklahoma in 1970. He started his professional career as an exploration geologist with Atlantic Richfield in Dallas and Lafayette (1970-1972). Soon he moved to Tenneco in Denver (1972-1973). From 1973 to 1980, David worked for IGC Production Company in Boise as the vice president, general manager. After a short stint (1981-1983) as senior vice president of exploration and production at Horn Resources Corporation, David became the Director, Natural Resources at J. R. Simplot Company in Boise where he worked from 1984 to 2007, when he retired. It was at J. R. Simplot, the potato company, where David found a new meaning for the term "spudding-in." For Mr. Simplot, David was the chairman of the board for Remington Oil and Gas Company for five years. His retirement didn't last long, from 2007 to the present David has worked as a consultant for Energy Analysis & Answers. David has spent most of his career supporting the geological profession and energy industry. He has been a member of the Lafayette Geological Society (1971-1972), the Rocky Mountain Association of Geologists (1973 to present) and president, Southwest Area Chair and member of the Idaho Association of Professional Geologists (1974 to present). Of significant note, David chaired the 1987 Rocky Mountain Section (RMS) annual meeting. He served

as RMS secretary/treasurer and as President from 2003 to 2004. He has served on the AAPG Executive Committee along with numerous other AAPG committees and received the 2004 AAPG Certificate of Merit.

David Hawk has given dozens of public lectures and interviews on energy and the oil and gas industry, including economics, transportation, distribution and generation. He has also given testimony and been an advisor to judicial, regulatory and legislative bodies like the US Senate Energy Subcommittee; Idaho Public Utilities Commission; and the Oregon, North Dakota and Manitoba Public Utility Commissions to name a few. He has represented the last five governors of Idaho in their seat on the Idaho Geological Survey Advisory Board. Since 2008 he has served on the AAPG Geo-DC Board of Governors. David is a natural communicator with a relaxed comfortable style that endears him to his audiences and allows him to make his point. He is also a clear thinker with a vision for the future of the energy industry.

David has used his leadership skills and business knowledge to support many educational institutes. He recently received the University of Idaho, College of Science Dean's Award for outstanding service to the college. He was president and member of the Boise School Board for over 22 years. He was an Idaho Commissioner to the Education Commission of the States. David served on numerous university advisory boards including the University of Idaho, Boise State University, and Idaho State University.

I have known David Hawk since 1977 and have found his charm, intelligence, foresight and dedication to AAPG to be exemplary. He has made a difference and is greatly deserving of AAPG's Honorary Member Award. I am honored to be his citationist.

David J. Entzminger

Response

Fellow members of AAPG I have been overflowing with emotion and words since President Randi Martinson informed me of my selection as an Honorary Member. Though I am seldom speechless, it is difficult to gather my thoughts in a coherent fashion to reflect how proud I am to even be considered for this recognition. As I have moved along my career path AAPG has been one of the significant blocks of the platform upon which I have built my past and future.

I would like to thank those who nominated me along with the Advisory Council and the Executive Committee for their votes, which made this possible. Somehow they found enough reasons to suggest I qualify. When I first received President Martinson's call stating she had good news for me I thought she might have found a committee upon which I could serve that wasn't so important any mistakes I might make wouldn't scuttle accomplishing its mission. I had no notice I was being considered and was so very pleasantly surprised when she shared what clearly was great news. My first thoughts were of being undeserving, especially when compared to those who have received this honor in the past. Secondly, I thought I better get on another committee and do some quality work before they rethink my nomination and election.

There are so many ladies and gentlemen who are members of AAPG and have been a source of mentoring, guidance, and examples of great scientists, businesspersons, and responsible individuals to me. To begin to name them all would mean I will have will have missed a few. Ed Dolly was a friend in graduate school and remains so today. He introduced me to AAPG in 1969, in Oklahoma City and later the RMAG and also a wonderful geology study group in Denver. He is clearly the role model for a friend and mentor. Robbie Gries, Ed Heath, Larry Jones, Donald Clarke, Robert Lindblom, George Bole, Dan Smith, Jeff Lund, John Hogg, Clint Moore, Pete Stark, and Terry Hollrah have all provided sage advice and encouragement about rocks, committees and the importance of service to our organization. Given the attitude of those named above and many more it would be irresponsible not to share AAPG with as many as possible and in some small ways work to build AAPG into the most important professional organization for geoscientists.

You see I know I am not the best geologist, oil finder, field mapper, or sedimentologist. I have been, however, someone willing to take a risk and trust in the precepts to which we all ascribe. A geologist is naturally curious, has a vivid imagination and possesses an undaunted spirit whose optimism is not deflated by failures along the way. Failures are a source of information. AAPG through its membership, publications, field trips, professional meetings and staff have given me the opportunity to be current, knowledgeable, and relevant to employers and colleagues. The folks at AAPG headquarters are friends and tireless workers on our behalf. I would have liked to clone them many times. Regina Gill and Vicki Beighle, just to name two. I started my career with ARCO and immediately found geoscientists were very professional about their work product and relationships. They were committed to local affiliated societies and AAPG. I found that same attitude at Tenneco and Intermountain Gas Company as well as other employment stops along my journey. When I look at current and future AAPG leaders, to name a few, Rick Fritz, Davids Curtiss, Lange and Rensink, Jim Mcghay, Laura Zahm, Richard Ball, Natasha Rigg, Kay Pitts, Marty Hewitt, David Dolph, Gretchen Gillis, Paul Weimer, Paul Britt, Pete MacKenzie and Jerry Walker, I am convinced AAPG will continue to respect its legacy and adapt to the growing volume of scientific and technologic discovery along with member needs and the governance models best suited to accomplish the mission. We can't go wrong if we continue to follow the example of Dr. Daniel Busch, a past president from Tulsa who pursued the science of geology for answers and discoveries.

I want to thank a young friend of mine whose stable personality and smile have made work pleasurable for many years, David Entzminger. I am appreciative of the professors and the time they offered me at the University of Idaho and the University of Oklahoma. As an Oklahoma native who was raised in Idaho, I take great pride in both alma mater. My father and mother would be proud to know I was receiving the Honorary Member distinction. They both grew up in Oklahoma during the Great Depression and made a living in the oilfield pipeline, equipment, and natural gas utility industries. Dad had to help support the family so any chance at college was a stretch. In turn he became a pretty good self-taught geologist and landman regarding oil and gas and gold mining. Of course any honor I receive must be shared with my wife, Bonnie, and our daughter and son who are very special and dedicated with their spouses to others above self. I take great pride in my family and the red dirt on my boots. As my Dad would say, "Everything we have comes from a hole in the ground." Thank you.

David Harold Hawk

John C. Lorenz
Honorary Member Award

Citation—To John Lorenz, gentleman, scientist, and leader, for continued dedication to AAPG and completion of the "industry hat trick" covering science, business, and service.

In the seven years since John received the AAPG Distinguished Service award, he has won a second AAPG Levorson award, established a successful consulting company, and served as AAPG president. Thus, albeit inadvertently, he has completed an industry hat trick covering science, business, and service. John's pre-2007 biography can be found in the citation for his AAPG Distinguished Service Award; he claims that he has not significantly gilded those pre-2007 accomplishments, so they will not be repeated here.

John served as 2009–2010 AAPG president. The fact that he was elected to the AAPG Executive Committee a second

time reflects favorably on the confidence of AAPG Members in his leadership and on his performance as elected editor. It is not possible to list all the thorny matters John dealt with during his time as president, but he served the membership and the organization well, with a focus, as he put it, on supporting the geoscience that gives AAPG members the best conceptual tools to do their jobs of finding and producing oil and gas. John served as an example of a great leader by being thoughtful, listening, and deciding after considering the information provided. Along the way, he took time to offer gentle coaching to the future leaders around him.

John's monthly *Explorer* columns were must-reads for their sage observations about AAPG and fascinating historical references. His final President's Column on critical thinking exemplifies John's contributions (http://www.aapg.org/publications/news/explorer/column/articleid/2911/critical-thinking, accessed October 1, 2014). In it, he discussed the need to understand the meaning of calculations and models that computers deliver so readily. This understanding is impossible without critical thinking. John delved into the annals of science for examples of science that "had a veneer of authenticity" until subject to critical thinking by scientists, as well as the significant contributions to the science of geology by meteorologist Alfred Wegener and physicist Luis Alvarez. He encouraged thoughtful reflection while acknowledging the truth in humor, complete with a reference to Monty Python. John's success in so many endeavors is due in part to his good humor, as long as it doesn't interfere with the work.

Simultaneously with his long-term service to AAPG in leadership roles, John continued his scientific endeavors. After many years as a researcher at Sandia National Labs, he formed an independent consulting company in 2007. John now works as an international consultant, assessing cores, teaching classes, publishing papers, and presenting talks about the effects of natural fractures on hydrocarbon reservoirs. He is pushing back the frontiers of that science, and even if he suggests that the direction of that movement is not always clear, he is at least contributing to the discussion. John's consulting has included months of field work among the biblical flocks of sheep and vaguely mapped mine fields of northern Iraq, dancing between the tides to map fractures in wave-cut cliffs of the North Sea Chalk, and logging cores in dusty warehouses around the world. Despite his busy consulting schedule, John generously offers short courses through AAPG, most recently at the 2014 ACE held in Houston. He also is a member of the AAPG House of Delegates.

John's leadership, service, and scientific career are worthy of recognition by AAPG, but John is also one of the most magnetic people in AAPG—one of the folks that attracts and keeps people engaged in the organization. He is devoted to his lovely wife, Lizzie, his sons, and two young grandchildren. He served his community performing search and rescue missions with the Civil Air Patrol until travel interfered, and now is an active flight instructor specializing in tail-wheel aircraft. It is an honor to be John's colleague and friend, and to see him receive this well-deserved recognition.

Gretchen Gillis

Response

I accept this honor, and I wholeheartedly thank those who made and supported the nomination. I also thank Gretchen Gillis for a biography that keeps me looking eminently employable, and Liz Lorenz for providing stability and unstinting support.

As a professional geologist, AAPG membership has always been more valuable than the price of the dues, so the receipt of honorary membership in the organization makes me feel like the child who has successfully stolen a prized piece of candy. It also provides an occasion to ponder the reasons for belonging to an organization long enough to be so honored.

I became and have remained an AAPG member because the many facets of AAPG provided value at different points in my career. Technical talks provided most of that value during early years, offering new techniques and interpretations that could be mixed in a stew with my own work to produce a better product. It is amazing now to witness AAPG's evolution in the new and efficient methods of disseminating this type

of technical information, providing geologists with a wealth of data and ideas. Papers that required literature searches to obtain and abstracts that could not be found at all are now available with a few computer clicks.

Scientific talks and papers continued to be the focus of my AAPG participation as my career progressed, but networking opportunities grew and began to rival talks in value. There have been revolutions in the area of networking as well: new technologies and new AAPG programs such as the Young Professionals and Imperial Barrel Award provide opportunities for participation in the organization, as well as unrivaled abilities for networking, much earlier in a career and on a much wider, even international scale. The enthusiasm for these programs among our members of all ages is gratifying.

More recently I have had the pleasure of contributing directly to the organization as an AAPG volunteer. In helping to steer and develop some of the programs, I have had the honor to work with a unique blend of enthusiastic volunteers and AAPG headquarters staff in Tulsa. While the communications technologies that facilitate these activities are keeping pace with other mushrooming technologies, volunteering still requires commitment and an investment in time. Nevertheless, the ratio of AAPG volunteers to members has to be one of the higher ones among the large professional organizations.

Perhaps the most important thing AAPG offers is opportunity. A young man approached me once wanting to know why as an AAPG member he wasn't the beneficiary of industry largesse. He was missing the point: Members need to take an active role in order to benefit fully from the opportunities provided by AAPG membership. For example, AAPG offers a venue for making an amazing array of contacts, but those contacts don't automatically come to you.

AAPG has been good to me in many ways, and I feel I should perhaps be presenting rather than receiving an award. Nevertheless, thanks to the members and staff who make AAPG a great organization, and thanks to the nominators and supporters for this honor of honorary membership.

John C. Lorenz

KAY L. PITTS
Honorary Member Award

Citation—To Kay Pitts for the breadth of her leadership, enthusiasm, and dedication to making AAPG and Pacific Section AAPG better by making a difference.

Kay Pitts is a terrific choice to receive the AAPG Honorary Member Award. We have known Kay for more than 20 years, both as a co-worker, a friend, and volunteering in the Pacific Section AAPG and AAPG. Her dedication to performance has been excellent in all three capacities. Throughout her adult life, Kay has demonstrated service above self through her active participation and leadership in numerous civic and professional roles. Although Kay was born in Michigan, her life and education are a Southern California experience. Kay moved to Orange County, California at an early age. She received a B.A. in earth science at California State University, Fullerton. She continued on at the University of Southern California, where she earned an M.S. in geological sciences with a thesis on Death Valley stromatolites. Kay is also a Licensed Professional Geologist with the State of California.

Kay met her husband and best friend, Brian, while attending Cal State Fullerton. The two were married in 1981. Brian, also a geologist, a converted USC fan and a very good photographer, has recently retired from the Kern County Environmental Health Services Department. They are a great couple with a subtle lighter side as attested to by the pink flamingos in their front yard.

Kay began her professional career as a development geologist in Bakersfield with Getty Oil Company in 1980. When Texaco

acquired Getty in 1984, Kay moved from a supervisory role in development to exploration with Texaco, developing prospects in the San Joaquin and Sacramento basins. By 1985 Kay was exploration coordinator for Texaco's Nevada/Utah area. In 1987, Kay moved to Bechtel Petroleum Operations Inc., which was operating the Elk Hills Naval Petroleum Reserve. At Elk Hills, Kay and her team developed and implemented an innovative geologic support system, facilitating the shift from analog analysis to digital databases and analysis. In her eleven years with Bechtel Petroleum Operations Inc, Kay supervised a team that delivered technical, computing, and database support through the application of both geologic and engineering technology. In this, her appreciation of the technology side of our business and commitment to providing the highest level of support were ahead of their time. From 1998 to 2014, Kay worked with Aera Energy in Bakersfield. During this period, she worked in a variety of positions, including reservoir management geoscientist, project manager, process analyst and as a manager in business resources. Kay continued to demonstrate a unique ability to successfully integrate technology, data and people across the spectrum of geology, engineering and business. Kay retired from Aera this year, which just means that she and Brian have more time to spend on traveling and volunteering.

Kay has been very active in AAPG, including the San Joaquin Geological Society (SJGS), the Pacific Section AAPG and AAPG. In the SJGS, Kay was an officer and a delegate to the AAPG HOD. Kay moved on and became very involved with the Pacific Section (PSAAPG) in the 1990s. She served in nearly every office of the Pacific Section, including president in 2000-2001. At that time Kay was the second woman in the 76-year history of the PSAAPG to be elected president. Her engagement as a member of the Pacific Section Convention Committee has extended well over 15 years and has been instrumental to the success of our PSAAPG annual meetings. In 2004, the PSAAPG recognized Kay with the Distinguished Service Award and in 2008 she was made an Honorary Life Member of the PSAAPG.

In AAPG, Kay has served on over 15 committees. Kay has stood for EMD office once and for the AAPG Executive Committee three times. She stood for treasurer in 2003 and 2007 with election success in 2007. During her tenure as treasurer, Kay made a point of visiting all seven local societies in the PSAAPG; including Alaska as a representative of the AAPG Executive Committee. More recently, she was asked to stand for president-elect. Though not elected, Kay had an invigorating and rewarding experience traveling the world and meeting AAPG members and listening to their concerns and ideas.

Kay was involved in the proposal to bring ACE to Long Beach, California in both 2007 and 2012. She was general vice-chair for 2007 and general chair for 2012. As General Chair she assembled an excellent, experienced committee, which also involved young professionals. The meeting was technically, financially, and socially successful.

Her career and her AAPG activities would be more than enough for most folks, but Kay is also involved in her community and many charitable organizations. Kay served several years on the Kern County Planning Commission. She is active in Rotary International and will be club president in 2016. Kay is also actively involved with United Way of Kern County, Kern County Museum Board of Trustees, American Association of University Women, Kern Community Foundation Women & Girls' Fund Vision Committee, Distinguished Young Women Scholarship program and Open World Leadership Center. Kay recently had a milestone birthday, but put off celebrating because she and Brian were busy hosting and coordinating a program for Ukrainian criminal defense lawyers that week. Whew!

Kay is a person who genuinely cares about her profession, her family, her friends and her community. She is someone who strives to make a difference. She is a remarkable example for all of us in AAPG, Pacific Section, and in Bakersfield. Recognizing Kay Pitts with AAPG Honorary Membership is a great way to say thank you for being involved and making a difference.

Larry C. Knauer
Mark L. Wilson

Response

I am honored to be selected for Honorary Membership in AAPG. It is a privilege to join friends and others for whom I have great respect in this distinction. I want to thank the AAPG Executive Committee, Advisory Council, and those who encouraged and supported my nomination for this award.

I also appreciate those who have enabled my participation in the Association and in my geoscience career. Foremost, my husband and best friend Brian Pitts has always been a strong supporter ("do whatever you want, but make sure you enjoy it".) Brian is also involved in the Association through his service in the Astrogeology Committee.

I am very thankful to two early mentors who encouraged and supported active involvement in AAPG; Dr. John Cooper at California State University, Fullerton and Leon Earnest, my manager at Getty Oil and Bechtel Petroleum. They had the expectation that everyone should be involved in giving back to the profession through AAPG. I want to thank Larry Knauer for encouraging me over 25 years ago to more actively participate in Pacific Section AAPG. Neither of us have slowed our involvement in the intervening years. Larry, in a nod to *Wizard of Oz*, calls us the "people behind the curtain for Pacific Section."

I appreciate Dan Smith and Robbie Gries who were instrumental in expanding my role in the Association through my first committee appointments. I will always be grateful to them for the opportunities they have opened up to me and to many others. Their attitudes of inclusion is sincere and appreciated.

I recognized early on in my career that I would not be the explorer that would find the next giant oil field. Instead, my strengths were in development geology, bringing people together, and serving as an "interpreter" among geoscientists, engineers, information technology staff, and mangers to enable success in projects. I had the right blend of skills and temperament at the right time in our industry to facilitate and spread the use of digital technology and databases that enabled geoscientists and engineers to be more effective. I have led teams that designed and implemented databases at two companies, and implemented numerous interpretation systems.

I feel fortunate to be able to serve AAPG at all levels—the Association, Section and Society. My work on the Executive Committee on a proposed corporate structure reorganization and the first Memorandum of Understanding with the Regions with presidents Tinker and Lorenz allowed me to develop a good appreciation of the global impact AAPG can have on our profession. We, as an international organization, have challenges facing us in globalizing resources, activities and support for our members. I am confident we have the staff and members that can bridge those challenges and share AAPG with the world. A successful future for the Association is dependent on ALL members and potential members feeling valued with equal rights and responsibilities. The vast majority of the members I meet truly want AAPG to be indispensable to all professionals in the energy-related geoscience community throughout the world.

My proudest time with AAPG was bringing together the 2012 Long Beach Annual Convention and Exhibition team and facilitating a very successful convention. The entire committee —from technical through social— came together to deliver the convention. The best part of AAPG are the people I have met over the years through various volunteer positions, standing for office and serving on the Executive Committee. While the phrase "making a difference" may be commonplace, my greatest joys in life are to have a positive impact on my family, friends, colleagues, professional society and my community. I hope that through my actions other have become more involved and committed to our professional association. As Mahatma Gandhi said "It's the action, not the fruit of the action, that's important. You have to do the right thing. It may not be in your power, may not be in your time, that there'll be any fruit. But that doesn't mean you stop doing the right thing. You may never know what results come from your action. But if you do nothing, there will be no result."

I look forward to continuing to serve, learn and grow in the

profession in the years to come. Thank you for this honor and this award.

Kay L. Pitts

SCOTT W. TINKER
Honorary Member Award

Citation—To Scott W. Tinker, for energetic, talented and dedicated leadership in the geosciences in the university, professional, state and federal venues; for brilliant, articulate presentation of sound energy and environmental policies through public and professional lecturing and through an enlightening and acclaimed documentary movie; and for the unusual capacity to see and understand both the forests and the trees.

Scott Tinker's distinguished contributions to the Association as well his broader contributions the science and profession of petroleum geology and the institutions of which he is a part, thoroughly merit his election as Honorary Member of the AAPG.

Scott Wheeler Tinker came into the world five and a half decades ago in Centralia in downstate Illinois, where his father C. N. (Tom) Tinker was working as a geologist for Shell. Scott grew up in Houston, graduating summa cum laude from Cypress-Fairbanks High School in 1978, where he was elected to the National Honor Society. He began his university work at Trinity in San Antonio, graduating magna cum laude with a B. S. in geology and business administration in 1982, and earning a Phi Beta Kappa key.

In 1982-1983 Scott spent a year with Robert M. Sneider Exploration in Houston (Bob was a former Shell geologist) and then pursued a M. S. degree in geology at the University of Michigan, Ann Arbor. After graduation he joined Union Pacific Resources in Englewood, Colorado, for a three-year stint before moving to Marathon Oil in Littleton, Colorado, in 1988. Through 2000 at Marathon Scott advanced from geologist II to advanced senior geologist, while also managing to pick up a Ph. D. in geology from the University of Colorado in 1996, simultaneously and along the way. In 2000 The University of Texas at Austin successfully recruited him to become state geologist of Texas, director of the Bureau of Economic Geology, professor of Geological Sciences and the Allday Endowed Chair of Subsurface Geology.

When Tinker joined the Bureau of Economic Geology, the Bureau had hit a bit of a low in its long history of prominence in both basic and applied research. Tinker not only restored the Bureau's prominence in short order, but measurably enlarged it. That took substantial, perhaps unique, leadership and dedication. A main responsibility of the Bureau director is to oversee the strategic and financial health of a basically soft-money organization; in a relatively short time Tinker brought the Bureau to an annual budget of $35 million, attracting some $350 million of external funding during his tenure to date. Doing so required extensive contacts and work with supporting federal, state and private organizations as well as coordination with the leadership of the university. Tinker has also been successful in maintaining and recruiting a productive and talented research staff. As Texas State Geologist, Dr. Tinker is research and technical advisor to the Governor's Office, the Texas Legislature, and State regulatory agencies. Scott also serves as Director of the Advanced Energy Consortium and is the acting dean of research for the Jackson School of Geosciences, as well as the past-director of the Petroleum Technology Transfer Council.

When Scott joined the university we were in the midst of working with John A. Jackson to create what was soon become the Jackson School of Geosciences. Shortly after his arrival in Austin, I took Scott to meet Jack Jackson in Dallas. Scott became one of what Jack was to call his "Jackson Five." As leader of the largest component in the Jackson School,

Scott was prominent in the launching of the school named in Jack's honor.

Jack was impressed with Scott early on, telling him he "talked good and looked a bit like James Dean," so he "ought to make a movie." My impression at the time was that Jack was joking a bit, as he commonly liked to do, but as it turned out, Mr. Jackson was being remarkably prescient. Eight years later Scott would indeed make a movie—a full-length documentary on global energy called *Switch* that has been widely acclaimed and that has made him one of the best known geologists around. Scott is co-producer and onscreen host of *Switch*, which has now reached more than four million people worldwide. The Switch Energy Project also maintains the largest video-based website on global energy in the world, with more than one million page loads and an active array of social media. The latest venture is the Switch Energy Lab, which features video and written curriculum targeted to primary and high school education.

One of Tinker's responsibilities at the university is to keep the Bureau visible and widely engaged, which he has done in superb fashion, becoming perhaps the most prominent spokesman today in the science and policy of energy resources, through public speaking to many diverse audiences and as the driving force of an engaging and successful movie. Quite simply, he is one of the most articulate speakers and cogent thinkers in the area of energy geosciences anywhere, anytime. And I suspect he has reached more people than any other geologist currently around. Certainly he has worked diligently to do so, giving nearly 550 invited lectures in 120 US and 40 international cities over the past 14 years. And with no letup in sight.

Scott's energy and dedication emerged quickly in the professional geoscience societies, where he has served as the president of the Austin Geological Society (AGS), the Association of American State Geologists (AASG), the Gulf Coast Association of Geological Societies (GCAGS), and currently as president-elect of the American Geosciences Institute (AGI). And importantly, he was the 2008-2009 president of AAPG, where he has also served in and on more than 40 positions and committees. Scott serves as an AGS delegate to the House of Delegates where he holds a 10-year Certificate of Service. He has served as Distinguished Lecturer for AAPG on two separate occasions, as well as Distinguished Lecturer for the Society of Petroleum Engineers (SPE) and as the Halbouty Distinguished Lecturer for the Geological Society of America (GSA). He is a Trustee Associate of the AAPG Foundation, as well as Trustee for the AGI and AASG Foundations and the Southwest Research Institute. He has served and continues to serve on several public and corporate boards.

Scott is a prolific writer on a wide range of energy and environment issues, but his core research is the geology of carbonate rocks. His publications in this area are regularly cited: two have won him both the Spoule Award from AAPG in 1996 and Best Paper award from SEPM (*Journal of Sedimentary Research*) in 1998.

Tinker has received the Distinguished Service Award and the Geosciences in the Media National Award from AAPG, the Galey Public Service Award from the American Institute of Professional Geologists (AIPG), the Outstanding Contribution to Public Understanding Award from the AGI, the Hats Off Award from Texas Independent Producers and Royalty Owners (TIPRO) and the Distinguished Service Award from the West Texas Geological Society.

Tinker is a member of the AAPG, the Geological Society of America (Fellow), the American Institute of Professional Geologists, the Society for Sedimentary Geology (SEPM), the Society of Exploration Geophysicists, the Society of Petroleum Engineers, the European Association of Geoscientists and Engineers, the Austin Geological Society, the Rocky Mountain Association of Geologists, the West Texas Geological Society and the Texas Board of Professional Geoscientists. He holds appointment to the National Petroleum Council, the Shell Science Council, and the Interstate Oil and Gas Compact Commission, and has served a six-year term on the BP Technical Advisory Council.

