## AAPG Honorees, 2021

### LESLIE B. MAGOON
**Sidney Powers Memorial Award**

*Citation*—To Leslie B. Magoon who conceived the Petroleum System concept and by collaborative integration of diverse ideas and codification of methodology shared his creative insight through publications, editing, and teaching.

The foundations for Les Magoon's contributions to petroleum geology began in the foothills of the California Coast Ranges. At Mt. Hamilton, a rustic camp, friends shared their skills in hunting and fishing with a young and eager Les. Those skills required collective efforts and a shared celebration of success. The personal attributes of persistence and cooperation with a friendly personality prepared Les for future success at Shell Oil Company, the US Geological Survey (USGS), and Stanford University marked by deep friendships, love of the outdoors, and shared joy in new scientific discoveries and shared accomplishments.

Correspondence from colleagues from several stages of Les' career reveals a set of attributes that led to success. These folks acknowledge that Les had a creative vision of how source rock geochemistry could impact resource assessment, a persistence in seeking clarity of concepts, and a collaborative approach to merging the appropriate elements and processes essential to constructing the petroleum system methodology.

Upon graduation from the University of Oregon in 1966, Les joined Shell Oil and was "challenged" to become a petroleum source rock expert because he had more chemistry than the other Shell geologists. Shell's expanding knowledge of petroleum geochemistry was developed by such luminaries as John Castano, Archie Hood, and John Smith. Les' role was to understand what the geochemists were learning and to move that knowledge from research to operations, applying the knowledge in exploration projects offshore California and in Rocky Mountain basins. In particular, Les's effective contribution to the Santa Barbara Channel OCS Sale was noted by Shell manager, Pete Rose.

In 1974, Pete Rose, then USGS Oil and Gas Branch Chief, hired Les to be part of the USGS resource assessment team working Alaska prior to the Federal OCS Lower Cook Inlet Sale. This work included field party effort to identify potential source rocks for the Cook Inlet oil and gas. Harry Cook, a field partner with Les, recalls Les' dedication to details, as well as a shared joy in the adventures of wilderness field work. Les' colleagues recall that in each of Les' scientific successes there was a sense of partnership in a collaborative effort.

This early Alaska work led to a series of publications in which source rock geochemistry played a significant role. Les moved on to work the North Slope of Alaska in 1977 as part of the National Petroleum Reserve in Alaska (NPRA) Team. Industry's interest in the source rock and fluid migration potential of NPRA led to a series of publications co-authored with George Claypool and Ken Bird. Ken writes, "In 1983 Les organized a research conference on Alaska North Slope Oil/Rock Correlation Studies involving 15 oil companies and 15 research or service laboratories each presenting their oil-to-source-rock correlation. The proceedings from that meeting were published in 1985 as AAPG's Special Studies in Geology 20." That assembly of geoscientists facilitated both an exchange of information and ideas and identified a network of folks with whom Les could test ideas.

Being involved in USGS resource assessments of "basin-scale" undiscovered oil and gas caused Les to realize " … how difficult it is

to incorporate geologic information into the assessment process … [and that] … it would be worthwhile to develop a scheme that would better serve our purposes." In 1986 Les discovered that Wallace Dow of Amoco and coworkers were also characterizing source rock generation and migration pathways within a basin-scale framework. The Dow-Magoon friendship led to sharing of ideas. Between 1987 and 1991, Les integrated elements of published research from Dow's "oil system," Perrodon's "petroleum system," Demaison's "generative basin," Meissner's "hydrocarbon machine," and Ulmishek's "independent petroliferous system." Les took his distillation of concepts on tour visiting many oil companies where technical talks and extended discussions helped him formulate his holistic petroleum system composed of geologic elements and geochemical processes.

