AAPG Honorees, 2019

KENNETH E. PETERS
Sidney Powers Memorial Award

Citation—To Kenneth E. Peters, for his outstanding scientific career in industry, government, academia, the service sector, and AAPG and whose keen interest in educating and mentoring students contributed to the success of many petroleum geoscientists. His cutting-edge research and many publications in geochemistry significantly advanced the understanding of petroleum systems.

I have known Kenneth E. Peters as a colleague and friend for more than 35 years, so I can write this biography from first-hand experience. Ken has had a remarkable, high-impact career in petroleum geochemistry that started while he was a graduate student at University of California, Los Angeles (UCLA) and continues today. His contributions include basic, applied, and popularized research, a breadth of influence that few can match. Since the late 70s, Ken authored or co-authored approximately 170 papers and books, some of which have been cited hundreds of times. He worked with more than 250 different co-authors. His most frequent co-authors were Michael Moldowan (32), Cliff Walters (18), Les Magoon (14), Ian Kaplan (13), Brian Rohrback (7) and John Zumberge (6); all accomplished geochemists and geologists.

What is truly spectacular about Ken's publication record is that for most of his 44 years in the profession he was employed by the oil industry (Chevron, Mobil, ExxonMobil, Schlumberger) where outside publications are comparatively rare. Nevertheless, Ken authored or co-authored 30 papers while at Chevron, 24 while at Mobil, and 11 in just 3 years at ExxonMobil. While at the US Geological Survey he co-authored 23 publications. Most of his remaining publications were completed with his present employer, Schlumberger, where he is geochemistry advisor. At Stanford University Ken was a co-founder and remains actively involved in the Basin and Petroleum System Modeling (BPSM) Industrial Affiliates Program where he teaches the core curriculum and mentors Ph.D. candidates as an adjunct professor.

Ken made numerous contributions to basic research. For example, he proved the origin of 25-norhopanes in petroleum that solved a longstanding geochemical controversy. He pioneered the use of molecular mechanics to explain the stereoselective biodegradation of these biomarkers in petroleum. Ken made several major contributions to applied research. For example, he combined organic geochemistry and sequence stratigraphy to create a new exploration model that challenged existing deep-water deltaic models and correctly predicted black oil in some deep-water depositional settings. Ken is most recognized for popularizing research in his publications on chemometrics, Rock-Eval pyrolysis, hydrous pyrolysis, biomarkers, basin modeling, molecular modeling, chemical reaction kinetics and the petroleum system. His papers on the use of chemometrics for oil-to-oil and oil-to-source rock correlation and deconvolution of mixed oils have revolutionized the approach to identify and map petroleum systems. Because of Ken's diverse contributions, he is widely referenced in the literature as he continues his research in organic geochemistry and basin and petroleum system modeling.

Two of Ken's publications received the Best Paper Award by

the Organic Geochemistry Division of the Geochemical Society. For the first award, he is a co-author in a *Nature* journal article on Cretaceous black shale. For the other Best Paper, Ken is first author of a paper in *AAPG Bulletin* on petroleum geochemistry of oil from the Beatrice field in the North Sea. He used a novel method to show co-sourcing from Devonian and Jurassic source rocks.

Ken has done as much or more than any high-profile organic geochemist to popularize research so that its content can be better understood by others who want to apply the methods. He can do this because of his degrees and interest in geology. The most obvious contributions are his two editions of *The Biomarker Guide*. The 1993 edition is considered a "classic" that has been out of print since 1995. In this edition, he codified the scale of petroleum biodegradation into ten steps and has been informally dubbed the Peters-Moldowan biodegradation scale. The second edition published in 2005 is a more comprehensive two-volume set that has even broader appeal and in-depth discussion of many petroleum systems around the world. This book is found in oil company offices and laboratories worldwide. The second edition is now available in Chinese.

Ken completed the 2005 edition of *The Biomarker Guide* during off-hours while working full time at Mobil, ExxonMobil, and the US Geological Survey. Work completed while at the US Geological Survey included completion of several chapters, the glossary, index, many figures, and revisions of the typescript and galley proofs. Although there were two other co-authors, most of the work was Ken's responsibility. The publisher indicated that sales in the first few months after release far exceeded their expectations. Ken's hope has been realized in that this book has increased scientific cooperation between petroleum geochemists, geologists, and experts in other disciplines, particularly environmental scientists.

While at the US Geological Survey Ken embarked on a new line of investigation that influenced the direction of his career since 2000: numerical modeling of sedimentary basins and petroleum systems. He was involved in building the first basin-wide three-dimensional (3-D) model of the San Joaquin Basin in California to use in the assessment of oil and gas resources. Ken mapped the richness and quality of three source rocks and modeled the generation, migration, and accumulation of oil and gas in the basin. He was also involved in a similar effort on the North Slope of Alaska 3-D model for use in an assessment. During this time, Ken joined Schlumberger and rose to the position of geochemistry advisor. The model was subsequently expanded during his employment at Schlumberger and sold to the petroleum industry. Due to this work and the integration of petroleum geochemistry, he became involved in developing the Stanford University Industrial Affiliates program for Basin and Petroleum System Modeling starting in 2005. This program now includes approximately 10 affiliate members from the petroleum industry. The curriculum includes multiple courses that can lead to M.S. or Ph.D. degrees, thus fulfilling an important need for the petroleum industry.

Ken is held in high regard throughout the scientific community as demonstrated by his honors and awards. He is Honorary Teaching Fellow at the University of Aberdeen, visiting professor at Jacobs University in Germany, a Schlumberger NeXT instructor, an European Association of Geoscientists and Engineers (EAGE) student webinar lecturer, Fellow in the Geochemical Society, AAPG Charles Taylor Fellow, and adjunct professor at Stanford University where he co-leads the BPSM Industrial Affiliates Program [bpsm.stanford.edu]. He was chair of the 1998 Gordon Research Conference on Organic Geochemistry. He is co-editor for the 2012 SEPM Special Publication 103 on *Analyzing the Thermal History of Sedimentary Basins: Methods and Case Studies*. He received the 2009 Alfred E. Treibs Medal presented on behalf of the Geochemical Society for major achievements over a period of years in the field of organic geochemistry. In 2016, he received the EAGE Alfred Wegener Award for outstanding contributions to the scientific and technical advancement of petroleum geoscience. He twice received the Schlumberger Henri

Doll Prize for Innovation (2009, 2013).

In addition to many awards and achievements outside of AAPG, Ken was a co-convener for two AAPG Hedberg Research Conferences on Basin and Petroleum System Modeling (2009 and 2016), chair of the AAPG Research Committee (2007-2010), and AAPG Distinguished Lecturer (2009 and 2010). He was editor for the 2009 AAPG compact disk *Getting Started in Basin and Petroleum System Modeling* and principal editor of the 2012 AAPG Hedberg Series 4 volume on *Basin Modeling: New Horizons in Research and Applications*. He was associate editor for *AAPG Bulletin* for several terms from 1989 to 2012 and is also associate editor for *Organic Geochemistry* and the *Journal of Petroleum Geology*. In 2013, he received the AAPG Honorary Member Award for service and devotion to the science and profession of petroleum geology. In 2017, he was one of 100 "Heritage of the Petroleum Geologist" honorees selected by the Division of Professional Affairs of AAPG to celebrate the 100-year anniversary of AAPG. For these contributions Ken has earned and deserves to be this year's recipient for the Sidney Powers Award.

Leslie B. Magoon

Response

Accepting this prestigious award is a humbling experience. I certainly did not accomplish this on my own. I most gratefully acknowledge the many colleagues, role models, students, and friends who helped to make this achievement possible. My career in petroleum geochemistry and BPSM now spans more than 40 years in industry, academia, government, and the service sector. My parents were both teachers. Mom taught English and Dad taught high school chemistry. Teachers help to create our future, but for some reason we do not choose to pay them in proportion to their contributions. To make ends meet, my Dad worked as a driver training instructor, math and chemistry tutor, newspaper motor route delivery man, and executive director of the annual Santa Barbara County Science Fair. My parents taught me the value of reading, writing, understanding how things work, as well as hard work and perseverance. They encouraged my early interest in science. In school I found all science fascinating. My entry into geoscience was fortuitous. I had planned to be an organic chemist, biochemist, or doctor. However, based on the advice of an inspiring undergraduate geology advisor at University of California, Santa Barbara (UCSB), Bob Webb, I took a graduate course having the same title as the textbook: *Adventures in Earth History* (Cloud, 1970). That classic book described revolutionary geoscience discoveries of the late 1960s, including contributions by Stephen Gould, Konrad Krauskopf, Harold Urey, and Tuzo Wilson. Wow, that settled it! I completed my B.A. and M.A. in geology at UCSB and my Ph.D. in geochemistry at UCLA. I graduated on a Friday and reported to work at Chevron Oil Field Research Company the following Monday before anyone else arrived. For those who cannot resist more details on my serendipitous career, refer to *Geochimica et Cosmochimica Acta* 2012, v. 89, p. 323-325.

I have been fortunate to work with many outstanding colleagues. I cannot list everyone, but some include Mike Moldowan (Biomarker Technologies), Cliff Walters (ExxonMobil), Oliver Schenk, Drew Pomeranz (Schlumberger), Jeremy Dahl, Alan Burnham (Stanford), Les Magoon, Ken Bird, Tom Lorenson, and Paul Lillis (USGS). I have also been blessed to work with many inspiring role models, including John Hunt (Woods Hole Oceanographic), Dietrich Welte, and Oliver Mullins (Schlumberger). I gratefully acknowledge many management-technical leaders, including Isaac Kaplan (UCLA), Gerard Demaison (Chevron), Brian Rohrback and Scott Ramos (InfoMetrix), Ian Bryant (Packers Plus), Gretchen Gillis (Saudi Aramco), Bjorn Wygrala (Schlumberger), and John Zumberge (GeoMark Research). I would be remiss without listing at least a few of the many Stanford, EAGE, or Schlumberger NExT students who remind me that teaching is the greatest of all professions. A good student is unafraid to ask questions. I recall several such questions that lead me to fruitful research. Some of those

students include Ye Wang (ConocoPhillips), Zhibin Wei (ExxonMobil), Inessa Yurchenko (Bureau of Economic Geology), and Waleed El Diasty (Mansoura University). Les Magoon, Stephan Graham, and I were founding co-principals of the Stanford University BPSM Industrial Affiliates Program, which continues to prosper after more than 11 years. Allegra Hosford Scheirer, Noelle Schoellkopf, Tapan Mukerji, and a host of other BPSM co-principals with wide-ranging expertise make it an outstanding learning opportunity for Ph.D. candidates. Schlumberger, especially Alex Wilson, as well as many other organizations (e.g., AkerBP, Anadarko, BOEM, ConocoPhillips, Equinor, ExxonMobil, Petrobras, Southwestern Energy, and Total) continue to provide steadfast support for the program. Geoscience university affiliate programs survive through economic downturns because of the vision and commitment of these organizations. I want to thank those who nominated me, the Executive Committee of AAPG, and especially the many employees of AAPG in Tulsa and elsewhere. Without their efforts, AAPG could not continue to be the world-class organization that it has become.

Finally, I am forever thankful for the devotion of my wife, Vanessa, and my son, Brent. They have endured my ambition without complaint. Whenever I am working in my office, attending meetings, or traveling on business, I am reminded of their support and understanding.

Rather than carry on about my career and publications (which might be boring to some), I would like to take this opportunity to list four rules of thumb that may be useful for our young geoscientists.

1. **Do what you love with courage and honor!** If you chose geoscience as a career, you have made a good start. Treat your colleagues as friends with a common goal, not as competition. Honor your word and the sanctity of the data. And live for the job, not the weekend!
2. **Employ the scientific method and the concept of multiple working hypotheses.** Be advised that today's science is under siege as never before. Political, financial, or other motives can weigh heavily on the decision to support or fund a research proposal; this may be the Achilles' heel of modern science. If your boss favors one hypothesis, try to consider other hypotheses in planning the research. You may find that an unexpected mechanism or combination of mechanisms best explains the observations.
3. **Give back to your profession!** Volunteer to review submitted manuscripts for a journal, write an abstract or propose a session for the next AAPG meeting, mentor less-experienced colleagues, or teach geoscience. Many students from elementary school through college have no concept of geology because they have heard little about it. Far too many geology departments at major universities no longer use the terms "petroleum" or "fossil fuel" in their curricula, yet more than 80% of worldwide energy usage relies on coal, oil, or natural gas. Renewables are gradually becoming more important, but fossil fuels will remain our primary energy source for many decades. Also, consider this: my local bookstore has a science section that is dwarfed by sections on the occult and mysticism. As geoscientists part of our job is to educate people about the excitement and wonder of science.
4. **Be proud that you are a geoscientist!** The search for petroleum is one of the most challenging and rewarding of all professions! In the literature and on the Internet, it is common to find statements like: "Population and income growth are the two most powerful driving forces behind the demand for energy." What is wrong with this picture? First, it puts the cart before the horse. Human population grows and has higher standards of living because of cheap and abundant energy. Without that energy, much of the world population would starve and most would be impoverished. Second, and even more concerning, is that this statement was made by an executive in a major oil company. It is no wonder that the public is confused about the importance of geoscience. Part of our job is to show how we contribute to public welfare. For example, few people are aware of the unconventional resource revolution that reversed the dramatic

decrease in petroleum production from approximately 1970-2000. That revolution continues today, and it occurred because of the creativity, innovation, and resourcefulness of geoscientists.

Kenneth E. Peters

BERNARD C. DUVAL
Michel T. Halbouty Outstanding Leadership Award

Citation—For his outstanding leadership in many different domains: worldwide geosciences, mining, petroleum exploration, resources economics, lecturing, teaching, and mentoring, not finished yet, Bernard C. Duval greatly deserves the Halbouty award.

Some say that cats have many lives – but a few exceptional geologists have more facets to their career than cats have lives. And Bernard Duval is certainly one of them!

Bernard was born in Nice, France, in October 1932, the single son of an army medical officer. His mother, also from Nice, followed her husband in his different assignments in France and abroad.

He graduated in 1954 from Ecole Polytechnique, the most prestigious engineering school of France. But his passion was geoscience with focus on geology following a field work in the aragonese Maestrazgo mountains of Spain. He graduated in geology from Grenoble University and obtained a Master of Petroleum Geoscience from the Institut Français du Pétrole (IFP) School in 1957. Later in 1977 he graduated from the Stanford Executive Program.

After completing his academic training, he spent five and a half years from 1958 to 1963 with Compagnie des Pétroles Total Libye, doing basic petroleum geology in Libya. He and Francine were married in 1960, and she followed him in Tripoli. There he worked in the field as a wellsite geologist, log analyst, and did basin evaluation. He was thus exposed to a wide range of oil industry tools and experiences that included also from 1963 to 1965, based at the head office of Compagnie Française des Pétroles, positions of junior economist and basin analyst, including reconnaissance field work in the United Kingdom (that was the beginning of the North Sea operations), South Africa, Namibia and Madagascar.

From there he went on to work for two and a half years in Venezuela as part of an IFP team, seconded to Corporacion Venezolana del Petroleo on a masterful synthesis of the Maracaibo Basin and more widely on a synthesis of Western Venezuela including Barinas and Falcon Basins. In Venezuela he could also improve his Spanish, his third language, and has kept in this country many good friends.

In 1968 he returned to France and succeeded in getting Total to farm in to the Mahakam Delta play in Indonesia, becoming a partner of INPEX, an operation which became one of the company's most successful ventures.

At the age of 39 he was appointed head of exploration and production(E&P) operations of Total Petroleum North America, the company's Canada-US subsidiary, active in British Colombia, Alberta, Michigan and the Gulf of Mexico, and president of Eastcan in charge of Labrador operations. Then he was assistant to Total Group's E&P president from 1975 to 1976.

In 1976, a move not very common in the oil industry, he became exploration director then general manager of Minatome SA, a joint venture of Total and the Pechiney Group, and later a 100% subsidiary of Total Compagnie Minière, the mining subsidiary of Total with operations and participations in France, United Kingdom, Germany, Ireland, Canada, Colombia, Argentina, Algeria, Nigeria, Namibia, Niger, Gabon, to focus on uranium exploration and exploitation.

It was rather a surprise when he returned to the oil and gas business in 1985 as senior vice president of exploration. Total needed new direction and strategy at that time

and the management thought that Bernard was the right person to implement drastic changes. After a decade of involvement in this position where he was also responsible for reserves replacement management, new ventures and related negotiations, he retired in 1995.

Before retiring he had started teaching at the IFP School (petroleum systems, risk analysis, E&P decision-making, asset and portfolio management, upstream economics) and continues giving courses for various master programs and presentations for Total Professeurs Associés. This activity involved traveling to many countries including the United States, Spain, Italy, Slovakia, Russia, Kazakhstan, Azerbaijan, Turkey, Morocco, Algeria, Tunisia, Iran, China, Colombia, Venezuela, and Angola. After retiring he has been also active as an advisor for major companies and independents.

What to highlight from Bernard's exceptionally rich career, from the man, his methods and successes?

The man. He's a passionate geologist. His professional curiosity and his thirst for knowledge have not faded during all these years and he still attends conferences and maintains his contacts, seeking to improve his knowledge and the content of his courses.

The communicator. He's an outstanding communicator, not only in his native French but also in English and in Spanish, both languages that he writes and speaks perfectly. He has been a speaker, author and co-author at multiple AAPG meetings, both ACEs and ICEs, and at EAGE, OTC, SPE, IPC and IPA events. He was an AAPG Allan Bennison Distinguished Lecturer. He is also known for two notable contributions, on Villeperdue and Peciko-Tunu, published respectively in AAPG Memoirs 54 and 78 (*Giant Fields of the Decade 1978-1988 and 1990-2000*). Furthermore, he published two articles in the *AAPG EXPLORER*'s Historical Highlights section on Total's discoveries in Indonesia and Colombia. Finally, Bernard is especially appreciated by his IFP students as an outstanding teacher of oil and economics.

These qualities, combined with his open-mindedness and skill as a negotiator, make him a well-known and much-appreciated individual in the oil business, one that has contributed greatly to improving Total's image among the industry.

His methods. Bernard has always been at the forefront of the application of innovative technologies. In Venezuela, by then with IFP, he was part of a team that developed a masterful synthesis of Western Venezuela. Later, with the help of prestigious geologists like Gérard Demaison, George Allen, Peter Vail, Martin Jackson, and Emiliano Mutti, he worked on the integration of new exploration approaches: petroleum systems, seismic data, and sequence stratigraphy. He supported within Total the concepts of plays, prospects and risk analysis, along with portfolio management coupled with economic calculations, because, as Marlan Downey correctly said, "Geology is a science, but exploration is a business." In addition, he made sure, at Total, that global results were duly compared to expectations, starting what would become later more systematic and sophisticated feedback and peer reviews of reports and studies, and post-mortems of dry wells, which, unfortunately, no company escapes.

His exploration team also understood the importance of mixed hydrodynamics and changing stratigraphic components in the trapping of Indonesia's Mahakam Delta oil and gas. The hydrodynamic concept allowed for significant reserves addition within the production sharing contract area, led for instance to a recent new discovery in Azerbaijan and became the subject of several publications.

Bernard as Total's senior vice president was responsible for the company's Centre for Research and Technology of Saint-Remy-lès-Chevreuse.

A significant contribution Bernard made in terms of method was to encourage, virtually to impose, a multidisciplinary approach within the geosciences in Total around the world. Combining geosciences, the economics and negotiation skills was a necessary approach to success, at the time not so widespread in the industry.

His successes. Success does not belong to a single person but

always results from the work of a well-led team. This is a point that Bernard, with his usual modesty, insisted on, always emphasizing the qualities of his collaborators, encouraging them, crediting them with success and not seeking personal glory.

During his tenure, Total's name became associated with the discoveries and development of Dunbar, Peciko, Villeperdue, Cusiana-Cupiagua, Jusepin Deep, Bongkot, Yadana, various fields of Yemen more recently supergiant Kashagan and discoveries of block 14 in Angola (accessed during his time).

The first time I met Bernard was during the World Petroleum Congress in Stavanger in 1993 where I presented a poster on block 3 Angola (1 billion bbl reserves in different discoveries: Palanca, Pacassa etc.) and Bernard was co-author of a poster on the Mahakham Delta. We were then competitors as I was working for Elf. Bernard started to be well known thanks to Total's exploration successes and it was a good reason and opportunity to make acquaintance. We met again later in Singapore, in 2000, where I was based when the merger between TotalFina and Elf happened. I was thinking that I could succeed him as a teacher at IFP but 18 years later Bernard is still teaching. Our paths have crossed many times since, frequently attending the same conferences, and we became very good friends, sharing the same passion for exploration.

Bernard is a Knight of France's National Order of Merit, a Distinguished Achievement Award recipient, an Honorary Member of AAPG and, on the occasion of AAPG's Centennial celebration, one of the 50 GeoLegends who have been interviewed, and an honoree of AAPG's Heritage of the Petroleum Geologist.

Bernard and his wife, Francine, have two daughters and three grandchildren.

André Coajou

Response

I am extremely honored to be the 2019 recipient of the Michel T Halbouty Outstanding Leadership Award. There are many reasons I am thankful for this award but two come to mind as they have to do with the name itself.

I first met Mike Halbouty in Stavanger in 1990 while I was giving a presentation on one of his well-known contributions to the AAPG memoir *Giant Fields of the Decade*. He happened to be chairing the session, came over to me after and expressed compliments, adding, "Bernard you should do more with us." I had made quite a few talks before but this was my first one at an AAPG meeting. I felt encouraged, took his advice literally, and it was the beginning of a long happy relationship with the Association.

The second reason is that I had been selected to participate in a panel of "Legends" organized for the 1997 ACE in Dallas by Jim Gibbs, to my surprise because true giants of our profession, of much larger stature than me, were present: Roy Huffington, whom I had known during operations in the Mahakam Delta of Indonesia; John Masters, who impressed me with his vision of "The Art of Exploration;" Tom Jordan; and Mike Halbouty, I could not believe sitting next to him at such an event! A young geologist was sitting in the audience, his name was Charles Sternbach. He recalled the event during the inaugural presidential speech last year in Salt Lake City, showing the group's picture. We waved to each other and it was a moment of great emotion!

Coming back to the award I would like to extend my warmest thanks to my biographer André Coajou, a well-known explorer, a Centennial Honoree, a pioneer of French Elf's access to successful deep-water plays of Nigeria and Angola, who generously took the initiative of proposing me for the award. He has received supports from many distinguished colleagues from Total, in the industry, from IFP, in academia, and from other prestigious contributors including former AAPG presidents, Sidney Powers and Michel T. Halbouty awardees. I am sincerely grateful to all.

Let me say a few things about parts of my career that are less known in the AAPG world. Surprisingly I spent 9 years with Total's mining subsidiary. I was not a mining engineer by background and had to learn almost from scratch, but I found the experience of managing such full-cycle activities in many countries enriching. I was looking at rocks different from our usual

petroleum objectives, and the star terrains of "giant" uranium deposits in Australia and Canada. After my retirement, I have also acted as advisor to various companies operating in a number of different areas, which allowed me to enrich my experience, though it was demanding, both physically (a lot of traveling) and intellectually. I worked on several programs at the same time, interacted with different committed teams, and I had to adapt to new organizations and rely on my own resources to work on projects and make recommendations (without any staff to assist me like in the past). A tough new challenge that I have met without reservation and enthusiastically. I have not noticed those 20 years go by.