Scott Tinker and I have walked similar paths in our careers and it is especially gratifying to me see

his remarkable accomplishments over the past decade and half and to have the opportunity to note some of them here.

AAPG honors Dr. Scott W. Tinker by electing him Honorary Member, and in so doing, credits itself.

William L. Fisher

Response

I thank my friend Bill Fisher for his generous words. I have learned much from Bill these past 15 years. We have indeed walked similar paths—not always straight or smooth, but always in the same general direction and with common purpose and ends. My respect and gratitude for Bill are immeasurable.

AAPG has been a part of my life since early on. To be named an Honorary Member means a tremendous amount, and I thank past presidents Rose, Downey, Gratton, Thomasson, and Weimer for your confidence, guidance, support, and, most of all, example.

I have never been the smartest person in the room, but always felt I could work as hard as just about anyone. I often tell my kids that the harder I work, the luckier I get. However, with each passing year I realize that I have been unusually fortunate.

I am lucky to have parents who are ethical and expected results, not promises. Average performance was not really an option, so the idea was never entertained.

I am lucky to have had many "sweat and muscle" summer jobs in Houston, Texas, which allowed me to see the fruits of my labor at the end of every day. These hard-labor endeavors also helped me to realize that something involving my brain might be worth pursuing!

I am lucky to have met Professor Ed Roy my first week at Trinity University. Ed steered me toward geology and showed me that talented people can also be nice people. Ed's widow, Carol, and I remain close to this day.

I am lucky that my dad, a geologist, knew Bob Sneider and that Bob offered me a job after college. On my first day of work Bob handed me AAPG and SPE application forms and said "join these." That should be common practice for every new employee in the energy business today. Bob promised that he would fire me after a year of work so that I could pursue an M.S. I think he found it an easy promise to keep! Bob was no stranger to hard work. I learned from him that if you love what you do, it is not really work at all.

I am lucky to have gone to Indiana University Field Camp, where I learned that small observations compose a bigger whole. I am lucky that James Lee Wilson took me on as a student at the University of Michigan. Jim showed that true gentlemen can be truly great geologists. Jim's widow, Dell, and I remain close to this day. I am also lucky to have made lasting friendships in graduate school.

I am lucky that of all the companies that interviewed at Michigan, one was based in Denver, where I had lived as a kid. The three years at Champlin Petroleum remain some of the best that I can recall. Dave Eby and Kent Kirkby helped me begin to understand regional carbonate systems, and the many friends I made at Champlin are part of my family's lives still.

I am lucky that just as Champlin was closing its Denver doors in 1988 to consolidate to Fort Worth, the Marathon lab in Littleton had an opening for a fuzz-faced carbonate geologist. I worked with a remarkable group of folks—Uland, Caldwell, Merkel, Hurley, Brinton, Mazza, Cox, Kerans… too many to name—and learned to integrate stratigraphy, core, and logs into 3-D reservoir models. The explosion of computer power and graphics from 1988 to 2000 was unique. And we rode the wave.

I am lucky that Dave Budd was willing to take me on as a Ph.D. student at Colorado Boulder, even with me working full time, Allyson working full time, while having our first two kids. I began to understand paragenesis while working with Dave, and he became much more understanding of my time when he had twins of his own!

In 1999, Charlie Kerans called and told me that The Bureau of Economic Geology was looking for a new director. I am lucky they took a chance on me. For the past 15 years we have built one of the truly great research organizations in the country, focusing on science that matters at the intersection of energy, the environment, and the economy, and bringing together academe, government, and industry. The people at the Bureau are remarkable and I have been spoiled by my assistants Wanda,

Emily, and Theresa. I was also lucky to have known Jack Jackson and be a small part of forming the Jackson School.

I am lucky to have met Harry Lynch. We agreed to set off on the grand journey we called *Switch*, a project that broadened my knowledge of energy and expanded my understanding of the global impact of energy. The desperate need for energy education in the United States and the world became very apparent during the filming of *Switch*.

I have been lucky to have served several major professional societies as president, to travel and speak, and to work with some of the most committed and talented people in the business: friends and colleagues at AAPG, AASG, AGI, GCAGS, SPE, and other societies; in state and federal governments; at UT Austin and other global universities; in the broad energy industry; and in national labs, foundations, and NGOs. The experience has been remarkable, and I can only hope that I gave back a fraction of what I received.

Finally, I am lucky to have met Allyson and talked her parents into letting her go bowling with me in July 1976. The last 38 years have tipped the lucky scales. Nathan and Derek are now in graduate school at UT Austin, in geosciences and petroleum engineering respectively. How lucky is that? Tyler and Claire are making their own paths, and it will be fun to see where those lead.

Thank you, AAPG, for the honor. I am lucky indeed.

Scott W. Tinker

HANS CHRISTEN RØNNEVIK

Norman H. Foster Outstanding Explorer Award

Citation—"I have versatile interests and am not a total nerd, although some would probably say I come pretty close," says Hans Christen Rønnevik about himself.

Hans Rønnevik is born June 26th 1945 in Haugesund, Norway. He is educated as cand.real from the University of Bergen in 1971.

He started his professional life as a petroleum geologist in the oil office in the Ministry of Industry in 1972 and then from 1973-83 he worked as a petroleum geologist in the new established Norwegian Petroleum Directorate (NPD). Here he was engaged in the regional virgin mapping, prospect generation and discoveries on the Norwegian Continental Shelf (NCS). A major task was the planning, execution, and analysis related to NPD's geophysical and geological mapping in the Norwegian Sea and Barents Sea. This mapping led to selection of areas for gradual opening up for petroleum activities in these areas from 1979 and onwards.

In the mid 1970s he estimated the total resource potential for oil and gas on the NCS. The North Sea assessment was based on the sum of the risked volumes of all the known structures and for the more unknown Norwegian Sea and Barents Sea analogue basin yields and stochastic methods were used. The total resources were estimated to be 72 billion barrel of oil equivalents equally split between the North Sea and the areas to the north of 62°. This estimate will be superseded with all the new play types established in the last 10 years.

The mapping of the prospectivity and evaluation of the resource potential in the various areas formed the basis for the nomination of licenses to be awarded in the 3rd to the 8th concession rounds. In the 4th concession round it was decided to award several of the potential best blocks and the result was several of the major discoveries in Norway.

The 11 years in NPD was useful for acquiring an overall view of the resource potential on the NCS and that a sustainable successful exploration process needs continuous balance between frontier, growth, and mature exploration drilling activities. Diversity in play types both at regional and local scale is a must. Early focusing on the known will always lead to self-fulfilling prophecies that there is nothing more to be found.

In 1983-1984 Rønnevik worked as senior petroleum geologist in Norske Shell before he moved to

the position as vice president for exploration for Saga Petroleum from 1984-1999.

In his Saga period the company found as operator the Jurassic part of the Snorre oil field and the Tordis, Vigdis, and Borg oil fields in the northern North Sea. His last work at NPD before leaving for Shell was to interpret and write the work program for block 34/7 that contains the mentioned discoveries. In Saga he had to fulfill this work program. On the Haltenbanken in the Norwegian Sea, Saga delineated the Midgard gas field and made the Kristin and Lavrans gas condensate discoveries. As a partner Saga Petroleum was involved in the discovery and delineation of several of the larger fields on the Norwegian Continental Shelf. Saga followed a balanced frontier, growth and mature strategy from 1984 to 1999. This resulted in an average discovery rate of more than 40% and a reserve replacement of 150%.

The Saga behavior reference curves from 1984-1999 related to drilling, discovery rate and organic reserve growth demonstrated that the majority view that the NCS was coming to a halt could not be correct. The low reserve replacement on the NCS was a result of a decline in drilling activity from 1985. This reflects the global reduction in number and diversity of companies through acquisitions and mergers. Asset based organizations that became the standard model are conservative and create little incentive for unfolding the implicit resource potential outside the individual asset's own turfs.

Hence instead of going into retirement following the acquisition of Saga by Statoil and Norsk Hydro in 1999-2000 Rønnevik and five colleges from Saga initiated a process to create a company with a strategy supplementary to the large companies. In 2000 they joined and revitalized DNO in Norway. This small startup company focused on Paleocene plays and discoveries to build in depth knowledge and skills that could also benefit larger companies. DNO entered into licenses operated by Statoil, Norsk Hydro, Exxon Mobile and Bp. The revitalized company was instrumental in supporting the development of the small Glitne field and unfolding the oil potential in the structures that led to the Alvheim oil field in an area considered as gas prone. DNO had a conservative strategy that was based on a cash flow protected organic growth. The cash flow was secured by buying into the Jotun Field operated by ExxonMobil.

Lundin Petroleum bought the main part of the DNO licenses in Norway in 2004. The main part of the staff at DNO were hired by the new company called Lundin Norway. Rønnevik continued as geologist and exploration manager. He formulated and implemented the organic growth strategy of this company. The company started exploring in assumed mature areas covered with three-dimensional (3-D) seismic often with a known substantial improvement potential. Several significant breakthrough discoveries resulted and triggered investment in new broadband 3-D seismic as the standard for the company. Broadband 3-D forms the basis for a holistic interpretation. The company starts the interpretation in the seismic processing.

The organic growth strategy has resulted in the discovery of more than 3 billion barrels of oil in total and a success factor of more than 40% the last 10 years. Most of the discoveries are breakthrough discoveries. Reservoirs and play models that are new to the NCS have been unfolded. The main breakthrough discoveries are Edvard Grieg in 2007, Johan Sverdrup in 2010, Luno 2 and Gohta in 2013 and Alta discovery in 2014. The discoveries have been made in areas explored earlier by major companies.

The organic growth strategy has to a large degree been related to exploration of inverted Volgian highs. Such highs have a multi tectonic history with associated flanking reservoir and migration sands. Recent tectonic changes and glacial isostasy have been essential for the generation, migration, and retention of petroleum. Inverted highs are focal points for petroleum migration, with end migration paths that can leak vertically into shallower sequences. The migration end up at the sea floor as gas flares. The company has continuously been mapping gas flares and set them in a regional context to unfold active migration systems that are backtracked to fill spill and vertical leakage to the source areas. This was the basic principle used when the play concept of the Johan Sverdrup discovery was formulated in 2006.

Shallow migrations of petroleum from the east towards west were indicated by seismic hydrocarbon indicators in the late Miocene Utsira formation. The vertical leakage from Jurassic indicated that the Johan Sverdrup area on the east flank of the southern Utsira High had to be oil filled. In general this area was assumed to be in the migration shadow. The Johan Sverdrup area was uplifted the last 1.5 million years and can only be explained by a late and ongoing oil migration. Following the discovery of the undersaturated fresh oil in the Edvard Grieg field in 2007 the Johan Sverdrup structure became a high probability prospect in Lundin Norway's small exploration team. This assessment was challenged by many individuals and most companies.

The concept of late and ongoing oil migration that compensates for leakage was applied in parallel on the Loppa High in the Barents Sea where Lundin established a portfolio cluster from 2007. Active migration is supported by seafloor gas flares in this area. The Gohta and Alta oil discoveries in 2013 and 2014 in late Paleozoic carbonate reservoirs are breakthrough discoveries. Production tests demonstrate very good productivity in this new play types.

As exploration manager Rønnevik is active in the definition of new prospects and learning during the drilling operations. His knowledge management philosophy is as follows.

- Leadership is to find the way by being on deck and realizing that progress is fastest in rough weathers. Decision making is a continuous learning process in the context of insufficient maps and control procedures.
- The most important issue in exploration is to have learned to learn. There will always be a better practice and new concepts to develop in parallel with utilizing the ones at hand. The main obstacle for learning is the human self-referencing. This can only be overcome by facts and diversity. Unfolding the implicit depends on bottom up processes and a continuous dialogue between the people involved.
- New play concepts are to be based on comprehensive diverse data that are continuously contextualized in new ways during operations. Coring and testing are the basic keys to detect and calibrate new breakthroughs that could have been overlooked by indirect methods. The online operational learning allows adaption to reality and flexibility for model updating during the operations.

Since the start Lundin Norway has been based on this sustainable bottom up organic growth strategy. The staff has increased from 8 people in an exploration mode to an integrated upstream company approaching 350 employees. The challenge of this successful growth is to maintain the exploration spirit in the context of more structured processes. The implicit future can never be unfolded by using an explicit filter reflecting the past. The various phases in an integrated company need a teleological multicultural culture.

Response

I am honored to receive the Foster Outstanding Explorer Award. Norm Foster was a pioneer in the team concept of exploration for petroleum, establishing teams of geologists, geophysicists, engineers, and landmen.

The need for teams consisting of a diversity of subsurface specialists and human dynamic types is the key driver in successfully unfolding new realities and is in-line with my own experience and attitude as a geologist and leader of both small and larger groups of subsurface experts over the past 44 years. When people are allowed to be themselves within a context of the community and purpose, then the potential of unfolding new realities through step-changes increases.

The subsurface is given and fixed, comprising a frozen chaos where each point is unique. Hence our models of it will always be fuzzy and continuously change as we gain more knowledge from the early exploration models, to proven plays, individual discoveries and reservoirs. The change process has to be based on factual diverse data. Supplementary indirect methods have to be calibrated to reduce the ambiguity. The same data can always be collapsed to alternative scenario models. Hence new (and existing) data has to be continuously recontextualized.

My most intense learning period was as exploration manager in Saga Petroleum when we

experienced an underground blowout in well 2/4-14 that started January 18, 1989 and was finally killed successfully with a relief well in December the same year. The relief well was spudded 1164 m to the south west of the blowing well. The source for the uncontrolled underground flow was at 4693 m and flowed as gas into a high permeable shallow layer at 803 m. The learning and decision making in that stressful environment of insufficient data and knowledge demonstrated the need for breakthrough thinking and reflected the human ability to change when it is necessary. In retrospect this increased my awareness of the unreleased creative potential in a team before it is forced upon them by action and change. "Better practice" has to replace "best practice" as the natural way of behaving.

Generative learning is a fact-based bottom-up process where the true leaders are on deck contributing to finding new ways. In exploration actions will always have to precede the maps. The main obstacle for learning is human self-referencing, related to the fact that thoughts are immediate whilst thinking takes time and that the truth is so large that everybody can see a part of it but nobody the whole. To maximize the generative knowledge potential in a team, individuals' specialities have to be given maximum degree of freedom within the constraints of the purpose of the team. Diversity (and not more of the same) should be the mantra.

My journey from research assistant in marine geology at the University of Bergen, to petroleum geologist in the oil office in the Ministry of Industry (1972-73), Norwegian Petroleum Directorate, Shell and Exploration Manager in Saga Petroleum (1984-2000), DNO (2000-2004) and Lundin (2004-) has been a continuous learning process through action and change. I have worked together with motivated colleges that convert uncertainties into possibilities. Along the way I have had the privilege to meet, learn from, and be inspired by great geologists such as Pete Vail, Peter and Walter Ziegler, geochemists as Dieter Welte and Steve Larter. Ari de Geus' work on the Living Company concept, Pete Senge's 5th discipline and Nonaka &Takeuchi's work on knowledge creating companies have all shaped my way of acting as a subsurface explorer and leader over 44 years: You see what you believe and believe what you see. The truth cannot be voted on.

It has been an interesting exploration journey in various positions, taking part in unfolding the resource potential for oil and gas on the Norwegian Continental Shelf (NCS) from 1972. The major learning is that balanced exploration between frontier, growth, and mature drilling is needed. The potential for new growth is always found beyond two standard deviation. This is true in relation to opening up for the play types leading to all the major discoveries on the NCS.

The major reserve growth was assumed to have come to a halt at the end of the 1990s. The initiation of exploration activities that led to significant oil discoveries like Alvheim, Edvard Grieg, Gohta, Luno 2, and Alta and giant fields like Johan Sverdrup in assumed mature areas. These discoveries were based on conceptual reassessment of existing data and that facts are always only the experienced part of the truth. New actions will unfold new truth and facts. These discoveries have triggered new enthusiasms in general on the NCS. Several new companies have entered and all the majors re-entered the exploration scene. All time high drilling activities have resulted in additional several new fields.

Hans Christen Rønnevik

KITTY L. MILLIKEN

Robert R. Berg for Outstanding Research Award

Citation–To Kitty L. Milliken for her outstanding research and contribution to our understanding of how diagenetic processes

convert sediments to sedimentary rocks and her boundless enthusiasm as an inspirational teacher and mentor.

Kitty Milliken is a native of Kentucky. Having left home she enrolled at Vanderbilt University, Tennessee, and graduated with an undergraduate degree in Geology. At Vanderbilt she was inspired by amongst others the invertebrate paleontologist Leonard Alberstadt, to become a carbonate geologist. With this aim in mind she relocated to The University of Texas at Austin to work with Bob Folk. Here she investigated the origin of silicified evaporite nodules from Mississippian rocks of southern Kentucky and northern Tennessee. During this process she was introduced to a variety of petrographic methods, ranging from staining to subtle reflected light techniques, and SEM methodologies that can be used to image the complex fabrics of sedimentary rocks. This introduction sparked a lifelong interest in sedimentary petrography. She moved on to train for a Ph.D. with Lynton Land, switching away from carbonates to investigate the diagenetic transformations within the thick Tertiary heterolithic succession of the Gulf of Mexico. This experience, as well as introducing her to the rather different diagenetic processes that occur in siliciclastic rocks, also demonstrated to her the importance of quantitative geochemical methods to sedimentary petrology While doing her Ph.D. she continued to interact with Bob Folk, being his teaching assistant in his Limestone and Sandstone classes. While performing this service she began to hone her formidable skills as a teacher. Over the next few years, and working with the wider group of researchers at UT, including Earle McBride, she published a succession of seminal papers. These papers mainly dealt with the effects of diagenesis on Tertiary siliciclastic sediments in the Gulf of Mexico, in particular addressing how varying initial feldspar and clay contents effect subsequent transformations. As part of these investigations she began to utilize the more exotic (at the time at least!) analytical tools available on electron beam instruments, such as back-scattered electron and cathodoluminesence detectors, to shed light on the complexities of chemical and physical transformations that occur in these units as they are buried. This body of work is still an essential part of the go-to literature for anyone seeking to understand the controls on reservoir quality in this important hydrocarbon system.

Inevitably, while the initial thrust of Milliken's research was concentrated on seeking to understand the processes responsible for variations in sandier portions of this succession, a desire to understand better the origins of the solutes responsible for diagenesis as a whole, inevitably drew her to investigating the effects of burial on the finer-grained intervals too. This need caused her research activities to broaden, and in addition to studying the origins of the ancient rocks, she became involved with the Ocean Drilling Program where she was able to use her skills as a sedimentary petrologist to investigate the much younger portions of earth history. These interests, coupled with her imaging expertise meant that she was then well positioned to capitalize on the dramatic increase in interest in the origin of fine-grained units that might host hydrocarbons. This research, with co-workers at the Bureau of Economic Geology in Austin and elsewhere, meant that was able to significantly advance our understanding of how phyllosilicate-rich sediments compact and how porosity, particularly organic porosity develops in these systems. These findings help to underpin how geologists now perceive where hydrocarbon storage capacity is located in unconventional reservoirs. They have also meant that she has been in strong demand as a "go-to imaging expert" for many others seeking to also understand the complexities present in these challenging rocks. This demand is aided further by her terrific communication skills, deep knowledge of the history and background of sedimentary petrology (that Folk influence again!) and her broad knowledge of all things associated with fine-grained sediments. With the latter being honed further, by a successful period as a Co-chief editor (working beside Colin North and Melissa Lester) from 2004 to 2008.

Milliken is a sedimentary petrologist at the height of her career. She has contributed many important research advances that

improve our understanding of how diagenetic processes control varying reservoir properties in both conventional and unconventional hydrocarbon targets. She is a worthy recipient of the Robert R. Berg Outstanding Research Award because her research advances theory, develops new technical approaches that further our understanding of the processes that control reservoir properties in unconventional reservoirs, and finally has had such a profound influence on others seeking to investigate similar problems.

James H. Macquaker

Response

My sincere thanks to AAPG, the nominators who so kindly worked on my behalf, and the award committee for selecting me for the Berg Outstanding Research Award. I am grateful to receive this award and also to have the field of petrography recognized in this way. For me, petrography has been a daily contact with exploration, discovery, fantastic technologies, and beautiful imagery, all in the company of creative colleagues. I am lucky indeed to have picked up that first rock at the age of seven and luckier still to have had the opportunity to spend a half-century now collecting, describing, interpreting, and writing about what I see. It's amazing that one can get paid to do this and to receive acknowledgement in the form of an award is truly icing on an already-delicious cake!

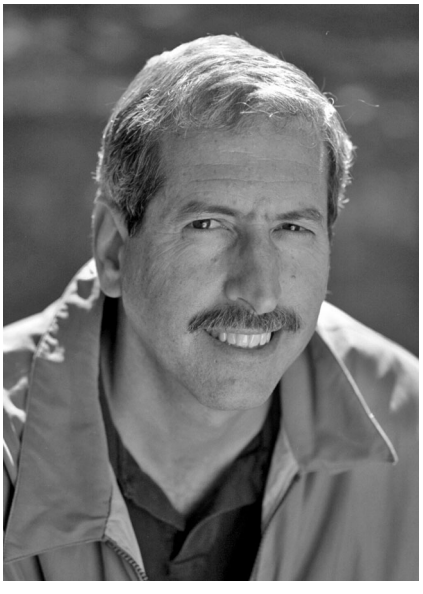
Science careers go better with mentors. Supportive parents were key to my early start, but I was most fortunate to encounter my first mentor while still in high school. Peter Whaley at Murray State University made room for me in his class and his field trips. In 1971, on a Geological Society of America field trip in eastern Kentucky he introduced me to his own mentor John Ferm and to an exciting cadre of young researchers who were working with John. That field trip was my first encounter with geoscientists engaged in intense debate—for a 17-year old a discovery as exciting as that first rock. At Vanderbilt University I was blessed again with mentors. Arthur Reesman, Richard Sterns, Leonard Alberstadt, and Tony Walton—each reached out to inspire and advise. I did undergrad research in geophysics and thought for a time to be an invertebrate paleontologist and then my interest turned to depositional environments. Moving on to University of Texas at Austin to work with Bob Folk, I discovered that petrology was my calling (despite, or perhaps because of, the "black F" I received just a week into that first class!). In those years, UT was in a remarkable period and I found not just one, but three amazing mentors, each at the height of their productive years. Bob "Luigi" Folk, supervised my master's thesis based, at the start, on specimens from my childhood rock collection. What a rare supervisor who would allow such a serendipitous foundation to a research project! It worked out well and ended with a publication that was one of the first integrations of a paragenesis with isotopic analysis. That paper remains my most highly cited work. My master's thesis work with committee member Lynton Land was the beginning of a long and productive collaboration that fostered my shift from carbonate into siliciclastic diagenesis and resulted in my dissertation. Through it all Earle McBride provided further opportunity for collaboration, and in the 15 very lean years following my Ph.D., a desk, a microscope, a computer, a telephone, and a grant that took me twice to Italy. My career exists as it does today because Earle's generosity allowed me to keep going when so much else seemed to conspire against it. Thoughout this time I was part of a wonderful community of fellow diagenesis students and post-docs who were enjoying the same amazing UT years as me: Shirley Dutton, John Pigott, Sue Hovorka, Vicki Pedone, Steve Fisher, Ralph Kugler, Jim Anderson, Paul Gold, Paul Lundegard, Julie Kupecz, Wendy Macpherson, David Awwiller, and Leo Lynch (listed roughly in the order I met them). Coming of age in research in the 1970s and *not* being the only woman in the group was another stroke of luck. Researchers at the Bureau of Economic Geology were also an important presence in the UT diagenesis group and Bob Loucks in particular provided key opportunities for me to work on the chemistry of Gulf Coast sediments. Later work with Steve Laubach and the BEG FRAC group focused on mechanical aspects of diagenesis.

Mentors are important, but one's career goes better yet in the company of friends. Kathie Marsaglia encouraged my participation in the ODP and IODP and introduced me to smear slides of unconsolidated mud. Sally Sutton has continued to inspire my focus on the higher end of the diagenetic temperature spectrum. These dear friends have picked up on mentoring for career matters in ways that no one else thought to do. My career has always gotten a vital boost on the home front as well. Marrying fellow geoscientist and best friend Steve Seni was most fortunate because he has never needed any explanation of "why" when it comes to the sometimes extraordinary hours I spend at work. Daughter Katy may "hate rocks" but always, even from a young age, she has stepped up to make it easy for me to be both a mom and a scientist. From her high school years Katy also stepped in as wardrobe mentor, thank goodness.

Although I have never held a formal teaching appointment, there are still students among my collaborators and educational materials among my projects. "Doctor daughters" Astrid Makowitz and Aysen Ozkan, master's students Petro Papazis, Max Pommer, and Suzan Ergene, and post-doc Suk-Joo Choh couldn't make me any prouder if I was actually their mother! A list of my recent collaborators is too long to include here, but I am pleased to mention the Bureau of Economic Geology under the direction of Scott Tinker, which, since 2008, has provided a wonderful and supportive home for my research and opportunities to work with fellow mudrock students at the BEG and from across the global petroleum industry.

In closing I want to mention that memberships in SEPM and AAPG have enriched my career, most especially by the opportunities to meet and work with great colleagues who love the geosciences as much as I do. My time as associate editor of SEPM's *Journal of Sedimentary Research* and a later term as Co-Editor were some of the most satisfying activities of my career. I encourage young geoscientists to join these societies and become active. Forty years from now you'll be very glad you did.