The evolving petroleum system concepts merged into a methodology that required the rocks to be mapped as essential elements (source, reservoir, seal, and overburden rock) in order to understand the fluid system (generation and migration) in time and space. Les took early versions of this methodology "on-the-road-again" in talks and seminars only to find that different companies and individuals had markedly different definitions for essential terms. This began a quest for a shared glossary of petroleum system terminology, an exercise that required considerable persistence to overcome managerial resistance and terminological ownership. One term that exposed the challenge was the "critical moment," that interval of time during which petroleum is generated. The geologic time interval when a source rock is in the generative window and hydrocarbons are expelled is finite, and "frequently-in-the-past." Les found that many explorationists visualized this process happened only in the present.

In a series of 1987 to 1991 technical presentations, publications and an AAPG Distinguished Lectureship tour, Les progressively refined the petroleum system methodology. Of particular note was a 1991 petroleum system oral session, coconvened with Wally Dow, at the AAPG Annual Meeting, that provided industry wide exposure to the concept.

Through the diverse exchange of ideas across industry and research communities a collaborative effort was envisioned for *AAPG Memoir 60 The Petroleum System—From Source to Trap*. This volume consisted of the Magoon and Dow lead chapter defining the petroleum system methodology with a glossary and a folio sheet example, accompanied by a series of case histories authored by a broad spectrum of exploration and research geoscientists. As Allegra Hosford Scheirer mentioned in Les' 2017 AAPG Honorary Member biography, "Les spent countless hours writing and editing chapters of *Memoir 60*. Much of this work was accomplished at his Mt. Hamilton camp, his most favorite place since childhood, away from distractions of the office." The resulting volume was awarded the 1996 AAPG Robert H. Dott, Sr. Memorial Award for best publication. Many of the papers in the memoir have become classics in their own right.

As technical computing advanced, the petroleum system methodology evolved from a two-dimensional basin model to a three- and four-dimensional fluid flow model. As part of this evolution, Les, in 2001, was instrumental in forging a decade long, cooperative (USGS) government-industry project constructing a three-dimensional petroleum systems model of the public data-rich North Slope (and now, super) basin.

When in 2004 Les retired from the USGS, he joined as a cofounder the Stanford University Basin and Petroleum Systems Modeling Industrial Affiliates Program, another collaborative effort with Ken Peters and Steve Graham. Ken writes that Les " … played a key role in the widespread acceptance of computerized basin and petroleum system modeling … " At a recent AAPG annual meeting the geochemical session honored Les' contributions as speaker after speaker spoke directly to Les in the audience acknowledging how the multifaceted petroleum system integration of geologic and geochemical factors had significantly impacted their research and exploration.

Charles Hope (2001) states that " … the growth of knowledge [is] a cumulative and collaborative process." Les Magoon envisioned a better way to understand petroleum genesis and creatively organized the geologic elements and geochemical processes into the

petroleum system methodology. Having collaboratively involved a diverse user-group from exploration and research communities, Les demonstrated the foresight and perseverance to establish the now widely applied petroleum system concept for which he is receiving AAPG's highest honor, the Sydney Powers Memorial Award.

***John Armentrout***

**Response**

As a longtime member of our august society, the honor of being selected for the AAPG Sidney Powers Memorial Award was beyond my expectations. Undoubtedly, I was selected for this award because of the success of *AAPG Memoir 60 The Petroleum System—From Source to Trap* edited by myself and Wallace Dow. This twice reprinted sold-out volume published in 1994 is considered a classic by the AAPG bookstore. The concept and methodology espoused in this treatise came about with the input of many petroleum geologists and geochemists. For me, the evolution of this concept can be divided into three segments. The time before 1980 when I went on Deep Sea Drilling Project (DSDP) Leg 77. Next is the time between Leg 77 and publication of Memoir 60. Finally, the time since publication.

My undergraduate and graduate years of college were spent at the University of Oregon in Eugene where I received a B.S. in biology and M.S. in geology. Going from biology to geology was prompted by the course "Geologic History of Life." When I found out that one could get a good job in the oil industry as a geologist, my career path switch made a great deal of sense.