Another enriching experience I had was teaching. I have tried hard to instill in my students the same spirit of adventure and synthetic mindset that I had tried to promote around me in the operational phase of my career. I used real-life case studies of petroleum systems and got the students to progress step by step until they were finally able to make the "discoveries" themselves. Nothing was more rewarding for us at the IFP School than when our teams won a place on the podium (European region and World) for the IBA contest. This was a great accomplishment for the teams and for the mentoring colleagues.

I would like to finish with some thoughts about leadership. A recently retired chief of staff of the French Army has defined some essential factors needed to make a leader, fully applicable to the civilian world. One such factor is an equilibrium between passion and reason. Our business is not only a question of purely engineering methodology. It also needs passion and moral strength! Next comes equilibrium between thought and action. Once that Discovery Thinking has done the job (thank you Charles Sternbach, Paul Weimer and contributors for those inspiring sessions), there remains the implementation and the jump into the unknown, which involves decision-making and negotiation without which there is no land, no contract rights, no operation to test the project. Finally, equilibrium between tradition and modernity. We need to rely on past experience, feedbacks, analogues (thank you Hans Krause for your "Historical Highlights" and "History of Petroleum Geology" initiatives), but we also need to follow up with the extraordinary challenge of the digital revolution. I am fascinated for instance by the research made on the application of neuronal approach to identify case by case the best combination of seismic attributes that go by hundreds if not channeled into proper categories and machines can help in the process, but they cannot define the categories, so back to the fundamentals of geology!

I would like to add the factor of trust. Trust needs time to become well anchored between staff and decision-makers. One cannot go onward without this human factor (thank you Pete Rose for that word as a magic course of action for life!). It was a privilege to have worked with people who have considered trust as the engine of efficiency…and pleasure.

This profession, which I entered into with passion, has given me immense satisfactions, friendships, and moments of happiness with my teams and colleagues when discoveries rewarded our common efforts.

Finally, I must say (again!) that my wife Francine has been at my side all the time, putting up with the inconveniences of my frequent absences and time-consuming work obligations, with sometimes difficult conditions of expatriation (but enjoying the good moments too!). I have no words to express to her my love and my gratitude, and she deserves to share this award with me!

Bernard C. Duval

KEVIN BOHACS
Honorary Member Award

Citation—To Kevin Bohacs for being an extraordinary geologist, scholar, author, teacher, and

volunteer. The man who made "mud" exciting, economic, and safe for all geoscientists.

Kevin M. Bohacs is from Greenwich, Connecticut and received his B.Sc. (Honors) in geology (Summa cum laude) from the University of Connecticut in 1976. His undergraduate honors thesis was titled "Effect of Grain Size on Transformation of Aragonite to Calcite." He then moved 80 miles "downstream" to complete a Sc.D. in experimental sedimentology at the Massachusetts Institute of Technology in geology in 1981; his dissertation was entitled "Flume Studies on the Kinematics and Dynamics of Large-scale Bedforms."

He joined Exxon Production Research Company, Clastic Facies group in Houston, Texas in 1981, as a sedimentologist and stratigrapher working with Peter Vail, Bob Mitchum, John Van Wagoner, Kirt Campion, and others on incorporating process-based facies modeling into the development of sequence stratigraphy at the outcrop, core, and well-log scale.

At ExxonMobil Upstream Research Company, he led the application of sequence stratigraphy and sedimentology to fine-grained rocks from deep sea to swamps and lakes, in basins around the world. His primary focus was to integrate field work, subsurface investigation, and laboratory analyses to inform business decisions. He worked closely with exploration affiliates in evaluating the fine-grained portion of their hydrocarbon systems, taught field schools in sequence stratigraphy, sedimentology, basin analysis, and field safety, and conducted field work for research and exploration. Given that mudstone/shale constitutes about 80% of the stratigraphic record, we need to study these rocks.

His field research spans 6 continents and 39 countries, including Australia, Madagascar, Libya, Argentina, Brazil, China, Indonesia, United Kingdom, Spain, Italy, Azerbaijan, Borneo, Qatar, New Zealand, Alaska North Slope, and arctic Canada and Siberia. Working in the field with Kevin is a rewarding and educational experience. In addition to the standard equipment (rock hammer, chisel, camera, sample bags), Kevin's field "kit" also includes a variety of brushes, pry bars, prospector's pick, lightning detector, dental picks, digital macroscope, hard hat, gloves, safety goggles, first-aid kit, emergency radio, satellite phone, portable gamma-ray detector, maps and phone numbers of the nearest emergency center and hospital -- and his field dress always includes his classic fedora (and a bow tie, just for emergencies). His focus on detail allows him to "see" micro-features in the rocks that most geologists would overlook as inconsequential.

In the core shed, he is able to discern subtle features and structures in mudstones that provide key clues to their deposition and compaction. He often points out that "there are no boring rocks, only boring geologists". His presentations and schools are always filled with humorous, but insightful observations and interpretations. He generally avoids the "rule" of 1-slide per minute, and prefers the 10-slide per minute approach, but he always ends on time with the audience feeling that they have just had a great meal.

He has written more than 100 scientific contributions on the stratigraphy and sedimentology of mudstone and hydrocarbon source rocks. He has collaborated with numerous scientists, including Jon Schwalbach, Gary Isaksen, Alan Carroll, Jack Neal, George Grabowski, Joe MacQuaker, Art Donovan, Quinn Passey, Remus Lazar, Juergen Schieber, Vitor Abreu, Tim Demko, Steve Creaney, Rene Jonk, Jeff Ottmann, John Suter, Kim Miskell-Gerhardt, and others. He is an active reviewer for *AAPG Bulletin*, *Journal of Sedimentary Research*, *Sedimentology*, *GSA Bulletin*, SEPM, and *International Journal of Coal Geology*.

Unquestionably, he is a recognized leader in development of comprehensive integrated geological-geochemical models for hydrocarbon source rocks and lake deposition systems. He applied seismic mapping of source rocks in marine environments and developed industry-standard models for sequence stratigraphic analysis of hydrocarbon-system potential of marine mudstone/shales, coals, and lake systems. These insights have been used to find oil, shale-gas/tight oil on Earth, and even in evaluation of ancient lake systems

on Mars (NASA Curiosity Rover in Gale Crater).

He is co-recipient of the AAPG Jules Braunstein Memorial Award for best poster session paper (1995) for work on coal sequence stratigraphy, AAPG award for best international paper in (1998) for his work on lacustrine systems, AAPG-DEG award for best paper (2011) on shale reservoir systems, 2012 co-recipient of the Frank Kottlowski Memorial Award (AAPG-EMD) for best paper, the I.C. Russell award of the Limnogeology Division of GSA (2013), and the AAPG Berg Research award (2014). He has served as AAPG Distinguished Lecturer (1999-2000), Petroleum Exploration Society of Australia Distinguished Lecturer (2001), URC Outstanding Instructor (1994-1996, 2003-2014), and AAPG Distinguished Instructor (2007-2009). He was elected a Fellow of the Geological Society of America (2004), as well as a Fellow of the Geological Society (London), the Royal Geographical Society (2006), and The Explorers Club (Life Fellow 2008).

Kevin led a task force that developed geoscience field safety process that has been adopted as standard by industry and academia. He personally kept people safe when out doing field work and training classes. With Steve Oliveri, he co-developed the Geoscience Field Activity Safety Manual (among the top 10 best sellers of AAPG). His community service positions included numerous volunteer leadership positions with the American Red Cross Disaster Relief Services and Health and Safety Services in Houston and at the national level, Houston Fire Department, and scoutmaster of Troop 1113.

He has maintained a major effort in keeping field research alive and robust, and ensuring that field work is safe, even in uncontrolled environments. He epitomizes getting out on the outcrop, going to the core warehouse, examining lots of rocks, and integrating those observations with microscopic, geochemical, laboratory, and paleontological analyses. Colleagues know that he is often the "smartest guy in the room," but he is easily approached and eager to discuss and debate technical issues and questions.

Paul Edwin Potter, 2016 AAPG Sidney Powers awardee and co-author of the classic 1980 *Sedimentology of Shale* recently remarked "Kevin's avant garde papers (are) years ahead of the pack." Kevin truly is a modern Renaissance man with deep knowledge in many scientific fields and the ability to integrate these fields of study.

Kevin's advice to others: Listen to the rocks, write up what you discover, be open to being surprised, be humble in the face of nature, do not be afraid to be wrong – and admit it.

Quinn Passey

Response

I am grateful to have been chosen as an honorary member of AAPG. This organization shows the power of a group of enthusiastic and committed volunteers to advance science and encourage its application to practical problems. AAPG has contributed significantly to my personal and professional development by putting me into contact with great ideas and great people who are dedicated to improving our world through the thoughtful use of science. AAPG has been helpful in many ways: It provides a great marketplace of ideas that advanced our understanding and promulgation of sequence stratigraphy and mudstone/shale science. Its publications add significant value by filtering, editing, and archiving many advances in scientific concepts and the data behind them. AAPG, in their close symbiosis with SEPM, provided me the ability to communicate the concepts we developed, through short courses, field trips, research groups, and symposia. Meetings allowed interaction with such great mentors and role models as Pete Vail, Bob Mitchum, Larry Sloss, Paul Potter, Bert Bally, John Armentrout, Bob Weimer, Quinn Passey, Paul Weimer, Scott Cameron, Pinar Yilmaz, Dick Bishop, Rebecca Dodge, Ian Skirpan, and Jon Schwalbach.

A big boost to my career came from the first ACE I attended in Los Angeles in 1987. My team at Exxon was just starting work on the sequence stratigraphy of the deep-marine mudstones of the Monterey Formation. I participated in a field trip led by John Dunham and Greg Blake who shared many excellent field techniques that my team applied throughout that summer in our

extensive outcrop work. The techniques were quite helpful, and we subsequently built upon and codified them in our mudstone sedimentology and sequence-stratigraphy publications. Greg and John were also very understanding and did not laugh at me (too much) for treating the mm-scale mudstone laminae of the Monterey as if they were seismic reflections, looking for truncation, onlap, and downlap (which were totally there and showed what an energetic environment it was).

AAPG publications have been a valuable venue for sharing and improving many of our concepts. Our work on the Monterey Formation that tied source-rock quality variations to sequence stratigraphy appeared in 1993 in AAPG Studies in Geology. My work with John Suter on the sequence stratigraphy of coal-bearing rocks, published in the Bulletin in 1997, has evolved into the leading paradigm for understanding the interplay of landscape development, groundwater hydrology, and biological processes for sequestering organic carbon on land. Our lake-basin-type model, which has played a key role in predicting oil quality, exploring the south Atlantic presalt section, and in interpreting the lake strata in Gale Crater on Mars, was presented in Studies in Geology (2000) and *AAPG Bulletin* (2001). We later expanded application of the model to lacustrine reservoirs, both sandstone (*Memoir 95*, 2012) and carbonate (*AAPG Bulletin*, 2013). And, after shale started getting some respect in the industry as a reservoir, we shared what we had learned over the many years of studying source rocks through articles in *AAPG EXPLORER* (with Jeff Ottmann, 2014), *Memoir 110* (with Schieber, Lazar, Klimentidis, Dumitrescu, and Ottmann), and our soon-to-be released memoir on sequence stratigraphy—applications to fine-grained rocks (with Lazar, Schieber, and Macquaker).

My tours as distinguished lecturer enhanced our lake-basin-type model and brought it before a wide audience—although I did have to sleep for week upon my return from lecturing in 10 cities in 11 days. My distinguished instructor program in 2007-2009 shared our concepts about the causes of lateral variations of shale properties at a crucial time in our industry. That short course gave encouragement and technical cover for people to apply the stratigraphic principles they had used on coarser-grained rocks to shales and to see that the devil was in the details. It was most gratifying to see the subsequent explosion in detailed studies of mudstone-dominated successions applied to more effective and efficient exploration and development.

I also enjoyed AAPG's support to enter the international arena—from assembling a session at my first Hedberg Research Symposium in Rio where we applied our lake-basin-type model to the presalt hydrocarbon system of the south Atlantic, to co-convening Hedberg conferences in Baku on lacustrine hydrocarbon reservoirs (and co-editing a memoir on that subject) and in Nice on basin modeling that addressed not only the usual burial-history and temperature-evolution topics but also paleoclimate modeling and play-element prediction. Hedberg conferences illustrate how AAPG encourages sharing of cutting-edge concepts: the ideas arise from the membership and conveners have the flexibility to design and optimize the program for interaction, exchange of ideas, and generation of new concepts. In Baku, we had a few talks each morning, a quick lunch, midday tours of local culture and geology, and afternoon and evening poster sessions around the pool, intertwined with great food and great conversation.

I am most grateful to AAPG for acting as a strong partner with ExxonMobil to promote field research through publishing our field safety guidebook (a perennial best seller), supporting our Field Safety Leadership short courses, forming the Field Safety committee to share best practices among industry, academia, and government organizations, and adopting the resulting field-safety process for AAPG-sponsored field activities. This work has led to the field-safety process becoming a de facto industry standard that has even been adopted as part of NASA's astronaut-training program.

None of this would have been possible without the support of my wife, Susan Mitterling, who has endured and enjoyed many AAPG meetings and conferences with me

and her underground band of geo-spouses. She contributed many of the devious and challenging scenarios in our Field Safety Leadership short course, listened to my lake talk so many times that she could deliver it herself, and strongly encouraged me to write our mudstone sequence-stratigraphy memoir.

I thank the management of Exxon and ExxonMobil for supporting my involvement for almost four decades. I thank my fellow members of AAPG for providing so many challenging and exciting opportunities to learn, expand my horizons, and give back to our profession. It has been most rewarding—and a lot of fun!

Kevin Bohacs

LARRY L. JONES
Honorary Member Award

Citation—Larry L. Jones has brought honor and distinction to his profession and AAPG through conduct and actions based upon integrity and science. We are better persons for our paths having crossed his.

The cornerstones upon which the 100-plus year-old AAPG has been built are those of science, integrity, respect and shared non-proprietary knowledge. This Association of geoscientists has served to nurture its members and fulfill their innate natural curiosity, imagination, and undaunted spirit. Our Association livelihood requires exceptional members to accept the AAPG mission and commit to further it, honoring those who have worn the mantle in the past and encouraging and nurturing those who might be willing to shoulder the responsibility going forward. Just such a geologist is Larry L. Jones whose life and actions have mirrored our past leaders and been an example for tomorrow's leaders to follow and emulate.

I consider it an honor and privilege to place in writing a few thoughts and facts regarding Larry Jones the gentleman and geologist and now an Honorary Member of AAPG. Larry has been and is active in AAPG, SIPES, and the Houston Geological Society. He has served on the AAPG Executive Committee, is an Honorary Member of the House of Delegates, a past chair of the HOD and chair of many committees along with being a longstanding delegate from Houston. He is a recipient of the House Recognition of Service Award.

He has served on AAPG membership committees, the DPA Council and By-Laws Committee, the Advisory Council, and as an academic liaison. He is a Trustee Member of the Corporation of the AAPG Foundation and a past officer of the Trustee Associate. Combine these responsibilities with service on numerous HOD and AAPG standing and ad hoc committees and one can easily see why Larry was awarded the AAPG Distinguished service Award in 2009. Along with the award it is important to note Larry's service was not merely via a presence but rather very important and meaningful active participation. He is admired for his fairness and thoughtfulness, well considering proposals before they become action items that will affect the stability and life of AAPG. His legacy, though not entirely written, includes leadership on issues of broadening acceptance of opportunities for international participation and leadership, graduated dues and fiscal responsibility.

Larry received his Bachelor of Science from the University of Nebraska in 1958. He was a scholarship athlete playing football and eating corn while the Oklahoma team was, unfortunately, eating steaks carved from Texas cattle. I am sure there were life lessons learned; clearly one of them was to stay in school and get his master's degree. Upon graduation he was commissioned a second lieutenant in the US Army and served on active duty. He then received his master's and immediately went to work applying his knowledge and gaining more from every source

possible and experience he incurred. He has always integrated the old principles of exploration with the new technologies and resources and continues to find oil and natural gas. As so many of us did, he began his career cross training in geology and geophysics with Chevron. He was employed with Belco Petroleum, Occidental and Monsanto before rising from exploration manager to president and chief operating officer of Dixel Resources, Inc. a wholly owned subsidiary of Weatherford International. For the last 36 years, Larry has president and owner of Spartan Petroleum Corporation where he has directed all geological, geophysical, land, engineering and accounting functions of this private exploration and production company with a staff ranging from 3 to 20 persons. Operations have been conducted in Texas, South Louisiana, Oklahoma, Arkansas, California, the Rockies, Mississippi, Columbia and Belize. Spartan has conducted international operations with and for Placid Oil, Seneca Resources, Howell Petroleum, Prairie Producing, Gulfport/Jaguar and ESSO.

Larry is admired by his peers for his career and his reputation as a father, grandfather, and as a husband to his lovely and very supportive wife, Norma Jean. It has been suggested that Larry invented the phrase, BYOW (Bring Your Own Wine) but I believe he is merely frugal preferring to add another lease to a prospect rather than a silver tea service in the office. One can only imagine how much hydrocarbon Nebraska geologists might have discovered if the team had worn helmets in the fifties. Many lay claim to the fact they discovered the Simpson Sand in Oklahoma. If so, we Sooners thank them.

We, in the hydrocarbon industry, should be proud to have participated and shared a bit of our journey with geologists like Larry. His type of leadership has helped the industry above all others propel America forward bringing prosperity and better lives to most of the world. I am proud to call him my friend and mentor.

Through his selfless service and successful business practices, based upon the hallmark of integrity and the cornerstone of science, Larry L. Jones has brought honor and distinction to his profession, family, AAPG, his colleagues and, without intending to do so, himself. By all measure we are better persons for our paths having crossed his.

David H. Hawk

Response

First, I would like to thank the Advisory Council for submitting my name and to AAPG for this Honorary Membership in this vibrant organization.

When I first started working with Standard Oil Company of Texas (Chevron) our supervisors encouraged us to become AAPG members. In our industry today, I no longer feel that is the case with many companies.

I always enjoyed the positions that I was assigned or elected to serve. My favorites were (1) chair of the (Houston) House of Delegates. A large percentage of the House of Delegates resides in Houston and AAPG accepted several recommendations from this body. (2) Chair of the AAPG House of Delegates. During my term, there was much "lively" discussion on extending the format of AAPG into Regions and "graduated dues." During the discussions on graduated dues, one of our departed delegates from Houston prematurely "called the question." I advised that we were not going to vote until all delegates had their turns, some several times. The Parliamentarian, Mary, said "You can't do that," but we did. Both proposals passed the House. What a blessing it is to have graduated dues in place during these difficult professional times. AAPG would have lost many more members had it not been accepted. (3) The Executive Committee provided me the opportunity to see what makes AAPG run and the cost thereof. In part, we were dealing with some of the same issues that were dealt with in the previous HOD annual meeting. Both of the proposals considered by HOD were accepted. During the meetings of the EC, there were many different opinions on several items of business but they were always conducted with great respect for the others and I do not believe I ever heard a harsh word under the leadership of president

Lee Billingsley. (4) The experiences that I have had as an officer of the Trustee Associates of AAPG Foundation, and now as one of six Trustees of the Foundation have given me an understanding of the assets of the Foundation, and what are the many groups that it supports both in and out of AAPG. I also am keenly aware of those many kind folks who support the programs of the Foundation with their finances, sometimes in a huge way. The Trustee Associates can be joined for a reasonable contribution, and it is full of warm considerate people. Great locations are chosen for our annual meetings and you are exposed to spending time with many of the leaders of our industry, both past and present.

Other than graduated dues, I believe the best program is the formation of the Imperial Barrel Awards. It has been set up so well, accepting regional competitive teams as well as those from Canada and the United States. It is a difficult program, but it teaches those student contestants some of the "real world" that they may face in our industry. Get on a team you will enjoy it.

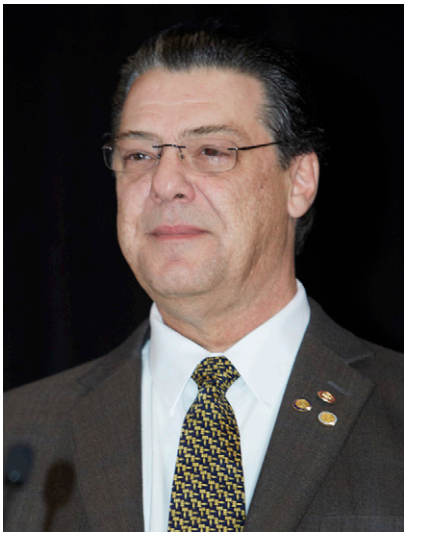
My recommendation to the younger geoscientists and some older, who are attempting to do geology and develop prospects on a computer is this: Spend a lot of time gathering all of the physical subsurface information, scout tickets, logs, drill-stem tests, cores, etc. Make sure you deal with the differences and discrepancies between seismic and this data. You will drill many less dry holes.

I want to thank my beautiful wife, Norma Jean, who has been so supportive for these last 50 years, and my large family, consisting of 9 children, 17 grandchildren, and 7 great grandchildren.

Finally, I wish to thank our dear friends, Bonnie and David Hawk. David is my award biographer, and, of course, he added his humor to keep the bio from getting too dry.

Thank you, AAPG.

Larry L. Jones



LAWRENCE H. WICKSTROM
Honorary Member

Citation—To Larry Wickstrom, in recognition of his leadership in petroleum geology research in Ohio and the Appalachian Basin, and his service to the AAPG.

Larry Wickstrom was born in 1957 in Santa Monica, California. At an early age his family moved to Canton, Ohio, where he graduated from Glenwood High School in 1975. Larry attended Kent State University, where he received his B.S. in geology in 1980, and his M.S. in geology in December 1982. Almost immediately after receiving his degree, he began his longtime association working for the Ohio Department of Natural Resources, Division of Geological Survey (Ohio Geological Survey). He started his career as a geologist in 1983 and he was promoted to senior geologist in 1990. Larry became supervisor of the Energy Resources Group in 1996. In 2006, Larry was appointed assistant chief of the Geological Survey, and in 2007, he was appointed chief and state geologist. While Larry was employed at the Ohio Geological Survey his vision, drive, and energy had a profound impact on the knowledge of the petroleum geology of Ohio and the surrounding region, the geologic information that the public can access, and research and information on carbon sequestration and the environment – all of which affects the wellbeing of citizens of Ohio and the United States. His ability to partner with, and attract funding from, industry and state and federal agencies enabled the Ohio Survey to function at a high level despite state funding shortages.

Larry's career can be divided into four important areas. These four areas include energy resources research, the computerization of geologic records and maps, carbon sequestration research, and his service to the profession. Each of these areas is important

contributions for the public's access to the geologic information, for environmental protection, and for the energy resources in the United States and throughout the world.