Kitty L. Millen



Mark D. Zoback
Robert R. Berg for Outstanding Research Award

Citation—Mark Zoback's distinguished research in the field of reservoir geomechanics has revolutionized how petroleum geoscientists and engineers understand and manage subsurface geomechanical complexity.

It is my honor and pleasure to write the citation for Mark Zoback, the 2015 recipient of the AAPG Robert R. Berg Outstanding Research Award.

It is the embodiment of his 40 years of research and teaching excellence that has driven Mark's distinguished career and his enormous influence in revolutionizing how petroleum geoscientists and engineers understand and manage subsurface geomechanical complexity. This ethic of research excellence has created a vast community of colleagues, former students, and industry geoscientists and engineers who follow and apply his recommendations, thus propelling the field of reservoir geomechanics into becoming one of the most important areas of applied petroleum geoscience.

Mark holds a B.S. in geophysics from the University of Arizona and M.S. and Ph.D. degrees in geophysics from Stanford University. During his early years as a scientist at the USGS he held the positions of chief of the In-Situ Stress Measurement Project and chief of the Branch of Tectonophysics. Mark joined Stanford in 1984 as a professor of geophysics, has served as the Chair of the Geophysics Department and is also now a senior fellow at the Precourt Institute for Energy.

Mark has received too many honors and awards to list here, but it is especially important to note that he is an elected member of the

National Academy of Engineering and was honored as the Chinese Academy of Science as an Einstein Chair Professor. Mark's professional service is also extensive and includes terms as President of AGU's Tectonophysics Section, chair of the International Continental Drilling Program's Science Advisory Group, and president of the American Rock Mechanics Association. Mark was a member of the National Academy of Engineering committee investigating the Deepwater *Horizon* accident and the Secretary of Energy's committee on shale gas development and environmental protection.

Rather than further detail this chronology or attempt to summarize Mark's 300+ publications, let's examine some of his research accomplishments within the breadth of the principal areas he has impacted.

During the early years of Mark's career at the USGS, he and his colleague (and wife) Mary Lou Zoback, laid the groundwork for the development of the World Stress Map, which is the starting place for investigations of crustal stress state.

With the help of his students and colleagues, Mark developed techniques for determining in-situ stress magnitude and orientation from wellbore data which provides industry with the most geologically complete method of determining stress state. This work led directly to the creation of GeoMechanics International Inc., which is now part of Baker Hughes.

Mark led a number of scientific drilling projects including the San Andreas Fault Observatory at Depth project which successfully logged, cored, and instrumented the active fault zone at seismogenic depth, leading to an improved understanding of fault mechanics. This important example is a testament to Mark's career-long influence in the collection the acquisition of first-hand in situ data, which has been pivotal in the theoretical development of the field of reservoir geomechanics and its widespread applicability.

More recently, Zoback and his students have been investigating the geomechanics of ultra-tight reservoirs. This is a continuation of Mark's commitment to integrating laboratory and field data, where he and his students are linking rock constitutive behavior to lithologic characteristics, which is revolutionizing how reservoir stimulations are perceived.

Lastly, one of the most powerful applications of Mark's work is the conceptual development, successful scientific testing, and widespread application of the critically-stressed-fault hypothesis. As he states in his book *Reservoir Geomechanics*, "faults that are mechanically alive are hydraulically alive." This observation has vital implications for our understanding fluid flow and triggered seismicity in the Earth's crust and creates a unifying framework for understanding the relationship between the stress, faults, fractures, and permeability.

Mark is also very active in the arena of public policy and awareness of the economic, social, and environmental value of shale reservoir development. Mark's work on the characterization and mitigation of induced seismicity is central to the debate currently playing out internationally on the benefits and hazards of hydraulic fracturing and wastewater injection.

Throughout his career, Mark has been an enthusiastic teacher and mentor to his students and to countless individuals in the petroleum industry. Publication of his book *Reservoir Geomechanics* in 2007 is a critically important contribution that should be studied by any geoscientist who wishes to improve the way they explore for and manage hydrocarbon resources. As testimony to his teaching footprint, in the spring of 2014 over two thousand students completed Mark's online reservoir geomechanics course.

Peter Hennings

Response

It is a pleasure and honor to receive the Robert J. Berg Award. I'd like to thank AAPG, Peter Hennings, who generously agreed to be my biographer, and those who nominated and selected me for this award.

Having been a research scientist throughout my career, I've had the pleasure to work closely with many outstanding colleagues–both in academia and in industry. Having had the good fortune to be a professor of geophysics at Stanford for the past 30 years, I've also had the opportunity to work with a number of remarkable

graduate students and post-docs. It should come as no surprise that trying to keep ahead (or even keep up) with these challenging young people has been an inspiring, if sometimes exhausting, endeavor. When I start working with a student it typically involves my providing advice and guidance to a highly intelligent, highly motivated, very energetic and somewhat unfocused young scientist or engineer. By the end of my term as their Ph.D. adviser, I have learned as much from these great young people as they have from me. It's with appreciable gratitude that I thank these many individuals for all they have taught me over the years and their contributions to the research being carried out in my research group.

One of the interesting things about working in the field of reservoir geomechanics is that the words seem to mean such different things to different people. To me, reservoir geomechanics represents the integration of laboratory rock mechanics, structural geology, geophysics, earthquake seismology, and reservoir engineering. In this context, if I had any unique insight near the beginning of my career, it was recognizing the fact understanding the state of stress (or the forces) acting in the Earth at depth had the potential to be the glue that could hold these fields together.

My work on the state of stress in the Earth's crust had two beginnings. As a post-doc at the U.S. Geological Survey, I joined a rag-tag drill crew attempting to use hydraulic fracturing as a technique for making in situ stress measurements at depth. This required me to get involved (up close and personal) with the challenges and rewards of drilling and downhole measurements, ultimately in a wide variety of geologic environments. This led to my long-term engagement in using scientific drilling to address a range of fundamental questions in earth science. In projects big and small in different parts of the world –which started with 1000 ft boreholes that we drilled ourselves in the Mojave desert and eventually led to high profile projects like the KTB project in Germany and SAFOD (the San Andreas Fault Observatory at Depth). Working on projects like these produced a wide range of challenges and rewards as well as the establishment of the International Continental Drilling Project. It's great to have the opportunity to recognize Barry Raleigh and the late Jack Healy of the USGS for their support and encouragement at the beginning of my career and colleagues like Steve Hickman and Bill Ellsworth (as well as many others) for their many efforts to make SAFOD such a success.

The other beginning to my work on stress in the crust was with Mary Lou Zoback. As part of her Ph.D. studies, she was interested in the state of stress in the Basin and Range province. I was becoming interested in the state of stress in intraplate areas to better understand intraplate seismicity. This led to our 35+ years collaboration making comprehensive maps of stress orientation and relative magnitude in intraplate areas. We began this work by trying to understand how to utilize different kinds of data (direct stress measurements in wells, geologic indicators of contemporary stress, earthquake focal plane mechanisms, etc.) into unified maps of intraplate tectonic stress fields. Our first map of the contemporary stress field in the coterminous United States was published in 1980. A decade later the very successful and impactful World Stress Map project, led by Mary Lou, resulted in the first publication of a World Stress Map in 1992. After 42 years of marriage, decades of scientific collaboration, navigation of the pitfalls and pleasures of raising two wonderful, now adult children, it is a pleasure to acknowledge her many contributions to my life and career.

Needless to say, I had no idea so many years ago that my work as a post-doctoral scholar (and driller's assistant) or my collaboration with Mary Lou on mapping stress orientations and relative magnitudes would, in fact, provide the glue that makes reservoir geomechanics practicable. It became clear about 20 years ago that the analysis tools we had been developing had utility in addressing everyday problems in the oil and gas industry. In 1996, Colleen Barton, Dan Moos, Pavel Peska, and I founded GeoMechanics International. By the time GMI was acquired by Baker Hughes in 2008, the company had carried out well over 1,000 projects for about 200 companies. It is gratifying to know that the technologies we developed

have been applicable to such a wide range of problems in the hydrocarbon industries–from wellbore stability to exploiting fractured reservoirs to quantifying the potential for fault slip to occur. It is equally gratifying to see these technologies continue evolve and provide guidance as the oil and gas industry addresses an increasingly broad range of important societal problems.

Again, I thank AAPG for recognizing my work with this wonderful award.

Mark D. Zoback

RONALD F. BROADHEAD
Distinguished Service Award

Citation—To Ronald F. Broadhead in appreciation for his leadership, vision, and dedication to influential AAPG's online journal, *Search and Discovery*, while serving as its editor.

Ron Broadhead is in his second term as the editor of AAPG's online journal, *Search and Discovery*. Ron has also continued as the compiler of the quarterly *Search and Discovery Digest* even as he serves as Editor. With invaluable assistance of Administrative Editor, Mary Kay Grosvald, he has organized the efforts to acquire, edit, and publish worthy articles, a monumental task. During his tenure as Editor, more than 700 articles have been published in *Search and Discovery* on an annual basis. More than 11,000 items, including abstracts of meetings, have been added to the *Search and Discovery* library. The 20th issue of the theme-oriented *Digest* will be available shortly. The popular mobile application (app) program, initiated in late 2012, is now developed for ACE, ICE, sectional, and regional meetings.

Ron joined AAPG as a graduate student at the urging of Dr. Roy Kepferle of the USGS. He quickly became enthusiastic about the wealth of scientific information available through AAPG publications. After graduation and a couple of trips to AAPG conventions where he attended field trips and core workshops, he became "hooked." Actual involvement with AAPG started in 1985 when he was elected to the House of Delegates as representative of the New Mexico Geological Society. A place on the Membership Committee followed at the invitation of Robbie Gries. Involvement with AAPG has continued to the present. Ron thoroughly believes that members need to contribute to AAPG if it is to remain a dynamic, vital, and exceptionally useful organization.

Ron Broadhead's interest in geology developed in stages. As a young boy living in southern Illinois, he lived among outcrops of Pennsylvanian strata. Some of the floors in many of the local homes were made of slate (actually locally quarried Pennsylvanian shales). Hiking through the stream drainages made him aware of the existence and beauty of rocks. Later, after the family relocated to the "rockless" Chicago area, he received a Skilcraft geology kit for Christmas one year; this rekindled interest. Every year he received something scientific- or engineering-oriented as a present and it was the geology kit that seemed to "stick" more than the others. In junior high school science class, he saw films about geology and the petroleum industry produced by Shell Oil Company. This made him aware of geology on a much larger scale and how useful it was as a science. The cementing influence was an earth science class he took during his senior year of high school. The class, despite a lack of a field environment, was an excellent introduction and further piqued his interest.

He developed an interest in petroleum geology through both educational exposure and pragmatism. As an undergraduate student at New Mexico Tech, he developed a keen interest in stratigraphic and sedimentary geology through the classes of John MacMillan and Christina Balk. Spending the occasional Saturday afternoon leafing through

journals in the college library, he came across several papers in the *AAPG Bulletin*, all of which convinced him that petroleum geology was a scientifically invigorating discipline that required knowledge of a large spectrum of the geosciences. With an innate pragmatic bent, he realized that petroleum geology was a dynamic and evolving science that was obviously most useful. So off he went to graduate school at the University of Cincinnati to study Devonian gas shales under Dr. Paul Potter. At the time, because very few were interested in shales, it was a powerful tonic to be involved in leading-edge studies, and new vistas were opened. It quickly became obvious that there was more unknown than known about shales, which are a key ingredient of petroleum systems. Ron has published on a wide range of natural resources (e.g., conventional and unconventional petroleum systems of New Mexico basins, carbon dioxide fields, helium) and has made numerous presentations at meetings.

The information disseminated by Ron's more recent effort with *Search and Discovery* has no doubt served to open new vistas for many petroleum geologists around the world. Who knows how many new concepts were created or aided by the huge amount of leading-edge information provided by *Search and Discovery*? It is only fitting that Ron Broadhead be recognized for his leadership in that regard.

Ted Beaumont and John Shelton

ROSS A. CLARK
Distinguished Service Award

Citation—To Ross A. Clark, for his long-term dedication to the growth of the Canada Region, the House of Delegates, International Leadership and our science.

Ross Clark began his career with a B.A., physics, 1970, from Chapman University, Orange, California followed by a B.A., geology, 1975, also from Chapman. He then proceeded to the University of Southern California where he obtained his M.Sc. in geology in 1980.

Over Ross's 40 years of oil and gas experience both internationally and in Canada he has held a variety of positions beginning as a research scientist with Unocal Corporation for 17 years (1972-1989). During this time he was involved with the discovery of the Erawan, Satun and Platong gas fields in the Gulf of Thailand and the Vesslefrikk and Huldra fields, offshore Norway.

Canadian Hunter recruited Ross where he was a senior technical advisor reporting directly to the president and headed up ground breaking projects such as the Bakken shales. The addition of more sophisticated completion technologies available today has made the Bakken horizontal development the "hot" play in Saskatchewan.

Ross was a cofounder, executive vice president and director of Search Energy (1994-1997), and under his technical direction Search grew from 0 to 2,100 barrels per day in 30 months through prospect drilling and acquisitions.

While at Coparex (1997-1999) he managed business development and exploration functions that saw the company divest of over half of total production (all non-operated) and reinvest the capital into exploration opportunities that saw the company grow from 800 boepd to over 3,000 boepd in 24 months.

At Rosetta Exploration Inc. (1999-2006) he managed the technical team creating the projects that led to the Anadarko joint venture in which over $50 mm was invested earning interests based on ideas generated by Rosetta.

Ross has also recently held executive and director positions at Kallisto Energy Corp. and Berkana, where he personally has been responsible for continued successes there as well.

During the variety of the above work experiences Ross also has been an AAPG member for over 30 years and an active AAPG volunteer for the last 20 years where his passion for the geosciences is always engaging, energetic and proactive in his

administrative and technical roles with AAPG. Volunteer service examples including

- Promoting the petroleum industry and the AAPG to students through his university visits, related lectures, and short courses, and continued support for student leadership meetings.
- Broadening the reach of the Canada Region beyond Calgary and Alberta through cooperation with affiliated societies, workshops with national and international attendance, and his support of the Regions Student Chapters and IBA program.
- Engaging members and potential members through involvement in and support for local, regional, and ACE geoscience networking events.
- Being instrumental in implementing Geoscience Technology Workshops (GTWs) in Canada; co-chairing the first two workshops, recruiting presenters of international stature and soliciting funds.
- Taking the lead role in ensuring the AAPG Canada Region is registered as a society in Alberta.
- Haas-Pratt Distinguished Lecturer (1995-1996) and ongoing recommendations for new Distinguished Lecturers.
- Reviewing and recommending educational proposals and promoting events.
- Furthering geoscience education by serving on the AAPG Education Committee as chair and associate-chair.
- Promoting AAPG as a scientific association by serving as associate editor of the *Bulletin*.

He is passionate in promoting the AAPG and in particular the benefits of the association and membership to students and young professionals. He has been instrumental in encouraging and actively recruiting representatives of these groups to volunteer and serve in leadership roles for the Canada Region.

As president and now past president of the Canada Region, Ross has taken a leadership role in promoting the Region, and AAPG in general, and ensuring cooperation and collaboration with the affiliated societies of the Canadian Society of Petroleum Geologists (CSPG) and the Atlantic Geoscience Society (AGS), and also with other Regions, for example assistance to the Latin America Region for its ICE planning.

Ross has been a true leader in inspiring acceptance and support for new Region initiatives, such as GTWs and regional meetings, and in engaging, encouraging and enabling the next generation of geoscience leaders. He has had a significant and positive impact on the Canada Region overall and is ever humble about his contributions.

His service to the Association has been both long-term and far-reaching and I know he is well-deserving of this award. I, along with many other geoscientists, am honored to know Ross. Congratulations Ross!

David Dolph

DENISE M. COX
Distinguished Service Award

Citation—For leadership, mentoring, and passionate support for student, young professional, and women in geoscience programs that reinforce AAPG's commitment to geoscience excellence and global diversity.

Denise Mruk Cox was born and raised in Elmira Heights, New York and was of the first generation in her family to attend college. An astrological chart reading from a high school class in Near and Far Eastern Religions predicted she would have a career "working with the earth." Having no role models in earth science, it was not clear what that meant until she took her first geology class during her sophomore year at the State University of New York at Binghamton. Denise completed her B.S. in geology with honors in 1980 and, inspired by AAPG Visiting Geologist Susan Landon and the AAPG Convention in Denver, moved to

Colorado to pursue a career in geology.

Denise began her geoscience career at the U.S. Geological Survey in Denver working for the Uranium & Thorium and Oil & Gas Branches. Working as a student volunteer for an AAPG field trip to the Guadalupe and Sacramento Mountains in west Texas and New Mexico cemented her decision to return to graduate school to study carbonate rocks. Denise received her master's degree from the University of Colorado, Boulder, in 1985 and began her petroleum career as a reservoir geologist with Marathon Oil Company at the Denver Research Center. Dressed for success in her white lab coat, she augmented her understanding of reservoir systems under the tutelage of world-renowned geoscientists, engineers, and the cores she walked by each morning on her way to her workroom in the back of the core building.

It was the cores from Marathon's Yates Field and the 1980s to 1990s era of San Andres reservoir characterization that drew Denise back to west Texas and into Marathon's Midland office. She traded her lab coat for a hard hat and steel-toed boots and spent the next 15 years working in the heart of the oil patch, applying research and new technology to exploration and production projects in the Permian Basin and East Texas.

In 2002, Marathon began a company restructuring. Denise bought a good suitcase, diversified her technical background into unconventional reservoirs, transferred back to Denver, and then moved to Houston to work coalbed methane in the Powder River Basin. In 2004, Denise left full-time employment with Marathon and returned to Denver. She consulted for a year with former Marathon colleagues at iReservoir on projects in the Permian Basin and Kansas before taking on a three-year consulting project in Aberdeen to evaluate coalbed methane and shale gas potential in the United Kingdom.

Denise retired her consultant's suitcase in 2008 to move to Panama City, Florida, and work full time with her husband, Kurt, on projects for their company, Storm Energy, Ltd. She works regional stratigraphic projects to identify areas to shoot 3-D seismic for conventional carbonate reservoirs. Storm Energy partners with companies on projects in Texas, Oklahoma, and Kansas. Denise had her first conventional exploration discovery in 2014 and is shopping for a new suitcase and a comfortable pair of Ferragamos for her mentoring and outreach activities.

Denise began her volunteer and outreach activities with local geological societies in Midland, Texas. She organized field trips, short courses, and symposia, and edited publications for the West Texas Geological Society (WTGS), the Permian Basin Section of the Society for Sedimentary Research (PBS-SEPM), and the Permian Basin Graduate Center (PBGC). In recognition of her contributions, Denise has received Distinguished Service Awards from both WTGS and PBS-SEPM.

It was on a west Texas field trip that Bill Morgan invited Denise to serve on the AAPG Grants-in-Aid committee. Reviewing scholarship applications gave Denise an overview of research from institutions around the world and heightened her interest in mentoring students. GIA was the cornerstone of Denise's commitment to AAPG. Denise became an AAPG Foundation Trustee Associate in 2001 and established the Mruk Family Grant to honor her family. She serves as committee member emerita and continues to recruit members for GIA and AAPG service.

As chair of GIA, Denise attended the AAPG Summit on Committees in the late 1990s at which she connected with female geoscience role models and leadership mentors, Robbie Gries and Pinar Yilmaz. They helped her build US and international networks of AAPG members. More importantly, AAPG provided leadership guidance and mentoring that led to a chain reaction of committee and chair appointments: Academic Liaison, Student Chapters, Student Expo, Young Professionals, PROWESS, Education, and Visiting Geoscientist. Denise saw the bigger picture and was appointed as one of the first AAPG committee managers. Her committee affiliations extended to Astrogeology, History of Petroleum Geology, Preservation of Geoscience Data, Public Outreach, and Youth Education.

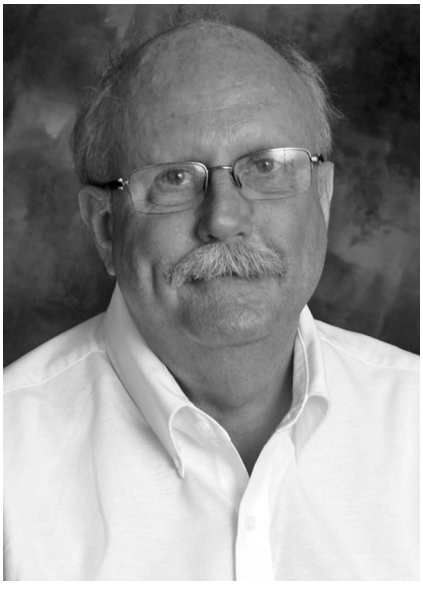
Denise extended her leadership activities to AAPG's House of Delegates to serve as the Southeastern Geological Societies representative.

AAPG's Leadership Conferences took Denise to the next level of commitment to AAPG. Like many other AAPG volunteers, I recognized her leadership potential with a phrase Denise uses today when she mentors young leaders, "Let me know when you're ready [to be nominated]." Denise has modified this phrase to include, "and you ARE ready."

Denise was elected AAPG secretary 2010-2012. As secretary, she had oversight of the Outreach committees, so she traveled to every national, international, and most Section meetings to connect with AAPG members. She made a concerted effort to connect with and mentor students and Young Professionals. She is still virtually connected to AAPG's future leaders through Facebook and Linked-In and is always available to e-mentor or crash a leadership function to share her insights and support.

Denise is the 2014-15 president of the Association for Women Geoscientists, where she continues to be an ambassador for AAPG and a mentor for both men and women in the geosciences. Her dedication exemplifies the long-term, beneficial service to AAPG that makes Denise so worthy of this Distinguished Service Award.

Gretchen M. Gillis



JOHN DOLSON
Distinguished Service Award

Citation—To John Dolson for his life-long dedication to science, outreach programs, students and young professionals, for championing international growth and for serving as AAPG Vice President.

My enduring image of John is of him standing over an articulated skeleton of a *Basilosaurus* sp. in Whale Valley in the province of Fayoum, Egypt waving his hands about in sheer excitement while explaining to a group of students, professional geos and novices how these proto whales ended up beached in the middle of the desert. That's what John Dolson is all about; doing fact based science and mentoring young professionals and students with what he has learned during his career.

From his boyhood hobby of digging fossils in Missouri to his first job as a park ranger, John has embraced life with a fevered enthusiasm for geology and the outdoors. His passion was first tested when he taught middle school students science during which time he helped develop an energy and environmental curriculum, along with AAPG geologists, for use in the Colorado school system. His interest in petroleum kindled, he earned a M.Sc. at CSU and was hired by Amoco only to become a lifer spending 28 years with the company.

John moved to Egypt in 1994 to work at GUPCO, an Amoco joint venture with the government which, as he discovered, put his mentoring skills to good use. Egypt was fertile ground for John since his volunteer work with AAPG and RMAG, as well as co-founding the Friends of Dinosaur Ridge, provided him the skills and determination he needed to implement a number of important volunteer projects. Those proto whale skeletons he got so excited about? They were being plundered by souvenir hunters so he got himself involved with UNESCO to save the valley which, in 2005, became Whale Valley Wadi Rayan World Heritage site. He also saw a need and niche for AAPG to become more active in Egypt and in 1997 initiated a Hedberg on rifts that drew the world's experts together. In 2002 John did an outstanding job as chair of the field trip committee for the AAPG ICE in Cairo, which was the first event to be held jointly with SEG and EAGE, and was barely one year after 9-11. Also, as part of his commitment to mentoring students, he helped establish two student chapters in Egypt as well as chapters in Russia during his

four-year assignment with TNK-BP.

John was elected AAPG vice president 2006-2007 and established himself as a key advocate for international members and expanding AAPG's presence in the regions. He did this by promoting and helping to establish the first overseas office in London, by recruiting key international members to volunteer and run for office and by forming a global committee which helped lead to instituting the office of Regions vice president. His commitment to students continued while in Russia by mentoring the Moscow University team who, at Denver in 2010, won first place in the IBA competition.

Before moving to Russia, John spent 18 months in the UK in BP's basin analysis group where he literally surveyed the entire globe in search of oil. John was convinced there was a lot of oil yet to be found. Even back in 2001 he published a paper on yet-to-find oil in Egypt that became the gold standard to read for anyone interested in Egypt's potential. He subsequently updated the paper in the 2014 AAPG Tetheyan Margins Memoir. He wrote a chapter in the 1999 *Stratigraphic Traps* for AAPG *Treatise of Petroleum Geology* based on his work in the domestic United States and as part of a renewed exploration effort in Egypt's Gulf of Suez, which added millions of new barrels for Amoco in a mature exploration province.

Once retired in 2008 John started a consulting company, DSP Geosciences, and, along with his wife, Debbie, now travels the world working projects and mentoring young petroleum geoscientists. As soon as he retired, I asked him to work on an Egypt project because I knew he would be laser focused on mapping the petroleum system and generating prospects while concurrently mentoring our young geoscience team. John continues his mission to educate by his service as adjunct professor at the University of Miami and previously at Moscow State University, CSU, and others. He also plays a mean banjo whether on an outcrop or on stage at an AAPG event.

Throughout his life John has inspired a lot people but, as he is quick to point out, it is a continuum with family, friends, and colleagues, like Bob Weimer, Frank Ethridge, James Enderson, and Robbie Gries, inspiring him to achieve his calling and give back to the community and AAPG.

David Blanchard

MEREDITH FABER
Distinguished Service Award

Citation—To Meredith Faber, in appreciation for her leadership and dedication to AAPG's Young Professionals initiative, including providing logistical support, coordination and direction for the *AAPG EXPLORER*'s monthly column, ProTracks.

AAPG recognized the impending "Great Crew Change" several years ago and realized that a new Association-driven focus was needed to assist, guide and engage young geoscience professionals who had the skills and passion to be part of the energy industry. That initiative began with an effort to recruit new professionals to join the AAPG ranks by establishing the Young Professionals Committee.

And fortunately, Meredith Faber was among those who were willing and able to step in and make a difference.

Meredith has been a dedicated and hard-working member of AAPG since the day she joined—and it is no stretch to say that her tireless efforts have not only led to a brighter spotlight on AAPG YPs and their many programs, but also have proven to be crucial in communicating the AAPG-YP story to the entire membership.

She is the current YP Committee co-chair, and in that capacity she provides insight and enthusiasm to efforts that engage Young Professionals around the world. Those efforts include nearly two years of recruiting authors, organizing schedules and directly writing articles for the *AAPG Explorer*'s popular ProTracks column, which has become a prime communications tool for the committee. She also has been very

active communicating the committee's activities and ideas to the AAPG membership through the AAPG Explorer. Her dedication in that regard has made the Young Professionals program an increasingly integral part of the AAPG family.

Perhaps writing and involvement with the Explorer wasn't completely unexpected for her—Meredith's first love was English literature. But as the daughter of a geologist, geology was always a very close second! Born and raised in Texas, Meredith attended Trinity University in San Antonio where she joined AAPG as a student member in 2003. She graduated with a Bachelor of Arts degree in English and a Bachelor of Science degree in geosciences in 2005.

She went on to attend graduate school at Southern Methodist University in Dallas, where she split her time between teaching oceanography lab classes, participating in various student organizations (including the SMU AAPG Student Chapter) and earning a doctoral degree in geology with an emphasis in stable isotope geochemistry. She completed her dissertation research on isotopic and ecological investigations of the land snail record and novel data management techniques in 2012.

After graduation, Meredith joined Swift Energy Company in Houston, to work in exploration in onshore South Texas. Meredith moved to Noble Energy in 2014 and currently works in the Marcellus Business Unit.

She credits AAPG with providing the opportunities that resulted in her present career path, and considers it a privilege to give back to the Association by serving as the Young Professionals Committee co-chair. In addition to AAPG, she is a member of GSA, SEG, the Phi Beta Kappa Society and the Houston Geological Society.

Outside the office, Meredith enjoys Pilates, swimming, volunteering and long-form improvisational comedy. She also is an avid amateur wildlife photographer, with a particular penchant for insects, snails, slugs and spiders.

Meredith's diverse interests have served her well, and have benefited our Association. AAPG was fortunate that one of her interests was to grow the young professionals program. Thanks to Meredith and the Young Professionals Committee, AAPG's future is in good hands.

Ted Beaumont

WILLIAM S. HOUSTON
Distinguished Service Award

Citation—In recognition of Bill's dedicated and enthusiastic service to the Association in general, and to Students and Young Professionals in particular.

William S. Houston is a 'tweener', too young to be in the baby boom generation and too old to be a millennial. This makes Bill just what AAPG needs more of. Bill has been eager and willing to learn from AAPG's boomers, earning the nickname "Grasshopper" during his time on AAPG's Executive Committee. As a tweener, however, Bill relates particularly well to young professionals and students, helping AAPG bridge the gap between generations.

Bill earned his B.S. degree in geology from the University of Vermont (1989) and his M.S. in geology from Colorado State University (1994). He spent his early career in academia bouncing between teaching, research and industry consulting. That phase culminated with his working at the American Geological Institute as a project manager developing new middle and high school Earth science curricula. Bill's enduring dedication to geoscience education is now reflected in his commitment to mentoring.

Bill earned his Ph.D. in Geology from Michigan Technological University in 2002. It was while there that Bill met and married Chris Savard in 1998 and subsequently adopted Chris' daughter, Megan.

Between 2000 and 2010 Bill worked for several companies in Denver, including Cabot Oil and Gas, Bill Barrett Corporation, Tom

Brown, EnCana and Samson Resources. During that period Bill had the privilege of being mentored by industry leaders, including Bill Barrett and Robbie Gries.

In 2010 Bill had the opportunity to take a one year contract with the Thailand National Oil Company, so Bill and Chris headed to Bangkok. Following the expiry of that contract, Bill moved even farther east to New Zealand, where he progressed to geoscience manager in late 2011 and general manager of Exploration in 2014 for New Zealand Oil and Gas.

In Bill's words: "From the moment I joined AAPG as a student member, I have greatly benefited from the support provided by all aspects of the organization, including formative professional development, technical and leadership training, networking opportunities and peer interactions."

Bill is committed to paying forward the mentoring he found so beneficial. He has tirelessly mentored young professionals in North America, Thailand, Indonesia and New Zealand. He is equally committed to mentoring within the Association. Bill served on AAPG's Student Chapter Committee for well over a decade, ultimately serving as vice chair (2003-2004) and chair (2004-2007) of the committee. During this time he was also a fixture on the AAPG/SEPM student field trip held around the Annual Convention and Exhibition. He was the committee manager for the six AAPG "Student Focus" Committees from 2007 to 2009. He currently serves on the Grants-in-Aid Committee. In 2014 Bill was the recipient of AAPG's Jim Hartman Service to Students Award.

In his role as a bridge between the generations, Bill served on the AAPG Executive Committee as elected secretary from 2009 to 2011. During his tenure on the EC, "Grasshopper" was mentored by Rusty Riese, John Lorenz, and Alfredo Guzman, a matchless professional development opportunity Bill enthusiastically reminisces about to this day. Bill has subsequently mentored young professionals to aspire to leadership positions within AAPG.

Bill has been active in the Rocky Mountain Association of Geologists, where he served as treasurer from 2004 to 2005 and RMAG delegate chair from 2007 to 2009. He received the RMAG Distinguished Service Award in 2008.

Upon arrival in the Asia-Pacific Region, Bill became an active contributor to the South East Asia Petroleum Exploration (SEAPEX) Society and helped to promote AAPG's interests in the region. He served on the AAPG Asia-Pacific Distinguished Lecture Committee and was a judge for the Asia-Pacific Imperial Barrel Award finals in 2012, and was the Student Programs chair for the AAPG 2012 International Conference and Exhibition in Singapore.

As for many petroleum professionals, Bill's history has involved the many uncertainties that come with moving between companies and countries. Through it all he has had the backing of the extended Houston and Savard clans, and the steadfast support of Chris and Megan. In addition, key AAPG supporters have included Gretchen Gillis, Kaye Pitts, Jim McGhay, George Bole, Don Clarke, Peter Baillie, Peter MacKenzie, Richard Ball, Vicki Beighle, and Mike Mlynek.

When not working, volunteering or mentoring, Bill and Chris enjoy camping, fishing, water sports, and multicultural cooking. They have had the opportunity to do so throughout New Zealand. If you are going to enjoy outdoor activities, especially in a dynamic geologic province, New Zealand is one of the world's best places to do so. To quote Bill, "it doesn't suck".

Robert Shoup

MARK W. LONGMAN
Distinguished Service Award

Citation—In recognition of his revered petrographic skills, his endless and critical research on

carbonate reservoirs, and his essential editorial counsel to countless writers of earth science.

Recognized by his peers as a world-class carbonate petrographer, Mark W. Longman is so much more than that, and he is honored today for distinguished service to AAPG. Mark was born and raised in Michigan, and formally educated at Albion College and at The University of Texas at Austin where he received his Ph.D. in 1976. Mark was employed at the research facility of Cities Service Company in Tulsa, and moved to Denver in 1981 where he truly began a lifetime of service to his geological community, clients, and employers. After more than 20 years of independent consulting, Mark accepted employment in 2006 with Questar Exploration and Production Co., later to become QEP Resources, where he continues to serve today as senior staff geologist.

Several of Mark's many research publications have proven to be very valuable and timely exploration tools, benefitting many AAPG members. Some notables are (1) his summary of nearsurface carbonate diagenetic environments, (2) work on the Waulsortian mounds (and related hydrothermal influences on the reservoir) that produce oil in Stark County, North Dakota, (3) his explanation of the origin and preservation of porosity in Ordovician Red River dolomite reservoirs elsewhere in the Williston Basin, (4) his studies of the nature, origin and distribution of reef rocks in the Miocene of Southeast Asia, and (5) his work on the Niobrara chalk, where he and colleagues produced a series of papers that describe every aspect of the deposition and diagenesis of this formation which hosts enormous volumes of thermogenic and biogenic hydrocarbons in the Denver Basin. But perhaps the most useful of his many publications is his work on chert reservoirs, specifically those at the classic Glick Gas Field in Kiowa County, Kansas. At that iconic location Mark explained the evolution of sea-floor sponge communities through many depositional and diagenetic changes to produce the "Chat", a reservoir that before "Glick" had as many interpretations as to origin as there were interpreters. Each of these publications (through the auspices of several geological societies) continues to influence oil and gas prospecting, attesting to their timelessness.

In service to professional societies, Mark was an influential member of the AAPG Publications Committee and the AAPG Preservation of Samples and Cores Committee for several years during the turn of the century. But by far his most significant and direct contribution to AAPG leadership was his long service of 25 years as a very dedicated and effective associate editor of the *Bulletin*, a "term in office" greatly exceeding most of his editorial peers. During that same span of time, Mark served RMAG and SEPM in similar capacities. Without exception, when asked about his influence on his profession, Mark's peers emphasize his compositional skills. He has an infinite gift for written expression that he has employed on many occasions, salvaging many "good" manuscripts from inconsistent or conflicting expression, to produce a dynamic, comprehensive, superior report. We are all thankful that Mark can find a way around fuzzy organization and presentation of ideas, and awkward grammar and sentence structure, generating something that is clear, unambiguous and easy to read. Mark is truly the Boswell of his profession. In this capacity Mark influenced the composition, style and format of countless manuscripts for the benefit of AAPG and RMAG authors, each of which benefited from his remarkable ability to compose concise and precise scientific English.

In a similar, long-term but less structured service, Mark served our sister society, SEPM as compiler/editor of several major guidebooks and symposia, the titles of which are too numerous to list here. Mark also served the Rocky Mountain Association of Geologists as first vice president in 1994, and as counselor from 2001 to 2003.

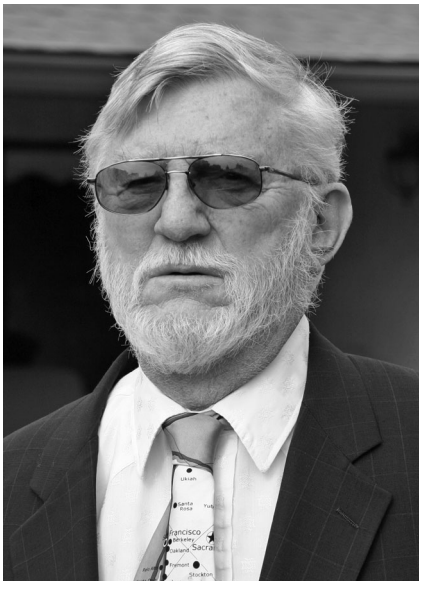
Mark's service to his profession can also be measured in the many conferences, conventions, guidebooks, core-workshops and symposia that he has organized and edited. Too many to list, each carries a profound message for us all. There are few members of this profession that have had as much influence as Mark in educating other geologists and the public through his skills and perseverance in enlisting cutting-edge experts of

all stripes to participate in many scientific venues.

Biographers and librarians will laud the many, significant studies, professional publications, and editorial products that bear Mark's signature, but there is another equally important side to Mark's geological contribution that is obscure from general view. He is a fathomless resource in solving "private" problems in sedimentary geology by applying state-of-the-art solutions to everyday earth-science concerns. Mark is always there to offer technical advice and counsel on petrography, mineralogy, carbonate sedimentology, diagenesis, pore geometry, and dozens of related sciences for many individual geologists that ask for his help. Joe Blow needs to understand the genesis and history of porosity development in his regional reservoir study, and there is Mark to grab a few photomicrographs or core photos, and provide Joe with a concise explanation of the problem and its solution. No one can measure the depth and significance of Mark's guidance and influence on countless private reports and publications where at his modest request, his expert counsel goes only casually mentioned, if at all. And never compensated except through the admiration of his peers.

With great satisfaction we recognize today the skills and contributions of Mark W. Longman in dedicated and distinguished service to AAPG.

James P. Rogers



JOHN A. MINCH
Distinguished Service Award

Citation—To John Minch for his long term leadership in the AAPG and Pacific Section AAPG and singular efforts to provide public access to geologic data.

John A. Minch was born in Hollywood, California, and spent most of his childhood in South El Monte. He enrolled in Pasadena City College as an electrical engineering student. He was required to take a science class and geology had the reputation of being the most interesting. He fell in love with geology and quickly took three more classes. The result was an Associate's degree in geology in 1960. He went on to get his B.A. in geology at San Diego State University in 1964, and his M.S. in biostratigraphy in 1966 also at San Diego State University. His Ph.D. in paleontology and biostratigraphy from the University of California at Riverside followed in 1972. John also served in the National Guard in 1962.

John is a geologist-paleontologist and for over 35 years, a principal/general manager of John Minch and Associates (JMA), a geological consulting firm in Mission Viejo, California. As a consequence he conducted and wrote hundreds of environmental impact reports, remediation and resource studies involving biological, geological, and paleontological surveys in California. He has published and edited in excess of 600 technical maps, papers, guides, articles, and books relating to geology, paleontology and Baja California. John's masterful *Roadside Geology and Biology of Baja California* published in 1998 is out of print but still in demand.

Over the years John has focused considerable time on community outreach and education. John was professor of geology at Saddleback College in Mission Viejo, California from 1972-1995. He is currently a professor emeritus at Saddleback College. During his time there he developed a program that involved the instruction of geology through field trips conducted in the western United States and Mexico.

John was a member of the Board of Trustees of the Dibblee Foundation from 1989 until it was incorporated into the Santa Barbara Natural History Museum. In 1998 he embarked on the task of editing, colorizing and publishing the entire archive of Tom Dibblee's geological quadrangle maps for the Dibblee Geological Center at the

Santa Barbara Museum of Natural History. He completed a job that had been long in the making and was able to make this seminal work (563 California quadrangles) available to the public. He is proud of the fact that his son, Jason, was a critical part of that team.

John Minch has been an active member of AAPG for more than 35 years. He is also a member of PSAAPG (Honorary Life Member 1998), Coast Geological Society, South Coast Geological Society, GSA and SEPM. He is a Licensed Professional Geologist, State of California and a Certified Paleontologist. John was the founding secretary and is an Honorary Life Member of Sociedad Geologia Peninsular (Mexico).

Within AAPG, John served the Pacific Section as its representative to the Advisory Council 2006-2009 representing the Coast Geological Society in the House of Delegates (HOD) 2004-2007 and serving as convention general chair of the 1996 San Diego Annual Meeting. John was an associate editor for the *Bulletin* and on several committees for the AAPG and DEG.

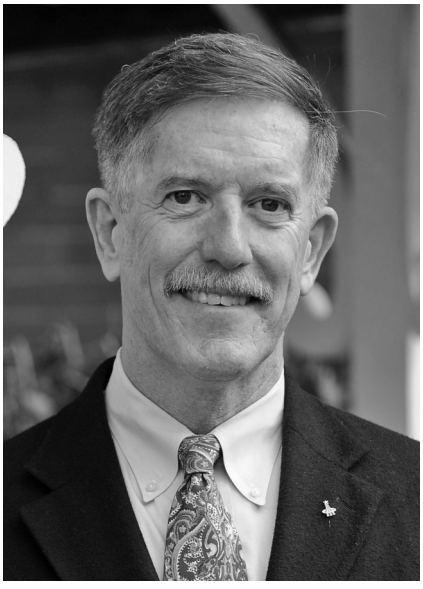
John also chaired two PSAAPG annual meetings in 1974 and 1984, both in San Diego. He was a Levorson Award winner in 1974, president of the Coast Geological Society in 2006-2007, president elect, president and past president of PSAAPG in 2009-2012.

John met his wife, Carol, in an introductory geology class at Pasadena City College (PCC) in the fall of 1959. They sat next to each other in that geology class and he helped her learn to identify rocks and minerals so she could pass the lab tests. He got the highest B in the class; she got the lowest B. The following year John proposed to Carol and they ended up marrying soon after that. John and Carol have three children, Edwin, a 50% owner and CEO of John Minch & Associates; Jennifer, an education editor with Western CPE; and Jason, a land specialist with California Resources Corporation (formerly part of OXY).

We have not been able to iterate all that John has accomplished and contributed to published geologic data over the last 50 years. Through his initiative and dedication, John has also shown very distinguished service to local and national levels of AAPG. He is a man of high integrity. His extensive bibliography shows that he is a closer and as a result our profession and our society have benefited greatly.

John has always shown an exemplary work ethic, enthusiasm and a positive attitude in all tasks he has undertaken. The Distinguished Service Award is presented annually "to those who have distinguished themselves in service to AAPG" and John A. Minch is most deserving of this prestigious award.

Larry Knauer
Mark Wilson
Bob Lindblom



JAMES F. REILLY
Distinguished Service Award

Citation—To Dr. James F. Reilly II, astronaut, geoscientist, teacher and mentor to many students, for his extensive educational outreach events in support of the earth sciences, and co-chair of the AAPG Astrogeology Committee.

Jim Reilly realized his passion for the Earth at an early age. Growing up in California and then Texas, he was fascinated by the Mojave Desert and the granitic ranges in the region and the abundant carbonates and fossils in the area around Dallas. If anything, though, Jim became an accidental geologist. His childhood dream was to become an astronaut and follow in the footsteps of his heroes: John Glenn, John Young, and Jack Schmitt, to name but a few. While attending The University of Texas at Austin and enrolled as an aerospace engineering undergraduate, the US Navy reduced their ranks of pilots

at the end of the Vietnam War. This seemingly blocked Jim's dream of becoming a fighter pilot, test pilot, and astronaut. After building a roofing company with his father, Jim returned to school and began his career in his favorite science earning a B.S. in geosciences from the University of Texas at Dallas as one of the first undergraduates in the university. During his senior year, Dr. Martin Halpern offered Jim the opportunity to enter the graduate program to pursue stable isotope geochronology and participate in the 1977-1978 Marie Byrd Land expedition in West Antarctica. From the samples collected in Marie Byrd Land, Jim was able to demonstrate geochemical and geochronological links from Marie Byrd Land to the Andean orogenic belt that extended through the Antarctic Peninsula.

While in the master's program at UTD, a phone call from a friend began Jim's career in the hydrocarbon exploration industry. Santa Fe Minerals, Inc., in Dallas was looking for an exploration geologist to work in the onshore US and Canada. Jim joined the company in 1979 and was given wide latitude in his responsibilities to include wellsite analysis, prospect generation, reservoir characterization, wellsite permitting, reserves estimation, and geochemical prospecting. In 1980, Jim rejoined Enserch Exploration, where he had been a student geologist prior to joining Santa Fe, as an exploration geologist in the International Division working the North Sea, Argentina, Brazil, New Zealand, and West Africa. In 1985, Jim transferred to the Deep Water Gulf of Mexico team working frontier plays in the Mississippi Canyon, Garden Banks, Green Canyon, and Ewing Bank regions where the small team delivered significant discoveries for the company. During this time, Jim was promoted to chief geologist of the Offshore Region. While working the deep water Gulf Of Mexico (GOM), Jim became acquainted with Dr Jim Brooks and his team at the Geochemical and Environmental Research Group of Texas A&M University. Dr. Brooks' team was following up on their discovery of "cold seep" chemosynthetic communities in the deep-water regions of the GOM where hydrocarbon seepage generated the chemical substrate suitable for community development. Jim's fascination with the communities and the conditions supporting them led to Jim's dissertation: *The Geochemical and Structural Controls on the Distribution of Chemosynthetic Communities in the Gulf of Mexico*. As part of the work, which involved geochemistry, mud lithology, seismic modeling, and biomass characterization, Jim spent 22 days underwater in deep submergence vehicles operated by the US Navy and Harbor Branch Oceanographic Institution.

In 1995, Jim realized his childhood dream of becoming an astronaut when he entered the NASA Astronaut Corps as a member of the 15th Class, the "Flying Escargot." During his 13 years at NASA, Jim flew as a crew member on three Space Shuttle missions: STS-89, a mission to the Russian Space Station MIR in 1998, and two missions to assemble the International Space Station, STS-104 in 2001 and STS-117 in 2007. During his 856 hours in space, he participated in 5 space walks totaling a little over 31 hours. During his tenure, he was also part of the design team developing the crew interface concepts and displays for the International Space Station, an inventory management system for the ISS, he was the payloads and training lead, and a member of the Orion Design Team where he was responsible for crew integration and landing systems. As a member of the Return to Flight Damage Repair Team, Jim worked repair techniques following the Space Shuttle Columbia accident in 2003.

Jim has been an active member of AAPG since 1979, participating in extensive educational outreach events with schools and testifying before the Texas School Board in support of retaining earth science in the middle school curriculum. Since 2008, Jim has been co-chair of the Astrogeology Committee with Bill Ambrose. His passion now is to extend the wonder of exploration, both in geology and in space, with the next generation of geoscientists.

Bill Ambrose

GÁBOR C. TARI
Distinguished Service Award

Citation—To Dr. Gábor C. Tari, an eminent "intercontinental" geoscientist, industry leader, teacher and mentor to many students, for his commitment, loyalty and dedication to the Association through his high-level contributions to the success of many conferences organized by AAPG.

Gábor C. Tari was born in Szeged, southeast Hungary, a historic city flourishing irrespective of the tumultuos history of Central Europe culminating with the 40-year of Communist regime. Born in about the middle of this 40-year period, he recognized early that the a certain level of personal integrity can be achieved through a high level knowledge in natural and technical sciences.

Gábor holds an M.Sc. degree in geophysics from Eötvös University of Budapest (1987), Hungary, where Professor Frank Horvath was his adviser. After being a reseach associate for a few years he went to Houston to get a Ph.D. (1994) in geology and geophysics from Rice University. His thesis work at Rice, dealing with the Alpine tectonics of the Pannonian Basin, was supervised by Professor Albert Bally.

Right after finishing his Ph.D., Gábor joined Amoco and was assigned to various Romanian onshore exploration projects. He transferred to the Amoco Angola Team two years later in 1996. After conducting regional basin studies for offshore bid-rounds, he joined the Block 18 project, where several major oil discoveries were made since then. During his early career with Amoco it became clear to him that he prefers working in the petroleum industry rather than in the academia. As a geoscientist, he resisted to the temptation to withdraw into the "ivory tower" of the pure science and switched to the applied (industry focused) side in the industry, i.e. structural geology, or as a late professor of mine (Prof. András Rónay, 1906-1991) called it, the "philosophy of the geology"—the key discipline to understand and interpret petroleum systems.

Following the merger between BP and Amoco, Gábor continued to work for the new organization, but eventually joined Vanco Energy Company in 1999. At Vanco, as chief geophysicist, then as vice president of geosciences, he worked projects around Africa, including Morocco, Senegal, Ivory Coast, Ghana, Equatorial Guinea, Gabon, Namibia, Mozambique and Madagascar. These years exposed him to a large number of African deepwater basins with various petroleum systems and plays. At Vanco, he also identified another frontier, the Black Sea Basin as a promising and practically unexplored deep water basin in 2004. Beginning of this century was also the time when Gábor became very active in various professional societies, including AAPG.

Since 2007, Gábor is with OMV in Vienna, Austria, working as the group chief geologist on several projects including Romania, Bulgaria, Egypt, Kazakhstan, the Kurdistan Region of Iraq and various Mediterranean, Middle Eastern and African basins.

Growing up in the naturally multicultural part of Europe, earning his Ph.D. in Texas and working on African projects for more than a decade, he has a personal charisma to understand people with very different culture, mentality, religion and work ethics. This is a very important competency for a person willing to work with fellow volunteers in a professional organization with no hierarchical discipline and financial incentives.

Gábor has an exceptional track record of being the main driver or a catalyst for many AAPG conferences. In particular, as the general chair, he organized the 2010 Annual Conference of the AAPG European Region in Kiev, Ukraine. This was a first for an international meeting in the Ukraine with 500 people attending. Additionally, he has been a general co-chair, technical program chair, theme or session chair for the

Marrakech 2011, Baku 2012, Barcelona 2013, and the Tbilisi 2013 meetings co-orchestrated by AAPG Europe. In this role, his latest contribution was to the Istanbul ICE 2014, where as a theme co-chair he secured many presentations from various sources to support a very strong technical program.

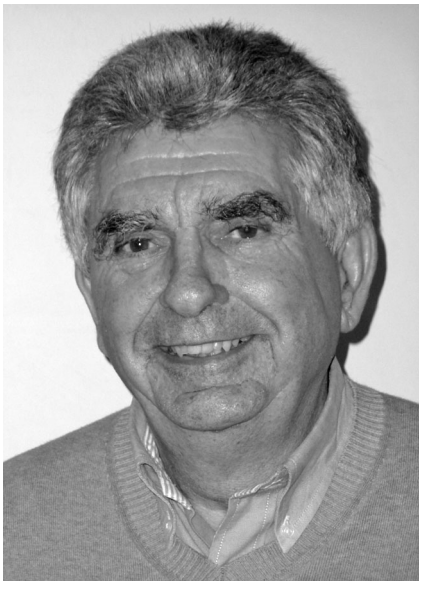
Since joining AAPG in 1991, he has been getting more and more assignments in both at regional and also at global level:

- Distinguished Lecturer in Central and Eastern Europe (2011-2002);
- member of the International Regions Committee (2001-2004);
- member of the International subcommittee of the Distinguished Lecturer Committee;
- associate editor of the *Bulletin* (2009-2014); and member of the House of Delegates (2010-2016).

Besides working in the oil and gas industry, Gábor is also engaged in academic affairs by teaching seismic interpretation to graduate students, for a number of years at Rice University, Houston, and lately at the University of Vienna in Austria. In this role, he is also part of AAPG's Visiting Geoscience Program to provide technical education to the growing numbers of Student Chapters in Europe.