Larry was project manager or participated in a number of government-industry energy resources projects that have been influential for the public and the economy of Ohio. One of the first projects that Larry worked on was the Trenton Limestone of northwestern Ohio. The information generated by the project has become a critical foundation for the current Utica Shale play. Other projects that Larry either led or had a significant involvement in included discovery of and delineating the East Continent Rift Basin, the atlas of major Appalachian gas plays, Devonian Shales of Ohio, Underground Injection Control (Class I injection wells), carbon-sequestration research, and work delineating the Utica Shale play. He has also been involved in the remapping of the oil and gas fields of Ohio. These and other research projects, continue to provide basic information on the energy resources of the state of Ohio. During his career at the Ohio Survey, Larry has authored or co-authored more than 50 papers on Ohio and the surrounding region's geology.

Another major contribution by Larry is his leadership in the computerization of all the geologic records and maps. One of the first major projects that Larry initiated was the digitization of all the oil- and gas-well locations into a geographic information system (GIS). This GIS provides the fundamental framework for all subsequent research projects. Other computerization projects initiated under his leadership include the scanning and data entry of the oil- and gas well records, the oil and gas production database of Ohio, the digital conversion of the bedrock geologic maps, and the public access to much of this geologic information using web-mapping technologies. The digital geologic information allows the public quick and easy access to the information, thereby reducing the cost to gather and analyze the information.

Larry Wickstrom has provided significant leadership in carbon-sequestration research. In 2001, Larry involved the Ohio Geological Survey in one of the first geologic carbon-sequestration research projects, the Midcontinent Carbon Sequestration Atlas and Database. In 2003, the Survey started a new project with other state geological surveys, the Midwest Regional Carbon Sequestration Partnership (MRCSP). His leadership as the geologic team leader provided a clear vision on how geologic carbon-sequestration research should be conducted. The MRCSP Phase 1 report was a groundbreaking document on how to characterize the sequestration capacity within a regional context and has been widely cited and emulated by other carbon sequestration projects around the world. Larry Wickstrom has also guided the first state-financed carbon-sequestration test well drilled in Tuscarawas County, Ohio.

Larry Wickstrom's service to the profession has been long and distinguished. At the national level, Larry served as the chairman of the AAPG House of Delegates (HOD) from 2013 to 2014. He has served as the Eastern Section representative to the AAPG Advisory Council from 2001-2004, AAPG delegate from 1999-2001 and 2006 to 2014, and has served as the Eastern Section president from 1998-1999. At the local level, Larry has served at president of the Ohio Geological Society in 1987-1988 and has served as chair or co-chair of the Eastern Section meetings in 1998 and 2004. He also worked tirelessly for the Petroleum Technology Transfer Council coordinating numerous industry workshops and served on many committees for the Ohio Oil and Gas Association, including chairing their Exploration committee in 2013-2014.

After 29 ½ years of service to the state of Ohio, Larry retired from the geological survey to begin a new phase of his career as a consulting geologist. Wickstrom Geoscience, LLC was formed by Larry in 2012 as a sole proprietor consultancy specializing in geologic mapping and analysis, prospect generation, and geologic/economic reviews of properties and prospects. He also represents

working interest owners and landowners' interests in Utica and Marcellus wells.

Larry's career is an amazing legacy for a single individual. Larry has been a great leader in research in energy resources, carbon sequestration, computerization of geologic information, and service to the profession, and has been recognized by many awards at the both the section level and at the national level. The Eastern Section AAPG has recognized him with the A.I. Levorsen Memorial Award for Best Paper at the annual section meetings in 1998 and 2001, the George V. Cohee Public Service Award in 2012, and the Eastern Section AAPG's highest award, the John T. Galey Memorial Award in 2014. At the national level, Larry has been recognized with the Division of Environmental Geosciences President's Award in 2011 and the AAPG Distinguished Service Award in 2017. It is a very high honor that Larry H. Wickstrom be awarded AAPG Honorary Membership. We can't wait to see what happens next.

James McDonald

Response

I was totally surprised when president Denise Cox called to inform me that I was to receive the Honorary Membership award as I haven't been very active the last couple of years. I am thrilled and honored! I am very thankful to Jim McDonald for the nomination and acting as my citationist!

I joined AAPG as a graduate student. Copies of the *AAPG EXPLORER* circulated in the grad student offices and I began to read each one cover to cover, and look forward to the next. When I received my M.S. degree both the petroleum industry and mining industries were in a slump. I took a position with the Ohio Geological Survey, vowing only to work there for a couple years, until I could get a decent industry job. LOL! Nearly 30 years later I retired from the Survey as state geologist of Ohio. I love a challenge, and there were many there to overcome.

Early on I recognized that professional networking and continued education would be keys to success in the profession. I eagerly looked forward to the time I could leave the ranks of being a junior member and become an active member; then onward to when I would qualify for certification in the DPA. AAPG has fulfilled my expectations many times over. I always stress this when visiting college campuses and urge all students to join AAPG.

As soon as I started working I became active in the local affiliated society, the Ohio Geological Society (OGS); worked on committees, then worked as an officer where I became interested in the Eastern Section (ES-AAPG). Within the ES-AAPG I really began to learn what a great resource AAPG can be – the meetings, fellowship/networking, and learning opportunities! I again worked within committees, then worked through the officer ranks, and while president, co-chaired the annual ES-AAPG meeting. During the mid-1990s I began attending the AAPG ACE meetings and also the annual leadership meetings – another level of great people, learning, and friends. As a delegate to the House from the OGS I really began to become part of the AAPG fabric and learn the "inner workings" of this great Association. I was then elected to represent the ES-AAPG in the Advisory Council (AC) – at which point I gave up my HOD delegate position for a few years because I truly feel we should spread around the opportunities within the leadership framework. Being a member of the AC was a giant step in learning about AAPG. As part of the AC we undertook the first-ever long-range planning for the Association – a process that has helped focus AAPG into its current form.

At each level I've met incredible people who have become longtime friends and trusted resources. And, quite honestly, I have had lots of fun being a part of this great community (we started the Jammin' Geos at the 2004 ES-AAPG meeting). Being a member and active in AAPG has presented new challenges at every level and certainly assisted me throughout my career!

My time as chair and chair-elect of the House of Delegates will always remain one of the highlights of my career. I was very humbled to be nominated and elected by the House to the chair. As chair, I had a great group of HOD officers, committee chairs,

and members working alongside me. Proudly, we worked through a number of contentious issues successfully and in a professional and friendly manner. Also, during this time it was a great honor to work with two great Executive Committees and become closer with the dedicated AAPG headquarters staff. AAPG is rather unique among professional associations in that it is truly directed by these volunteer leadership positions, and the individuals in these positions dedicate much of their time and efforts while in office – I think these facts are often under-appreciated by the membership as a whole.

Throughout most of my career I have worked alongside, and in support of, the petroleum industry and the general public. I was among the first in my region to form industry-government partnerships and consortia to address specific needs and research topics. I am duly proud of my accomplishments and feel confident that I have left a long trail of data and publications that will benefit all far into the future. Since 2013 I have been tackling a whole new set of challenges as a geological consultant and prospect generator. Onward into the fray!

I extend a hearty thank you to the AC Honors and Awards Committee and all within AAPG that have made this Honorary Membership Award a reality. And, congratulations to all the 2019 award recipients!

Larry Wickham

CHENGZAO JIA
Norman H. Foster Outstanding Explorer Award

Citation—for his great contribution in significant petroleum discoveries as a visionary leader embarking on lithostratigraphic reservoir exploration in China, and for his seminal contribution to the discovery of the giant Kela-2 gas field in the foreland fold and thrust belts of northern Tarim Basin.

Chengzao Jia was born in Lanzhou, Gansu Province in March 1948, and was raised and educated in Urumqi, the Xinjiang Autonomous Region, western China. He received his Bachelor of Science degree in geology from the Xinjiang Institute of Technology in 1975. Jia began his geological career in the Xinjiang Geological Survey as a field geologist mapping the northern Xinjiang area from 1975 to 1980. He then decided to undertake his postgraduate study in Nanjing University in 1980, majoring in plate tectonics and basin structures under the supervision of Lingzhi Guo, a renowned geologist and an academician of Chinese Academy of Sciences. It was during this period that Jia developed his "big picture" view on basin research and a holistic approach to petroleum exploration under the influence of Lingzhi Guo.

After receiving his Ph.D. in geology from Nanjing University in 1987, Jia joined the Research Institute of Petroleum Exploration and Development (RIPED), China National Petroleum Corporation (CNPC) as a research geologist working on petroleum geology of the Tarim Basin from 1987 to 1989. He was particularly intrigued by the complexity of the geology in the superimposed basin and volunteered to be transferred to the CNPC Tarim Petroleum Exploration and Development Center in Korla, Xinjiang in 1989, when CNPC embarked on a large-scale petroleum expedition in the Tarim Basin. Jia was appointed as the deputy chief geologist of the Tarim Petroleum Exploration and Development Center.

In the following 15 years, Jia received successive promotions for his outstanding achievements in petroleum exploration and services to CNPC, becoming the deputy commander and chief geologist of the Tarim Petroleum Exploration and Development Center in 1994, deputy general manager of the Tarim Oilfield Company, PetroChina in 1999, chief geologist of PetroChina in 2000, president of RIPED, PetroChina in 2002, and vice president of PetroChina in 2005.

Jia was seconded to Exxon Exploration and Production in 1996 for 1 year, where he had the opportunity to work on worldwide lithostratigraphic plays. During his visit Jia was also introduced by his Exxon colleagues to join AAPG and attended the 1997 ACE. Upon his return to China, Jia began to investigate lithostratigraphic reservoirs in China. Through re-evaluating the remaining petroleum resources in Chinese basins based on the exploration history, Jia concluded that the remaining petroleum reserves would be mainly in lithostratigraphic plays and recommended a major exploration shift from structural plays to lithostratigraphic plays, and from two-dimensional seismic delineation of structural highs to high-resolution sequence stratigraphic analysis using three-dimensional (3-D) seismic data to identify stratigraphic traps. He coordinated an integrated lithostratigraphic reservoir investigation program with some key findings and exploration models summarized in his monograph entitled *Geological Theory and Exploration Technology for Lithostratigraphic Hydrocarbon Reservoirs*. Jia also implemented a number of large-scale 3-D seismic surveys in PetroChina's acreages and organized exploration activities based on 3-D seismic data in the Tarim Basin, Bohai Bay Basin, and Songliao Basin, which led to the discoveries of the Tazhong No. 1 Fault giant lithostratigraphic trap clusters with a proven reserve of 2.2 billion bbl of oil in the Tarim Basin, and the volcanic lithostratigraphic trap clusters in the deep part of the Songliao Basin with a proven gas reserve of 7 tcf in 2003. Those discoveries guided by exploration models developed by Jia and his team were of great importance to PetroChina at the time and opened up a totally new exploration frontier for the company.

During his time as the chief geologist of the Tarim Oilfield Company between 1997 and 2000, Jia was instrumental in the discovery of the giant Kela-2 gas field in northern Tarim Basin with a proven recoverable reserve of 7.5 tcf and a cumulative production of 3.5 tcf in 2018. He oversaw the discovery and the assessment of the Kela-2 prospect. His personal contribution for the giant gas field discovery includes (1) delineated the deep structural configuration of the foreland fault-related fold belt and determined the trap to be of imbricated overlapping anticline type; (2) recognized a Mesozoic-Cenozoic petroleum system in the northern Tarim Basin with the Tertiary salt unit as a major regional seal, the Cretaceous sandstone as the key reservoir targets, and the Triassic-Jurassic coal seams as the source rocks, and predicted the accumulation to be dominated by over-pressured dry gas; (3) as a team leader, coordinated the seismic acquisition and interpretation, discovered the Kela-2 anticline, designed the drilling site, supervised the drilling and made the giant discovery; (4) conducted a postmortem analysis, verified the gas reserve and went on to discover other nearby prospects such as the Dabei and Dina gas fields, which led to the development of a gas hub for China's west-to-east trans-continent gas pipeline.

Jia very much valued the role of research and development in petroleum exploration. During his time as vice president and chief geologist of PetroChina, and as well as the president of RIPED (2005-2008), he took an initiative of establishing 20 CNPC upstream key research laboratories by investing 1 billion RMB to purchase state-of-the-art analytical instruments. These laboratories subsequently provided crucial support for PetroChina's wide exploration activities.

After leaving the leadership team of PetroChina in 2008, Jia served as the president of Chinese Petroleum Society between 2008 and 2011, during which period he encouraged Chinese petroleum geologists to join AAPG and helped to secure membership-fee sponsorship from Chinese petroleum companies for over 200 full members. Jia has been a frequent participant of AAPG ACE and various international forums. Under his leadership and guidance, several AAPG forums were organized in China including the 2011 AAPG Hedberg Research Conference on "Natural Gas Geochemistry: Recent Developments, Applications and Technologies," the 2013 AAPG-SEPM Symposium on "Fine-grained Sediments and Unconventional Resources" and the 2018 AAPG Geosciences Technology Workshop on "Deep

and Ultra-deep Petroleum Systems."

Since 2012 Jia has served as the chief technical adviser to Chinese government on the National Science and Technology Major Project of development of large petroleum fields and coal seam gas. He is responsible for designing the overall framework for theoretical research and technological implementation in the upstream petroleum industries in China.

Jia is also a prolific author and has published over 200 journal papers and 19 monographs, and held adjunct professorships with several universities including Peking University, Nanjing University, Zhejiang University, and China University of Petroleum. He was elected to Chinese Academy of Sciences as an academician in 2003 and has been an active member of AAPG since 1997 and has served as HOD for the past 15 years.

Chengzao Jia is best known for his visionary leadership in petroleum exploration in China promoting new geological concepts and innovative technologies. He was instrumental in the initiation and implementation of lithostratigraphic reservoir exploration in China and in the discovery and development of the giant Kela-2 gas field in northern Tarim Basin. For his contribution, Jia was awarded, as team leader, one first prize of the State Science and Technology Advancement Award in 2007 for "Development of Geological Models and Exploration Technologies Enabling Major Discoveries of Large-scale Lithostratigraphic Reservoir Plays in China," and one second prize of the State Science and Technology Advancement Award in 2005 for "Development of New Technologies for Resource Assessment and their Effective Application in Petroleum Exploration." He also received the prestigious HLHL Science and Technology Innovation Award in 2008.

The award of the Norman H. Foster Outstanding Explorer Award to Chengzao Jia is quite timely and appropriate to recognize his more than thirty-years of great contributions to the petroleum industry and his visionary leadership in making significant petroleum discoveries in China. We are delighted and honored to have been asked to be his biographers.

Fang Hao and Keyu Liu

KURT MARFURT
Robert R. Berg Outstanding Research Award

Citation—Dr. Kurt Marfurt is an outstanding geophysicist who has contributed generously to applied geophysics and is the most-worthy recipient of the 2019 AAPG Robert R. Berg Outstanding Research Award. His primary research interest is in the development and calibration of new seismic attributes to aid in seismic processing, seismic interpretation and reservoir characterization. Recent work has focused on applying different types of coherence, spectral decomposition in its various forms, volumetric curvature for mapping fractures and karst with a big focus on resource plays. All this work has been remarkable, and a significant contribution that has gained widespread application and notice. More recently, he has turned to the development and application of machine learning techniques for seismic facies classification. Over the last 40 years, he has been able to pursue his ideas successfully and at an enhanced pace, which have advanced the state-of -the-art and brought credit to our profession.

Kurt runs a consortium called "Attribute Assisted Seismic Processing and Interpretation" (AASPI), out of the University of Oklahoma. It is a well-run, well-funded, vibrant and a productive research consortium. The number of papers from this consortium that are presented and published every year explains it all. Beginning last fall, Kurt decided to give up teaching at the University of Oklahoma and

focus full time on research. The way I see it now is that the quantum of research output from AASPI will see a large deliverability, which is good news for the profession and all us us who are engaged in it.

Kurt earned a Ph.D. in applied geophysics at Columbia University's Henry Krumb School of Mines in New York in 1978, where he also taught as an assistant professor for 4 years. He worked in a wide range of research projects at Amoco's Tulsa Research Center for 18 years, after which he joined the University of Houston and worked there for 8 years. In 2007 Kurt moved to the University of Oklahoma, where he serves as the Frank and Henrietta Schultz Professor of Geophysics within the ConocoPhillips School of Geology and Geophysics. He has published and presented several dozen papers at the SEG, EAGE, and other conventions and workshops. I am sure he has lost count of how many papers he has published, but one can just open any issue of *Geophysics* or *Interpretation* journals to see his name there all over. He has received the SEG best paper (for coherence), SEG best presentation (for seismic modeling) and three best SEG posters (two for curvature, one of multi-attribute analysis) and two best AAPG technical presentation awards.

Kurt has worked unselfishly through the years in a variety of ways. He has been a member of SEG, EAGE, AAPG, AGU, and GSH for a long time. He had been the editor of the *Geophysics* journal for over 15 years, and thereafter took over as the chief editor for the *Interpretation* journal. This has been a demanding role for Kurt in terms of time and effort, as every three months a new issue of the journal is published.

Learning, teaching, and helping others understand the basic principles of geophysics or solutions to reservoir characterization problems is a passion with Kurt. He helps his students identify the roadblocks in research and devise workflows to address them. He has thus nurtured many young geophysicists, who have gone on to become well-known names in the geophysics arena. His contagious sense of humor, motivating enthusiasm, seeking and respecting the opinion from others, and delegating authority and responsibility are some characteristic traits that endear him to his students and especially the people who have worked with him.

Kurt has been conducting an SEG short course on three-dimensional seismic attributes since 2002, which is one of the most popular courses conducted on the SEG platform. Kurt was the 2006 SEG/EAGE Distinguished Instructor's Short Course (DISC) director for his course on "Seismic Attributes for Structural and Stratigraphic Mapping," for which he wrote a book as well. Surrounding Kurt is an aura of authority, which one can witness as one sees him conduct a meeting or a discussion, or while conducting a course. Maybe this was what prompted the SEG to announce him as the 2018 DISC Instructor for the second time. With this, Kurt has become the only geophysicist that I know of, who has come back as the SEG DISC instructor for the second time. Over the last year, not only has he spent a full day lecturing at close to 30 different locations around the world, but also took the time and effort to put together the second DISC book published by the SEG.

I am sure Kurt's friends and colleagues from around the world will join me in expressing their delight that AAPG is honoring him with the 2019 Robert R. Berg Outstanding Research Award.

Satinder Chopra

Response

I accept this award from AAPG with both pleasure and humility. While conducting the SEG DISC tour in 2018, young geoscientists often asked me for guidance on how to further develop their careers. I responded that they should always be flexible and be open to change. Our profession needs experts and specialists; however, individual expertise and specialization need to change with the needs of industry and society. In my case, I started my geoscience education at Columbia University's Krumb School of Mines under Professor

John Tsung-Fen Kuo. Kuo not only stimulated a love of research and how to deal with setbacks, but also showed by example that a good teacher puts his students first. There is a Chinese saying that "a good teacher shines in reflected light." I hope this honor I receive today reflects well on you, Prof. Kuo.

With Kuo's guidance I briefly reigned as the self-proclaimed "prince of finite elements," developing software for seismic modeling and imaging on the supercomputers of the 1970s. I no longer do finite elements, but have kept my programming skills current. To me, programming is like assembling a jigsaw puzzle or building a ship in a bottle. My advice to young people – if you need to do a repetitive numerical task more than three or four times a month, learn how to program it up. Such programming requires learning new languages (for me, this year it is python), many of which have gone extinct during my career.

Although a provincial New Yorker, I bravely crossed the Hudson River to join Amoco's Tulsa Research Center with the goal of continuing research in my chosen area working under mentors Ken Kelly and Sven Treitel. However, with the fluctuating oil prices of the 1980s and 1990s and subsequent biennial reorganizations, I moved from modeling and imaging into seismic processing, then VSPs and magnetotellurics, followed by supercomputing. This latter move proved most fortuitous in that our group was broadened to enable all computationally intensive geoscience algorithms. In this role I learned something about sedimentary deposition, basin modeling, and oil maturation from Eric Bandurski, geochemical modeling and diagenesis from Indu Meshri, and palinspastic reconstruction from Nigel Higgs. The next reorganization into seismic stratigraphy pulled me deeper into geology and data integration, working with Amoco's Norm Haskell and Sue Nissen. In 1995, computer scientist Steve Farmer showed me the first results of his and Mike Bahorich's coherence algorithms. Always a fast follower, I soon became a seismic attribute person. I learned humility from Greg Partyka who developed the first 3-D spectral decomposition algorithms – as team leader I assured him that Joseph Fourier solved this problem about 1800; Greg proved me wrong. Seismic attributes generated lots of pretty pictures – many in color! But what did they mean? My best days at AMOCO were as part of an integrated team whose mission was to place these pretty pictures within the appropriate geologic framework. Geologic colleagues John Lopez, Leslie Wood, Katrina Coterill, Chris Skirius, and others provided the ground truth and laid many of the early contributions to what is now called 3-D seismic geomorphology.

With all of the AMOCO reorganizations, I was a "Jack of all trades and master of none," skills that are sought after by universities that need to teach a set curriculum, regardless of whether their faculty wish to do so. I left Amoco with the BP merger in 1999 for the University of Houston. There I learned about carbonates and cherts from colleague Charlotte Sullivan, rock properties from Fred Hilterman, student mentorship from Hua-wei Zhou, and a newfound love of writing from Bob Sheriff.

With the shale resource play revolution, a lifetime Oklahoma fishing license in my pocket and former Amoco colleagues Carl Sondergeld and Chandra Rai conducting cutting edge rock physics analysis of shales at the University of Oklahoma (OU), I emulated Will Rogers and moved north, thereby increasing the IQ of both states.

With 24 years as an academic at three universities, I've learned most from my students – sometimes from their pitfalls showing weaknesses in our technology and in inaccurate assumptions, more often by their creativity, and most often from their misunderstanding of what cannot be done. At OU, most of our students work on interdisciplinary projects that integrate seismic data with concepts of structural deformation, the deposition of environment, success of completion, and the production of hydrocarbons and waste water. Such data integration fosters collaboration with my OU geological colleagues Roger Slatt, Shankar Mitra, Ze'ev Reches, Matt Pranter and Brett Carpenter.

As an associate editor for either *Geophysics* or *Interpretation* since 1984, and as a recent editor-in-chief of *Interpretation*, I encourage anyone who reads this far to volunteer to be a reviewer or associate editor. The reviewer and editor role forced me to read papers I would otherwise have never read, thereby broadening my perspective. While reviewers learn from papers that are well written, they also learn from papers that are poorly written – sometimes of the importance of supporting any arguments or claims with data, other times on how to present a technical idea clearly and concisely.

In 2002 I encountered Satinder Chopra. We've neither worked for the same company nor lived in the same country; rather, we share a passion for seismic interpretation technology and a desire to disseminate it as widely as possible. Together we've written several dozen papers and abstracts, a book in 2007, a long list of "Geophysical Corner" articles and a new book to be written in the next 2 years. I'm ever grateful to have him as a friend and colleague, thank him for writing my biography, and look forward to our future collaboration.

A successful career is enabled by a happy personal life. I thank my wife, Stephanie, and two daughters, Jessica and Rebecca, for their encouragement and patience, including the uncertainties and physical moves associated with an oil industry career and the long hours and travel of an academic career.