A highly deserved award…

István (Steve) Bérczi



PETER WIGLEY
Distinguished Service Award

Citation—To Peter Wigley, innovative, creative geoscientist, pioneer in digitization of geoscientific data (logs, articles, maps, seismic), and architect of AAPG's DEO- GIS project.

Peter Wigley is from the county of Cornwall, at the very southwesternmost tip of the UK. Cornwall has a long industrial heritage of tin and copper mining, and through his father, Peter became interested in the minerals which could be found in the spoil heaps of abandoned mines. In Penzance, an inspirational grammar school teacher, Bob Quixley, taught geology to Peter and others during the lunch hour. As a result of this, Peter decided to study geology at college.

Peter majored in geology at University College London, and after graduating in 1969 he began his study for a Ph.D. in carbonate sedimentology. During this time he did research in the Caribbean on a joint project involving the Hydrographic Office of the Royal Navy and various UK universities. After completing his Ph.D. in 1972 he met Paul McDaniel, a meeting that set the course of his geological career. Paul had just established ERICO, a consulting geologic firm that pioneered the concept of nonexclusive geologic studies. I first met Peter in 1974 while working over the summer for ERICO. He was conscientious and very efficient in his work and was kind to colonists. For the next 20 years, Peter worked on projects in the North Sea, Mediterranean, Africa, the Middle East and the Far East. His time at ERICO was enjoyable and fulfilling, and Peter worked with colleagues who were both mentors and friends, including Konrad Habicht, Mike Brady, Bill Ward, and Mateu Esteban, among others. In the early 1980s, Peter became interested in applying digital technologies, first to well logs, then to technical articles, and later GIS. In 1989, Wigley's demonstration to the AAPG Executive Committee resulted ultimately in the digitization of AAPG publications by Datapages. After Peter left ERICO in 1991 to become an independent consultant, the Masera group, generally Paul McDaniel, Rick Fritz, Larry Gerken, Ron Hart, and I, worked with him on a number of geological studies. His interest in GIS continued to develop, as manifested by the digitization of South American and African geologic maps. Also, during this time he continued to

work with us at Datapages on the project to digitize all AAPG publications.

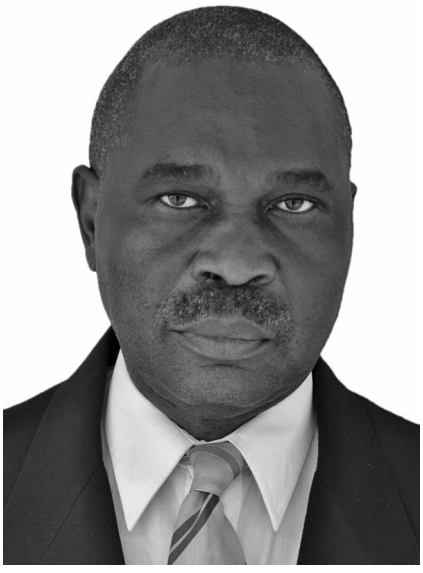
In the early 1990s, Peter and Charlie Hewlett co-founded Lynx Information Systems Ltd, a company that reconstructs seismic traces as SEG-Y from scanned paper records. Later at Lynx he built a new GIS-based business. Peter continued to advise us at Datapages, especially on GIS, as related to AAPG publications. Wigley is a member of the AAPG GIS Publication Committee and the Datapages Board. Most significantly, as a volunteer, he is director of the AAPG Datapages Exploration Object GIS project (DEO-GIS), a GIS service that provides users with online web access to articles and figures from the AAPG Datapages archival library. To date, DEO-GIS features over 35,000 georeferenced map figures and 11,000 geo-located seismic figures, the latter based on work by Mike Horn, and cross sections. These data are served by Datapages using ArcGIS Server and accessed through a web-based map viewer.

In addition to Peter Wigley's invaluable services to AAPG in conceiving and developing Datapages and now his unparalleled volunteer work as director of DEO-GIS, he has directed the update of Dr. Ed Purdy's original maps as "Exploration Fabric of Africa" and has built them into a new GIS. This volunteer project is a memorial to Ed, an inspirational geoscientist who mentored a young Peter Wigley during his Ph.D. research, and involves more than 40 sponsoring organizations, donates profits to charities nominated by Christine Purdy, Ed's widow, and provides the GIS to African universities. Two maps from EFA have been published by AAPG, and there are plans for Datapages to operate the project in the future.

Wigley is a Fellow of the Geological Society (London) and recipient in 2008 of the Society's Distinguished Service Award. Again as a volunteer, he has digitized numerous GSL historical documents, the most famous of which are letters of Sir Roderick Impey Murchison, renowned for his work on the Silurian, and the maps of William Smith, the Father of Stratigraphy. The Smith map project will culminate next year by celebrating the 200th anniversary of the first publication of his maps. Those maps, along with a Smith map that until now has been incomplete and unpublished, will be accessible as enhanced documents produced by Peter using GIS, on a new website dedicated to William Smith's work.

Peter is married to Dr. Caroline Wigley, biomedical researcher/medical educator, and lives in Devonshire. They have two married daughters and two granddaughters. Outside geology Peter is interested in opera and historic British sports cars.

John Shelton



SAMUEL O. AKANDE
Grover E. Murray Memorial Distinguished Educator Award

Citation—To Sam Olusegun Akande for decades of his mentorship and motivational leadership of young geoscientists in the integration of structural geology, stratigraphy, sedimentary petrology and geochemistry for evaluating hydrocarbons and ore metal potentials of Paleozoic to Mesozoic rifted basins.

Having known Sam Akande for well over two decades as a professional colleague, I am in a position to write these notes on him. He attended the University of Ibadan, the pioneer college in Nigeria where he successfully completed the B.Sc. Honours Geology in 1973. An award of a Federal Government Overseas postgraduate scholarship in 1975 took Sam to the University of Western Ontario in London where he completed an M.Sc. degree in 1977 followed by a Ph.D. at Dalhousie University in 1982.

Sam's Ph.D. dissertation, supervised by Marcos Zentilli at the Department of Earth Sciences in Dalhousie, on the depositional environments, fluid inclusion and isotopic characterization of carbonate hosted Mississippi Valley type lead-zinc-barite deposits in the Fundy Carboniferous Basin of Atlantic Canada revolutionized the previous diagenetic hypothesis of origin of this class of mineralization in sedimentary successions considering them as products of hot (150°–250°C) saline brines similar chemically and isotopically to oil field and basinal brines. His Ph.D. study developed to an expanded research on the stratigraphic evolution of the Fundy/Magdalen Carboniferous Basin of Atlantic Canada in relation to hydrocarbon potentials with emphasis on the thermal, burial history and timing.

Sam's postdoctoral research at Dalhousie from 1985–1988 on aspects of this theme was supported by Canadian International Development Agency/Natural Sciences and Engineering Research Council (CIDA/NSERC) in the continued research on the hydrocarbon charge modeling, focusing on the petroleum system evaluation in the rift basins of Atlantic Canada and applications to the Nigeria inland rift basins of the Benue trough within the greater West African rift systems.

Sam's appointment as a lecturer in the Department of Geology, University of Ilorin in 1982 was combined with the postdoctoral research periods thus facilitating the initiation of research projects on the hydrocarbon potential of the Cretaceous sub-basins of the Benue trough and the Bida and the Dahomey Basins with his pioneer graduate students and colleagues. The initial primary goal to map out petroleum source bed intervals of shales, limestones, coal, and mudstone facies in the Cretaceous successions assembled students with interests in the structural setting, stratigraphy and aspects of sedimentary petrology and geochemistry. The team investigated the Cretaceous stratigraphic intervals to identify the most promising source beds for hydrocarbons. This initial study established the thermal maturation patterns, stratigraphic variations and production of a vitrinite reflectance map of the entire Benue Trough sub-basins as published in the 1997 edition of Nigerian Association of Petroleum Explorationists Bulletin with several implications for hydrocarbon prospectivity. Completion of several theses of the pioneer group of graduate students were carried out in collaborations with scientists at Dalhousie where fluid inclusion experiments, clay minerals, and other paleothermic studies were run in the mineralogy laboratories of Marcos Zentilli jointly with Casey Ravenhurst and Sandy Grist while carbon/oxygen isotope measurements were carried out in the laboratories of Peter Reynolds and Keith Taylor.

An award by the German Alexander von Humboldt Foundation Research Fellowship to Sam led to the continuation of similar collaborations with other international institutes in Germany from 1990 forward where paleothermic investigations were carried out at the Technical University Berlin (TUB) and the University of Gottingen with Bernd Erdtmann, Andi Hoffkhnect TUB, and by Elfrun Horn, Christian Reutel, and Arno Mucke. These long-term collaborations complimented his field oriented research in the Nigerian inland frontier basins leading to the completion of M.Sc. and Ph.D. students' theses on various themes and aspects of paleoenvironments and petroleum potentials of the Nigerian Benue rift basins; petroleum source rock assessments of the Cretaceous Benue Trough; stratigraphic comparison with the Potiguar and Ceara Basins of Brazil; and several scholarly publications.

Sam's recent interest in the petroleum source bed evaluation has extended into the Niger Delta outboard areas of Anambra and Eastern Dahomey Basins where detailed mapping of outcropping equivalents of the subsurface successions of shales, cannel coals, and lignites are being assessed at different stratigraphic intervals to unravel the paradox of marine versus terrigenous oil and gas contributions in the subsurface Niger Delta oil accumulations. His extensive fieldwork over three decades led to the writing of a field guidebook on the Bida Basin by Sam and his co-authors and the request by NAPE to lead regular field work in that basin.

It is worth noting that several past students of Sam's are currently distributed as seasoned

academics and lecturers in geology in Nigerian universities and elsewhere. Festus Abimbola, his first M.Sc. student, is currently a full professor of geology at the University of Ibadan, Samson Bankole now teaches geology at the University of Lagos, while Johnson Ojo and Bisi Adekeye are lecturers of geology with Sam in the University of Ilorin. Others are doing very well in the oil and gas industry with Tunde Alalade and Kayode Samuel, both with ExxonMobil, and Tunde Arisekola and Razaq Garba, Nigerian Geological Survey Agency, promoting Sam's experience in the oil and mineral sectors respectively. His petroleum research studies have attracted several national and international grants including the Volkswagen Foundation grant and the Petroleum Technology Development Fund (PTDF) grant for the evaluation of the various aspects petroleum potentials of the Nigerian Inland basins.

As a pioneering member of the Nigerian Association of Petroleum Explorationists/University Assistance (NAPE/UAP) initiative over the last decade, Sam has promoted the establishment of the NAPE/AAPG student chapters in several universities with clear GeoScience programs. He has served in the AAPG Education Committee and the Technical Advisory Committee and his continuous passion to train and mentor young geoscientists was rewarded by his admission and conferment of Fellowship status of NAPE in 2009 and also the Fellowship of the Nigerian Mining and Geoscience Society (FNMGS) in 2011 the year he was named the PTDF/Rilwanu Lukman Outstanding Teacher in Petroleum GeoScience in Nigeria.

Nosa Omorodion

Response

It is a great honor to be selected for the AAPG 2015 Grover E. Murray Memorial Distinguished Educator Award. First, I would like to express my gratitude to those who nominated and selected me at this point in time of my career and to Nosa Omorodion for his insightful citation. Looking back, I realized I have been lucky to be a teacher in geology for more than 37 years starting up as an assistant lecturer in the University of Ilorin within which time I took a study leave to complete my Ph.D. at Dalhousie University under the supervision of Marcos Zentilli. My decision to be a geologist was inspired very early in college at the University of Ibadan where I received a comprehensive education for my bachelor's in geology from excellent scientists like Professors Oyawoye and Kevin Burke who are especially gifted teachers both in the classroom and in the field. The background given me by these geologists motivated my continuing on to acquire a Masters degree at the University of Western Ontario with enhanced motivation provided by Bob Hodder an extremely organized teacher in volcanology and mineral deposits. My brief stint of one year teaching in Ilorin after the completion of my master's degree in 1977 was followed with the encouragement given by Marcos to supervise my Ph.D. if willing to complete my training in Canada. This led to my return to the Department of Earth Sciences, Dalhousie University with a Federal Government of Nigeria Overseas postgraduate scholarship to conduct research and complete a dissertation on the origin of ore metals in the Carboniferous Fundy Basin from the perspectives of stratigraphy, thermal, and isotopic characterization of the hosting carbonate and evaporite successions.

On entering the Dalhousie Ph.D. program, I was fortunate to have Paul Schenk (now deceased) introduce me to carbonate petrology and environments of modern carbonates, the Fundy Basin stratigraphy and paleoenvironments. This enabled me to carry out field based studies on carbonate-evaporite successions as prerequisites for my Ph.D. thesis. While at Dalhousie, I took short courses on stable isotope geochemistry with Peter Reynolds, coal petrography with Peter Hacquebard of the Bedford Institute of Oceanography, Dartmouth, in addition to the fluid inclusion microthermometry and fission track analytical techniques course developed by Marcos Zentilli for thermal and burial history including uplift of geologic successions. Acquiring these skills from my former teachers and mentors prepared me for the applications of stratigraphic principles, paleothermometry and burial history models to the oil and gas industry. I learned so much from Marcos Zentilli my Ph.D.

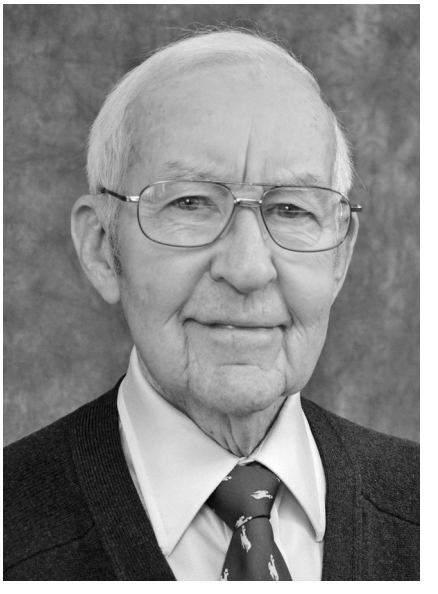
supervisor that I found it extremely impossible to express my appreciation with the words of my mouth; however each time I try to express appreciation for his support and encouragements he replies, "Sam you don't owe me anything as you pass the knowledge on to the younger ones." That is one superb motivation that I did not see elsewhere.

I cannot also not express my appreciation enough to several people in the oil and gas business who encouraged and supported my work through funding and provision of several forms of samples, well logs, and data sets including softwares donations to me and my students for teaching and research. My links with industry were encouraged and supported by colleagues and friends among who are Kenny Ladipo, formerly of Shell; Bayo Akinpelu and Gbenga Ogunyomi (deceased) formerly of Chevron; Afe Mayowa, Danvic Concepts; Gilbert Odior, Esso; Akin Carim, Agip; Chris Cornford, IGI, UK; among others. These colleagues encouraged a continuous update of my knowledge and that of my students in all ways and have been particularly supportive of our research on petroleum source rock studies of the Nigerian inland rift basins. Apart from the publication of our initial results on the thermal maturation with emphasis on the stratigraphic and regional variations in the Cretaceous successions of the Benue Trough in the 1997 edition of the NAPE Bulletin, the efforts on an extended study of paleothermics study in the region culminated in the 1998 *AAPG Bulletin* publication etitled " Burial metamorphism (thermal maturation) in Cretaceous sediments of the southern Benue Trough and Anambra Basin, Nigeria" jointly with Bernd Erdtmann of the Technical University Berlin. This article is one of the most cited in literature in view of its significance in outlining the threshold of intense hydrocarbon generation in the Benue trough sub-basins and implications for exploration and coalification in the Cretaceous-Tertiary basins.

Invaluable contributions through collaborations with colleagues on our basin analysis research during sabbatical leave years at the Technical University Berlin with Bernd Erdmann coupled with my time at the University of Gottingen in the laboratories of Elfrun Horn led to completion of our paleothermic studies by many postgraduate students. Also, the period with Sven Egenhoff at the Department of Natural Resources of the Colorado State University (CSU), Fort Collins, was in no small way very rewarding for the completion of several aspects of our studies on the hydrocarbon potential of Mid-Cretaceous successions in the lower and middle Benue trough as published in the 2012 edition of the *Journal of African Earth Science*. My time at CSU in 2008 was extended to the petroleum geochemistry laboratory at the US Geological Survey in Lakewood, Colorado with Mike Lewan where hydrous pyrolysis experiments on selected petroleum source beds from our study areas were carried out and compared with results on similar geologic settings. Of particular note is the knowledge gained on the results of key source rocks shales and coaly shale samples for comparison of the Tertiary Niger Delta and the Gulf of Mexico potential source beds. Exciting geochemical results assembled from this effort remain a part of the huge success from my sabbatical visit. The unique opportunities and the interesting results generated are being documented in future research publications with these colleagues and have demonstrated what gains can be expected through knowledge sharing.

I thank AAPG for granting me this award while I remain appreciative of the forbearance and support of my wife, Rhoda, and my two children, Gbemi and Funmi, without which I could not attain such a laurel.

Samuel O. Akande



DONALD WILKIN BOYD
Grover E. Murray Memorial Distinguished Educator Award

Citation—To Donald W. Boyd for his excellence in geoscience education throughout his career in the fields of sedimentary geology and invertebrate paleontology at the University of Wyoming, and for his unparalleled commitment to guidance and mentoring of his students.

Donald W. Boyd was born in 1927 in Newark, Ohio. Following childhood education in local public schools and two years in the Army (serving domestically and in the Philippines), he studied geology at Ohio State University (B.S., 1949) and Columbia University (Ph.D., 1957). At Columbia, Don Boyd studied under the late Normal D. Newell (as did so many other great American paleontologists of his generation). Don Boyd's doctoral dissertation focused on *correlation of* pre-Capitanian Permian formations and facies across the basin-to-shelf transition in an area of extensively faulted strata *adjacent to the Texas-New Mexico border* (15' El Paso Gap quadrangle). Don Boyd joined the faculty at the University of Wyoming (1956) after teaching for three years at Union College in Schenectady, N.Y. He remained at U.W. for the duration of his professional career. Don shared his career at the University of Wyoming with his late wife, Margaret Boyd, who was a professor in the Department of Family and Consumer Science.

At the University of Wyoming, Don Boyd was widely recognized as a truly exceptional, gifted and caring teacher and mentor. His high degree of organization, clarity, enthusiasm, and sense of humor in the classroom were legendary. He regularly taught historical geology and a variety of courses in sedimentary geology and invertebrate paleontology at undergraduate and graduate levels. Students looked forward to his entertaining lectures with eager anticipation, but also knew that his classes were rigorous and no-nonsense when it came to the subject matter at hand. From personal experience, I can say that Professor Boyd's courses were tough and demanding, and one had to work very hard to earn a high grade in his graduate classes. Boyd lectured and moved about the classroom at a fast pace, but with a clear and logical order of presentation that emerged during every lecture. Boyd possesses one of the most logical, analytical minds I have ever encountered—and the structured clarity of his thinking process became an amazing classroom lesson in itself. Two graduate classes really stand out in the memory of many of his students, classes that a large number of future petroleum geologists took over the years at Wyoming: Non-Clastic Sedimentation and Stratigraphic Paleontology. Both classes required large amounts of reading from multiple textbooks and recent journal articles, coupled with extensive laboratory work; to say they were demanding is an understatement. In my entire graduate education at Wyoming (M.S. and Ph.D.), these were my favorite and most challenging courses in terms of the positive learning curve. The lessons learned from these courses have pervaded almost everything I have done in the three and a half decades since graduating from UW, and I am sure they have been similarly influential in the careers of many petroleum geologists from the "Boyd Era" at Wyoming.

As a mentor, Boyd was extremely generous with his time and he always invited his students to sit and chat, often for what amounted to be very lengthy conversations about geology, famous by-gone geologists, life experiences, or wherever the thread of conversation drifted. Dr. Boyd always had time for his students and willingly put aside whatever he was working on to focus on the young person in front of him, never with an irritated sigh or annoyed tone to his voice. I fondly remember many conversations dealing with fossil-collecting field trips and carbonate rocks, but also many "coaching conversations" filled with tips about giving professional talks and the like. These were more than brief, once-per-semester office visits to check-in with one's graduate advisor, they were frequent interactions with a senior faculty member who generously gave of his time so that, afterwards, you felt you mattered and your graduate research was of value. Although Boyd's mentoring style offered a personal, interactive touch, he was always the consummate, dignified professional. His professional demeanor, appearance and overall conduct were an inspiration to me and countless other graduate students over the decades–Boyd inspired his students by example

and he set a very high bar indeed for what it means to be a professor, scholar, teacher, advisor and mentor.

As a researcher, Don Boyd excelled throughout his career and has made numerous fundamental and important contributions to the fields of invertebrate paleontology and carbonate sedimentology and diagenesis. Don Boyd has more than 80 peer-reviewed publications in journals such as *AAPG Bulletin*, *Journal of Sedimentary Petrology*, *Geological Society of America Bulletin*, *Bulletin of the American Museum of Natural History*, *Journal of Paleontology*, and *Canadian Society of Petroleum Geologsts*. His field work ranged from the Tertiary of Peru to the Permian of Tunisia, as well as more extensive work with Permian strata of the western United States. Examples of projects in carbonate sedimentology include an early work on strontium content of limestones and fossils, and study of depositional environments at a modern coral atoll. In collaboration with two of his graduate students (Tebbutt *et al.*, 1965), Don coined the term "fenestral fabric" to describe the open-space fabric of the Permian Phosphoria Formation in Wyoming's Bighorn Basin, a term that has gained world-wide use and recognition in the world of carbonate petrology. In the realm of siliciclastic sedimentology, Don's studies have concerned eolian deposits and primary structures of redbeds. Several aspects of trace fossils have been investigated, including laboratory simulations of traces and pseudo-traces. As an example of innovative thinking, Don obtained a grant in the mid-1960s to construct a 45-foot long flume for sediment transport demonstrations and research projects; at the time, the University of Wyoming was one of the few institutions in the country with a flume this large, which greatly facilitated sedimentology education and graduate research at UW. A cornerstone of Don's research was a multi-decadal collaboration with Normal Newell at the American Museum of Natural History, studying late Paleozoic and early Mesozoic pelecypods worldwide with an emphasis on taxonomy and interpretation of evolutionary patterns as related to the great Permo-Triassic extinction event. Aspects of biogeography, paleoecology, taphonomy, and skeletal diagenesis were also investigated during this long-term, highly productive collaboration. His work with Newell was supported by a succession of grants from the Systematic Biology Division of the National Science Foundation. Don Boyd is still active in research and has just published a self-guided walking tour of Paleoproterozoic stromatolites in the Medicine Bow Mountains of southern Wyoming (Wyoming State Geological Survey Public Information Circular 45, 2014). His ability to swiftly navigate rough terrain at 10,800 ft, while making insightful and thoughtful outcrop observations, is simply remarkable at his age and an inspiration to all field geologists, young and old. Don will study an outcrop for a long time before saying anything and then, when he speaks, he often reveals observations that no one else perceived. Every outcrop visited with Don Boyd is a lesson in careful observation.

Don Boyd is a Fellow of the Geological Society of America, and a member of AAPG, the Paleontological Society, SEPM, and the Wyoming Geological Association. He has served on various national committees for these organizations throughout the years. He has served as coeditor for *Contributions to Geology* and its successor, Rocky Mountain Geology, and as director of the University Honors Program at the University of Wyoming (1988-93), among innumerable other service and administrative duties at the national and local (UW) level throughout his career.

In summary, Don Boyd is the quintessential geology professor—he possesses all the best qualities of an educator and a man of science. His open, engaging personality, quick sense of humor, modesty and professionalism all combine into one of the finest gentlemen I have ever had the privilege to know. Therefore, by virtue of his gifted teaching and caring mentoring of 43 M.S. and 9 Ph.D. students, as well as countless undergraduate students during his 37-year career at the University of Wyoming, Professor Donald W. Boyd is a most highly deserving recipient of AAPG's Grover E. Murray Memorial Distinguished Educator Award. To borrow a famous quote from Stephen Jay Gould (in reference to his mentor at Columbia, Normal D. Newell, who Don Boyd also

studied under), "The work of graduate students is part of a mentor's reputation forever, because we trace intellectual lineages in this manner. I was [Don Boyd's] student, and everything that I ever do, as long as I live, will be read as his legacy." With this modified quote, I trust that I speak for all of the undergraduate and graduate students at the University of Wyoming who are fortunate enough to trace their academic lineage to Professor Don Boyd.

David R. Lageson

Response

Sincere thanks to good friend Dave Lageson for composing the heartfelt and thoroughly researched biographical sketch. For those who might be interested, I understand the movie rights are still available.

I retired from classroom teaching many years ago, so I've had plenty of time to reflect on my career as an educator. In fact, in pre-retirement years I frequently pondered how I would evaluate my teaching activity. The letter grade generally averaged out at "B" or, on better days, "B+". You can imagine my delight when notified that AAPG, via the Grover Murray Award, had promoted me to "A+".

Growing up in Ohio among the remnants of Hopewell ceremonial mounds, and fascinated by arrowheads I found in newly plowed fields, I decided early on to be an archaeologist. When picking up an arrowhead, I felt a special excitement in realizing that the last person who touched it before me was the maker, and that I had made contact with that individual and the different world in which he lived.

Discharged from the Army, I enrolled at Ohio State with the intention of majoring in archaeology. My newly assigned advisor explained that OSU had no such program, and signed me up for a geology course on the grounds that the two disciplines had several aspects in common. I soon found the same excitement of connecting with the past when pondering the ripple marks in a Mississippian sandstone outcrop, or the ocean environment inhabited by the brachiopod I was liberating from Devonian limestone.

From college onward, I've been equally interested in sedimentary rocks and invertebrate fossils. It has been easy to pursue both since my teaching career began in a two-man geology department where I was responsible for the "soft-rock" half of the geology major. Moving to Wyoming provided the opportunity to teach similar subjects but with the addition of higher-level courses and associated research. The latter activity was enjoyed for its own pleasures, but teaching was my first priority. Of course the excitement of research had an important role in my teaching, acting as a stimulant while preparing undergraduate lectures and as a source of credibility and comradeship when directing graduate students.

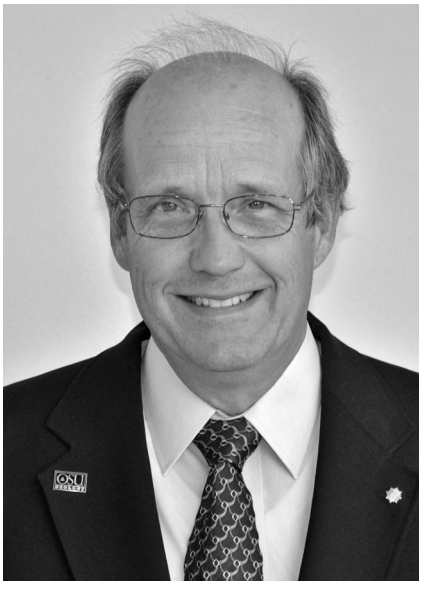
I enjoyed teaching at all levels, and my favorite courses included Historical Geology, the second semester of the then-traditional freshman course; Invertebrate Paleontology for sophomore geology majors; and Stratigraphic Paleontology for advanced students. Preparing lectures was fun, often with the feeling that "Wow! I'm going to tell them this." I also enjoyed designing the lab exercises for all my courses. I never used a commercial lab manual, preferring the option to emphasize what I thought important and to exploit specimens and equipment unique to my department. I'll admit that I never enjoyed grading test papers. I was never too lenient but often had restless nights wondering if I was too harsh. I took comfort from the comment a colleague made to a student complaining about a grade: "The university doesn't pay me to give A's". I had a better feeling about editing early drafts of theses and dissertations. Like it or not, the author had to come back (typically more than once) with an improved version and I took pleasure in seeing an end product indicating the author was now better prepared for professional work.

I knew even as a graduate student doing field work for my dissertation that I wouldn't have total success as a teacher. My first field assistant was an undergraduate who had signed on to see what field geology was like, and to decide if he wanted to major in geology. Neither of us had realized how hot and dry the Texas-New Mexico border country would be in mid-summer. After a month I realized the assistant was becoming disillusioned, and I felt it my duty to teach him the glamour of this type of work. The opportunity came when I discovered a ledge which, when

broken, revealed some nice fossil shells. After we had cracked a few of them out, I said "Dick, this is really exciting. We liberate these things from their tombs and we are the first humans to lay eyes on them". "Don", he said, "it's the same with every peanut." Right then I knew that teaching would have its disappointments. They have been more than balanced by the good things—from trying to keep up with talented graduate students, then watching them go far beyond me in their professional careers, to hearing a freshman say at the end of a semester's course that she can't drive by a road cut without pondering its record of Earth history.

So there have been many pleasures, including being a recipient of this award. By the way, anyone in this business knows that an inquiry to any geology department in the land would turn up a local professor highly regarded for his or her effective teaching and remembered fondly by alumni as having been a positive influence in their lives. With so many credible candidates for the Grover Murray award, why me? My good fortune is to have had a sponsor with the energy and evangelical zeal to compile a convincing encomium on my behalf, and to round up a group of my former students who would take time from busy careers to write enthusiastic supporting letters. I am sincerely grateful to all these good friends, and to the selection committee for believing all they wrote.

Donald W. Boyd



JAMES O. PUCKETTE
Grover E. Murray Memorial Distinguished Educator Award

Citation—To Jim Puckette, the model geologist/educator, for his inspiring and untiring teaching, advising, wide-ranging research, and compassionate leadership of students and colleagues.

Jim Puckette is deeply rooted in Oklahoma; yet he has a broad view, even global perspective, of geologic study and discipline. Puckette was born in Poteau, Oklahoma, and received his formal education in his home state, Jay in northeast Oklahoma for public education, and then Oklahoma State University for four degrees (two B.S, an M.S., and a Ph.D.). Upon completion of his baccalaureate degrees in 1976, Jim worked 11 years in industry for three different independent exploration companies, with emphasis in the Mid-Continent and Rocky Mountain regions. Upon returning to OSU in 1987 for graduate studies, he immediately was recognized by Dr. Gary Stewart as a valued researcher, as well as the leading graduate student. Then upon receipt of the Ph.D. degree, he was officially recognized by OSU as a research geoscientist, and later in 1999, Jim became a member of the geology faculty. Jim worked in close collaboration with Stewart on confining bed integrity and later with Dr. Zuhair Al-Shaieb, also a recipient of this award. Zuhair and Jim studied basin compartments and seals in overpressured basins in terms of distribution and their basic characteristics; they also contributed substantially to the sequence stratigraphy, depositional and diagenetic processes, and histories of both carbonates and clastics. Puckette has demonstrated a wide range of research and teaching interests and expertise, which distinguishes him as a most outstanding educator. In addition to his studies in reservoir characterization and pressure regimes, including compartmentalization and fluid injection, he has provided special insight and new concepts to stratigraphic principles, petrophysics, high-resolution sedimentary petrology, and geochemistry, especially as they relate to the Mid-Continent. Jim currently holds the endowed Chair of Geoscience Education at OSU.

Oklahoma State University has recognized Dr. Puckette multiple times with outstanding faculty advisor and distinguished teacher awards. For the past 20 academic semesters (10 years), he has advised more than 1300 undergraduate students. He has mentored/advised more than 100

graduate students and supervised 50 M.S. theses during the same period. Dr. Puckette has taught 15 different courses, from mineralogy to basin analysis, environmental geology to field geology. Jim is the lead professor for the last course, based near Canon City, Colorado. Jim was at the field camp first in 1975 as a student, then in 1995 as an assistant to the field-camp instructor, and in 1996 as the instructor/director; during his tenure it has become self-supporting in this essential element of geologic education. During part of 2012, he was guest professor at the China University of Petroleum in Huadong.

Dr. Puckette has been the principal investigator or investigator for some 20 funded projects ranging from tight-rock characteristics, reservoir distribution of Mid-Continent carbonates, Mississippian dark shales, to deep aquifer characterization. The more recent projects reflect his expertise in and contributions to unconventional reservoirs and injection practices.

For 10 years, Puckette has been the faculty advisor for the Student Chapter of AAPG and for the OSU Geological Society. He also has been OSU's faculty advisor and coach the last six years for the university's entry in the AAPG Imperial Barrel Award. The OSU Geological Society co-hosts with Tulsa Geological society and Oklahoma City Geological Society an annual meeting in Stillwater, the Triple Junction Function. During the time Jim has been advisor for undergraduates and during his work with graduate students, he has adopted a philosophy that individual student issues are very important to them, and, therefore, they require a serious attempt at resolution.

Jim has been active in AAPG committees related to reservoir development, preservation of data, and youth education, as well as co-convener of sessions and leader of fieldtrips for AAPG Mid-Continent Section and GSA sectional meetings. Amazingly, he has taken time to serve his community; for example, as scoutmaster and making numerous presentations to public-school students and civic clubs.

Puckette is author or co-author of 30 traditional publications; topics include model of Arbuckle-Simpson aquifer, pressure architecture in East Texas and environs, compartmentalization of overpressure interval in the Anadarko basin, sequence stratigraphy of Hunton Group, sequence stratigraphy, depositional environment, and diagenesis of Pennsylvanian sandstones, and effect of silica on the structure of cetyltrimethylammonium bromide. The subjects of his contributions to 25 guidebooks, workshops, proceedings, and reports include lithofacies, geochemical trends, and reservoir potential of a Midcontinent carbonate, lithologic, biogenic, and geochemical indicators of water chemistry of the Woodford Shale, and hydrocarbon leakage and diagenetic alteration. The topics in the eight online articles range from valley-fill sandstone, underpressured reservoirs, to sequence stratigraphic control of reservoir quality. Additionally, Jim authored or co-authored 110 abstracts for oral or poster presentation at conventions, conferences, and meetings. These numbers and subjects are accurate indicators of his scholarship (the broad scope of outstanding research) and his unrelenting dedication to research and teaching. Jim is a brilliant, yet humble, geoscientist and a hard-working, persistent, and compassionate educator.

Jim Puckette, as the youngest of three sons of a soil conservationist and pianist/organist, was always exposed to science. Their house was filled with natural treasures that, of course, included rocks. They lived first in the Ouachitas and then in the Ozarks, where in both areas many spectacular geologic features are well exposed. Jim graduated from Jay High School in 1972 and then enrolled in Oklahoma State University. He intended to be a science teacher with concentration in earth science. However, historical geology under Dr. John Naff began a slow evolution toward petroleum geologist that culminated with employment upon his graduation as a wellsite geologist by a small independent company in Stillwater. Jim met his future wife, Jennifer Wright, from Roswell, New Mexico, during their initial semester at OSU, and they were married in the summer of 1976. They have two adult children who are pursuing careers in science.

John Shelton

Response

I am honored to be selected for the Grover E. Murray Memorial Distinguished Educator Award and grateful to those who nominated me and to John Shelton for his generous citation. Teaching is a rewarding experience and to be considered an outstanding educator is very humbling. My path to teaching at Oklahoma State University was far from direct and fortunately this circuitous route allowed me to interact with and learn from some truly great teachers. It is recognized that we are dynamic beings and a complex combination of our genetic composition and life experience. Fortunately for me, my life has always been filled with science. Science books were in our home and my brothers and I were taught about soil, rocks, plants and wildlife by two parents with a keen interest in the natural sciences. We were allowed to collect and bring into the home any natural treasures, including fossils, minerals, and rocks. By the time high school graduation arrived, a career related to science was a given for me.

Originally intending to be a science teacher in the public school system, the experience of taking geology courses to earn certification in earth science was life changing. As a science education major, my undergraduate degree plan was filled with required courses across multiple disciplines. As a result, I experienced teaching styles and individual skills and attitudes that were to influence me years later. The first of these seminal experiences was Historical Geology taught by Dr. John Naff. This experience opened my eyes to the breadth of geology as a science and allowed me to experience a teacher so passionate for his discipline that his infectious exuberance touched every student. The next significant experience was Mineralogy, a course taught by my future graduate advisor, the late Dr. Zuhair Al-Shaieb, also a recipient of this award. Doc Al as we knew him then, had an incredible comprehension of chemistry, geology and mathematics and could take complex concepts and explain them in terms that all students could comprehend. Doc Al encouraged me to become a geology major and his prompting led me to add geology as a second major. A third remarkable experience was Stratigraphy, taught by Dr. Gary Stewart. It was through Gary's encouragement and insistence that we were introduced to Sir Arthur Conan Doyle's Sherlock Holmes and learned about the scientific method, multiple working hypotheses and the power of observation and deduction. This experience taught us that geology is a remarkable and unique scientific discipline. The attention to detail that my undergraduate colleagues and I learned from Gary was magnified by our experience in courses taught by Dr. John Shelton. John's intensity in the classroom, high expectations, dedication to craft and work ethic influenced us then and continue to do so today.

As one who was completing degrees in geology and science education, student teaching in the public school system was required. Here, I encountered two incredibly dedicated science teachers who daily positively impacted students in innumerable ways. My cooperating teachers, Joe Payne and Terry Shaw, could connect with each student in a crowded classroom. It was in this setting that I learned the importance of manipulatives and tactile learning. The middle school experience also allowed me to observe and work with students with very different skill sets. Recognizing these skills and building on them was an essential part of Joe's and Terry's teaching styles and a technique they imparted to me.

Working as a petroleum geologist after graduation placed me in the tutelage of J. Stratton, a patient and kind individual who taught me the science and art of bit-cutting analysis and prospect evaluation and generation. Those years as an exploration geologist provided me with experiences that I would later share with students.

During the lean times of the late 1980s, an opportunity to work on an EPA-sponsored research project with Gary Stewart reintroduced me to academic life. As a minimally employed geologist, a position as a graduate research assistant allowed me to work with academicians and professionals from the public sector. This research project was followed by a multiyear project on pressure architecture and compartmentalization in deep sedimentary basins. During the 1990s additional degrees were completed and I was asked to teach

for the first time. I quickly learned that most students at university are eager to learn and forgiving of less than stellar teaching. Encouragement from these students and sharing in their progress made teaching rewarding, exciting and challenging. During this time, Dr. Vernon Scott trained me to be an undergraduate academic advisor. Vernon has dedicated his entire career to teaching geology, training pre-service science teachers and introducing geological science to non-science students. His passion for increasing science literacy across society underscores another important reason why we teach. As undergraduate academic advisor I learned to appreciate and respect student's perspectives and came to the realization that their issues are often a foremost concern and require prompt resolution.

During my tenure at Oklahoma State University, it has been an honor to work with and learn from great colleagues and to teach and learn from an equally outstanding set of diverse and gifted students. It is especially rewarding to see these young men and women progress from university students to competent young professional geoscientists. Any accolades that I may receive are sincerely appreciated and I am grateful to be honored with the Grover E. Murray Memorial Distinguished Educator Award. However, it is not mine alone. It is shared with my family, those mentors who taught me great teaching techniques, and all who encouraged and challenged me. It is especially rewarding to share this honor with the students, because they are the reason we are here.

James O. Puckette

V. PAUL WRIGHT
Grover E. Distinguished Educator Award

Citation—Paul is a geologist of international renown. He has made huge contributions to both teaching and research, especially in palaeosols, and alluvial and carbonate sedimentology.

Paul Wright was brought up in the coal mining valleys of South Wales, an area with a unique geological heritage. Both of his grandfathers were coal miners, as was his father for some years, so geology was a background to Paul's childhood. Paul's first geological experience was collecting Pennsylvanian plant fossils from local mine waste tips aged 14, but he soon moved on to collecting many other fossils from Mississippian limestones that outcropped only a few miles from this home. By 16 he was hooked on limestones and the Mississippian has remained a focus and a passion ever since.

Education was a very important focus in South Wales at that time, and Paul was lucky to be taught geology at school where it was a requirement to present a personal collection of fully labelled specimens as part of his pre-university examinations. His understanding of the collection was assessed by a visiting university lecturer and knowing that this was an examination requirement provided excellent incentive for many days of fieldwork. His father was his uncomplaining field assistant for much of this time.

Paul took his B.Sc. in geology at Bristol University, chosen partly because it was walking distance from large outcrops of Mississippian limestone in the Avon Gorge. He wrote his first paper as a first year undergraduate. His tutor advised against publishing it, and Paul followed his advice, but did publish it as his first paper in the *Journal of Sedimentary Petrology* some years later with Robert Riding as a co-author. After graduating from Bristol in 1975 he became a schoolteacher instructing classes aged 11-16 in geography and some geology. He began a part-time master's by research degree at Cardiff University and eventually self-funded a Ph.D. following his childhood interest working on the marginal ramp carbonates of the Mississippian of South Wales, with their paleosols, microbialites and peritidal facies. Paul completed this

Ph.D. in 1981 and went on work as a post-doctoral researcher at the Open University studying a range of Portuguese Jurassic carbonates and the Infra-Cambrian of Oman. After completing this postdoc, Paul began his main university teaching career at Bristol University in late 1984. He moved from Bristol to the Postgraduate Research Institute for Sedimentology at Reading University, before being appointed to an industry funded personal chair at Cardiff University in 1997.

During his career Paul has spent a total of 26 years teaching sedimentology (including siliciclastic reservoir sedimentology), paleontology, and petroleum geoscience to many undergraduate and postgraduate students. He has taught academic short-courses and seminars in over 15 countries, including oil industry courses on carbonate reservoirs presented all around the world and various field courses in the United States and Spain. Perhaps in recognition of his own early start as a geologist, for a long time used to give dinosaur lectures to in various schools in South Wales and elsewhere.

As well as time spent teaching classes, another key contribution to the education of many geoscientists around the world is the university-level textbook *Carbonate Sedimentology* co-authored with Maurice Tucker in 1990. This green book is a still a standard text after 24 years and Paul allegedly still gets requests to sign copies. Paul also co-authored with Trevor Burchette a chapter on shallow water carbonates in another classic sedimentology textbook *Sedimentary Environments*, 3rd edition, edited by Harold Reading, and he has also co-authored or co-edited nine more books, one of which is only available in Mandarin Chinese.

As well as his huge contribution to teaching, Paul has been a prolific researcher on surprisingly diverse topics. He has published over 130 research papers on topics ranging from paleosols and paleogeomorphic reconstructions from alluvial strata to the problems of complexity and missing time in carbonate strata. He published his first paper in 1980 on climatic changes in the Mississippian and since then he has managed to publish on every period in the stratigraphic column, except (for some reason) the Oligocene.

Following on from his childhood interests, a key focus of Paul's research interest has been marine carbonates. His classic work with Trevor Burchette on carbonate ramps was the basis for later forays into numerical forward modelling of carbonate strata from which he co-authored a series of papers investigating the nature of carbonate platform interiors, cyclicity and controls on carbonate platform development. Aside from marine carbonates, Paul has also worked extensively on lacustrine carbonates, most recently for over five years on the pre-salt reservoirs of the South Atlantic where he has proposed silicate-carbonate interactions as a key control on reservoir quality. He is also an internationally recognized expert on calcareous soils, especially their micromorphology, and on exposure features including paleokarsts. More recently Paul has published with Lesley Cherns on the evidence for and significance of the "missing molluscs effect." Not content with working only on carbonates, Paul has also published on alluvial strata. He used paleosols to develop paleogeomorphic reconstructions ranging from Miocene alluvial fans to Silurian floodplains, and has published on the early diagenesis of alluvial successions. In recognition for his research contribution Paul was awarded a D.Sc. in 1991 by the University of Wales for his research on the ecology and climatic significance of Early Carboniferous paleosols and he has held positions on the editorial boards of many international journals.

True to his roots, Paul has always been committed to increasing awareness of geology with the community. Paul was the Recorder for Geology for five years with the British Association for the Advancement of Science. He has also supported geological conservation co-authoring the volume on British Lower Carboniferous Stratigraphy.

Finally, on a personal note, Paul is the reason that I became interested and active in carbonate sedimentology. His encyclopedic knowledge on carbonate deposystems and his offbeat but hilarious sense of humor has made him the most valued mentor I have had, and a good friend now for many years. I suspect that there are many others in the geoscience community that have benefited

greatly from his influence and intellect, and long may this continue.

Peter Burgess

Response

I hope I am worthy to receive this honor from AAPG, and thank those who nominated me, and Peter Burgess for the citation. I will focus my response on my career as an educator. I was very fortunate to study for my B.Sc. at the University of Bristol in a department, like so many in those days, which saw educating students as their main, but not only responsibility. I was especially lucky to be taught by lecturers who provided me with diverse role models of what a good teacher should do, and I owe special thanks to Brian Williams, David Speedyman, and the late Bob Savage in that respect.

I then had the chance to teach for over two years, although under very different circumstances, in a secondary (high) school in my home village in South Wales. I entered the profession at a time when it was just possible to do so without having done teacher training and so I had a very challenging time, but am left with very fond memories of so many pupils from whom I learned that a flexible and varied approach was needed to teaching. I also learned the hard way how important mentoring was to young teachers and how difficult it was when such mentoring was absent. I am proud that I was awarded a professional teaching qualification.

Having left school teaching I studied for my Ph.D. at Cardiff University, where I first lectured to undergraduates, and was again fortunate to be supervised by Robert Riding who taught me another educational skill, how to write scientific papers. From 1981-1984, I was a post-doctoral fellow at the Open University and was again lucky in working with a consummate educator in Chris Wilson. This provided me with my first opportunities to teach to the oil industry along with two other exemplary teachers, Tony Dickson (Cambridge) and Maurice Tucker (Durham).

I returned to lecture at Bristol from 1984-1988 and enjoyed the support of my former lecturers who accepted my return even though I had been a singularly undistinguished undergraduate. There I taught courses in paleontology and sedimentology, and I began to supervise my first Ph.D. students.

Following the setting up of the Postgraduate Research Institute for Sedimentology at Reading in 1988 I was persuaded to move there from 1989-1997. I benefited very much from the support of John (J.R.L.) Allen and Peter Worsley. This provided me with the experience of teaching master's courses in sedimentology as well as continuing to teach undergraduate paleontology, with colleagues equally committed to the highest standards in formal teaching. These were very productive years for me. I continued to learn how difficult a job it is to be a good supervisor but was very fortunate over my career in having over 25 gifted Ph.D. and M.Phil. students, most of whom I am still in contact with and some are close friends.

I was awarded the BG Chair in Applied Sedimentology at Cardiff University in 1997, a position also requiring me to be an advisor to BG Group, benefiting from the support of BG colleagues John Summers, Martin Hardman, Malcolm Brown and David Beckett. This entailed me spending some time supporting carbonate asset teams, mainly in appraisal work. By being involved directly with those teams and not in a research role, I learned so much and that impacted enormously on my university teaching. Seeing how students responded to being shown how their geological training and skills could be used to address important practical problems was a particular pleasure and something all students need to be shown at every stage.

I continued teaching courses at Cardiff University, and supervising Ph.D. students. I remember the dubious pleasure of once having to prepare 80 previously nonexistent departmental policy documents ahead of an internal audit. This was my first experience of how universities were changing. I left the higher education sector in 2007 to join BG, a decision I never regretted for one moment.

From 2000 I was involved in providing training courses, partly for BG, to Nautilus (now part of RPS) and still teach a variety of carbonate-related lecture and field courses worldwide. Since retiring in July 2013 from BG I now teach more than I did while a university

lecturer. I am still learning new skills from watching my co-instructors whose company I greatly appreciate.

When I was asked as a young lecturer at Bristol University to teach, especially to the final year students, it was an honor and a mark of trust by senior colleagues. I have too often encountered some young lecturers in recent years unwilling to take on such responsibilities because of perceived higher priorities, or even worse, unable to do so because of lack of basic skills. To teach is a privilege, not a penance. When young people enter a university they entrust their time and future, let alone many now incur crippling debts, and the institutions and the teachers have a moral responsibility to provide the very best training resources will allow. There are always compromises as regards how resources are allocated, but to view teaching as anything but the priority is a failure of professional responsibilities. To be asked to make too many compromises was one reason I disengaged from the sector. Growing up in a coal mining village in South Wales, without the wider social spectrum of other parts of Britain, rightly or wrongly there was a perception of a meritocracy; get a good education and you can improve your opportunities and be judged on your ability and effort. Naïve as that view was, it is why I regarded teaching as important and I am privileged to still have the opportunity to teach.

I was only able to achieve my career goals because of the unwavering support of my late wife, Janet. She understood the obsession with geology, and as the daughter of two teachers, also appreciated the long hours that being a teacher required. She died unexpectedly after recovering from a long period of intense medical treatment just a month after I retired. I wish she were here to see me receive this award as without her support for 35 years I would have achieved very little.

V. Paul Wright

ANITA HARRIS (posthumously)
Harrison Schmitt Award

Citation—To Anita G. Harris, for her contributions to geology and petroleum exploration through her work in conodont biostratigraphy and the development of the color alteration index (CAI).

Anita G. Harris passed away July 12, 2014. She was born Anita Gloria Fishman July 10, 1937, on Coney Island, and grew up in modest circumstances in Brooklyn, New York. She attended Brooklyn College, entering at age 16, and majored in geology and physics. Classmates included returning Korean War veterans, whom she tutored in the sciences. She graduated at age 19 in 1957.

Anita then headed to the Midwest, driving her old Hudson to attend Indiana University (IU). While there, she was instructed to take a speech class, in the hopes it would subdue her strong Brooklyn accent; this was not entirely successful! She graduated with a master's degree in geophysics from IU in 1958. A year after that, she and her first husband Jack B. Epstein (she later married Leonard D. Harris) were working for the U.S. Geological Survey (USGS), as junior geologists assisting Irving J. Witkind in geological studies in Yellowstone National Park. She related how the senior geologist would introduce his horse and his dog by name to the general public, but simply refer to her and Jack as "my assistants." On August 17, 1959, the three of them were camping in the northwest part of the park, when late at night the magnitude 7.3-plus Hebgen Lake earthquake struck, the epicenter being less than 10 miles from their camp. In 2009, Anita returned to visit the area for the 50th anniversary commemoration of the earthquake.

Following their work at Yellowstone, Anita and Jack moved to Louisiana, where he worked for the USGS and she taught school, and the next year

(1960) they both returned to graduate school, at The Ohio State University (OSU). Anita faced some skepticism as a woman graduate student, but undeterred, she merely outperformed all the other students, earning a National Science Foundation graduate fellowship along the way. She finished her coursework in 1964, and soon thereafter gave birth to their only child, Laura. She started working again for the USGS in 1967, and earned her Ph.D. from OSU in 1969. Her dissertation covered several separate fields of geology, including micropaleontology and glacial geology.

While doing her biostratigraphy research at OSU, Anita noticed different colors of conodonts recovered from her rock samples. Some were so dark that she thought something was wrong with them (Isaac Asimov once said, "The most exciting phrase to hear in science, the one that heralds new discoveries, is not 'Eureka,' but 'that's funny….'"). Her advisor did not consider the color variations important, and so Anita put on the back burner what was to become a significant innovation in the application of conodonts to geological studies.

In the late 1960s and early 1970s, Anita worked as assistant editor and then chief map editor for geologic maps at the USGS. In her spare time, she continued research on the puzzle of conodont color variations, eventually demonstrating that the colors were due to the effect of long-term sustained elevated temperatures on organic matter. The color ranges were consistent with temperature, and so a scale was developed that related the conodont color to temperature. This conodont color alteration index (CAI) was first published in 1975 as a USGS Open-File Report, and then in 1977 as a USGS Professional Paper. The CAI continues to be applied worldwide in the petroleum exploration industry. Her later papers extended the temperature range and included textural changes, allowing her to apply the index to regional metamorphism and contact and hydrothermal alteration.