Kurt J. Marfurt

IBRAHIM A. ALGHAMDI
Distinguished Service Award

Citation—To Ibrahim A. Alghamdi, for his distinguished service in building bridges, and for helping the AAPG membership learn, grow and flourish on local, regional, and global scales.

This article shares with you three stories about Ibrahim; the human, the professional and the AAPG member. Ibrahim the human experienced a long, meandering yet beautiful path in life. Ibrahim the professional experienced a rewarding university and working life. Ibrahim the AAPG member has just started, the peak is yet to arrive.

The story of Ibrahim, the human, goes back to September 12, 1964 when he arrived to the surface of this planet. Strangely enough, he was born and lived in igneous metamorphic country in Southwest Saudi Arabia. He tasted phyllites, explored with awe the clays, and experienced first-hand gigantic mountains, heavy rains, green pastures and live springs. Upon moving to the Eastern Province of Saudi Arabia (in 1969), he was astonished to experience vast deserts and the Arabian Gulf. While experimenting with a semi-wrong hypothesis at the tender age of 9, he accidently burnt his face and was hospitalized for 10 days with second-degree burns. This could have stopped Ibrahim's experimenting, but no, he became wiser and acted safely when handling any dangerous task. While in high school, he contemplated joining medical college, but the sight of sickness and blood caused him to favor engineering and sciences. While at King Fahad University of Petroleum and Minerals (KFUPM), he joined the Petroleum Engineering department but later favored geology, as sciences—he thought—were more creative, and provided a chance to see the rest of the world. This random path created the professional we call Ibrahim.

The story of Ibrahim, the professional, started when he joined the department of Earth Sciences at KFUPM, where he studied petroleum geology. Ibrahim graduated in July of 1985 at the age of 21 and immediately joined Saudi Aramco as a geologist. His tenure included regional geology (1985-1986), well site geology (1986), reservoir characterization (1987-1991), and a short assignment with Exxon (1989) focusing on stochastic

modeling of carbonate reservoirs. Ibrahim later moved to prospecting (1992-1999), well site supervision (2000), data management supervision and administration (2001-2005), planning, programs, contracting, invoicing, and human resources (2005-2008), research and technology as chief technologist (2008-2010), geophysical depthing and imaging (2011), and ended where it started, with the big picture, regional assessments (2012-present). During 33 years, he attended more than 130 technical and managerial courses, lead more than 10 geological field trips (mostly in carbonates) including super-permeability workshops that many of the AAPG leadership attended.

The story of Ibrahim, the AAPG member, started in 1984 when he studied petroleum geology during his senior year using AI. Levorsen's book *The Geology of Petroleum*. The love of uncovering the old and the hidden, using the recent and the analogs, continues with him until today. In 1987, Ibrahim joined this prestigious association, with his payback starting as early as 1999 when he joined the International Liaison committee (later named international regions committee), which resulted in establishing the current international regions. He was the committee chair from 2002-2005. Meanwhile, he acted as secretary of the Middle East Region and helped write its first draft bylaws (2002-2006). He served in most positions in the regionally AAPG affiliated society, Dhahran Geoscience Society (DGS) culminating in being president in 2002. Ibrahim served on the Honors and Award committee (2002-2004), represented the Middle East Region as a delegate (2002-2004), lead the Technical Program Committee of AAPG's Middle East event in Bahrain-GEO in two separate years, 2006 and 2014. He worked as a link between EAGE and AAPG for the benefit of the membership, both societies and industryand academic institutions in the Middle East (2006-2016), and lead several workshop for DGS-AAPG in the Middle East Region.

Finally, Ibrahim helped AAPG conduct several workshops with sister societies such as EAGE and SPE during the last decade, and his efforts continue endlessly. Through modeling several workshops from the United States, and through collaboration with fellow colleagues in the Education Committee, Ibrahim helped implement a new Middle East Region Geosciences Technology Workshop for advanced AI and digitalization of subsurface information in 2016 and 2017.

Ibrahim was in amazement to learn that he was selected to receive this honor for his distinguished services to AAPG, as he is a firm believer that peer recognition is one of the highest honors a professional can aspire to attain. He feels that recognition will act not as a tool for pride but as a vehicle for humble contributions, which—once start—never abate.

Sa'id Al-Hajri

MARVIN BRITTENHAM
Distinguished Service Award

Citation—For Marvin Brittenham, for his innovative and visionary exploration, distinguished service as AAPG vice president (2010-2012), and extensive support of the geo-community as a whole.

The Distinguished Service Award is intended to recognize members who have done extraordinary volunteer work both for the Association and for the larger geo-community. Marv Brittenham fits those criteria well.

Marv has had a highly productive, extended career as an explorationist and in service to the geo-community. A native of eastern Montana, Marv received his B.S. and M.S. degrees in geology from the University of Montana. After joining Texaco in 1970, he advanced to district geologist at the age of 28. He then worked with a series of companies in management

and executive positions—Impel Energy, Snyder Oil Company, his own company, Columbia Gas Development, Flying J, and finally Encana.

Starting early in his career, Marv distinguished himself as an innovative explorer, mentor, and leader by promoting cross-discipline collaboration in multiple corporate environments, from hierarchical to team based. Although he enjoyed the challenges and rewards of managing projects and mentoring professionals, he always focused on keeping his technical skills current so that he could contribute scientifically as well.

Marv was an early adopter of new technologies in developing conventional resources, basin-centered gas plays, and other unconventional resource plays. During his career, he learned the nuances of new horizontal drilling and hydraulic fracturing techniques in the Rocky Mountain basins and the Austin Chalk. He then applied those learnings at Encana to Mesozoic Gulf Coast trends. His efforts led to Encana's expansion into East Texas through a large acquisition, ultimately resulting in the discovery of Amoruso Field. Marv also initiated the early exploration and development of the giant shale gas plays in the mid-Bossier and Haynesville in Louisiana and Texas. Those learnings were applied to multiple other North American resource plays at Encana by his New Ventures team. Because of these exceptional professional successes, Marv was included as one of the AAPG GeoLegends for the Association's 100th Anniversary.

Marv's service to the geo-community is extensive. At the national level, he served as the AAPG vice president of sections (2010-2012), twice as AAPG ACE vice general chair (2003, 2009), two terms as HOD delegate, Division of Professional Affairs council member, Foundation Trustees advisor, as well as several other grass roots committees, technical presentations, and convention support positions. In addition, Marv served as president to three local societies: the Utah Geologic Association, the Rocky Mountain Association of Geologists (RMAG) and the Rocky Mountain Section of SEPM. He was recognized by RMAG with their Distinguished Service to Earth Sciences, Outstanding Explorer, and Honorary Membership awards. Importantly, Marv always acknowledges the significant role that these professional societies, for which he has served so well, contributed to his professional success.

I had the pleasure to serve with Marv on the Executive Committee for 2 years. I came to treasure his insight on many of the intractable issues that all ECs must address. I join AAPG in honoring Marv Brittenham for his many longterm contributions. Thanks, Marv!!

Paul Weimer

SATINDER CHOPRA
Distinguished Service Award

Citation—To Satinder Chopra for tireless service to the exploration geoscience community at large through technology innovation, technology dissemination, teaching, and mentorship.

Most AAPG members know Satinder for his "Geophysical Corner" column, providing easy-to-digest articles that highlight recent innovations in seismic interpretation, and common interpretation pitfalls.

Residents of Canada know Satinder through his service to the Canadian Geophysical Society, where he served as Chief Editor of the CSEG *RECORDER* for 11 years, encouraging colleagues to contribute and expand their professional society presentations, resulting in the *RECORDER* being an archived journal accessible to the geoscience community at large. Emulating the style of newspapers and magazines in his homeland, Satinder brought the

"interview" style of reporting to the geoscience community, first in the *Geohorizons* journal (published by the Society of Petroleum Geophysicists, India), and then to the CSEG *RECORDER*. After 184 interviews he has captured nearly every geoscientist of note who visited Calgary over a period of 18 years. Many of these interviews have been republished in *The Leading Edge*, the Geophysical Society of Houston *GSH Journal*, and other publications.

Satinder served on the editorial board of *The Leading Edge* for a period of 4 years, helping to bring this journal to one that is now archived and a candidate for the Citation Index. He is a former chair of the SEG publications committee and currently serves as co-editor of the *Canadian Journal of Exploration Geophysics*. He has served countless times as editor of published special sections, and as a technical session chair at AAPG, SEG, EAGE, and CSEG meetings.

"Uncle" Satinder has been a mentor to countless students at the University of Calgary, University of Houston, and University of Oklahoma, among others, helping them with not only processing and quantitative interpretation workflows, but also with their presentation style, writing capabilities, and advice on how to pursue a successful career in the exploration and production community. At the continuing education level, Satinder served as the AAPG/SEG Distinguished Lecturer for 2011-2012, and as the CSEG Distinguished Lecturer for 2010-2011. He has taught two- to five-day continuing education courses for the professional community on topics ranging from seismic attributes, AVO, quantitative interpretation, and heavy oil in East Asia, South Asia, the Middle East, Latin America, the United States, and Canada.

Satinder has written and co-authored books on seismic attributes, AVO, gas hydrates, and heavy oil and has authored dozens of articles published by the SEG and EAGE. I encourage my students to emulate his posters, which are energetically and enthusiastically presented and always draw a big crowd. Satinder's technical contributions as well as his passion for geoscience technology has resulted in two best poster awards from the AAPG, three from the SEG, and four from the CSEG.

Satinder Chopra began his geoscience career at the Oil and Natural Gas Corporation Limited (ONGC) after earning an M.Sc. and M.Phil. degrees in physics in 1978 from Himachal Pradesh University in Shimla. He joined ONGC of India in 1984 and served there until 1997. At this point in his life Satinder was deep into seismic processing. In 1998 he joined CTC Pulsonic in Calgary, which later became Scott Pickford and Core Laboratories Reservoir Technologies, moving away from seismic processing and into seismic interpretation, expanding into the relatively new areas of 3-D seismic attributes and prestack inversion, perfecting his petrophysical skills along the way.

In 2004, Satinder joined Arcis Seismic Solutions, now TGS Canada, where he currently serves as chief geophysicist (reservoir). Because Arcis/TGS' primary revenue is in seismic acquisition, one of Satinder's roles has been to demonstrate the value of modern, wide-azimuth, dense 3-D data to the practicing interpreter, leading him down the slippery slope into geology. Satinder's papers on the seismic geomorphology and the appearance of carbonate buildups, syneresis, pockmarks, incised channels, differential compaction, all manners of faulting, and even potash dissolution features are envied and renowned by professional interpreters and academics alike. His quantitative interpretation workflows integrate petrophysics analysis with prestack inversion of conventional P-wave data as well as with azimuthal anisotropy and multicomponent data analysis, using tools the range from the classical construction of rock property templates to modern neural networks and machine learning.

In summary, Satinder Chopra is a "high energy" geoscientist, deeply engaged in geology, geophysics, and engineering professional societies at the local, provincial, national, and international levels. He acquires and applies new technologies and disseminates his findings far and wide. It is for these reasons that AAPG recognizes him through this Distinguished Service Award.

Kurt Marfurt

JOHN B. CURTIS
Distinguished Service Award

Citation—To John B. Curtis: For meritorious distinguished service to the profession of petroleum geology and the American Association of Petroleum Geologists.

John B. Curtis has a long history of distinguished service to AAPG and the profession of petroleum geology. He served as an associate editor of the *AAPG Bulletin* from 1997-2010. He continues to review manuscripts as requested. In addition, Curtis co-chaired the AAPG Committee on Unconventional Petroleum Systems from 1999-2004 and was on the AAPG Committee on Resource Evaluation from 1992 until 2014. He also served in the House of Delegates for 9 years. John has also been a session chair for AAPG and URTeC conventions and has also contributed many talks and papers to AAPG during his career. He also served on and chaired several professional society and natural gas industry committees, which included the Supply Panel, Research Coordination Council, and the Science and Technology Committee of the Gas Technology Institute (Gas Research Institute). He has published studies and given numerous invited talks concerning source rocks and oil geochemistry, exploration for unconventional reservoirs, and the size and distribution of United States and Canadian natural gas resources and comparisons of resource assessment methodologies. He was elected counselor to the Rocky Mountain Association of Geologists from 2002-2004.

Curtis is Professor Emeritus of Geology and Geological Engineering and past director, Potential Gas Agency at the Colorado School of Mines (CSM). While at Mines, he supervised graduate student research and taught petroleum geology, petroleum geochemistry and petroleum design. John rose through the ranks from associate professor to full professor from July 1990 to his retirement in June 2016.

John has also worked with GeoMark Research in various capacities since 1996. He is currently responsible for their United States and Canadian Rocky Mountain and SCOOP/STACK petroleum system/resource potential studies.

Prior to CSM and GeoMark, John had 15 years' experience in the petroleum industry with Texaco, SAIC, Columbia Gas, and Brown & Ruth Laboratories/Baker-Hughes.

Curtis received his B.A. (1970) and M.Sc. (1972) in geology from Miami University and a Ph.D. (1989) in geology from The Ohio State University. He is a Licensed Professional Geologist (Wyoming) and AIPG Certified Professional Geologist. Of note, John is an avid ham radio operator, who enjoys Morse code and restoring and operating vacuum tube radios. He was a Minuteman missile launch officer and instructor launch officer in the United States Air Force from 1972-1975.

Stephen A. Sonnenberg

EVELYN MEDVIN
Distinguished Service Award

Citation—For sustained contributions to AAPG by promoting the value of AAPG programs to sponsors and stakeholders at all levels and mentoring future leaders.

Evelyn Medvin hails from Tulsa, Oklahoma, via New York City. She discovered earth science in high school due to an amazing teacher and the support of her parents, who believed that women

can do anything they set their minds to. This led to her enrolling at the University of Oklahoma (OU) and receiving a Bachelor of Science degree in geology. She was vice president of the first AAPG Student chapter at OU and became a member of AAPG in 1980, eventually becoming Certified Petroleum Geologist #6226.

Evelyn began her career as geophysicist with Cities Services in Tulsa, transitioning to Occidental International Exploration and Production Company in Bakersfield. She moved to Schlumberger 15 years later to work in 3-D visualization interpretation and software development. She joined Coherence Technology Company (CTC) 2 years later as vice president of interpretation services. In 1999, with the purchase of CTC, Evelyn joined Core Laboratories as vice president business development and technical coordinator Americas, Scott Pickford Division, moving to vice president corporate business development in 2002.

Evelyn now has nearly 40 years of experience in the exploration, production, and service sectors. Her devotion to AAPG has spanned most of that time. Her notable service to AAPG includes participation in the PROWESS committee from 2007 to 2015, co-chairing multiple conference panels, chair of the International Pavilion, ACE Fundraising committee member for multiple years, the AAPG House of Delegates since 2007, and, since 2000, the Visiting Geoscientist Program. Evelyn gives presentations titled, "Career Opportunities in the Service Sector of the Oil & Gas Industry" and "Where I've Been and How I Got There: A 30+ Year Career in the Oil & Gas Industry."

Evelyn's service to AAPG has been especially impactful because of her strong understanding of business drivers and global impact of the industry. She provides strong leadership skills and the ability to communicate effectively and develop new ideas through understanding industry needs and relevant technology-based solutions. Evelyn is highly ethical and dedicated to enhancing the professional growth of her colleagues and developing the next generation of oil and gas professionals. To that end, Evelyn single-handedly established Executive Ladies networking opportunities and offsite workshops to make sure that women meet and support each other within AAPG and the industry. She dedicates her time to energy education in high schools in Texas, hoping to be a spark that ignites others to love earth science and enter our industry and AAPG.

We have long admired Evelyn's consistent efforts to ensure corporate support for AAPG activities. She is a go-to person for sponsorship committees, and she is successful in raising support because she clearly articulates the value of AAPG activities to colleagues.

Locally, Evelyn has been a mainstay of the Houston Geological Society focusing on continuing education and its scholarship program. She takes great pleasure in working with people and keeping in touch with colleagues around the world.

Evelyn and Roger are the proud parents of Sara and David Chertoff and Seth and Leah Medvin, and grandparents to Eitan, Ilan, and Eliana. In addition to this significant professional recognition, 2019 will see Evelyn and Roger celebrate 35 years of marriage and launching two successful adults with a cruise to the Baltics, continuing their exploration of our world.

Evelyn does not draw attention to herself as she accomplishes her many volunteer tasks, but we think it is time for AAPG to draw attention to Evelyn and the terrific example of service that she sets by awarding her the AAPG Distinguished Service Award.

Sarah Stanley and Gretchen Gillis

KENNETH E. NEMETH
Distinguished Service Award

Citation—To Ken Nemeth for his long, dedicated, and exemplary service to AAPG at the local

affiliate, Section and national levels.

Ken spent his professional life solving problems through persistence, focus, attention to details, and teamwork, so it is no surprise that this carried into his volunteerism. He said he gained much personally and professionally from individuals who unselfishly shared their knowledge and experiences, and he felt it was his duty to pass that along via active participation in professional societies.

He received a bachelor's degree in geology from Albion College (with honors) in 1973 while playing NCAA Division III football. After receiving a master's degree in geology from The University of Texas at Austin in 1976, he started his professional career with Shell in New Orleans, where he met and married Sandy.

Like many of us, he left a major oil company to work for a series of independents including Louisiana Land & Exploration, Blue Sky Oil & Gas, Adobe Resources (Adobe Oil & Gas Corp.), and Browning Oil Company. Ken joined Schlumberger in 1998, where he remained until his retirement in 2016.

Ken's service to AAPG began in earnest when he moved to Dallas to work for Browning Oil Company and joined the Dallas Geological Society (DGS) in 1991. During his 8 years in Dallas, he was on the employment committee 1991-95, employment chair 1992-95, speaker at employment seminars, president-elect/secretary 1995-96, president 1996-97, newsletter staff 1996-97, newsletter editor 1998-99, past president and nominating committee chair 1997-98, awards committee chair 1998-99, and alternate delegate and delegate vice-chair to the AAPG conventions. For the 1997 AAPG convention, Ken served as employment committee chair.

In 1998, he was co-founder, steering committee chair, former board member, and instructor of the Ellison Miles GeoTechnology Institute at Brookhaven College in Dallas. For this, and for his prior work with DGS, he was recognized in 1998 with the DGS Outstanding Service Award.

For the Southwest Section, Ken was DGS alternate delegate 1996-1997, DGS delegate 1997-1998, secretary 1998-1999, and a presidential candidate in 1999.

Ken had joined the Houston Geological Society (HGS) in 1981 and served on the following committees: entertainment 1981-1985, employment 1989-1991 and GCAGS publicity in 1982. After his return to Houston in 1999, he resumed service with numerous committees for HGS: website 2003-2004, guest night 2005-2007 and 2018, finance chairman 2001-2005, and office chairman 2007-2010.

The HGS treasurer in 2004-2005 had to resign after a month in office so Ken, as treasurer-elect took over the duties of both treasurer and treasurer-elect. Ken rose to the challenge of reorganizing the HGS finances and the financial reports. His treasurer term turned into 2004-2006.

Houston Geological Society recognized Ken's many contributions with the Rising Star Award in 2003, President's Award in 2005, Outstanding Service Award in 2007, and Honorary Membership in 2010; after which he served as president-elect 2013-2014, president 2014-2015, and nominations committee chair 2015-2016.

Ken's love of writing benefited the *HGS Bulletin*. In addition to writing his "Presidential Ponderings" the year he was president, he wrote "A Look Back in Time" series, "Past Presidents of HGS" series, and numerous citations for HGS award recipients.

He served as president of AAPG's Gulf Coast Association of Geological Societies (GCAGS) in 2007-2008. To say he served as president does not begin to describe his contribution to GCAGS. His organizational skills established procedures and manuals for the Section's leadership, organization, and conventions. He organized 25 years of GCAGS minutes and encouraged several affiliated societies to become more involved with GCAGS. He served on the continuity committee from 2006-2012, chairman 2010-2012, and the awards committee 2008-2011.

What may have been his most notable impact on the Section was organizing the first GCAGS Imperial Barrel Award (IBA) competition. Ken saw the IBA program as a way to give back to students and future young professionals in a significant manner. He served as vice-chair of AAPG's IBA committee for 2009-2012 and served on the AAPG's IBA committee 2009-2018. Ken was the liaison to Schlumberger,

securing their participation and the contribution of interpretation software for use in the IBA program. He spent hours on datasets, webpages, and operational issues.

Ken received an AAPG Certificate of Merit in 2014 in recognition of dedicated and meritorious service to the Association as Technical Committee co-chair of the IBA committee and for his work in maintaining the IBA website and troubleshooting software problems.

Ken saw the ups and downs of this industry first hand, and he always stressed the value of maintaining a network. To him, they were not just contacts, they were friends, to whom he gave generously of himself; and we miss him.

Dave Rensink
Rusty Riese

TIM RYNOTT
Distinguished Service Award

Citation—Tim is a loyal supporter of the AAPG, a passionate and successful explorationist, and a tireless mentor of countless youth – from college students to young professionals to apprentice employees.

Besides AAPG, Tim Rynott has been a deeply involved volunteer with the Gulf Coast Section (GCAGS), the Lafayette Geological Society, and more recently the Four Corners Geological Society.

Rynott's top leadership positions have included AAPG Advisory Council, AAPG House of Delegates, AAPG associate editor, and an officer with the Louisiana Oil & Gas Association, and the Gulf Coast Prospect Expo. He also served as the 2004 GCAGS president-elect, and chairman of the highly successful 1999 GCAGS Annual Convention. Rynott has multiple publications, and has provided recent technical presentations to numerous conferences, including AAPG (ACE and ICE), SEG, GCAGS, SIPES, and Emerging Shales Plays USA.

Most recently Rynott was the Division of Professional Affairs luncheon speaker at the 2018 ACE Convention. The title of his talk was: "Global Natural Gas Markets: Their Rapid Expansion and the Implications to the Western United States."

For the 2017 and 2018 ACE meetings, Tim spearheaded special sessions geared directly to Young Professionals and students, helping them prepare for the imminent Great Crew Change. Many considered these two sessions their most valuable experiences during the respective conventions.

Tim was also very proud of his work as the chairman of an Ad Hoc Committee on Advisory Council Proportional Representation. After 2 years of investigation and analysis, important and beneficial changes were implemented to the Advisory Council.

A second proud moment was his general chairmanship of the 1999 GCAGS Annual Convention. Our industry basically tanked earlier that year when oil dropped to $9/bbl—and things looked bleak. In addition to an outstanding technical program and enormous sweat equity, Rynott added a Prospect Expo to the event, all of which helped attract 2,000 attendees, and finish almost $70K in the black.

At present, Mr. Rynott is president of the Four Corners Geological Society, the Rocky Mountain Section counselor for the DPA, and an active member of AAPG, DPA (Cert #5803), LOGA, HGS, LGS (Honorary Member), and the FCGS.

In the business world Tim Rynott has analyzed over a dozen Lower 48 Basins, particularly concentrating on the Gulf of Mexico Basin. Rynott's primary expertise includes prospect generation, risk analysis, and seismic interpretation. During his career he has generated and endorsed countless GOM Basin discoveries, and has been personally investing in oil and gas drilling projects since 1985.