Anita worked on Ordovician through Triassic conodonts, but was especially expert on those of the Ordovician through Devonian age. She did not just interpret conodont thermal maturation, but also unraveled the biostratigraphy, biofacies, and structural relations of rocks from throughout the Appalachians and Alaska, the Basin and Range province (including Nevada, southeast California, Idaho, Utah, Arizona, and Sonora, Mexico), Indiana, Ohio, China, and Tibet.

Throughout her career, Anita was committed to outreach and public service. She gave over 80 talks and lectures at universities, societies, industry, and institutions, and trained many geologists from industry, state geological surveys, and foreign countries in techniques of interpreting conodont CAIs. Her bibliography contains over 100 entries. She was a member of AAPG, the Geological Society of America, the Paleontological Association, Paleontological Research Institute, Paleontological Society, Paleontological Society of Washington, Pander Society, SEPM, and Sigma Xi. Anita also was advisor or co-advisor for 14 theses and dissertations, and was a proposal reviewer for the National Science Foundation, Canadian Research Council, Petroleum Research Institute, and the American Chemical Society.

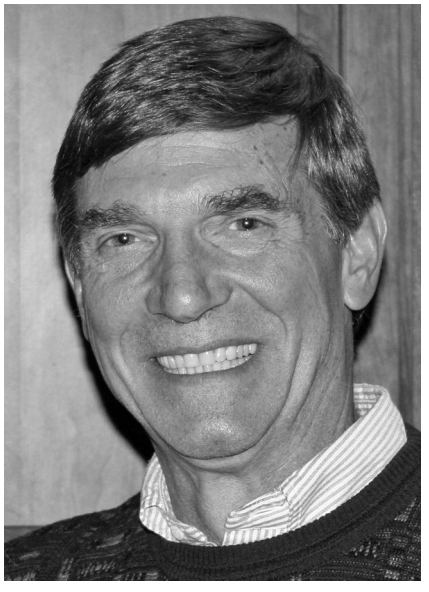
In the early 1980s, after finishing a talk at Princeton University, Anita was in the process of putting away her materials in preparation for returning to Washington. She was approached by one of the attendees, a journalism professor and writer, one John McPhee; he wanted to talk to her about accompanying her 'doing geology,' as he had recently done with other geologists and written about in several books. In a hurry and distracted by the task at hand, Anita did not encourage the conversation. McPhee allowed as to how he was a fairly accomplished and published writer, to which Anita offhandedly remarked, "I'm sure your mother must be proud." They did end up 'doing geology,' with Anita and her work being the subject of McPhee's book, *In Suspect Terrain*.

During her career with the USGS, Anita was awarded two visiting professorships, teaching one semester at Duke University and one semester at Case Western Reserve University. She was also awarded the Distinguished Alumnus Award from Brooklyn College, the Orton Award from Ohio State University, the Pander Society Medal, and the Meritorious

Service Award and Distinguished Service Award from the US Department of Interior, the two highest awards available for civilian government work.

Anita was never shy to share her opinions—"You can believe that, but you would be wrong!"—she would graciously allow. One time in a "homestyle cooking" restaurant in Alabama, she was asked how she liked the food. She declared quite loudly, "If this is supposed to be like home cooking, I would have run away from home!" Anita's energy, generosity, humor, and all-around joy are sorely missed. Anita Harris was quite simply a force of nature.

David Fey



LOGAN MACMILLAN
Public Service Award

Citation—To Logan MacMillan, for decades of tireless work to promote an understanding of the importance of geology and its relation to public policy to legislatures, regulators and citizens.

Logan was born and raised in Kirkwood, Missouri, a suburb of St. Louis. He came to Colorado in 1970 when he pursued a B.S. in geological engineering (1973) and an M.S. in geology (1975) at Colorado School of Mines. Upon graduation, he began his career in the petroleum industry with Amoco Production Company, where he had been an intern over two summers, in both the production and exploration departments. After working several active Rocky Mountain basins for a major oil company, Logan worked the Rockies for small independent companies before going back to school for his M.B.A. (1988) at University of Colorado at Denver. Subsequently, he ventured out on his own as a consulting geologist, forming several business entities in the process, focusing on Rockies exploration and development.

Throughout his career, Logan has been an active member of professional geologic and engineering associations, participating at national and local levels. He has served in numerous leadership roles and on countless committees, led field trips and presented papers for AAPG, AIPG, RMAG, SEPM, GSA and SPE. In 1992 Logan received AIPG's President's Certificate of Merit and in 2005 AIPG-Colorado Section's Distinguished Service Award. He received RMAG's Distinguished Public Service to Earth Science Award in 1993 and in 1994 RMAG's Luncheon Speaker Award. In 2013, Logan received the Denver Oil Recognition Award from the Desk and Derrick Club of Denver for outstanding service to, and promoting good public relations for, the petroleum industry.

Logan has also been a member and officer in two of the industry's trade organizations, Western Energy Alliance (formerly Independent Petroleum Association of Mountain States) and Utah Petroleum Association, working to promote domestic energy production on public lands.

Logan is passionate about educating decision makers and the general public on the importance of geology and domestic energy production to our nation. In 1992, he was appointed by the governor of Colorado to serve on the Oil and Gas Conservation Commission representing the constituents of his congressional district. Logan was a commissioner for five years, one year as vice-chair and one year as chair. During his tenure, the Commission was involved in at least five major rulemaking efforts, for which Logan was instrumental in gaining support from various stakeholders to the process. The promulgation of these rules increased the protection of citizens and the environment, while holding the industry to high operational standards. Throughout these rulemakings, Logan worked hard to ensure that all participants understood each others' perspectives and he strived to relate the importance of allowing the petroleum resources in Colorado to be safely and economically recovered.

Logan has made it his mission to educate Colorado legislators and legislative candidates on the important role geology plays in so many areas of lawmaking. Over the years, he has coordinated gatherings for legislators to meet informally with geologists and engineers from academia, and the petroleum, mining and environmental industries, in an effort to provide resources for informed decision-making. Logan has provided meaningful testimony before the Colorado General Assembly on key oil and gas legislation, helping legislators better understand technical and operational impacts on proposed laws.

Logan has worked with professional societies to educate geologists and engineers on the importance of being involved in the political process, rather than just sticking to the scientific approach. He has encouraged fellow professionals to reach out to their legislators and legislative candidates, sharing their geologic expertise with current and future lawmakers. He has worked diligently with trade organizations to address public lands leasing issues in the western states, meeting with federal and state regulatory entities to provide needed assistance. Recognizing that an understanding of the importance of geology in daily lives starts early, Logan has made presentations to schoolchildren to bring this perspective to their attention.

For almost 40 years, Logan has been an ardent advocate in highlighting the role of geology and the merits of domestic energy production to industry, policy-makers and the general public. His commitment to delivering this message remains strong and his mission will continue to provide a valuable benefit for us all.

Tricia Beaver

TIMOTHY M. RYAN
Public Service Award

Citation—In recognition of the ongoing contributions of time and money in support of science education through the Denver Museum of Nature and Science, AAPG presents Tim Ryan with the 2015 Public Service Award.

Tim Ryan is a 1978 geology graduate of Harvard University and a veteran of the petroleum industry for more than 35 years. The first five years after college were spent working for a variety of small independents prospecting in Oklahoma, Kansas, Colorado, and Wyoming. He spent the next five years with Placid Oil Company until they closed their Denver office and he was without a job. A highlight of that portion of his career was representing Placid by doing well site geology on the famous Mukluk well offshore Prudhoe Bay, Alaska. He believes the Mukluk failure is a great example of how Mother Nature can always fool even the best and the brightest and is a great illustration of how even the best ideas can sometimes be wrong.

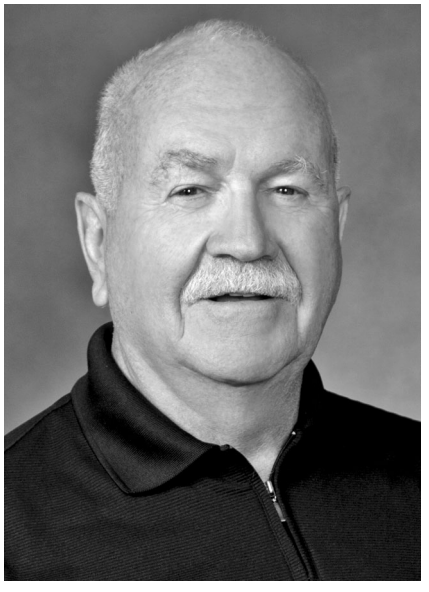
He has shared his passion for geology in numerous ways over the past several years. Although he has also served on the Board of Directors of the Denver Mountain Parks Foundation, Tim's energy has been focused mainly on the Denver Museum of Nature and Science. His contributions to the museum began in 2002 when he joined the Giving Club Council to help identify, attract, and maintain high level donors for the Museum. In 2006 to help further the goals of the council, Tim and his wife, Kathryn, created and funded a program called the KT Challenge, where museum curators annually vie for a $10,000 cash award by devising interesting programs specifically designed for Giving Club members. To choose the winner, the members then vote on the most fun, interesting, educational, exciting, and memorable program.

In 2007, Tim was appointed to the museum's Board of Trustees and has served as chair of that group. He and his wife have established the Tim and Kathryn Ryan Earth Sciences Fund with a

$1 million gift that underwrites the first endowed curator in the history of the museum, with James W. Hagadorn being the first scientist to fill this position.

As Tim said in an the article published in the museum newsletter in 2006, philanthropy and volunteering is "not necessarily a duty but it almost is. I feel compelled to give to the community because I can. But, I choose to give to the entity that excites me the most." Thankfully for the museum, Tim's enthusiasm for geology drove him to choose the premier natural science museum in the Rocky Mountain area.

Tim Ryan



BEN LAW
Pioneer Award

Ben Law was born in a small western Oregon logging community. His interest in geology began at an early age with a fascination of the outdoors and a passion for collecting rocks. He was also honing his skills at hunting and fishing. In the summer, while in high school, he and a cousin often practiced "living off the land" camping and eating berries, watercress, fish, and an occasional chipmunk.

After high school, Ben received a football scholarship to Portland State University. He attended the fall semester and then spent a couple years working in the woods and sawmills of northern California. In 1958 he enlisted in the Marine Corps with 1st Force Reconnaissance Company at Camp Pendleton. In 1962 he returned to college and received both B.S. and M.S. degrees in geology from San Diego State University. He worked summers as a field assistant with the US Geological Survey and following graduation, Ben was employed by Texaco working as an exploration geologist in the Rocky Mountains. In 1971, he accepted a position with the US Geological Survey as a field geologist mapping quadrangles in the Powder River Basin of Montana and Wyoming and the Henry Mountains region of Utah.

Ben's primary area of geological interest is unconventional resources. He became interested in unconventional resources while involved in the US Geological Survey World Energy Program in the 1970s during a Department of Energy-funded project focusing on tight gas sands in the western United States. During his tenure at the US Geological Survey, Ben was the project chief for coalbed methane, regional coordinator of the South Asia, World Energy program, and was involved in USAID programs in Pakistan, Russia, and Ukraine. He also was an editor of US Geological Survey and AAPG publications concerning coalbed methane (1993), unconventional gas systems (1989, 2002), and abnormal pressures (2000). In 1994, Ben was the chairman of the AAPG Hedberg Research Conference on abnormal pressures. He was the founder and co-chairman of the AAPG research committee on Unconventional Gas Systems (1997-2003). After retiring from the USGS in 1998, he formed his own company, Pangea Hydrocarbon Exploration, and has continued his interest in unconventional resources working for several small and large companies. He has been invited to teach classes on unconventional resources in New Zealand, Australia, France, Germany, Switzerland, Ireland, Czech Republic, Algeria, Mauritania, Mali, South Africa, Botswana, Russia, China, Ukraine, Pakistan, Romania, Hungary, and Canada. Ben is currently employed as chief geologist for Paltar Petroleum, Ltd. working in the Northern Territory of Australia.

Ben has published more than 200 papers and abstracts. While working in Russia and employed by the USGS in 1997, Ben received an Honorary Doctor of Science degree from the All Russian Petroleum Research Exploration Institute (VNIGRI) in St. Petersburg, Russia. He also received the 1981 AAPG A.I.

Levorsen Award (co-recipient with Charles W. Spencer), the 1997 RMAG Outstanding Scientist Award, and the 2000 AAPG Robert H. Dott Sr. Memorial Award. Since 2004, Ben has been an honorary editor of the *Chinese Oil and Gas Journal*.

Susan Law

IAIN S. STEWART
Geosciences in the Media Award

Iain Stewart, professor of geoscience communication at Plymouth University (UK), is an earth scientist and broadcaster who specializes in the human impacts of recent geological change. After completing his undergraduate studies in geography and geology at Strathclyde University (1986), and a Ph.D. in earthquake geology at Bristol University (1990), Iain taught earth science at Brunel University in west London, before leaving in 2002 to develop television projects on geoscience.

Since 2003, Iain has presented major television series for the BBC on the nature, history and state of the planet, most notably "Earth: The Power of the Planet"; "Earth: The Climate Wars"; "How Earth Made Us"; "How To Grow A Planet"; "Volcano Live"; and "Rise of the Continents".

Some of his programs have explored his old "backyard" with "Making Scotland's Landscape" and a celebration of the Scottish pioneers of geology, "Men of Rock". Despite being based in Plymouth he maintains strong "tartan" ties, being president of the Royal Scottish Geographical Society, an honorary president of the Scottish Association of Geography Teachers and Patron of the Scottish Geodiversity Forum.

Iain's main research interests continue to be in the field of natural hazards and geological disasters. He regularly presents BBC Horizon specials on geohazard topics, such as the Japanese earthquake, the Russian meteor strike, shale gas/fracturing, and Florida sinkholes. He is theme leader for geohazards on the Scientific Committee for UNESCO's International Geoscience Program and in 2013 he was awarded the American Geophysical Union's geoscience communication award. Between 2009 and 2012, Iain was external examiner for Kingston University's MSc in Hazards and Disaster Management.

Earlier this year he was awarded an M.B.E for his services to geology and science communication.

KITTY L. MILLIKEN
Wallace E. Pratt Memorial Award

MARK D. RUDNICKI
Wallace E. Pratt Memorial Award

DAVID N. AWWILLER
Wallace E. Pratt Memorial Award

TONGWEI ZHANG
Wallace E. Pratt Memorial Award

The Wallace E. Pratt Memorial Award for the best paper published in the *AAPG Bulletin* is presented to Kitty L. Milliken, Mark D. Rudnicki, David N. Awwiller, and Tongwei Zhang for "Organic matter–hosted pore system, Marcellus Formation (Devonian), Pennsylvania" (v. 97, p. 177-200).

This paper grew out of a three-year project supported through a research collaboration between ExxonMobil and the Jackson School of Geosciences at the University of Texas at Austin. The overall collaboration, still on going, has encompassed a wide range of topical studies related to unconventional resources, ranging from geophysics to nano-scale characterization. The particular sub-project that yielded this paper on the Marcellus entailed microimaging of mudrock components and also produced a 2012 paper on the Barnett Shale (*AAPG Bulletin*, v. 96, p. 1553-1578). The Barnett study produced many observations of porous organic matter and raised questions concerning formation of such pores within the broader rock paragenesis. Those questions couldn't be answered with the Barnett sample set however because there was not a sufficient range of thermal maturity represented. The author team turned then to the Marcellus and a sample set that contained contrasts in thermal maturity to answer those questions, and most especially: Do organic matter-hosted pores evolve across thermal maturity? Of course, nature doesn't have to respect our questions and in some cases hands back answers to another question altogether. In this case, the answer was "no," which was rather disappointing. However, a host of other observations directed us in a different direction of investigation, and resulted in the observation that, in this sample set organic matter content is the key control on the character of the OM-hosted pore system. This in turn has raised a plethora of questions about the nature of OM in samples of differing OM content—questions that are now the targets of additional on-going investigations, in our research group and in many others as well. In science, the unexpected result is really the very best thing that can happen, and for us, in this project, that's exactly what turned up.

Kitty L. Milliken is a senior research scientist at the Bureau of Economic Geology. Her research is focused on the diagenesis of siliciclastic sediments and the evolution of rock properties in the subsurface. She has authored and co-authored more than 80 peer-reviewed, over 100 abstracts, and also digital resources for teaching sandstone and carbonate petrography. She served as associate editor of the *Journal of Sedimentary Research* (1993-2000) and as co-editor (2004-2008). In 2006 she toured as a J. Ben Carsey Distinguished Lecturer for AAPG; in 2008 she was elected a Fellow of the Geological Society of America.

Mark Rudnicki's main research interests lies in understanding the controls on the reservoir quality and producibility of unconventional tight-liquids and shale gas systems. This is accomplished by integrating quantitative and descriptive approaches to evaluating the role of deposition and diagenesis on mudstone fabric. Mark was first introduced to early diagenesis in an undergraduate class given by

Charles Curtis at the University of Sheffield, UK, where, for the first time, he encountered Joe Macquaker, now a colleague at ExxonMobil Upstream Research. The following summer, he completed an internship at BP Sunbury before pursuing a Ph.D. in marine geochemistry with Harry Elderfield at the University of Cambridge. Research into mid-Atlantic hydrothermal systems, involving many months on research ships, diverged into all forms of geochemical model building involving hydrothermal plumes, long-term earth cycles and early diagenesis. A decade of post-doctoral research at Cambridge was bisected by a NERC/NATO Research Fellowship to the College of Ocean and Atmospheric Sciences at Oregon State University, and proceeded by a return to the US as a research scientist at Duke University. Mark took up a position as a geoscientist at ExxonMobil in 2004, and since 2010 has been researching unconventional reservoir quality. His work with the BEG, and Kitty Milliken in particular, has provided an opportunity to conduct interesting science, and to publish to the wider geoscience community.

David Awwiller's main professional interests are in reservoir quality characterization and prediction, basin analysis, maturation/migration analysis, and the integration of these disciplines to solve exploration- and production-scale problems.

David was introduced to sedimentary geochemistry and clay mineralogy as an undergraduate at Case Western Reserve University, and continued his geoscience studies at the University of Texas at Austin where he studied mineralogical, geochemical, and isotopic aspects of mudstone diagenesis with Lynton Land, Leon Long, and Earle McBride. While at UT Austin David had two summer internships with BP in Houston, and first worked with fellow author Kitty Milliken (then a post-doc at UT Austin). David followed his studies at Austin with a two-year post-doc with Charles Curtis and Joe Macquaker studying contact metamorphism of mudstones at the University of Manchester.

David accepted a position as a sandstone reservoir quality specialist with Exxon Production Research Company in 1994. Much to his surprise, what was planned as a short time in the petroleum industry turned into a rewarding career. He spent the next 15 years in ExxonMobil's research, exploration and production organizations conducting research on sandstone reservoir quality prediction, and applying the results of that research to studies for ExxonMobil affiliates in Houston and around the world. Since 2009 David has worked almost exclusively on unconventional resources in North America, Europe, Siberia and South America. He is presently the geoscience team lead for ExxonMobil operated exploration activity in the Middle Magdalena Valley, Colombia.

Tongwei Zhang is a research associate and organic geochemist in the Bureau of Economic Geology. He was a postdoctoral scholar in chemistry at the California Institute of Technology (Caltech) (2001-2007). He holds a B.S. degree in geology and a Ph.D. in isotope geochemistry in Northwest University and Chinese Academy of Sciences. His research focuses on gas and organic geochemistry, isotope geochemistry, gas generation kinetics and basin modeling, fluid transport processes in basins and reservoirs, gas adsorption/desorption in shale, pore characterization and oil and gas storage in shale, organic-inorganic interactions, and CO_2 and H_2S risk prediction.

Tongwei Zhang is a research associate and organic geochemist in the Bureau of Economic Geology. He was a postdoctoral scholar in chemistry at the California Institute of Technology (Caltech) (2001-2007). He holds a B.S. degree in geology and a Ph.D. in isotope geochemistry in Northwest University and Chinese Academy of Sciences. His research focuses on gas and organic geochemistry, isotope geochemistry, gas generation kinetics and basin modeling, fluid transport processes in basins and reservoirs, gas adsorption/desorption in shale, pore characterization and oil and gas storage in shale, organic-inorganic interactions, and CO_2 and H_2S risk prediction.

DENGLIANG GAO
Robert H. Dott, Sr. Memorial Award

The Robert H. Dott, Sr. Memorial Award is presented to honor and reward the author/editor of the best special publication dealing with geology published by the Association. This year's award is presented to Dengliang Gao for *AAPG Memoir 100 Tectonics And Sedimentation: Implications For Petroleum Systems*

The influence of tectonics on sedimentation and petroleum accumulation is different among extensional, strike-slip, and contractional structural styles. Addressing the role of different structural styles in sedimentation and petroleum accumulation is essential to assess hydrocarbon potential in sedimentary basins. This 18-chapter volume covers different structural styles in various tectonic settings around the global, including those in West Africa, East Africa, Brazil, the United States, Gulf of Mexico, South China Sea, the Russian Arctic and the Mediterranean Sea. The theme of the book focuses on the interplay among strike-slip, contractional, and extensional structures in petroleum systems. In particular, recognizing paucities and gaps of petroleum systems, which could change from place to place, are fundamentally important to successful hydrocarbon exploration in different tectonic settings.

In a wrench tectonic setting, strike-slip faults provide effective fluid migration pathways and make primary contributions to the accumulation of oil and gas. In this wrench-dominated setting, traps and/or reservoirs are a critical gap in the petroleum system, and exploration focus needs to be directed to the potential traps and/or reservoirs along strike-slip faults. Examples include major oil and gas fields in the western United States that cluster in the restraining bends associated with the San Andreas strike-slip fault, where traps were generated by transpression in the vicinity of the bends. Other examples include major oil and gas fields in the Bohai Bay Basin where traps and/or reservoirs were generated by transpression and/or transtension associated with the Tan-Lu strike-slip fault in northeastern China.

In a foreland tectonic setting, folds and thrusts provide extensive structural traps, whereas migration pathways become crucial to the accumulation of oil and gas, making strike-slip faults being the exploration focus in this contraction-dominated setting. Examples include many oil and gas fields in the central Appalachian basin that are associated with strike-slip faults, particularly at the intersection of cross-regional transfer faults with regional fold-and-thrust belts. Other examples include oil and gas fields in the Anadarko Basin, Powder River Basin and Fort Worth Basin in which hydrocarbons occur where strike-slip faults intersect with folds and thrusts.

A passive continental margin setting is more complicated because the dominant structural style changes from the lower slope to the upper slope. On the lower slope, given the occurrence of extensive gravity-induced folds and turbidite sands, migration pathways are a critical gap, and as such, strike-slip faults play a crucial role in hydrocarbon accumulation. In contrast, on the upper slope dominated by gravity-induced extensional faults and clastic/carbonate reservoirs, traps become critical to hydrocarbon accumulation. Examples include many field discoveries in the Lower Congo Basin offshore Angola (West Africa), the Campos Basin offshore Brazil, and Gulf of Mexico, where exploration strategy and focus need to change from the extension-dominated upper slope down to the contraction-dominated lower slope.

Dengliang Gao received a Ph.D. (1997) in geology and geophysics from Duke University, an M.S. (1994) in geology from West Virginia University, an M.S. (1986) and a B.S. (1983) in geology from Hefei University of Technology (China). He joined the faculty as an associate professor at West Virginia University (2009) and was an adjunct professor at

University of Houston (2007) and a lecturer at Tongji University (China) (1986-1992). He also worked at Chevron Energy Technology Company (2008-2009), Marathon Oil Corporation (1998-2008), and Exxon Production Research Company (1997-1998). Gao served as SEG *Geophysics* associate editor (2006-present), as the co-chair for the 31st GCSSEPM Foundation Bob F. Perkins Research Conference (2011), and on the AAPG Publications Committee (2006-2009).

Gao was selected to receive the Robert H. Dott, Sr. Memorial Award (2015) from AAPG, the DOE/NETL-RUA Outstanding Research Award (2013) from URS, two Grover E. Murray best (second-place) published paper awards (2006a and 2006b) from GCAGS, two geophysics patents (2005 and 2001) from the US Patent and Trademark Office, two Company Achievement Awards (2001 and 2000) from Marathon Oil Corporation, and the Science and Technological Advancement Award from China's Education Commission (1991). He was twice recognized as the outstanding *Geophysics* associate editors (2008 and 2007) and outstanding *Geophysics* peer reviewer (2006). Gao as sole author, first author, and corresponding author has more than 70 journal, non-journal, and conference publications, including a *Geophysics* bright-spot paper (2012), a *Geophysics* reprint paper (2010), and two GCAGS Grover E. Murray award-winning papers (2006a and 2006b). He as sole editor published AAPG Memoir 100 and two AAPG digital publication series (2007a and 2007b), with the former being selected to receive the AAPG foundation grant (2012), top-ten best seller (2013), and AAPG best special publication award (2015). Also he as co-editor published the 31st GCSSEPM Foundation Bob F. Perkins Research Conference Proceeding (2011).

Gao's research interests cover both theoretical and practical aspects of geology and geophysics focusing on three major topic areas: (1) hydrocarbon potential of strike-slip faults; (2) seismic texture analysis and texture inversion technologies for improved seismic interpretation; and (3) plate-plate interaction and driving mechanism in plate tectonics.

MARK R. P. TINGAY
J. C. "Cam" 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 awarded to Mark R. P. Tingay for "Evidence for overpressure generation by kerogen-to-gas maturation in the northern Malay Basin" (*AAPG Bulletin*, v. 97, pp. 639-672)

This paper uses typically available petroleum industry data to conduct a regional investigation into the distribution, origin and physical properties of overpressure in the northern Malay Basin in the Gulf of Thailand. This study reveals that overpressures are stratigraphically defined within the region, and that the overpressures have a specific petrophysical signature, indicating that they are, in part, generated by an unusual mechanism that is not associated with any significant porosity anomaly. Our detailed analysis of the overpressures, in conjunction with the regional geology indicates that a significant component of the overpressures are generated by the maturation of kerogen into gas–a mechanism hypothesized for over 40 years, but for which little in-situ evidence has ever been documented. We then develop a regional overpressure generation model for the northern Malay Basin, and use this model to help improve pore pressure prediction in the region and to suggest a potential new exploration play. In particular, this study describes, in detail, a new methodology for analyzing the origin and physical properties of overpressure that can be applied in any region, and which has important implications

for improving drilling safety in basins worldwide, as well as for better understanding the relationship between overpressure and gas generation in shale gas provinces.

Mark Tingay has over 15 years experience in overpressure analysis, pore pressure prediction and petroleum geomechanics. He graduated with a Ph.D. from the University of Adelaide in 2003 with a thesis entitled "In Situ Stress and Overpressures of Brunei Darussalam". Since 2003, Dr. Tingay has worked on petroleum geomechanics, pore pressure prediction and tectonics projects in over 20 countries, with a primary focus on the Asia-Pacific region. Research highlights include being the single biggest contributor of petroleum data to the World Stress Map Project; compilation of the first present-day stress map for Southeast Asian petroleum basins; determination of overpressure origins in Brunei, Thailand and Malaysia, and; developing new pore pressure prediction methods for the Gulf of Thailand and northwest Borneo. Dr. Tingay's research track record includes publication of over 50 peer-reviewed papers, giving over 100 presentations to conferences, professional society meetings and companies, and providing over 80 media interviews. Since 2013, Dr. Tingay has had the combined roles of Rock Mechanics Research Scientist with Chevron and adjunct associate professor in geomechanics at the University of Adelaide. Dr. Tingay has been an AAPG member since 1999.

BRUCE S. HART
SEG/AAPG Best Paper in *Interpretation* Journal Award

Bruce Hart has been recognized for his authorship of the best paper published in the SEG/AAPG *Interpretation* Journal titled "Whither Seismic Stratigraphy?" (*Interpretation*, v. 1, no.1, pp.SA3-SA20)

This is an unapologetically personal view of seismic stratigraphy that examines the history of the subject and proposes new research avenues.
I summarize the tools that stratigraphers and geophysicists have developed (mostly independently) for making qualitative and quantitative rock property predictions from seismic data. I argue that, in order to more significantly advance seismic-based property predictions, future research should more deliberately integrate stratigraphic and geophysical concepts and data.

Bruce Hart is a geologist in Statoil's Shale Oil and Gas research group (Houston). His current work focuses on stratigraphic characterization of shale plays and other unconventional reservoirs. His previous research, in academia, focused on seismic-based reservoir characterization. He was the 2009 AAPG/SEG Distinguished Lecturer and was a guest lecturer for the CSPG in 2006. His digital textbook on seismic interpretation (*AAPG Discovery Series 16*) is based on short courses that he offered since 1995 in Houston, London, Cairo, Kuala Lumpur, Calgary and elsewhere.

KONSTANTIN SOBORNOV
John W. Shelton Search and Discovery Award

Konstantin Sobornov received the 2015 John W. Shelton Search & Discovery Award for the most outstanding contribution to the AAPG Search & Discovery website titled "Structure and Petroleum Habitat of the of the Pay Khoy-Novaya Zemlya Foreland

Fold Belt, Timan Pechora, Russia."

The study is based on integrated interpretation of geological and geophysical data on the Pay Khoy- Novaya Zemlya fold belt. It is observed that in the northwestern part of the belt is dominated by transpressional deformations. It involves high-relief flower structures with limited shortening. To the south-east of the fold belt gradually passes into a typical trust belt. Structuring there is controlled by multiple delamination of the Paleozoic-Triassic sedimentary section and thrust imbrications. Two episodes of structuring are recognized in the study area. First one resulted from the sinistral strike-slip displacement, which created transpressional structures and led to the drastic bend of the Urals-Pay Khoy—Novaya Zemlya suture. The second one occurred in Triassic and resulted in thrusting. It was produced by the south-west lateral escape of the South Kara plate from a collision of the Siberia and North Kara plates, which produced the Taymyr orogen. It is proposed that the limited amount of shortening in the north is due to the presence of a pre-Frasnian fold belt in front of Novaya Zemlya, belt facilitated the detachment thrusting. The Pay Khoy- Novaya Zemlya fold belt has large exploration potential. Of prime interest are thrust related four-dip closures, flower structures, carbonate build-ups, pinch-outs, Silurian-Lower Devonian carbonates subcropping the pre-Frasnian unconformity.

Konstantin Sobornov was born in Moscow in 1959. In 1981 he graduated with honour from Moscow State University with a master's degree in petroleum geology. Until 1988 he worked at Moscow University as a researcher leading regional studies on geology and petroleum habitat of the East Caucasus foreland. In 1988 he joined VNIGNI (leading oil prospecting institute on Ministry of Geology) where he was involved in a regional study of structural and petroleum geology of fold belts of the FSU. In 1992 he was invited to University of Calgary as a visiting scientist. In 1993 he worked as a visiting scientist at Cornell University. These trips were focused on comparative studies of structural geology and petroleum habitat of fold belts.

In 1996 joined YUKOS taking responsibility for new exploration projects in Russia and overseas. From 2005 till 2008 he worked for TNK-BP on regional studies and new exploration ventures in Russia and neighboring courtiers. In 2008 he joined Shell Exploration and Production as an in-country exploration manager for Russia. From 2012 he is a chief geologist of Nord West Ltd.

He is author of about 70 papers focused mainly on regional geology and petroleum habitat of Russia and structural and petroleum geology of fold-and-thrust belts. He has Doctor of Science degree in petroleum geology from VNIGNI.

PETER HENNINGS
George C. Matson Memorial Award

The George C. Matson Memorial Award for the best paper presented during an oral technical session at the Annual Convention and Exhibition is presented to Peter Hennings for "Relationship between reservoir quality and the deformation associated with anticlinal folding in the Tensleep Sandstone at Alcova Reservoir, Central Wyoming, USA." The co-author is Anita Csoma.

In their presentation Peter and Anita showed that in outcrops of folded and fractured Tensleep Sandstone in central Wyoming there is a remarkable diagenetic transformation that was triggered by deformation processes. Anticlines of Pennsylvanian Tensleep Sandstone are the most prolific oil-producing reservoirs in the Laramide Rockies. While the Tensleep's eolian and mixed carbonate lithologies are typically of excellent reservoir quality, the patterns of local production performance are complex being

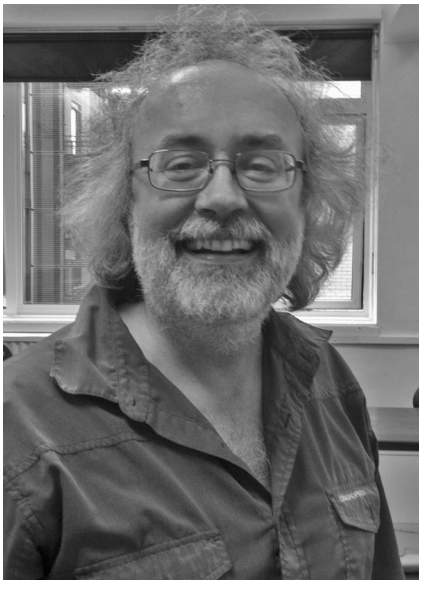
attributed to diagenetic variations and degree of natural fracturing. Based on outcrop analysis, petrographic characterization, laboratory tests, and computational modeling, they found that deformation-triggered processes leading to pervasive cementation and other diagenetic effects occurred synchronously with Laramide-age folding and fracturing. They discussed that these effects must be studied in tandem while characterizing these reservoirs for application to field development and management.

Peter Hennings is manager of structure and geomechanics, ConocoPhillips Technology and Projects. He leads a group of structural geologists, petrophysicists, geophysicists, and rock mechanicists whose mission is to support ConocoPhillips' global exploration and production businesses through research, technology development and application, consulting, and knowledge sharing activities. Peter's areas of expertise include the formation and evolution of petroleum systems; architecture and effectiveness of structural traps; the internal architecture and stress state of reservoirs and their overburden; characterizing and modeling deformation and fluid flow in stress-sensitive, faulted, fractured and compliant reservoirs; and estimating subsurface stress and rock strength.

Peter is consulting professor of geophysics at Stanford University with a focus on reservoir geomechanics and is adjunct professor of geology at the University of Wyoming with a focus on the petroleum structural geology of the Laramide Rockies.

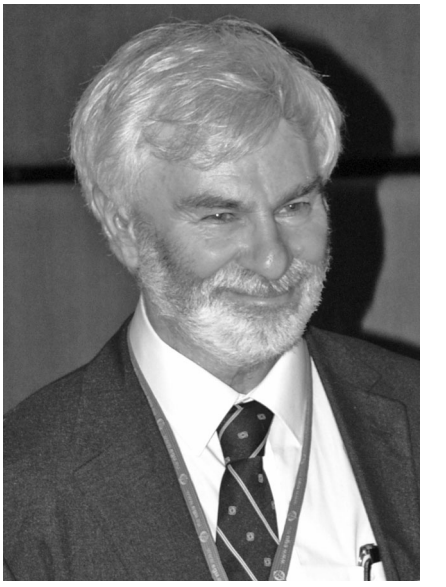
Peter is the founder and current chair of the AAPG Petroleum Structure and Geomechanics Division, is an AAPG Distinguished Lecturer, and a GSA Honorary Fellow.

ROSANNE MCKERNAN
Jules Braunstein Memorial Award



STEPHEN J. COVEY-CRUMP
Jules Braunstein Memorial Award

JULIAN MECKLENBURGH
Jules Braunstein Memorial Award



ERNEST RUTTER
Jules Braunstein Memorial Award

KEVIN TAYLOR
Jules Braunstein Memorial Award

The Jules Braunstein Memorial Award for the best poster presentation at the AAPG Annual Convention and Exhibition is presented to Rosanne Mckernan, Stephen J. Covey-Crump, Julian Mecklenburgh, Ernest Rutter, and Kevin Taylor for their poster "Influence of effective pressure on shale matrix permeability: Implications for shale gas production."

The permeability of Whitby mudstone to argon gas was determined experimentally as a function of effective pressure (confining pressure—pore fluid pressure), to total confining pressures of 14,000 psi. The oscillating pore pressure method is particularly well suited to such low permeability rocks, and was used for the measurements. The experiments demonstrated two orders of magnitude permeability anisotropy along and across the bedding foliation. After the first cycle of effective pressure, permeability vs. effective stress was very reproducible, displaying almost x10 variation in permeability over the full range of reservoir effective pressures. Taking this effect into account for reservoir modeling from well tests produces more realistic evaluations of gas in place and likely yield than interpretations based on the assumption of constant permeability.

Rosanne Mckernan studied geology at the University of Manchester until 2012. She is now in the final year of a Ph.D. project investigating the controls on mudstone permeability. She completed three-month internship working in exploration at Shell in 2014

Stephen J. Covey-Crump received a B.Sc. in geology from Imperial College, 1984; an M.Sc. in structural geology and rock mechanics from Imperial College in 1986; and a Ph.D. from University College, London. He has been a lecturer at the School of Earth, Atmospheric and Environmental Sciences, University of Manchester since 2003. He was **a** Royal Society University Research Fellow 1995-2003 and a Natural Environment Research Council Postdoctoral Research Fellow 1992-1995.

Julian Mecklenburgh has worked in rock mechanics research for 18 years and has been a lecturer in structural geology at Manchester University since 2011. He holds a B.Sc. in geology from Manchester University (1996) and a Ph.D. in geology from Manchester University (2001). He did post-doctoral work Bayerisches Geoinstitut (2001-2003); was a NERC post-doctoral Fellow at Manchester University (2003-2007); and also conducted post-doctoral research at Manchester University (2007-2011).

Ernest Rutter's current position is professor of structural geology at University of Manchester. His field of research is experimental mechanical and petrophysical properties of rocks, natural rock deformation and petrofabrics. He has earned a B.Sc., ARSM, DIC, and a Ph.D. from Royal School of Mines, Imperial College, London. He received the Wollaston fund in 1993 and the Lyell Medal in 1993 from the Geological Society of London in 1993. He was elected a fellow of the American Geophysical Union in 2004 and received the Neel Medal from the European Geoscience Union in 2011. From 1969 to 1989 he was a lecturer and reader in structural geology and rock mechanics at Imperial College London.

Kevin Taylor heads up the Mudstone and Shale Reservoir Research Group at the University of Manchester, UK. He graduated from the University of Durham with a B.Sc. Hons in geological sciences in 1987 and a Ph.D. in sedimentology from Reading University in 1990. His research has applied standard petrographic and geochemical analysis (e.g., optical and electron microscopy, XRD, stable isotope analysis) and novel mineralogical analysis

(e.g. CL, Raman, synchrotron X-ray analysis) to sediment, shale gas and mudstone systems. He has been instrumental in integrating field- and basin-scale observations with pore-scale analysis, which has had significant implications for predicting shale and sandstone reservoir properties. His recent and current research has been integrating multi-scale sedimentological and diagenetic analysis in major mudstone successions and shale-gas reservoirs (e.g., the Mancos Shale, Utah; the Marcellus, Woodford and Fayetteville Shales of the eastern US; Cretaceous calcareous shales of the Western Interior Seaway, Ordovician Shales in Canada and the UK; Mesozoic shales and source rocks of Europe). He is also coordinating research initiatives in shale-reservoir structure using high-resolution X-ray CT scanning and experimental mechanical analysis of shales, with links to mineralogical and petrophysical data. Finally, he coordinates integrated geological and environmental assessments of unconventional resources. He has received funding from both the international oil and gas industry, and the UK research councils, has undertaken consultancy and has supervised over 35 Ph.D. students.

ZAMIR BEGA
Gabriel Dengo Memorial Award

The Gabriel Dengo Memorial Award is given each year in recognition of the best paper presented at the previous year's AAPG International Conference and Exhibition. This year, the award is presented to Zamir Bega for "Oligocene oil play in Western Black Sea Basin."

Western Black Sea Basin (WBSB) is still considered as exploration frontier despite the fact that gas and oil production in the shelfal areas of Turkey, Bulgaria, Romania and Ukraine has more than 20 years of history. The reservoirs in shelf are predominantly pre-Oligocene in age. The recent Domino 1 well gas discovery in offshore Romania is expanding the exploration frontiers into deep waters with predominantly Upper Miocene to Pliocene gas reservoirs.

Oligocene formation, which comprises the bulk of the well-known Maykop formation, is recognized as a main SR and reservoir oil play in Eastern Black Sea Basin (EBSB). The oil tested at Subottina discovery (offshore Ukraine) have confirmed Maykop as a key play in that area, which is expected to extend alongside the Tuapse foredeeps, following the Great Caucasus—Crimea fold belt. WBSB is sandwiched between East Carpathian Belt to the NW with proven Oligocene (Menilite Formation) oil plays and to the East by promising Maykopian play in EBSB.

Three-dimensional basin modeling results confirm the Maykop section is in the early oil to wet gas window in the deeper part of the Romanian Black Sea and is getting more mature towards the central parts of the basin. The expulsion of hydrocarbons has started during the Late Miocene and is ongoing today.

Two major sediment suppliers are recognized in WBSB: Histria Trough in the NW along the famous Peceneaga-Camena Lineament and through the Kamtchia Trough in the SW. The NW sediment supply is providing rather quartz rich reservoirs, whereas the SW sediment supply is rich with lithic content derived from Balkanides erosion. The early Oligocene seems to be richer with reservoirs than Upper Oligocene due to several low stands.

The expected Oligocene plays are deeply buried and forming combined traps. Most important are structural traps formed during several inversion phases: Late Oligocene and post-Miocene stages. Bega has an M.B.A. and a Ph.D. from Tiran State University.

From 1975 to 1991, he was a geophysicist and explorationist with DPNG in Albania. He was senior explorationist for DEMINEX from 1991 to 1993 and held the same position with OMV and OMV AG from 1993 to 2006. Since 2007, he has been exploration coordinator, Black Sea, at OMV Petrom in Bucharest, Romania.

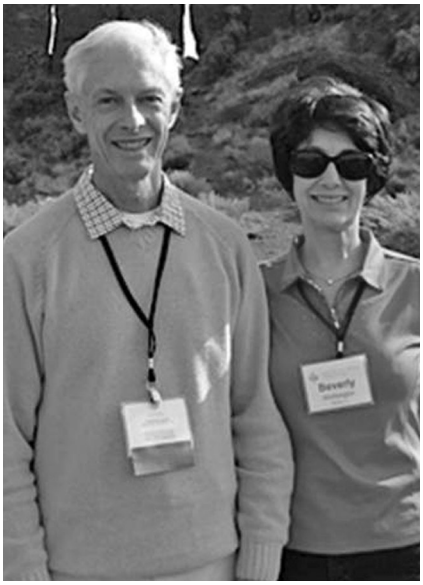
GRANT ELLIS
Ziad Beydoun Memorial Award

The Ziad Beydoun Memorial Award is given each year in recognition of the best poser presented at the previous year's AAPG International Conference and Exhibition. This year, the award is presented to Grant Ellis for "Late authigenic pyrite—an indicator of oil migration and entrapment in the Bonaparte Basin, Timor Sea, Australia."

Late authigenic pyrite cementation is common to abundant in the Middle Jurassic Laminaria and Plover Formation sandstone in numerous wells on the Laminaria High and in the Vulcan Sub-basin of the northern Bonaparte Basin, Australia. Pyrite cementation developed in these reservoirs by reduction of formation water sulphate in the presence of migrating and/or entrapped oil, followed by the reaction of iron with the resultant hydrogen sulphide.

This late authigenic pyrite is disseminated, in fractures and in solution fronts and provides a fingerprint of the mechanisms involved in oil-charged and sulphate- and iron-rich fluid migration into and through the reservoirs. Therefore late authigenic pyrite is considered to provide not only evidence of oil entrapment but a new methodology to understand and identify one mechanism of oil-charged fluid flow into a structure.

Grant Ellis graduated from the University of South Australia in 1971 with a Bachelor of Applied Science and in 1973 with a Graduate Diploma (economic geology), after spending 1972 as a well-site geologist with Core Laboratories. From 1974 to 1978 he worked in sedimentary uranium exploration with Mines Administration. In 1978 he joined Marathon Petroleum Australia where he spent the next 16 years, initially in uranium and base metal exploration, and subsequently in oil exploration and development. With the closure of Marathon's Perth office, he worked as a consultant before joining Hardy Petroleum in 1997. Hardy was subsequently taken over by British Borneo, which in turn was taken over by Agip Australia in 2000. He is currently Timor Sea Exploration project leader and geological coordinator with Eni Australia Limited. Grant has been a member of AAPG since 1972.



DAVID W. WORTHINGTON
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 2015 recipient is David W. Worthington.

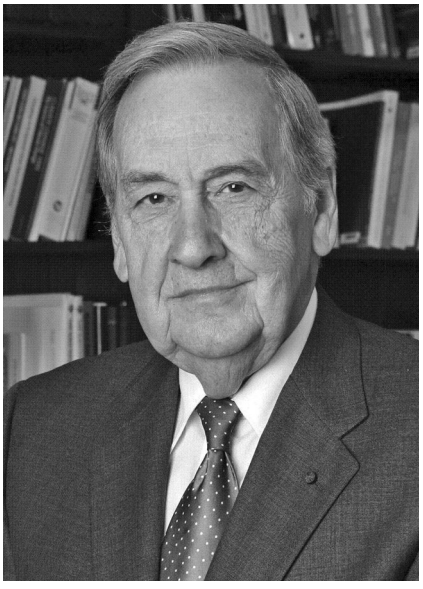
David Worthington was born in Worcester, Massachusetts on August 27, 1941. Upon completing high school in Sturbridge, Massachusetts, he attended Marietta College in Marietta, Ohio for two years prior to serving three years in the U.S. Army's XVIII Airborne Corps at Fort Bragg, North Carolina. He then returned to Marietta where he earned his B.S. in geology with a minor in mathematics in 1966. Later that same year, he began graduate work in geophysics at the University of

Utah under a Texaco scholarship, relocating to Virginia Tech with his thesis advisor the following year. In 1968, David received his M.S. degree in geophysics from Virginia Tech, where he conducted a number of ultrasonic seismic wave model studies. His professional affiliations include membership in both the AAPG and SEG.

David joined Shell Oil Company in 1968 and spent the first few years at Shell's Training Center in Houston; Midland, Texas; Farmington, New Mexico; and the Bellaire Research Center in Houston. In 1972 he transferred to the Offshore Division in New Orleans where he was assigned work on a succession of lese sales, followed by assignments as party chief of the offshore seismic crews, Offshore Division geophysicist, and finally Offshore Division exploration manager.

In 1980, David set up a new company to explore the offshore Gulf of Mexico, which during the tumultuous period of the early 1980s quickly morphed into running and eventual ownership of a geophysical company (TGS Geophysical Company). A merger with a Norwegian company (NOPEC Geophysical Company) was accomplished in 1998 and TGS-NOPEC was created. He retired from active management in 1998, remaining on the board of directors until 2007.

Worthington has been a Trustee Associate since 2001. He has held the offices of vice-chairman (2014) and secretary-treasurer (2012-2013). He was chair of the 2014 Trustee Associates Site Selection Committee and was responsible for the site selection of the 2017 Annual Trustee Associates meeting. He has served on the AAPG Foundation's Member of the Corporation since 2013. He was also a member of the L. Austin Weeks Undergraduate Grant Selection Panel in 2014. Worthington has established two named grants for the Grants-in-Aid Program: the David W. Worthington Named Grant and the David W. Worthington Family Named Grant.



WILLIAM L. FISHER
Chairman's Award

The Chairman's Award is 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. The 2015 recipient is William L. Fisher.

William L. Fisher is the Leonidas T. Barrow Chair and professor in the Department of Geological Sciences of the Jackson School of Geosciences at The University of Texas at Austin. Previously, he served as the inaugural dean and the first director of the John A. and Katherine G. Jackson School of Geosciences, a school he was instrumental in founding as well as securing its substantial endowment. He is a former long-time director of the Bureau of Economic Geology, former chairman of the Department of Geological Sciences and former director of the Geology Foundation.

Fisher's research has focused in the areas of stratigraphy, sedimentology, and oil and gas assessment. In 1967 he introduced the concept of depositional systems —now a fundamental part of modern stratigraphy and sedimentology. In 1987 he led an assessment team for the US Department of Energy that turned around the then-prevalent view of natural gas scarcity. He has championed the importance of technology in resource availability and has been a leader in the rethinking of the significance of reserve growth from existing, geologically complex oil and gas fields.

Bill Fisher has been an advisor to two presidents, several governors, members of the US Congress and Texas Legislature and numerous federal and state agencies. He served at Assistant Secretary of Energy and Minerals in the US Department of Interior under President Gerald Ford and as a member of the White House Science Council under President Ronald Reagan. He is an elected member of the National Academy

of Engineering and has long been active in the Nation Research Council of the National Academies.

Fisher has been active in several professional geological societies, particularly the AAPG. He is past president of AAPG, the Association of American State Geologists, the American Geological Institute, the American Institute of Professional Geologists, the Gulf Coast Association of Geological Societies, and the Austin Geological Society.

Fisher has consulted with many United States and foreign oil and gas companies, with concentration in South America. He served on the board of Diamond Shamrock and Pogo Producing.

He has received the Powers Medal from AAPG, the Twenhofel Medal from SEPM, the Campbell Medal from the American Geological Institute, the Parker Medal from the American Institute of Professional Geologists, the Boyd Medal from the Gulf Coast Association of Geological Societies, the Hedberg Medal for Energy from the Institute for the Study of Earth and Man, and the Milling Legendary Geoscientist Medal from the American Geological Institute, among numerous other awards.

Fisher holds a B.S. and D.Sc. Honoris Causa, from Southern Illinois University, an M.S. and Ph.D. in geology from the University of Kansas, a D. Eng. Honoris Causa from the Colorado School of Mines, and a D. Sc. Honoris Causa from Flinders University. He received the Presidential Citation (equivalent to an honorary doctorate) from The University of Texas at Austin.

JACQUELINE BATH
Teacher of the Year Award

Jacqueline Bath, a geosciences teacher at ThunderRidge High School in Littleton, Colorado, has been named the 2015 American Association of Petroleum Geologists (AAPG) Foundation's Teacher of the Year.

Bath has worked to impassion the minds of aspiring young geoscientists for more than 18 years. Her background as a trained geologist has provided her with real world experiences that she actively imparts on her students.

Bath was hailed by peers as an amazing instructor who reaches out to students and makes them think out of the box about science and learning the components of science, pushing them to find a passion in science that energizes their love for learning and makes it relevant to their everyday lives.

Bath's teaching style is driven by a desire to make science relevant to young people today. She focuses on fostering a student-centered learning environment where students are engaged in learning and applying concepts that will prepare them for employment and decision-making in the twenty first century. She feels responsible for getting students involved in their own learning processes, engaging students in learning by doing.

The Teacher of the Year award, funded and presented annually by the AAPG Foundation, is intended to honor and encourage excellence in geoscience education. Bath was unanimously chosen as the top teacher by a panel of national judges among six finalists for the 2015 TOTY award. It includes a $6,000 prize that will be split into two parts—half is designated for Bath's personal use and half to ThunderRidge High School for education use under Bath's supervision.