After the University of Illinois and the University of Louisiana at Lafayette came exceptional experiences working for a number of small independents in Lafayette, Louisiana. Rynott became a committed and zealous prospect generator and marketer. In the pre-NAPE days, he wore out several sets of knuckles knocking on doors, but there was no better education than being critiqued by hundreds of highly qualified deal screeners.

After 25 years in Lafayette, Rynott was ready to expand his geologic and geographic horizons and also get more exposure to the rapidly evolving 3-D seismic world. He first set his eyes on Denver Colorado, and many cold calls later, Tim found employment with Forest Oil in downtown Denver. This successful stint was followed by a move to Durango, Colorado, to be Red Willow Productions GOM's senior geologist. At the time Red Willow was retaining the prodigious generation shop Houston Energy, Inc. As part of his duties, Tim oversaw 26 geoscientists and helped to coordinate the exploration of high impact onshore Louisiana wells plus multiple deepwater opportunities. His geologic horizons were certainly expanded.

In 2009 Rynott founded Ridge Resources LLC, primarily a prospect generating company taking drilling projects from cradle to grave, including using personal funds to secure leaseholds. Ridge initially focused on conventional and semi-conventional oil sands in South Louisiana and East Texas, ultimately coordinating the leasing optioning of over 100,000 ac for both drilling and 3-D opportunities.

Pure entrepreneurship isn't everyone's cup of tea and relying primarily on the drill bit for financial wherewithal has its challenges; but Rynott wouldn't trade it for anything. True to his roots as an Independent from the classic oil town, Lafayette, Louisiana, full retirement will never be in the cards.

For Tim Rynott, the thrill of the hydrocarbon hunt is all consuming, and he believes giving of oneself is the ultimate fountain of youth.

Brian E. Lock

K. B. TRIVEDI
Distinguished Service Award

Citation—To K. B. Trivedi, brilliant, experienced, proven petroleum geologist. excellent mentor, leader and result oriented geoscience manager. honest, ethical, dedicated, and complete geoscientist with "golden heart" for fellow colleagues.

K. B. Trivedi was born at Lucknow, India, in 1959 and did his graduation work in 1977 with geology, zoology and botany as his major subjects and completed his post-graduate in geology during the 1979 at University of Lucknow, India. He pursued research work in metamorphic terrain in the Vindhyan basin of India and in the meantime was offered a lectureship in the Deptartment of Geology and advance sciences in Lucknow University. He joined the university as lecturer, and was taught graduate geology students from 1980 to 1981.

In 1982 he qualified for the position of geologist with the Geological Survey of India. He carried out geological mapping and section measurements, as well as other work. In 1984 he qualified for position of geologist in the national exploration and production company of India, Oil and Natural Gas Corporation Ltd. and started his career as well site geologist in high to very high pressure temperature area in the fold belt of Himalaya. He has many discoveries to his credit while working in different basins of India and various basins abroad, that includes Vietnam, China, Libya, Gulf of Suez, Egypt, Myanmar, Nepal, and Indonesia. His career spanned from well site geology, field geology, sedimentology and project management. His main areas of expertise are sedimentology, sequence stratigraphy, unconventional

resources, and development including shale gas and coalbed methane.

While working in Sudan he prepared a working sequence stratigraphic model for Muglad basin, Sudan for the first time. He was appreciated for his work as team leader and mentor, and software developed under his leadership for evaluating low resistivity sands, added substantial reserves.

Trivedi joined the national oil company of South Africa, PetroSA on April 1, 2009 where he is presently serving as chief geologist. At PetroSA he looked after drilling and prospect generation in Gulf of Suez and guided various studies and processes during operation. He is a member of PEER team and assisted various asset teams for generation of drillable prospects and working models. He is in charge of geologist in training (GIT) development at PetroSA and successfully carried out training programs from 2009 through 2013 for a total of 28 GITs. In addition he delivered various lectures and training courses at University of Stellenbosch, University of Western Cape, and University of Fort Hare. He is a member of examination board for these universities to guide and check thesis of graduate and post-graduate students. He was technical coordinator of the Geosynthesis conference, and number of quality papers were submitted by PetroSA. He is a member of various committees and subcommittees in PetroSA.

He is representing South Africa, as delegate in the AAPG House of Delegates. He was coordinator for the global Imperial Barrel Award in 2014 and 2015, and for the first time in history of South Africa, University of Western Cape stood first at the competition held at Lagos, Nigeria, amongst 22 African universities under his leadership.

He has published 32 scientific papers in international journals of repute and has 25 national publications in various national journals and compendium. He edited/authored many books and was a key member of various committees. He conducted an international conference jointly with AAPG titled "GEO India 2008" at New Delhi as co-chair. He won first prize at the AAPG international conference at Bali, Indonesia. His work is being appreciated and was awarded at many occasions in form of certificates, trophy and citations.

He did his post-graduate diploma in human resource management with first class in 2000.

He is a member of various societies including AAPG, SPG, SPE, IAS, APG, Society of Sedimentologist, Association of Gondwana Research. He was theme champion for "Petroleum Systems" theme in International Geological Congress-35 schedule to be held in Cape Town. He is a Certified Petroleum Geologist (AAPG) and Professional Natural Scientist as recognized by South African Natural Scientific Professional. He acted as technical chair for the recently concluded AAPG ICE 2018 in Cape Town.

K. B. Trivedi

JOHN T. WILLIAMS
Distinguished Service Award

Citation—To John Williams, for his unending devotion to family and the geoscience community, exemplary leadership, and his humble and tireless work in support of the AAPG, DPA, HOD, and the Pacific Section.

I was surprised and very honored to be asked to write the Citation of Merit for my friend and distinguished geologist, John T. Williams. I have known John for more than 30 years and he is truly an exceptional person. John is a native of California and has lived most of his life in Ventura County, California. He, like so many of us, had an early interest in geology. At age 8, he became interested in paleontology and began exploring for fossils from the Pico Formation

in the hills above Ventura. Soon John was identifying vertebrae and invertebrate fossils from the Plio-Pleistocene formations. Among his finds were a Pleistocene horse dated 50,000+/- years old and a well-preserved human skeleton dated 200 to 500 years old. John's father was very concerned about the human find and the bones are probably in the Ventura County Sheriff's warehouse. His interest was further fueled when in 1961, John's parents, Thomas B. Williams and Evelyn Williams, founded Petrolog, Inc., a mud logging company in Ventura, California, that provided high-quality services to the petroleum industry.

In 1976, John received his Bachelor of Science degree in geology from California Lutheran University, which was followed by a Master of Science degree in geology from San Diego State University. He began his career helping his father with mud logging work at various drill sites in California. In 1979, John joined Tenneco Oil Company in Bakersfield working on exploration projects in both the Sacramento and San Joaquin Basins of California. John was then transferred to Lafayette, Louisiana, where he defined prospects in both offshore shallow and deep-water federal lease sales of Louisiana and Texas. Following the Tenneco buyout in 1988, John returned to California and worked for American Exploration Co. in Pasadena, California where he developed prospects within the Permian Basin of Texas.

In 1991, after the untimely death of his father, John became president of Petrolog, Inc. The company specialized in offshore and onshore well logging, oil show evaluation and gas chromatography and employed up to 25 geologists and technical support people at the peak of the business. With John's guidance, Petrolog was one of the first mud logging companies to provide digital mud logging to the California oil industry. I have employed Petrolog on several wells over the years and was one of the first to benefit from the new digital information.

In 1979, John married Cindy Brown Williams and began raising a family. Cindy was of great help and support over the years, and you often saw her at conventions or doing booth duty for Petrolog. They have been married 39 years and have 3 adult children: Heath, a petroleum engineer for CRC; Scarlett, who has an MBA and worked at Petrolog, and Addison is an engineering geologist for the California Division of Oil and Gas. They have three grandchildren.

Since 1976, John has been an active member and sponsor of the AAPG, the Pacific Section of the AAPG (PSAAPG), Coast Geological Society and the San Joaquin Geological Society. He became a member of the Society of Petroleum Engineers in 1994. He currently is a Pacific Section Division of Professional Affairs (DPA) counselor, a member of the DPA Certification Committee, and a member of the AAPG House of Delegates. Current service also includes PSAAPG Honors and Award Committee. He was elected president of the Coast Geological Society in 1994 and president of the AAPG Pacific Section in 2013. John is a California-licensed Professional Geologist (#5899) and a DPA Certified Petroleum Geologist (#4493). In service to the local community, John was a Webelos and Boy Scout leader training for both the kids and adults about geology and orienteering. He also helped the Ventura County Gem & Mineral Club to promote and distribute a remarkable educational rock identification sample set with a lesson plan to be supplied to all county schools.

John received the AAPG Pacific Section Distinguished Service Award in 2013, the Division of Professional Affairs Service Merit Certificate in 2014, and a PSAAPG Honorary Life Member Award in 2018. On many occasions, he has volunteered for committees and to run for national AAPG office. I was certain if John was part of the committee, the job would get done.

Two proud points to mention include, as president of PSAAPG and chair of the executive committee, John helped to advance and successfully gain approval for the first Sectional "Young Professional Distinguished Service Award." Young professionals like Emily Fisher,

Ann Draucker, and others pitched the idea which caught on quickly. It was first presented to three outstanding young professionals at the PSAAPG honors and awards ceremony in 2015. As PSAAPG nominations chair in 2016, he was very happy to find two excellent candidates to run for president. Mike Nelson won the election and advanced our section with his outstanding and successfully leadership.

John has also found time to be a volunteer lecturer on geology and applied applications of well logging at Stanford University, Santa Barbara City College and USC. He has been honored to present yearly at the invitations of Bob Gray, Jeff Meyers, Bob Lindblom, and Donald Clark. He has been active with the Ventura Rotary Club and chair of the Mission Endowment Fund and Council of Trinity Lutheran Church in Ventura.

John and Cindy enjoy camping in their Airstream, as well as his time raising cattle and growing lemons and avocados on the Williams Ranch in Piru, California. He still likes hiking the hills throughout his ranch. John is famous for being the owner, keeper, and protector of the type section of the Monterey Modelo Formation. A craggy section of rock that only a geologist could love.

It is a great honor to document John's achievements.

James M. Hill Sr.

MICHAEL GRAMMER
Grover Murray Memorial Distinguished Educator Award

Citation—For a dedicated geologist, outstanding researcher, and inspiring mentor, who transfers his knowledge with patience and creative methods to students and geoscientists of all ages.

Michael Grammer is an inspiring teacher, advisor, and mentor. He has tremendous standards that his students embrace because they push you farther than you thought possible. Mike will not sugar coat any situation and he insists you know how to learn independently. Mike does not compliment quickly, nor will you hear superfluous encouragement. When you receive a compliment, you can be confident it is sincere and well earned.

Group and individual accomplishments are celebrated, but he will never let you rest on a single success. The immediate question is how to move forward and how to build on what was learned. Mike sounds tough. Mike is tough. But he will not let you fail unless you insist upon doing so.

Mike's favorite question, "So what?" continues a tradition started by his own Ph.D. advisor, Robert Ginsburg. Such a simple question. Such difficult answers. Mike gives freedom to pursue peculiar ideas and research of any interest. Because of this, Mike is constantly learning along with his students. In so doing he teaches by example what quality research looks like through disciplined, critical thinking, and quality writing. As a result, Mike is a gifted researcher who has built a formidable international reputation. Using innovative approaches, he has advanced our knowledge about the processes on steep carbonate slopes, documented in clever experiments how fast carbonate sediment is lithified into rocks, and with careful fieldwork unraveled the intricate mixture of carbonates and siliciclastics on the Paradox shelf. He edited an award winning AAPG memoir that highlights how the modern environment and processes can teach us lessons for the interpretation of ancient deposits. Mike was one of the first to bring the application of modern sequence stratigraphic methodology to the study of carbonates in the Michigan Basin. He and his students did the first work on constructing high resolution sequence stratigraphic frameworks for Silurian (Niagaran) reefs, culminating in three-dimensional geocellular

models that highlighted the internal heterogeneity of these important reservoirs. Mike's team also showed the importance of stratigraphic control on the lateral distribution of hydrothermal dolomite in the Ordovician Trenton and Black River Formations, and how this stratigraphic distribution correlates back to the sequence stratigraphy. Much of the work that Mike and his team did in the Michigan Basin is showcased in a recent Geological Society of America Special Paper on which Mike was the lead editor.

More recently, Mike and his students have investigated the role of microbial influence on the cementation processes and stabilization of carbonate slopes. In order to understand and document these processes and their influence on petrophysical processes he uses highest-resolution imaging techniques and laboratory measurements of various physical properties of the rock. This continuing adjustment of techniques has kept Mike on the forefront of research throughout his career. Mike transmits this knowledge of cutting-edge research to his students by actively involving them in research projects, which provides them with the necessary know-how to become first-rate scientists themselves.

Transient classroom students may comment that Mike's demands are too high. Current students understand the benefit. Former students think he should push harder (rose-colored glasses are wonderful!). Mike's students will make mistakes. He will let that happen so the lesson is learned. Then, if help is needed, he will assist with getting back on course. Even when his door is literally closed because he is buried with his own deadlines, he somehow makes time for a "check-in" to ask for guidance in research or class work. Mike is always willing to help any student that puts forth their own effort. Students wanting to learn, and who embrace a challenge are drawn to Mike.

Neither current nor former students will ever thank Mike for sleepless nights, consistent pressure to do more, or the prevailing group mindset to insist that every student maintain high standards of quality. But we are in private agreement of our gratitude for his methods, grateful for his relentless energy, indebted for the time spent learning from him, and thankful he chose an academic career.

Thank you, Mike for your sincerity, for preserving high standards, for quiet encouragement, for caring enough to never let us settle for less, for steadfast integrity, for molding us into better scientists and professionals, and for your friendship.

Gregor Eberli
Beth Vanden Berg

Response

I am deeply honored to receive the Grover E. Murray Distinguished Educator Award and would like to thank AAPG for their recognition and continued support of the academic-industry relationship. I would also like to thank Beth Vanden Berg and Gregor Eberli for their gracious and insightful citation. As someone who has spent their career in and out of industry and academia working on applied research projects and teaching, but who has in the end always returned to academia, I find this award to truly be a capstone of my career.

From an educational perspective, I have always felt that it is critical to recognize that we are trying to educate two different groups of students, each with decidedly different needs. As a general philosophy for the student who is to become a geological professional, either in academia or in industry, I have always thought it is critical that the student receives a comprehensive theoretical background combined with rigorous, hands-on application of theory to real-world geologic problems—which is what most all of us do at the university level. To attract top students to the field, and to successfully graduate them into positions as professional geologists, we need to not only offer them exposure to leading research topics and cutting-edge analytical techniques, but also to train them in the art of written and oral presentation of scientific results. These are the group of students that we tend to think about when discussing "our" students.

The second, and far more numerous group of students, however, includes those who will not ultimately become geology majors, but who must be

scientifically literate with respect to earth system science to function as knowledgeable and effective members of society. This group needs the theoretical basics of earth science, but also should learn the potential impact of geology on factors affecting everyday life, from the potential for and probable results of natural disasters, to construction caveats, to how we may best preserve the nation's coastal environments in a period of variable sea level rise. I have always believed that introducing these students to topical socio-economic problems facing the nation and world today, and providing them with sufficient theoretical background to make informed, rational decisions on important geologically-influenced problems, is a critical component in our commitment not only as university professors, but as professional geologists.

I have tried to figure out how to thank all of the people who have contributed over the years to my receiving this award, but upon retrospection, I am simply overwhelmed with the various experiences that have led me to this career and those people who have influenced me over that time. My undergraduate research on Holocene Barrier islands in Florida with Skip Davis at the University of South Florida and subsequent M.S. with Bob Laury and Lee McAlester on Paleozoic carbonates while at Southern Methodist University showed me early on the value of utilizing both modern and ancient analogs to understand geologic systems. This part of my "geologic DNA" was then cemented in place when I went to work with Robert Ginsburg at the University of Miami and became part of the Comparative Sedimentology Laboratory (CSL), first as a student, then a post-doc, and finally a research faculty member.

My time working with Bob Ginsburg led to what was truly a career and life altering adventure – getting an opportunity to do "outcrop work" from a research submersible in the Bahamas was simply a unique and wonderful opportunity. Working with Bob, Gregor Eberli, Don McNeill, and others while at the University of Miami led to collaborations and friendships that continue to this day, as did the opportunities to meet and sometimes work with myriad others who were always coming through the CSL to visit, do research and interact with students. Assisting with various field trips to the Bahamas for Bob Ginsburg with Don—which led to some of the more "interesting" stories in my background—then later co-leading the AAPG modern carbonates trip with Gregor and Mitch Harris for over 10 years, and running Paradox Basin trips and short courses with Gregor all stemmed from these formative years at Miami.

Other key times in this journey that became my career include two separate stops at Texaco (which became Chevron during my second tour), doing work in the Rockies and the Williston Basin in the beginning and Kazakhstan at the end of those combined 10 years. During this time I worked with a number of people (Lou Taylor, Doc Wells, Susan Longacre, Jean Hsieh, and others) who helped me gain experience and realize my interest in mentoring. This led to the 10 years I spent at Western Michigan University, working with Bill Harrison in particular to help bring some of the newer sedimentologic and stratigraphic concepts to play in an attempt to help further the understanding of the Michigan Basin. During this period, we also built—"while we were resting"—a core research facility (the Michigan Basin Repository for Research and Education) which has gained regional and national recognition. Other colleagues and friends are too numerous to specifically mention, and I would inevitably leave someone out unintentionally, so I will simply say thank you to all of who been part of my geological career over the years, including my newest colleagues here at Oklahoma State University.

The other group that have been a major part of my career for a long time, again too numerous to mention individually, are "my" students, those that I have had the privilege of working with at the undergraduate, M.S., Ph.D. and postdoctoral levels. It is quite humbling to be part of someone's geological education and to then watch as all of them have become well respected geologists in their chosen profession. Learning from them has made my job easier and has kept me better engaged in the science than would have otherwise

been possible. To them—I offer my most sincere and profound thanks for being allowed to work with them over the years and to indirectly share in their triumphs.

Michael Grammer

KATHLEEN MARSAGLIA

Grover E. Murray Distinguished Educator Award

Citation—To Professor Kathleen Marsaglia of California State University, Northridge, in recognition of her commitment to students through teaching, collaborative research, and encouragement of student participation in AAPG.

Kathleen (Kathie to friends and students) is a professor at California State University, Northridge (CSUN), serving as chair of the Department of Geological Sciences since May of 2016. She came to CSUN in 2000 following the retirement of another recipient of the Grover E. Murray Memorial Distinguished Educator Award, Gene Fritsche. Kathie teaches several soft-rock classes at CSUN, including sedimentology and stratigraphy, sedimentary environments, sedimentation and tectonics, and petroleum geology.

Kathie loved her physics class in high school. She entered the University of Illinois, Champaign-Urbana, initially as an engineering physics major, then switched to geology after taking and enjoying a physical geology class. Her undergraduate research concentrated on hard-rock subjects, but a sedimentary petrography class from Albert Carozzi set the path for her life's research. For her master's studies she stayed at the University of Illinois, working with Carozzi and studying the petrography, provenance, and diagenesis of clastic cores from the Talara Basin, a producing forearc basin in Peru. Kathie was strongly influenced by Carozzi's excellence in teaching.

After graduating with her M.S. degree, Kathie worked in Amoco's Houston office as an exploration geologist in the Gulf of Mexico region. Sensing the impending shift in the oil economy, she took an educational leave from Amoco before the 1985 crash. Although she was accepted to several universities, she chose to work at University of California, Los Angeles (UCLA) with Raymond Ingersoll, another inspiring educator, for her Ph.D. Kathie studied magmatic-arc influences on sedimentation of deep-marine sand and sandstone using Deep Sea Drilling Project (DSDP) cores from circum-Pacific, Caribbean, and Mediterranean regions. From her experiences at UCLA, Kathie gained a lifelong interest in studying sedimentation at the edges of tectonic plates.

While working with archived DSDP cores for her Ph.D., Kathie became intrigued with participating on an actual scientific cruise involving continuous coring. In her last year at UCLA, Kathie sailed as a shipboard scientist on a 1989 Ocean Drilling Program (ODP) cruise to the Izu-Bonin Arc in the western Pacific. Duties on this two-month cruise included working 12-hour shifts thoroughly describing thousands of feet of core and preparing preliminary reports. Kathie describes working on deep-sea cores as similar to space exploration in that every core brings new discoveries and insights into the evolution of the ocean's basins. Following her first exciting experience, Kathie participated in 12 subsequent cruises covering locations in the Atlantic and Pacific Oceans and the Mediterranean Sea, and has logged almost 2 years at sea.

Following completion of her Ph.D. at UCLA, Kathie accepted an assistant professor position at the University of Texas, El Paso (UTEP). Several of her students conducted field-based sedimentology studies in Mexico and Texas, and others worked on core samples that she brought back to UTEP from Atlantic and South American margin ODP

cruises. Shore-based studies of cores from the Santa Barbara basin and Patton Escarpment provided her an introduction to the complicated geology of the California Borderland. After a brief return to the petroleum industry at Westport Technology International in 1998-2000, Kathie pursued a desire to return to teaching and the West Coast with the job offer from CSUN in 2000.

As a new faculty member at CSUN, Kathie attended the "Margins Source to Sink: Implementation Planning" conference in Lake Tahoe. At this ground-floor international meeting, the North Island of New Zealand was identified as a focus site. Kathie recognized this as a major research opportunity and secured funding for numerous student projects in New Zealand that have expanded over the years to the North Island's petroliferous Taranaki Basin and to the prospective Canterbury Basin offshore of the South Island where she sailed on International Ocean Discovery Program (IODP) Expedition 317. She plans on participating on another IODP cruise to the Guaymas Basin in the Gulf of California in 2019.

From the start, Kathie realized that faculty can provide vital assistance helping student secure employment in the petroleum industry. While at UTEP, Kathie encouraged companies to interview and hire geologists, including several of her students. This desire to help students get jobs continued as she moved to CSUN, where she wanted to provide the Student Expo experience for students in the California region. She modeled her Expo closely after that developed by Roger Slatt at the University of Oklahoma with guidance from AAPG and SEG staff. The result was the first AAPG-SEG West Coast Student Expo in 2008, since held annually at CSUN under her direction. These events have brought together hundreds of students with prospective employers over the years.

Kathie joined AAPG in 1990 and is an active member. She is the faculty advisor for the AAPG student chapter at CSUN and was the faculty advisor for two Imperial Barrel teams. She has served on convention committees for the AAPG Pacific and Southwest Sections. In 2003, Kathie was the citationist for Carozzi's Grover E. Murray Memorial Distinguished Educator Award. She was the recipient of the Pacific Section AAPG Distinguished Educator Award in 2015. Kathie was an AAPG Distinguished Lecturer in 2012 and 2013, presenting her talk "Chasing bits and pieces of New Zealand from source to sink: Sand provenance studies in Zealand sedimentary systems and implications for hydrocarbon exploration across Zealandia" in New Zealand, Australia, Brazil, and at several United States universities.

Kathie has brought to CSUN a well-rounded and high-quality educational experience that includes courses that stress the fundamentals of sedimentology and their applications in the petroleum industry. Students have research opportunities in frontier regions thanks to her successfully securing major grants that provide funding. Kathie pushes students to publish their results and make presentations at conferences including AAPG ICE and Section meetings. Kathie also facilitates bringing students and employers together at the Student Expos. With this holistic approach toward student education and welfare, Kathie is very deserving of the Grover E. Murray Memorial Distinguished Educator Award.

Kathie and her husband Robert, her biggest supporter, reside in Camarillo, California.

Stephen Anthony "Tony" Reid

Response

I consider it a great honor to receive the Grover E. Murray Distinguished Educator Award, news of which was both surprising and humbling. Many thanks to Tony Reid (CRC), Cynthia Huggins (Aera Energy) and Aaron Hebler (CRC) for nominating me, and to Tony for penning my biography.

My three nominators have been steadfast supporters of the AAPG West Coast Student Expo's at California State University, Northridge (CSUN). Prior to joining the faculty at CSUN in 2000, I was employed by several petroleum companies (Amoco,

Arco, Exxon, Westport Technology International) both in summer internships and full-time positions and wanted my students to have the same opportunities. Companies rarely recruit at smaller universities like CSUN, so I encouraged my students to participate in AAPG activities, including the annual AAPG Student Expo in Houston, an event initiated by Martha Lou Broussard at Rice University. Other regional Expo's had been developed across the country, one by Roger Slatt in Oklahoma, one by Randi Martinsen in Wyoming, one by Lee Avary on the east coast, but none on the west coast. In 2006 I set out to fill that void. With the help and support of the various Expo directors, Mike Mlynek at AAPG, Jenny Cole at SEG, Niki Chapman, Bill Houston, and the faculty and staff at CSUN, the first annual AAPG-SEG (now PS-AAPG) West Coast Student Expo was held at Northridge in 2008. Indeed internships, and other work and educational experiences were instrumental in my career path through the so-called STEM pipeline.

My life began on the flat, glaciated plains of central Illinois, on the Mother Road, Route 66, in Sangamon County, the Land of Lincoln. My parents, Barb and Ronnie, were both children and grandchildren of immigrants and very supportive of my education. I was the first in my family to attend and graduate from college. An inspirational high school teacher, Father Pisors, introduced me to physics, computer science, and scientific research. He mentored my award-winning science project on Rutherford scattering that led to my first formal presentation at the 1975 AAAS Conference in New York. Participating in math contests and science fairs in high school also introduced me to members of the Society of Women Engineers who encouraged me to apply to summer engineering programs at Notre Dame University and Purdue University. The sum of these experiences led me to enter the engineering physics program at the University of Illinois, Champaign-Urbana in 1975. An older cousin tells a story that at a very young age (5?), I announced to my surprised family, that I was going to be a physicist; this turned out to be almost true.

In my first two years at Illinois, I explored my options by interviewing for cooperative internships in various engineering fields. Just the in-house interviews, some in factories where I would be working, were enough to deter me. Fortunately, I took an elective physical geology course which exposed me to the earth sciences.

Traveling to Europe, with my maternal grandparents, Julia and Paul, as a child then later as a college sophomore with my extended family, allowed me to discover my Italian and Austrian roots in the Alps, a mountain range that still takes my breath away. That second trip to Europe and a touristic drive on Route 66 from Illinois to Arizona cemented my decision to change my major to geology. These trips were funded by the modest estate of my paternal grandparents, Pete, a coal miner, and Ernie, a subscriber to Arizona Highways whose souvenir piece of petrified wood I still use in the classroom today. On my cross-county trip, my tag-along brother, John, became very weary when I wanted to stop and take pictures of every mountain, outcrop and lava flow in New Mexico. These stops were eclipsed by my enthusiasm on seeing the Meteor Crater, Petrified Forest, and Grand Canyon. My future was further clarified by a sedimentary petrography course from Albert Carozzi in my senior year, which led me to stay at Illinois for graduate school.

Albert Carozzi was a force of nature who taught me the wonders of petrography and how it unlocks the complex secrets of sedimentary rocks. Before I left Illinois in 1982 to take a job in Houston with Amoco, both Albert and George Klein, another faculty mentor and major research collaborator at Illinois, told me that I should consider doing a Ph.D. I eventually took the leap back to academia in 1984, leaving Houston for UCLA where Ray Ingersoll taught me the importance of actualism and petrofacies, the dramatic to nuanced connections between sedimentation and tectonics, and the geology of California. My scientific career is largely built on knowledge gained from these three educators.

I never took a course in petroleum geology and so had to learn on the job with help from my managers, including Mark Przywara at Amoco, Stan Paxton at Exxon Production Research, and Mike Dix and Pat Jacobs at Westport International. Similarly, my expertise in marine geology was also largely acquired at sea through colleagues, starting with my first cruise with Orrin Pilkey on the RV *Eastward*, followed by Rick Hiscott and many others on several *JOIDES Resolution* (ODP, IODP) cruises. My recent collaboration with Kitty Milliken on petrographic atlases of marine mud has been particularly rewarding.

There is not enough space to list all of the graduate and undergraduate students (UTEP, CSUN, and Calabrian) who worked with me. Each has had a positive influence on my life and I am very proud of their accomplishments. Many are still in the petroleum industry, others are in environmental, engineering, or water fields, some are teaching high school or college, and a few are currently in Ph.D. programs aspiring to be professors. I have fond memories of sitting at my petrographic microscope with them, exploring their thesis sediments or sedimentary rocks in a one-on-one fashion, the way that I learned from my inspiring advisors, Albert Carozzi and Ray Ingersoll.

Heartfelt thanks to family and colleagues, some mentioned above, as well as my sister Mikeleen, brothers Steve and Tony, and husband Bob Merrilees, who have supported me the through thick and thin of my career. Finally, I owe a sincere debt of gratitude to those at CSUN who gave me a home and the opportunity to teach again in the 21st century.

Kathleen Marsaglia

E. ALLEN MEREWETHER
Harrison Schmitt Award

Citation—To E. Allen Merewether, for providing the stratigraphic framework for geologic and energy resources investigations of the Cretaceous in the western interior and Rocky Mountain regions.

Edward Allen Merewether was born in Portland, Oregon in 1930. He attended the University of Oregon and graduated with a B.S. in 1951 and an M.S. in 1953. He served 2 years in the US Army, was discharged in 1955, and went to work for the US Geological Survey in May of that year.

The first 10 years of Al's career were spent primarily in field studies and geologic mapping in Arkansas, including studies of uranium-bearing coals and trace element content of allied carbonaceous rocks.

In 1966 Al was assigned as project chief of a mapping project and stratigraphic study in Carbon County, Wyoming. Much of this field and electric log work was concentrated on the Upper Cretaceous Frontier Formation during which he began a long and very productive association with W. A. (Bill) Cobban. This long-lasting cooperative effort resulted in more 40 publications on the Upper and mid-Cretaceous of the Western Interior and Rocky Mountain regions.

In 1971 Al was assigned to study mid-Cretaceous formations of northeastern Wyoming. These biostratigraphic studies were later expanded to include contiguous areas of Montana, the Dakotas, and Colorado. They were expanded further in 1975 to include the compilation of lithofacies maps and cross sections for mid-Cretaceous strata of the Rocky Mountain region. During this period Al also prepared maps of the thermal maturity of strata in southwestern Wyoming and the Raton Basin, Colorado and New Mexico. In addition he prepared structural and stratigraphic maps of oil fields in western Colorado for the Bureau of Land Management.

Appointed the leader of a Framework Geology Group, consisting of 17 scientists in 1985, Al also served as project chief of the "Stratigraphic and structural investigations of potential source rocks, reservoir beds, and traps for oil and gas" project concerning potential energy resources, thermal maturity, and the stratigraphy and tectonic history of mid-Cretaceous rocks in central and southwestern Wyoming.

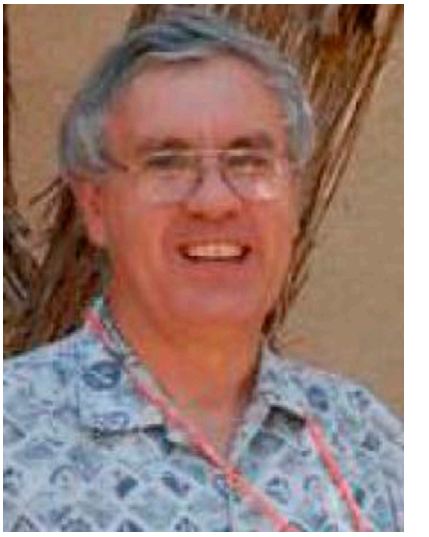
As a part of the US Geological Survey (USGS) Evolution of Sedimentary Basins Program, in 1987 Al was appointed coordinator and project chief for studies in the Powder River Basin, Wyoming and Montana. This position consisted of research on stratigraphy and tectonic implications of Upper Cretaceous formations in the basin as well as administrative responsibilities for a team of earth scientists investigating Phanerozoic stratigraphy and tectonism in the region. In 1989 the project was included under the Western Wyoming Basins Project and Al's responsibilities were expanded to include stratigraphic studies in the Big Horn, Wind River, and Hanna basins.

Later in 1989 Al was requested to assemble regional stratigraphic data pertinent to Cretaceous formations in Wyoming and adjoining states for the Western Interior Cretaceous Project of the International Union of Geological Sciences. As part of this long-term cooperative project he constructed, compiled, and published as author and coauthor a number of regional Cretaceous cross sections of the Western Interior and Rocky Mountain regions. These included sections from northeast Idaho to southwest Minnesota, northcentral Utah to central South Dakota, southwest Utah to northeast Colorado, southeast Arizona to the Oklahoma panhandle, and from western Montana to northwestern New Mexico. The completion and publication of these products took several years beyond his retirement with the final section being published in 2015 while Al was volunteering as part of the USGS Scientist Emeritus Program.

For the final several years of Al's active employment with the USGS he was also assigned the position of operational coordinator for those Bureau of Indiana Affairs funded USGS projects involving the assessment of mineral and energy resources on Native American reservations. These activities included assessments for the Standing Rock Reservation, North and South Dakota, and for the Nambe Pueblo, New Mexico, as well as negotiations and preparations for studies on the Torres Martinez Reservation in California, the Osage Reservation in Oklahoma, the Laguna Pueblo in New Mexico, and the Jicarilla Apache Reservation in New Mexico.

Al Merewether's many detailed basin and formation studies as well as regional cross sections are invaluable contributions to understanding and interpreting the Cretaceous depositional environments and stratigraphic framework of the Western Interior and Rocky Mountain regions.

A. Curtis Huffman



TIMOTHY D. ELAM
Public Service Award

Citation—To Timothy D. Elam, in recognition of an AAPG member who had a successful career in petroleum geology and who gave generous amounts of his time educating the general public about geology.

Tim and I crossed paths over the last three decades primarily through our involvement in the AAPG, Pacific Section AAPG (PSAAPG) and the San Joaquin Geological Society (SJGS). He served SJGS as president and PSAAPG as editor. Tim was a career Chevron geologist and while we never worked together on oil patch projects, we got better acquainted when we were both working for Chevron in Bakersfield

following the Chevron/Texaco merger. The wide range of public service activities in which Tim is involved disseminating geologic knowledge beyond the work place is impressive. He is an enthusiastic teacher, mentor, lecturer, and geologic field trip leader for universities (near and far), local public schools, scouting groups and many others, making him a much-needed voice in our society and a worthy recipient of the 2019 AAPG Public Service Award.

Tim's education included a B.S in environmental science from Georgetown (KY) College in 1978 and an M.S. in geology from the University of Kentucky in 1981. As a child, Tim exhibited an interest in geology by collecting rocks, minerals and fossils with his father and uncle. He continues to make obvious his interests in his home state, rocks and society by using kyrocks@peoplepc.com as his email address.

Tim's path through the oil patch started with Chevron in New Orleans in 1981 fresh out of school. He was responsible for development work in several offshore Gulf of Mexico fields and several "swamp fields" onshore in Louisiana. In 1982 Tim was one of the first geologists to interpret and map a 3-D seismic survey in the Gulf of Mexico at South Marsh Island Block 8. That was followed by working for a short time in the Cretaceous and Jurassic of eastern Texas. He transferred to San Ramon, California, and worked on exploration in the Bering Sea, offshore Alaska. It was during this time that Tim met his wife, Pat, in the Bay Area.

The Bay Area lifestyle for Tim and Pat ended for the time being when he was transferred to Bakersfield to explore in the San Joaquin Basin (SJB). (They would return to the Bay Area when he retired.) Tim explored a number of areas in the SJB including Coalinga, Lost Hills, the Temblor Range, Ciervo Hills, the Arvin Basin, and the Eastside. His work eventually led to the drilling of the East Lost Hills Deep well in 1998, which reignited interest in deep San Joaquin exploration. Other work done by Tim in the 1990s involved remapping the Elk Hills 13Z area. This area was later studied and drilled by Occidental Petroleum, resulting in the Gunslinger discovery.

A highlight of his professional career was when Tim worked with Steve Sanford on developing one of the most successful heavy oil projects for Chevron in the Cymric Oil field. They drilled the first four horizontal wells in 1997 that turned into over 100 horizontals and lead to significant production. Tim became the heat management coordinator for the Tulare Project and later for the West Central California Tech Team.

When Tim was not busy finding oil and drilling wells he filled his time with a multitude of volunteer activities. One that has been particularly dear to him and multifaceted in its execution has been helping Buena Vista Museum of Natural History and Science expose scientific wonders to thousands of school kids each year. Tim also functioned as a "science expert" for Cal State Bakersfield's NSF grant "San Joaquin Valley Rocks". He worked with the "Great American Shakeout" an annual earthquake preparedness drill coordinated by the Southern California Earthquake Center/USGS and others. Participating with professional societies as an officer, committee member, and author has allowed him to develop friendships and learning experiences he cherishes.

Tim retired from Chevron in 2009 as a senior staff geologist. In retirement, he has expanded his geologic outreach by filling his summers as a volunteer and seasonal paid park ranger at several National Parks. Over the last 10 years he has worked at the Grand Staircase-Escalante National Monument in Utah, Petrified Forest National Park in Arizona, Crater Lake National Park (four times) in Oregon and Grand Canyon National Park in Arizona. The PSAAPG newsletter benefitted from Tim's summer jobs through his submission of his articles on the geology and activities in the parks.

Tim is well suited to be a park ranger, where interaction with the public is a requirement. Tim's long-term efforts to convey geology within and outside our profession are formidable and deserving of this AAPG recognition.

Larry Knauer

JANELL EDMAN
Pioneer Award

Citation—Dr. Edman is an outstanding, award-winning scientist who has made significant new contributions to geochemistry, geophysics, and geology that have enriched all of these fields.

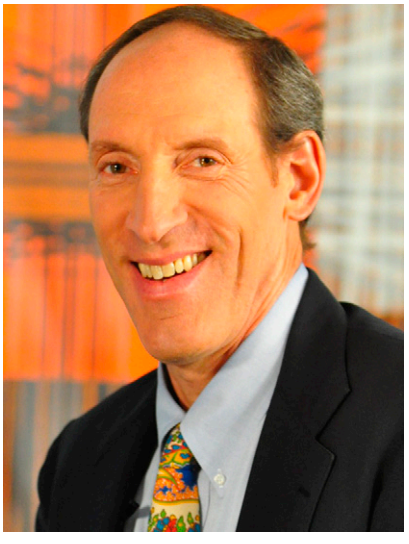
Janell graduated from Stanford with B.S. and M.S. degrees in geophysics. She went to work for Mobil in 1976 as a geophysicist and later as a geologist. She returned to school and completed her Ph.D. in geology at the University of Wyoming in 1982. Papers published based on her dissertation include one in which she and Ron Surdam demonstrated the influence of organic-inorganic interactions on porosity development. Additional publications with Kevin Furlong demonstrated how the thermal evolution of thrust belts affected maturation in the hanging wall and foot wall of thrust belts. These publications were important in understanding why overthrust fields produce from some thrust sheets and not others.

Janell was a professor at the University of Colorado for 2 years, but returned to industry to work at Exlog/Brown and Ruth Laboratories. Here she met Alan Daly, and the two of them collaborated on work showing how the total organic carbon of source rocks decreases during maturation. Although not widely recognized at the time, this concept is now commonly accepted. They received the Jules Braunstein Memorial Award (best poster session at ACE) for this work.

Next, she went to work for Marathon where she was the first to recognize and publish that most of the oil in the Austin Chalk was sourced and generated from the underlying Eagle Ford. At Marathon, she worked with petroleum engineers to show how oil geochemistry could be used to recognize reservoir compartmentalization at Ewing Bank 873. For this work, she received the "Best of AAPG for SPE" award. She also became one of the first geochemists to recognize and publish that solution gas geochemical analyses could be used to identify reservoir compartmentalization, which is important in the design of water and CO_2 floods.

After Marathon, she became a consultant where she continued to work with colleagues on new concepts and ideas including collaboration with Leroy Ellis to show how mud gas could be used to identify hydrocarbon seals and distinguish separate reservoirs. She continued work on the Eagle Ford where she was the first to recognize a marl facies that generates high sulfur oils and showed that thermal maturity of the Eagle Ford can change rapidly over short distances. Additional collaboration included work with Jane Newman demonstrating how hydrothermal activity plays an important role in source rock maturation. She is currently documenting how low cost multi-disciplinary methods can be used to high grade unconventional plays.

Jeanne Harris



AARON HARBER
Geosciences in the Media Award

Aaron Harber hosts "The Aaron Harber Show ™" (HarberTV.com/Info) which has been available as recently as January, 2019, to television

broadcast platforms which served over 61 million households and 127 million Americans when the show completed a 26 program series on AEG & Mark Cuban's AXS TV, Denver's Channel 3 KCDO-TV (Channel 3 over-the-air by antenna, and Channel 3 on COMCAST, DirecTV, and DISH), the COMCAST Network in Indiana, the COMCAST Network in Michigan, and the Web at HarberTV.com.

Aaron is the recipient of the prestigious "Broadcaster of the Year" award HarberTV.com/Award. A small sampling of Aaron's more than 1,000 in-studio and on-location guests (all of his interviews are done in-person) includes presidents (Bill Clinton, Jimmy Carter, Donald Trump), heads of state (Iceland president Ólafur Grímsson, Rwanda president Paul Kagame, Pakistan president Pervez Musharraf, Ireland president Mary Robinson) United States Supreme Court justices (Stephen Breyer, Ruth Bader Ginsburg, Sandra Day O'Connor), Secretaries of State (Madeleine Albright, James Baker, John Kerry, Colin Powell), Environmental Protection Agency administrators (Lisa Jackson, Gina McCarthy, Scott Pruitt, William Reilly), Federal Bureau of Investigations director Robert Mueller, General David Petraeus, First Lady Michelle Obama, oilman T. Boone Pickens, Jordan's Queen Noor, Attorney General Jeff Sessions, actor Kevin Costner, and sportscaster Bob Costas.

Aaron hosts "The Energy Roundtable ™" focused on issues related to energy and the environment. With his singular background as a former consultant to the US Department of Energy, the Federal Energy Regulatory Commission, and the US Energy Information Administration, as well as being an energy royalty owner and having done academic work in the energy arena, Aaron is uniquely qualified to address energy-related issues at a level not normally seen in journalistic fields. "The Energy Roundtable" series has featured over 300 shows and more than 400 guests. No other broadcast television series has featured more energy-related programs in the history of the United States than "The Energy Roundtable."

Aaron also was an elected member of the Board of Trustees of Princeton University where he served as a member of Princeton's Department of Civil & Geological Engineering's Advisory Committee.

OLATUNBOSUN AFOLAYAN
Young Professionals Exemplary Service Award

Citation—To Olatunbosun Afolayan for her excellent commitment to the growth of Young Professionals in Africa Region, emergence of newer young leaders, outstanding leadership skills and being a tireless AAPG ambassador.

Olatunbosun Afolayan had her early education in Lagos State before proceeding to the University of Ilorin both in Nigeria, where she graduated with the departmental prize for outstanding student with a B.Sc. (Hons) in geology and mineral science in 2003. Since then she has continued to acquire more knowledge with a post graduate degree in petroleum geoscience through the Robert Gordon University Aberdeen/Shell Intensive Training program, she is an alumna of the China Europe International Business School, Women in Leadership and Entrepreneurs in Africa, and currently a student at Harvard University.

She has 12+ years' experience working with Shell as a production geologist and worked prior in the economic geology and mining industry and the financial (banking) sector. Her technical expertise is across unitization and equity determination, front end studies, reservoir and field development, and asset management with experiences across land, swamp, shallow and deep offshore assets in the Niger Delta basin.

Without any formal leadership training, Tunbosun stepped into the role of the pioneer AAPG Africa Region (AR) Young Professional lead the same year and was invited for the AAPG Student Chapter Leadership Symposium (SCLS) and Leadership Day in Tulsa,

Oklahoma. There she met with Nosa Omorodion, the AR president at the time and together they laid the foundation of what the future will be like for young professionals (YP) on the Africa region.

The YP activities commenced the same year at the AAPG Deepwater Offshore West Africa conference. The year 2012 recorded more success with a collaboration with Nigerian Association of Petroleum Explorationists (NAPE) with pioneer activities such as YP Career Mentoring Session, YP NAPE Basin Evaluation Competition, Barrel Odyssey activity, YP Meet-N-Greet, Exciting World of Geology teaching kit, under the able leadership and sponsorship of Gilbert Odior, She was also involved in the teaching of this kit through organizing "train the trainer" sessions at conferences for student leaders who then go back to their various school community and teach these to younger students. This simple yet thoughtful educational series have been deployed to over 200+ schools in Africa through visitations, conferences, workshops and YP/Students' chapter activities.

A significant number of the current YP in AAPG AR and their leaders are alumni of the L-SCLS. She transitioned into the role of the Regions Student Chapters activities coordination in 2015 and continued the legacy of Femi Esan. Together with the AAPG AR team, she championed the inclusion of four other countries (Ghana, Uganda, Kenya, and South Africa) outside of Nigeria to partake in the L-SCLS, a 100% sponsored AR event.

Under her able leadership, the intensive geoscience and leadership student workshop was birthed and able to reach more than 12 universities across different zones. All these activities are still active, and they continue to play leading features at annual conferences. If there is one thing to remember about Tunbosun, it will be that she made leaders of all she comes in contact with. None of her positions were without able and ready successors. She continues to play in various active and leadership roles in organizations such as SPE, NAPE and AAPG.

Emmanuel Titus

LOW WAN CHING

Young Professionals Exemplary Service Award

Citation—To Low Wan Ching for her enthusiastic and dedicated service to the Young Professional Community and for her passion for becoming a successful oil finder.

Low Wan Ching grew up in the oil town Miri, Sarawak, where she spent most of her time trekking outdoors and playing tennis. She is still an active social tennis player and just recently won the Tennis Premier League champion for her club in Malaysia. Wan Ching received her B.Sc. in applied geology from Curtin University, Western Australia in 2009 and M.Sc. in petroleum geoscience from Royal Holloway, University of London in 2015. She was part Royal Holloway's winning team in the 2015 AAPG Imperial Barrel Award. She is currently based in Kuala Lumpur, Malaysia as an exploration geoscientist of 8 years' experience with PETRONAS (National Oil Company of Malaysia).

She is currently attached to New Ventures, which she has evaluated offshore Brazil, United Arab Emirates, Eastern Canada, New Zealand, United Kingdom North Sea, Alaskan North Slope, Malaysia. Previously she was a well site geologist for shallow water & deep-water wells in Malaysia.

Wan Ching is the founder and current president for AAPG Young Professionals (YP) Kuala Lumpur (KL) chapter and currently serves as the YP representative for the Asia Pacific region. Wan Ching founded the AAPG YP KL chapter in July 2013, organizing the "10 Habits of Highly Successful Oil Finders" talk for the inaugural meeting. Ever since, she has helped AAPG YP KL chapter to organize regular monthly free technical talks and workshops for the YPs and students in KL, inviting technical experts from all over the world.

Wan Ching is also active in the Visiting Geoscientist Program where she has visited universities in Malaysia to give talks to the students.

In addition, Wan Ching strongly supports the AAPG publications pipeline initiative working with Tan Chun Hock to secure sponsorship for shipping 8 tons of geosciences technical publications and books to benefit four Malaysian universities.

Wan Ching's volunteer work with AAPG has been a tremendous learning experience for her and has turned into a passion for her, especially when comes to helping students and mentoring young professionals. She credits her current broad career opportunities to the mentors, knowledge sharing, and global networking she has experienced in AAPG. Now a mentor herself Wan Ching strongly encourages geosciences students and YPs to join AAPG and realize the benefits of staying AAPG members throughout their careers.

Robert Shoup

JAMES HUNTER LOCKHART II
Young Professionals Exemplary Service Award

Citation—For his commitment to the Gulf Coast Section Young Professionals. His passion for representing his peers drives his efforts to tirelessly work on their behalf.

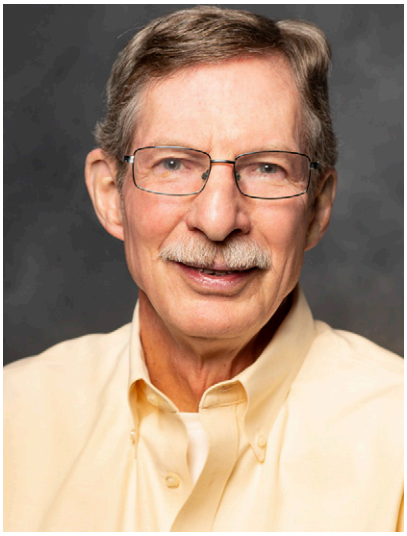
Hunter Lockhart is, like many others, an "accidental" geologist. A seventh generation Texan born in Dallas, his plan was always to study finance at an east coast university. However, a budding mentorship with his uncle convinced him to pursue a career in industry. While he matriculated at Texas A&M University as a petroleum engineer, his introduction to geology convinced him to immediately transfer into the geosciences.

Hunter completed his graduate studies at Rice University, where he developed an interest in sequence stratigraphy. During this time, he worked on the Great Australian Bight basin at BHP as an intern, which subsequently led to full-time employment.

Since joining BHP, Hunter has held a number of roles both international and domestic, where he has honed his geologic skills across four continents and nine different basins while contributing to two major play-opening discoveries. Most recently, he served on the acquisitions and divestitures team at BHP, where he played a leading role in the $10.8 billion divestment of BHP's shale portfolio.

A member of AAPG since 2009, Hunter has held many roles in the organization, including Sponsorship Chairman of the Centennial ACE, member of the House of Delegates, and Chairman of the Gulf Coast Young Professionals.

Landon Lockhart



CHUCK CAUGHEY
Vlastimila (Vlasta) Dvořáková International Ambassador Service Award.

Citation—For sustained contributions to AAPG programs that promote education and professional development of diverse groups of students and geoscientists worldwide.

Charles A. Caughey — Chuck or "Pak Chuck" to AAPG friends — earned a B.S. degree with Honors in geology from The University of Texas (UT) at Austin and, after 2 years in the US Army, received an M.A. degree in geology, also from UT Austin. He is a Certified Petroleum Geologist.

Chuck held various technical and managerial roles with Conoco, Louisiana Land and Exploration Company, Valence Operating Company, Gulf Resources (Indonesia), ConocoPhillips Indonesia, ConocoPhillips (Houston) and Noble Energy. Along with his technical work, Chuck mentored and trained

young professionals and directed graduate studies for students from Indonesia and Iraq.

Chuck previously received awards from AAPG, GCAGS/SEPM, Houston Geological Society, and the Indonesian Petroleum Association. He has served on and chaired diverse AAPG committees and organized numerous AAPG Student Chapters at Indonesian universities. He has led field trips, presented and published numerous technical papers, and organized conferences in the United States, Jakarta, Bali, Jordan, and Turkey. While organizing the Bali 2000 ICE, he and others seized the opportunity to expand in Southeast Asia and make AAPG truly international by creating Regions to complement United States Sections.

Chuck is an instrument rated commercial pilot. He participates in outreach programs to encourage interest in geosciences and STEM through the Houston Geological Society and UT Austin. His current AAPG interests are the Imperial Barrel Award and Publications Pipeline, coordinating donations of technical publications to 21 universities in the Asia-Pacific, Africa, and Middle East Regions (maintaining strength by lifting heavy boxes of books!).

Throughout his career and nearly 50 years with AAPG, Chuck has dedicated significant time to programs developing students and young professionals internationally and growing the cultural and ethnic diversity of our industry. He is truly a global ambassador for AAPG in the spirit of its namesake, our friend Vlasta, and is highly deserving of this award.

Gretchen Gillis and Dave Cook

KURT W. RANDOLPH
Wallace E. Pratt Memorial Award

FRANK J. GOLDING
Wallace E. Pratt Memorial Award

The Wallace E. Pratt Memorial Award for the best paper published in the *AAPG Bulletin* is presented to Kurt W. Randolph and Frank J. Golding for "Benchmarking exploration predictions and performance using 20+ yr of drilling results: One company's experience" (*AAPG Bulletin*, v. 101, no.2, p. 161-176).

Risking and volumetric assessment are primary means by which the industry quantifies upstream technical analyses. It facilitates forecasting, acreage acquisition, and drilling decisions. Comparison of predrill predictions to drilling results also provides an audit of technical work and assessment practices.

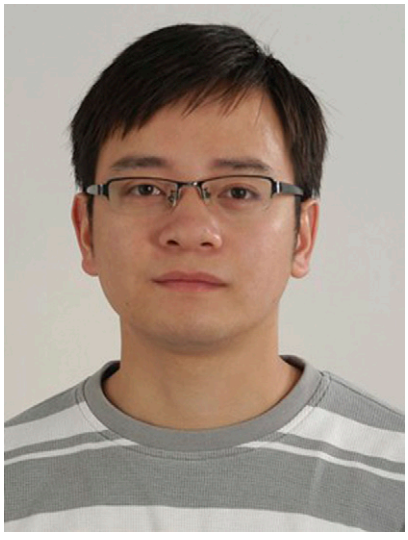
We have evaluated 22 years of exploration predictions comprising over 500 rank exploration wildcats. Including all wells, risking and volume predictions were objective. Predrill predictions overall differentiated between high- and low-risk prospects and large and small volumes. However, individual wildcat volumes and prospect parameter predictions had significant uncertainty, with a lognormal distribution. Exploration play maturity strongly influenced performance. New play tests had a lower success rate but very large success case volumes. Chance of success increased and prospect success case volumes decreased with play maturity. For very mature plays, success rate decreased again. Trap and seal failure accounted for about half of all dry holes. However, source, maturation, and migration are the most important risks for play tests and extensions. Two seismic technologies were associated with

success rate differences. Wildcats drilled based on three-dimensional seismic data had 10%–15% higher success rate than those based on two-dimensional data. Direct hydrocarbon indicator (DHI) based prospects had about double the success rate of non-DHI prospects and were also over-risked. Although it can be misleading to use previous performance as an indicator of future results, benchmarking geoscience analysis with historical outcomes is useful to audit technical work, identify areas for improvement, and guide future predictions.

Kurt Rudolph received a B.S. in geology from Rensselaer Polytechnic Institute and an M.A. in geology from the University of Texas. He began his career as an exploration geologist with Unocal in 1978, until he joined Exxon in 1981. He held a variety of positions in Exxon/ExxonMobil in research, production, and exploration. From 2002 until his retirement in 2015, he was chief geoscientist with ExxonMobil Exploration Company in Houston. Since then, Kurt has been an adjunct professor at the University of Houston and Rice University. His interests include seismic attributes/DHI analysis, risking and assessment, sequence stratigraphy and the role of tectonics in sedimentation. Kurt won the Wallace Pratt Award for the best *AAPG Bulletin* paper in 1994, was an AAPG-SEG Distinguished Lecturer for 2001-2002, was the AAPG Michael Halbouty Lecturer for 2007, and won best paper award for the *Mountain Geologist* (Rocky Mountain Associations of Geologists) in 2015.

Frank J. Goulding has worked in petroleum geoscience for 30 years in a variety of exploration, development, production, and research assignments and has worked most petroliferous basins worldwide. He graduated from the University of Calgary (geophysics) in 1987. His interests include seismic interpretation and response to hydrocarbon, stratigraphy, plus production and development geoscience.

Frank joined Imperial Oil in 1987 and has spent his entire career at ExxonMobil/Imperial Oil. He joined Imperial Oil, Calgary and worked the Western Canada Sedimentary Basin and Beaufort Sea. He then transferred to Exxon and dominantly worked West Africa Exploration including an assignment in Lagos. Since then he has had various senior technical positions in development and production and is currently chief geoscientist for ExxonMobil.



YUANJIA HAN
J. C. "Cam" Sproule Memorial Award

SYLVAIN BERNARD
J. C. "Cam" Sproule Memorial Award

The J. C. "Cam" Sproule Memorial Award, presented to the author(s), age 35 or younger at the time of submittal, in recognition of the best paper published by the Association or any affliated society, division, or section, is awarded to Yuanjia Han and Sylvain Bernard for "Oil retention and porosity evolution in organic-rich shales" (*AAPG Bulletin*, v. 101, no. 6, p. 807-827).

This article aims to decipher the genetic relationship between oil retention and porosity evolution within organic particles, i.e., kerogen, mainly for two shales, the Mississippian Barnett Shale (Texas, United States) and the Toarcian Posidonia Shale (Lower Saxony, Germany). These two shale successions are famous for being the classic examples of Type-II marine source rocks. In both cases, oil retention and porosity evolution are strongly related to changes in kerogen

density brought about by swelling and shrinkage as a function of thermal maturation. With increasing maturity, the oil retention ability of kerogen first increases until the maximum retention ability is exceeded at T_{max} of about 445°C (0.8% R_o). Afterwards, the cracking and releasing of bulk hydrocarbon moieties from kerogen structures at approximately 0.8% R_o most likely leave behind a more rigid kerogen residue, and meanwhile, the secondary organic pores were formed. We believe that our observations and synthesis with key literature are consistent with organic pores being formed by the shrinkage of kerogen, beginning for type II source rocks at approximately 0.8% R_o. This hypothesis may help to define the maturity threshold between shale oil and shale gas resources. This study is part of project "GASH—Gas Shales in Europe," which was initiated and led by Brian Horsfield.

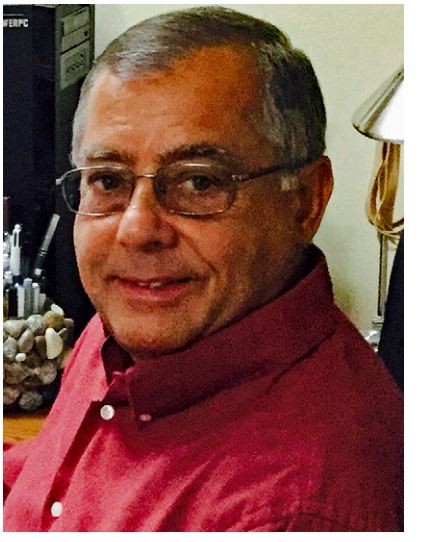
The co-authors of this paper are Brian Horsfield, Richard Wirth, and Nicolaj Mahlstedt.

Yuanjia Han is a junior professor at the China University of Geosciences. He gained his Ph.D. from the Technical University of Berlin in 2016 under the supervision of Brian Horsfield with a specialty in shale oil system analysis. His scientific interests include petroleum generation-retention and expulsion-migration, organic pore evolution, oil-reservoir and source correlation, and shale diagenesis processes. The evaluation of oil-in-place and producibility in shale oil resources of the United States and China are presently the key activities in research.

Sylvain Bernard is a mineralogist and geochemist who started to work on unconventional shale gas hydrocarbon systems in 2009 as a postdoctoral fellow at the GFZ (Potsdam, Germany). He now continues investigating the geological cycle of organic carbon as a permanent Centre National de la Recherche Scientifique researcher at Institut de Minéralogie, de Physique des Matériaux et de Cosmochimie (Paris, France), using an original combination of spectromicroscopy techniques, including cutting edge synchrotron-based tools.

MICHAEL GRAMMER
John W. Shelton Search and Discovery Award

JIM KARSTEN
John W. Shelton Search and Discovery Award



DENNIS R. PREZBINDOWSKI
John W. Shelton Search and Discovery Award

ALEJANDRA SANTIAGO TORRES
John W. Shelton Search and Discovery Award

BENJAMIN DATTILO
John W. Shelton Search and Discovery Award

JONATHAN HAVENS
John W. Shelton Search and Discovery Award

Michael Grammer, Jim Karsten, Dennis R. Prezbindowski, Alejandra Santiago Torres, Benjamin Dattillo, and Jonathan Havens received the John W. Shelton Search and Discovery Award for the most outstanding contribution to the AAPG Search and Discovery website titled "Reservoir Characterization and 3D Modeling of Silurian Reef Slopes: Pipe Creek Jr. Quarry, Grant County, Indiana."

G. Michael Grammer is a professor and holds the Chesapeake Energy Endowed Chair of Petroleum Geology at Oklahoma State University. Mike received his Ph.D. in 1991 from the University of Miami's Rosenstiel School of Marine and Atmospheric Science and has more than 30 years of industry-related experience in carbonate reservoirs, sequence stratigraphy and carbonate reservoir characterization. His current research interests involve the various aspects of high-resolution sequence stratigraphy and its application to carbonate reservoir characterization, 3-D modeling and petrophysical characterization. He has been an AAPG Distinguished Lecturer (2002-2003) and has led several AAPG field courses, including AAPG's modern carbonate course in the Bahamas which he co-led for 14 years. He has published extensively on carbonate reservoir characterization issues, including as lead editor of AAPG Memoir 80 *Integration of Outcrop and Modern Analogs in Reservoir Modeling*, which won AAPG's Robert H. Dott Sr. Memorial Award for best special publication in 2006. Mike's industry-related experience includes senior research positions with Texaco and ChevronTexaco where he functioned as an internal consultant and instructor on carbonate reservoir characterization issues in various parts of the world, most notably with super-giant fields in Kazakhstan. He has consulted, presented short courses and led field trips for AAPG, Nautilus, and PetroSkills, as well as numerous domestic and international petroleum companies. He was an associate editor for the *Journal of Sedimentary Research* from 2002-2017 and lead editor on a recent Geological Society of America special publication titled *Paleozoic Stratigraphy and Resources of the Michigan Basin*. Mike's research group at Oklahoma State University averages about 7-9 students with a mix of M.S. and Ph.D. students, combined with

undergraduates and post-docs. In addition to the technical fundamentals of carbonate systems, Mike works extensively with his students to develop their written and oral communication skills. Grammer's students have presented more than 100 papers at professional conferences over the last 10 years.

Jim Karsten received his B.S. in geology from Calvin College in 2015 and is currently a master's student in the Boone Pickens School of Geology at Oklahoma State University. He is part of the Integrated Carbonate Reservoir Characterization group with Mike Grammer and his work involves the reservoir characterization of the marginal slopes of a Silurian reef exposed in the Pipe Creek Jr. quarry in Indiana. He was a hydrogeology intern at SES Environmental from May 2015 to June 2016 and a geoscience intern at Wolverine Gas & Oil during the summer of 2018.

Dennis R. Prezbindowski is a Certified Professional Geologist (#07682) and a Certified Petroleum Geologist (#4399) with more than 40 years of worldwide, industrial, business, academic and research experience in the exploration and development of oil and gas reservoirs, independent oil producer, carbonate geology, shallow geophysics and environmental projects. He has also served as a project leader for large multi-company geological rearch and consulting projects. He was responsible for project planning, data collection, evaluations, report writing, and presentations. He holds a B.S. degree in geology from Indiana University Fort Wayne (1973), an M.S. degree in geology from Michigan State University (1974), and a Ph.D. in sedimentary geology from The University of Texas at Austin (1981). He was research geologist and senior research geologist with Amoco Production Company from 1979 to 1985; principle geologist with International Petrology Research, Inc. from 1985 to 1987; senior research associate with Texaco Upstream Technology Center; and principle consulting geologist with Petroleum Consulting, Inc.

Alejandra Santiago Torres is a current master's student at Oklahoma State University. She was born and raised in Puerto Rico and she earned her B.S. degree in geology with a minor in gender studies at the University of Puerto Rico-Mayagüez in January 2017. As an undergraduate student, she completed internships with the United States Geological Survey as well as with Oklahoma State University (OSU). Alejandra has conducted field research in various fields of geology including tectonics and structural geology as well as carbonate sedimentology and stratigraphy. For her senior thesis she focused on the aspects of carbonate diagenesis and its effect on reservoir properties which sparked her interest in the oil and gas industry. This led her to move to Oklahoma to work with Michael Grammer in his Integrated Carbonate Reservoir Characterization Group. For her master's thesis, Torres is looking into the significance of microbial binding in the formation and stabilization of carbonate forereef slope deposits exposed at Pipe Creek Jr Quarry, Indiana. During the summer of 2018 Torres interned at ExxonMobil in Houston where she worked with the Exploration Company in the Brazil New Opportunities team. She will return as a full-time geoscientist at ExxonMobil following the completion of her degree in the summer of 2019. Currently she is the president of the Association for Women Geoscientists student chapter at OSU as well as the vice president of the AAPG student chapter.

Dr. Benjamin Dattilo is an associate professor of geology at Purdue University Fort Wayne where he has taught geology, sedimentology and paleontology since 2007. His research emphasis is in carbonate and mixed carbonate-shale systems in the midcontinent Paleozoic with emphasis on process sedimentology, high resolution stratigraphy, and petrology. He received his Ph.D. in geology from the University of Cincinnati in 1994, and has taught at Weber State University, the University of Nevada Las Vegas, and Alice Lloyd College. He received his B.S. and M.S. degrees in geology from Brigham Young University in 1986 and 1988 and his Ph.D. in geology from University of Cincinnati in 1994.

Jonathan Havens was raised and educated in Indiana and his entire professional career in geology has taken place in Indiana and (to some extent) the surrounding states. His

first professional employment was with the Indiana Department of Transportation (INDOT) as the Fort Wayne district geologist. While there, he was charged with ensuring that geologic materials (sand, gravel, crushed stone and slag) proposed for construction aggregates for INDOT projects met the appropriate specification requirements for the intended use of that material. Although his work at INDOT was focused on material quality properties, he was also introduced to many sources of geologic materials around the state. Much of his work in northeastern Indiana acquainted him with Silurian reef quarries, which are particularly good sources of construction aggregate. They are also of personal interest to him – as paleontology has always been his passion. Havens has spent the last 33 years working in and around Silurian reefs. During those years, he maintained relationships with several of his former college professors and built new relationships with a variety of other professional and research geologists. It was because of his involvement with these researchers that he was fortunate enough to be a part of the group working on the Pipe Creek Jr reef project. Today, Havens still works with material quality issues as the senior geologist for Irving Materials, Inc. This work allows him to continue to work in and around the great Silurian reefs of northeastern Indiana. He earned a B.S. in geology from Indiana University-Purdue University at Fort Wayne in 1984.

AYRAT GIZZATOV
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 Ayrat Gizzatov for "Interaction of surfactants at nanoscale with water-wet and oil-wet calcite surfaces at reservoir conditions."

The co-authors of the presentation are Mohammed Kawelah, Shehab Alzobaidi, Gawain Thomas and Amr I. Abdel-Fattah.

This work demonstrates the use of quartz crystal microbalance and confocal laser scanning microscope to investigate the interaction of in-house surfactant formulations with water-wet and oil-wet flat calcite surfaces at the nanoscale. Among the findings of this work is that linear surfactant containing formulations tends to stay adsorbed in micellar form even then the solution is diluted with seawater, while the branched surfactant containing formulation adsorbs first as micelles but break into adsorbed layered molecules upon dilution with seawater.

Ayrat Gizzatov is a research scientist in the Reservoir Engineering Technology Division at the Aramco Research Center – Boston, Aramco Services Company. Since joining the Boston team in 2015, he has been extensively involved in developing low-cost chemicals and technologies for applications in improved oil recovery and in detailed understanding of interaction of chemicals with reservoir rocks at nanoscale. Gizzatov is also evaluating the integration of microfluidics screening technologies and other advanced characterization methods to facilitate processes involved in the development of field chemicals. Gizzatov has authored and co-authored 7 high-impact peer-reviewed publications and more than 20 conference presentations. He received his B.S. degree in chemistry from Fatih University, Istanbul, Turkey, and his Ph.D. in chemistry from Rice University.

TOTI LARSON
Jules Braunstein Memorial Award

BENJAMIN P. SMITH
Jules Braunstein Memorial Award

NICHOLAS P. ETTINGER
Jules Braunstein Memorial Award

The Jules Braunstein Memorial Award for the best poster presented at the AAPG Annual Convention and Exhibition is presented to Toti Larson, Benjamin P. Smith, and Nicholas P. Ettinger for their poster "From carbonate factory collapse to recovery: Insights through box modeling of carbon isotope excursions of oceanic anoxic events (OAEs)."

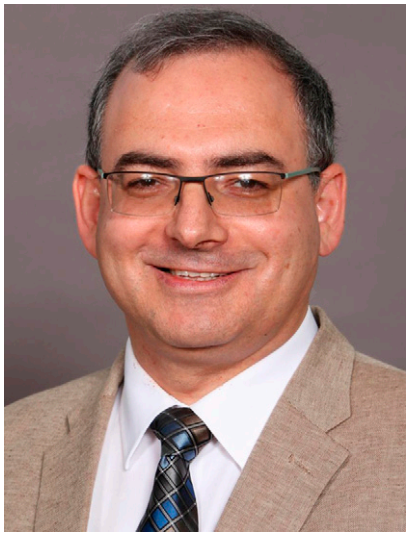
Ocean anoxic events (OAEs) resulted from unique atmospheric/oceanic disturbances that dramatically altered the global carbon budget and left behind a sedimentation record of organic-rich black shales draped across continental shelf margins. Important to oil and gas development, OAEs are associated with economic source rocks around the globe. Following OAE's global/local oceanic conditions recovered and the organic-rich black shales are often overlain by higher porosity carbonate reservoirs. Here, a mass balance modeling approach that accounts for the carbon and phosphorous budget in the atmosphere, and shallow and deep oceans (*i.e.*, box models) is used. The primary objective is to better understand mechanisms that changed oceanic chemistry and ultimately led to the collapse and recovery of carbonate factories on the Comanche Platform during the Cretaceous.

Toti Larson is a geochemist at The University of Texas at Austin Bureau of Economic Geology. His research focuses on the chemostratigraphy of sedimentary rocks and the geochemistry of subsurface fluids. His research couples geochemical measurement with numerical modeling and geostatistics to interpret mud rock and carbonate systems. Larson earned his B.A. in geology, Albion College, Department of Geological Science in 1993; his M.S. in geology from the University of New Hampshire, Department of Earth Sciences in 1999; and his Ph.D. in geology from the University of New Mexico, Department of Earth and Planetary Sciences in 2003.

Benjamin Smith is a Ph.D. student working in the Reservoir Characterization Research Lab at The University of Texas. He received his B.S. in geological sciences from The University of Texas in 2014. His primary research interests include carbonate and evaporite sedimentology and stratigraphy. He was an intern at Roxana Oil Company in the summers of 2013 and 2014, and an intern at ExxonMobil during the summer of 2015.

Nicholas P. Ettinger is a geologist at Equinor ASA, currently based in Oslo, Norway working in the international exploration group. He earned an B.Sc. (Hons) in geological sciences at Queen's University (2015) and an M.Sc. in geological sciences from The University of Texas at Austin (2017).

RUI ZHANG
SEG/AAPG Best Paper in *Interpretation* Journal Award



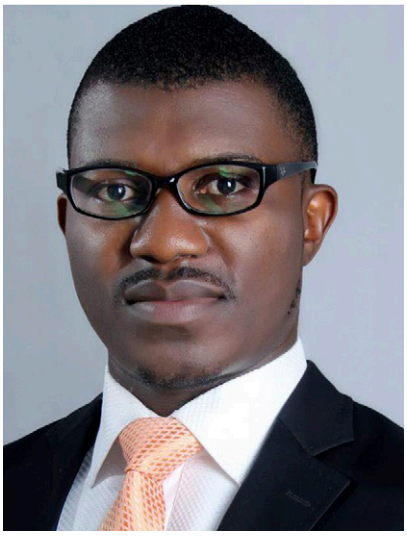
SERGEY FOMEL
SEG/AAPG Best Paper in *Interpretation* Journal Award

Rui Zhang and Sergey Fomel have been recognized for their authorship of the best paper published in the SEG/AAPG *Interpretation* journal titled "Time-variant wavelet extraction with a local-attribute-based time-frequency decomposition for seismic inversion" (*Interpretation*, v. 5, no. 1, p. 1F-T141).

Seismic impedance inversion has been widely used to estimate subsurface properties. Conventional inversion assumes that seismic data are the convolution result of seismic wavelet and reflectivity, implying that seismic data are stationary when a constant wavelet is considered. However, seismic data are nonstationary because of noise contamination and attenuation during wave propagation, which means that the frequency spectrum of the seismic signal changes from shallow to deep formations. We have developed a time-variant wavelet extraction method by using a local-attribute-based spectral decomposition technique. Time-variant wavelets are generated according to the local frequency spectrum, which can be used to construct a time-variant wavelet kernel matrix. By using this time-variant kernel matrix, we can obtain a better correlation between synthetic and extracted seismograms than by using constant wavelet on a field data example. Using this example, we have also compared the time-variant and constant wavelets for inverting the field data to estimate subsurface acoustic impedance. Our results showed improved resolution and a better fit to well-log-measured impedance by using the time-variant wavelets.

Rui Zhang received his Ph.D. in geophysics in 2010 from University of Houston. After that, Zhang had done two postdocs at The University of Texas at Austin and Lawrence Berkeley National Laboratory. Zhang joined the University of Louisiana at Lafayette as an assistant professor. His research interests are focusing exploration geophysics and expertise in seismic inversion for reservoir characterization.

Sergey Fomel is Wallace E. Pratt Professor of Geophysics at the Jackson School of Geosciences, The University of Texas at Austin, with a joint appointment between the Department of Geosciences and the Bureau of Economic Geology. He is a co-founder and director of the Texas Consortium for Computational Seismology (TCCS). Formel received a Ph.D. in geophysics from Stanford University in 2001 and worked previously at the Institute of Geophysics of Russian Academy of Sciences (Siberian Branch) and the Lawrence Berkeley National Laboratory. He received a number of professional awards, including the J. Clarence Karcher Award from SEG in 2001 and the Conrad Schlumberger Award from EAGE in 2011. Sergey devotes part of his time to developing "Madagascar," an open-source software package for geophysical data analysis.



CHRISTOPHER ASUQUO JACKSON
Gabriel Dengo Memorial Award

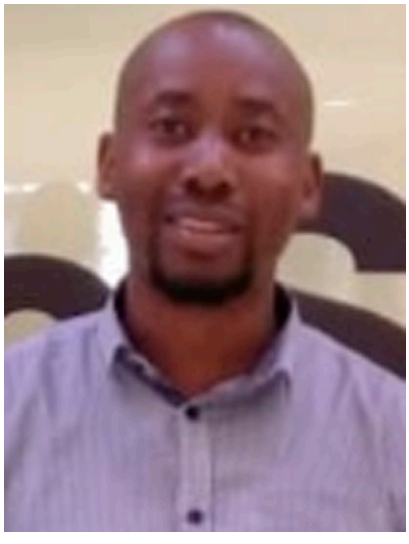
The Gabriel Dengo Memorial Award is given each year in recognition of the best paper presented at the previous year's AAPG International Conference and Exhibition. This year, the award is presented to Christopher Asuquo Jackson for "Integration of the effects of bioturbation on reservoir quality into reservoir modeling of CREEK Field, Niger Delta Petroleum Province."

Core data from 12 wells across the Niger Delta were described and analyzed. A comparative study of five wells from five fields in both the Central Swamp and Coastal Swamp depobelts of the Niger Delta was carried out to investigate the variation in the abundance and diversity of ichnofossils, with the aim of assessing the intensity of bioturbation and their corresponding impact on reservoir quality and hydrocarbon volume. The work focused on the integration of ichnology, sedimentology and sequence stratigraphy and integrated reservoir modeling. The workflow included detailed sedimentological description of cores and collation into lithofacies, lithofacies association and depositional environments, ichnological studies. The ichnological studies concentrated on grouping of trace fossils identified into ichnofacies viz: Skolithos, Cruziana and Zoophycos; interpretation of depositional environments and reservoir characterization. The intensity of bioturbation expressed as a "coefficient of bioturbation" was also quantified. Core gamma alongside core plug porosity and permeability displayed using WellCAD software was integrated with wire-line logs, biostratigraphic and seismic data using the PETREL software. Sequence stratigraphic and reservoir correlation were done while the facies, porosity, and permeability obtained were upscaled into a three-dimensional (3-D) static model. Results showed that clean sandstones of the upper shoreface and tidal channels have very good to excellent porosity and permeability when not bioturbated. However, in these environments, the effect of intense bioturbation (by *Ophiomorpha* and *Asterosoma*) tended to reduce the reservoir quality appreciably. In the heterolithic lithofacies of the distal middle and lower shoreface deposits and upper sections of tidal channels, intensely bioturbated horizons (muddy sandstone facies with clean sand-filled burrows, e.g. *Thalassinoides* and *Planolites*) were found to possess higher poroperm than sparsely burrowed intervals. This work revealed that bioturbation can either reduce or increase permeability and porosity. Therefore, the petrophysical property of the reservoir lithofacies are also dependent on trace fossil type(s), presence or absence of burrow linings, burrow fills, burrow size and the degree of bioturbation in different environments of deposition. Bioturbation modeling was introduced as a new concept to factor-in the effects of bioturbation intensity on petrophysical properties into a 3-D static model and the resultant impact on hydrocarbon volume calculations along with the routine facies model and petrophysical model. Hence, the integration of the effects of bioturbation on poroperm into static model (i.e., the concept of bioturbation modelling) as an improvement in reservoir modeling with the view to close uncertainty gaps in reserve estimation is imperative. This work was the first to introduce the "concept of bioturbation modeling" in the entire Niger Delta petroleum basin that takes ichnological studies from qualitative description and interpretation to quantitative interpretation and application in integrated reservoir modelling with the aim of evaluating the effects on hydrocarbon volume in-place.

Michael N. Oti, Ayonma Wilfred Mode, Peter Osterloff, and George Pemberton are co-authors of this paper.

Christopher Asuquo Jackson was born in Esit Eket, Akwa Ibom State, Nigeria. He is a petroleum geoscientist/geomodeler with more than 13 years of cognate experience in oil and gas exploration, development and production and the academia. He is experienced in integrated petroleum geosciences cross disciplines and software viz: seismic interpretation and prospect evaluation, sequence stratigraphy, sedimentology, ichnology, reservoir geology, 3-D static modeling and volume calculation as well as well-site geology, drilling operations and completion, primarily in the onshore and offshore Niger Delta petroleum province and other Cretaceous inland basin in Nigeria, West Africa. Jackson was elected as the editor-in-chief of the Nigerian Association of Petroleum Explorationists (NAPE; 2019-2020) to chair the Editorial Board/Technical Committee saddled with the

responsibility of general supervision and final authority on all materials on technical subject for publication in NAPE Bulletin and other Special professional and petroleum business publications. He is a member of prominent professional bodies viz: active member of AAPG, active member of Geological Society of America, active member of Society of Exploration Geophysicists, corporate member of Nigerian Mining and Geoscience Society, and a graduate member of Nigeria Institute of Management-Chartered. He is an astute, proactive and goal-oriented leader and mentor that has held various leadership positions across professional, religious, and academic sphere.



GIVEN SKOSANA
Ziad Beydoun Memorial Award

The Ziad Beydoun Memorial Award is given each year in recognition of the best poster presented at the previous year's AAPG International Conference and Exhibition. This year, the award is presented to Given Skosana for "Reservoir prediction in the Ibhubesi gas field, block 2A, Orange Basin, West Coast of South Africa."

Identifying prospective reservoirs remains a challenge in oil and gas exploration and development ventures. The objective in this field is to assess and predict the reservoir geometry, distribution system, and the lateral extent of the individual identified reservoirs. The evaluation includes the application of different seismic attributes extraction, the analysis and selection of which models appropriately predict reservoir geometry as tied to the well.

Given Skosana is an exploration geophysicist, he joined PetroSA, Cape Town, head office in 2008. He started his career as a petrophysicist in the South Coast division. In 2012, he joined the exploration team and Schlumberger exploration center department as geophysicist focusing on identifying and maturing leads to drillable prospects, Bredasdorp Basin, south coast of South Africa. In 2015, he joined the development division focusing on near field and infill drilling opportunities. In 2017, he joined the West Coast division within PetroSA working as an exploration and development geophysicist in Ibhubesi gas field, Orange Basin, west coast of South Africa.

JOHN F. BOOKOUT JR.
L. Austin Weeks Memorial Medal

The L. Austin Weeks Memorial Medal is given in recognition of extraordinary philanthropy and service to advance the mission of the AAPG Foundation. The premier Foundation award honors the late L. Austin Weeks, whose philanthropic legacy set an exemplary standard. The award was established in 2008 and is the Foundation's highest award. Funding for the original award was provided through the AAPG Foundation Awards Fund. The 2019 recipient is John F. Bookout, Jr.

John F. Bookout Jr. has a long record of serving the petroleum industry and its related institutions. His tenure at Shell Oil Company lasted for nearly four decades, where he served as president and chief executive officer in Houston for 13 of those years. He continued to serve as a member of the Supervisory Board of Royal Dutch Petroleum Company and on the board and

executive committee of Shell Petroleum Inc., until 1993. Bookout also served as president and chief executive officer of Shell Canada. He has remained active in the oil and gas business as a direct investor and partnership participant with royalty and working interests in California, Montana, and Texas. From 1991 to 2007 he served as chairman of the board of directors of The Methodist Hospital, Houston, Texas, and continues to serve as senior chairman. He also serves on the board of directors of the Texas Medical Center. He is a member of the Council of Overseers for the Jesse H. Jones Graduate School of Administration of Rice University, an emeritus administrator of the Board of Administrators of Tulane University and served as a director of the National Action Council for Minorities in Engineering.

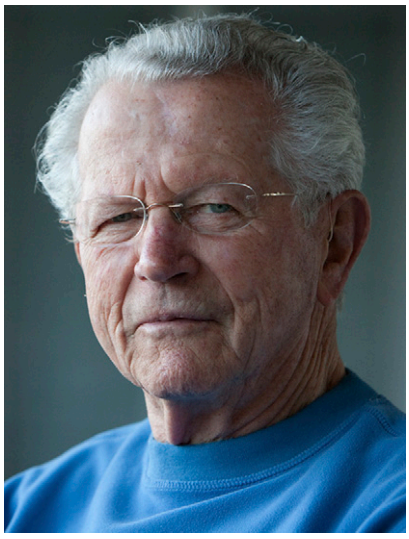
Bookout is a graduate of The University of Texas at Austin with B.S. and M.A. degrees, and he holds the honorary degrees of Doctor of Science from Tulane University and Doctor of Laws from Centenary College. He received the Distinguished Alumnus Award from The University of Texas, the Distinguished Graduate Award from The University of Texas Geology Foundation and was one of 16 inaugural members to be inducted to the Jackson School's Hall of Distinction at The University of Texas. He is a former chairman of the Board of Advisors of Texas A&M University's Institute of Biosciences and Technology and also served as a member on The University of Texas Centennial Commission's Research Task Force and on the Science Advisory Committee of Notre Dame University.

He served on the board of directors for the National Petroleum Council and the American Petroleum Institute (API) and has served as chairman of both. He has received numerous awards and recognition for his contributions to the oil industry. He is a recipient of the API Gold Medal for Distinguished Achievement. The *Wall Street Transcript* selected Bookout as their Gold Medal award recipient for 3 consecutive years for outstanding chief executive officer of a domestic integrated oil company. The *Financial World* gave him the CEO of the Year Award for 2 consecutive years, and *Forbes* magazine featured him in a front cover portrait article. In 1982, he received the Texas Mid-Continent Oil and Gas Association's Distinguished Service Award. He also received the 1986 Mr. Spindletop Award/Spindletop International, the 1987 American Society of Mechanical Engineers Petroleum Division (Oil Drop) Award, the 1990 AAPG award for "Excellence in Exploration Leadership" and the 1994 United States Energy Association's US Energy Award for lifetime contributions to energy. In 2001 he received the Offshore Energy Center's Industry Pioneer Award and was inducted into the Offshore Energy Center's Hall of Fame. The Southwestern Legal Foundation presented Bookout with the John Rogers Award for his contributions to the petroleum industry and to the betterment of the world community. In 2009 he was awarded the Houston Legends medal from the Texas Alliance of Energy Producers.

The Houston community, education, and philanthropic organizations have received his support. He served as director of Central Houston Inc. and of the Houston Chamber of Commerce, and he was a member of the Houston Economic Development Council and the Houston Private Sector Initiatives Committee. He was honored with the People of Vision Award by the Texas Society to Prevent Blindness for exceptional community service, the American Diabetes Association's Mankind Award and *Pro-Education* magazine's special recognition award for outstanding efforts between the private/public sectors of education. He also received the 1979 Distinguished Service Award from the National Association of Secondary School Principals for his significant contributions and outstanding service to American education. He served on the Steering Committee for the Houston School for Deaf Children, the Executive Board of the Boy Scouts of America, the Board of Directors of Science Engineering Fair and the Advisory Board of Directors of Trees for Downtown Houston. He has been a supporter of the Museum of Fine Arts, Bayou Bend and, through the Shell Foundation, supported the building of the Wortham Theatre Center. He was a member of the Policy Committee of the Business Roundtable, the Conference Board, Century III Leaders, a founding member of the

National Fish and Wildlife Foundation, and a Lifetime Member of the 1001 World Wildlife Fund.

Bookout received various medals of honor for his service as a pilot in the Army Air Force during World War II. He was inducted into the Veterans of Foreign Wars Hall of Fame and the Texas Aviation Hall of Fame in Galveston, Texas, where he is also a member of the Board of Stewards. He received the decoration of Commander in the Order of Oranje Nassau from the Netherlands government and was a member of the prestigious British-North American Committee, American side. Vice President George Bush presented him with a certificate of membership in The Fund for America's Future, and he received the President's Volunteer Action Award presented by President Ronald Reagan.



JOHN SILCOX
Chairman's Award

The Chairman's Award is the first award established by the Foundation and is given to extraordinary contributions (either monetary or service) to the AAPG Foundation and also to call attention to the role and value of the Foundation.

The Chairman's Award is given to remarkable people for their extraordinary support of the AAPG Foundation and its programs – in other words, it is a perfect descriptor of for the valuable and valued contributions made over the years by John Silcox.

It's no exaggeration to say that he literally was born into the industry. His father was a pioneer oil field chemist with Standard Oil Company of California (now Chevron) when Silcox was born in Whittier, California, on July 26, 1926. He moved with his family to Taft, California, when he was six months old, and together with his four siblings the family lived on a Standard Oil lease in a company house. Like his mother and father, the five children attended the University of California after attending grade school and high school.

Silcox received his bachelor's degree in geology from the University of California-Berkeley in 1951, and soon started his career with Standard Oil Company (Chevron) as a field geologist in southern California. He also had assignments in Washington, San Francisco, Bakersfield, Anchorage, and again in San Francisco at the company headquarters. Perhaps it was inevitable, but worth noting: Joining Standard in 1951 was the start of a long and successful relationship for both parties, with Silcox steadily rising through the ranks. In 1973 he was named vice president of exploration for Standard's Western Operations Inc. In 1980, he was promoted to exploration vice president for Chevron Overseas Inc.

In 1984 Chevron Corporation was formed after a merger with Gulf Oil Company, and Silcox was named president of Chevron Overseas Petroleum Inc., with responsibility for Chevron's worldwide production and exploration, directing operations in 30 countries and all continents except North America.

Later, as Chevron's representative on the multi-industry American Trade Consortium, he led negotiations with the Soviets and Republic of Kazakhstan over exploration and development of oil rights. As a result, the giant Tengiz oil field, in Kazakhstan, doubled Chevron's proven reserves.

He retired in 1990.

His association with AAPG and the Foundation has been equally as fulfilling, for both parties.

A member of AAPG since 1950, Silcox has been an AAPG Foundation Trustee Associate since 1990, serving in all Trustee Associates' leadership positions at various times through today. And that relationship reached a generous milestone in 2010, when he and his wife, Colleen, funded a Grant-In-Aid for the benefit of geoscience education – and the future of the Profession.

LAURA BRANCH
Teacher of the Year Award

The Teacher of the Year award is given for excellence in the teaching of natural resources in Earth sciences, K-12.

Laura Branch, an Advanced Placement environmental science, geology, and general science teacher from Ernest Righetti High School in Santa Maria, California, has been named the 2019 AAPG Foundation's Teacher of the Year.

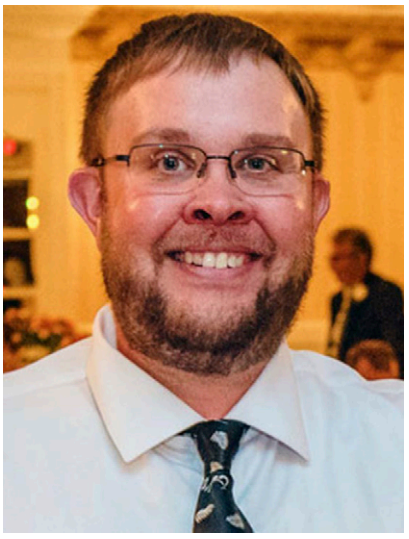
The Teacher of the Year (TOTY) award, funded and presented annually by the AAPG Foundation, is intended to honor and encourage excellence in geoscience education. Branch, who has taught high school earth science for 19 years, was chosen as the top teacher by a panel of national judges.

Upon being notified of the honor, Branch said, "I'm still in complete shock in being bestowed this honor. I have worked really hard to bring the craft of geology to my students over the years, and it's awesome to be chosen."

Branch describes her teaching position as a dream job. "I get to teach subjects I love to very talented students of all levels. I come to school each day with a smile on my face," she said. "I enjoy hearing when students decide to major in geology, petroleum engineering or environmental science."

The TOTY award includes a $6,000 cash prize, half allocated to Branch for her own personal use and the other half designated to Righetti High School for educational use under Branch's supervision. She also received an expense paid trip for two to the 2019 AAPG Annual Convention and Exhibition in San Antonio, Texas, in May to receive her award at the All-Convention Luncheon.

"Laura continuously incorporates her life experiences into her lesson planning," said Karen R. Rotondi, principal at Righetti High School, who says Branch "works extremely hard to ensure that her students receive the best hands-on and relevant projects and units … Nothing but the best for her kids."



BRETT CARPENTER
Inspirational Geoscience Educator Award

Brett Carpenter, an assistant professor in the School of Geology and Geophysics at the University of Oklahoma (OU) in Norman, Okla., has been named the recipient of the AAPG Foundation's 2019 Inspirational Geoscience Educator Award (IGEA).

The AAPG Foundation bestows the honor annually to a "college or university professor who has shown outstanding academic leadership and works to inspire the future of geoscience." The IGEA recipient is determined by the AAPG IGEA Committee, led by chair Cathy Hanks. The award includes a cash prize of $6,000 from the AAPG Foundation.

Upon notification that he had been named the 2019 IGEA recipient, Carpenter said that he was honored and grateful to the AAPG Foundation and to the group of students and colleagues who nominated him for the award.

Carpenter also recognized the "geoscience educators who inspired [him] along the way – Hobart King, Russell Dodson, Chris Marone, Cristiano Collettini, and Ze'ev Reches," who he said, "educated, challenged and inspired me throughout my academic career. They set the bar high for me and continued to move it higher as I approached it. I would not have been in a position to receive this award without them."

G.S. Lynn Soreghan, department chair of OU's School of Geology and Geophysics, points out that Carpenter's "specialty of rock mechanics and seismicity, with application to petroleum geology" and "issues around induced

seismicity" are an "enormous area of concern here in Oklahoma."

Furthermore, she said that Carpenter was "extremely proactive in organizing and convening international research drilling workshops aimed at planning research drilling projects to investigate induced seismicity," which were also "excellent for helping students network and become involved in research early."

Carpenter engages his classes with "design of hands-on exercises using apparatus to stimulate deformation and 3-D visualizations," she said, and often meets "personally with students to cover difficult concepts" and "provide abundant, constructive feedback on student research."

"Such attention to the educational aspects of our profession takes enormous time," Soreghan said, "but Brett is more than willing to invest that time and care. He possesses an energy and passion for geoscience and for geoscience education."

This year, Carpenter presented at the Oklahoma State University Colloquium on "Oklahoma Basement Primed for Seismic Reactivation," the American Association for the Advancement of Science's Annual Meeting on "Scientific Accomplishments at the San Andreas Fault Observatory at Depth," and was a featured guest on "Third Pod From the Sun" podcast.

In the summer, he takes the opportunity to instruct field courses and plans to co-instruct a physical geology summer program this year.

Carpenter has set high standards, not only for himself, but also for his undergraduate and graduate students to follow. He encourages his graduate students to mentor undergraduate students in their research projects. As a direct reflection of his own approach, Carpenter said of his students, "They inspire me every day."