After graduation in 1966, I went to work for Shell Oil Company in Los Angeles in exploration as lead geologist in the first oil source and migration study to prepare for the 1968 OCS sale in the Santa Barbara basin. This choice assignment was given to me because my biology degree required more chemistry than other geologists and geophysicists. In addition to the excellent company training, I received personalized support from notable geoscientists like Archie Hood, John Castano, and John T. Smith. I was the first at Shell to apply new source rock techniques, such as spore colorization and vitrinite reflectance, to a real operational problem.

I continued this source rock work in the southern Rocky Mountains from Farmington, New Mexico, and then the northern Rocky Mountains from the Denver office. There in 1972, I attended the AAPG Annual Meeting where Wally Dow presented his Williston Basin oil system paper. My project was in the Big Snowy trough to the west in Montana so I was keenly aware of the oil being produced from the Tyler Formation in both areas. Shortly after this assignment, I transferred to Houston to work for Shell Pectin in the international arena where I quickly forgot about the Rocky Mountains.

In 1973, the Arab oil embargo shut off the oil supply prompting the federal government to initiate an appraisal program to determine how much petroleum was available domestically. The Branch of Oil and Gas in the US Geological Survey (USGS) was given this task. As chief, Peter Rose hired me in 1974 because I had industry experience. From Menlo Park, California, I carried out extensive field work and wrote reports for the Lower Cook Inlet OCS sale. In 1977, my source rock work with George Claypool started on the North Slope of Alaska. Through 1980, I was involved in many resource appraisals using the play concept. This approach relied mostly on field size and numbers rather than geology and geochemistry.

Leg 77 Departure in 1980

In 1980, Richard Buffler invited me to participate in Leg 77, a 60-day DSDP cruise north of Cuba. For two months, the Glomar Challenger's science and drill crew recovered cores from the ocean floor. During my 12-hour shift, I analyzed available rock samples on the Rock-Eval pyrolysis instrument otherwise I read petroleum geology and geochemistry books and articles to see if I could develop a methodology to incorporate geology and geochemistry into the USGS appraisal process. By this time, I had 14 years of experience in petroleum geochemistry. In that two months, I realized that when oil and gas were expelled from a thermally mature source rock it had to migrate to the first trap and so on using a distribution network. A system describes this network just like an electrical system has a generator, wires and output devices, but this system distributes petroleum, hence

a petroleum system. In addition, this system could be mapped in time and space.

When I returned from Leg 77, I found resistance to my idea of the petroleum system since most felt this concept was covered in basin analysis. Obviously, I had to find a way to convince my peers that the petroleum system had a role in our resource appraisal so in 1986 I created a brochure called "Resource Appraisal by Petroleum System" or the RAPS brochure. This brochure emphasized the material balance approach knowing that the origin and destination of the petroleum had to he understood before volumetrics of generated oil and gas could be compared with the trapped fluid. This brochure did increase awareness and discussion about the petroleum system.

To further this concept, I presented a petroleum system poster at the 1986 Gordon Research Conference in New Hampshire where I had the good fortune to connect with Wally Dow. He told me he had already developed the oil system in his Williston Basin work that was published in 1974 in the AAPG Bulletin. Then and there, we decided to work together to popularize the petroleum system.

To create a paper trail, I presented a poster with abstract for the 1987 AAPG Annual Meeting in Los Angeles. In July 1988, I gave a petroleum system talk at Chevron at San Ramon, California. From 1988 to 1992, I edited three USGS Bulletins, 1870, 1912, and 2007 that further developed the petroleum concept and method. Bulletin 2007 identified and named many United States petroleum systems. During this time, I was the 1990-1991 AAPG Distinguished Lecturer: "Arctic National Wildlife Refuge—Petroleum potential in one of the last Alaskan frontiers" further tested the petroleum system concept.

The formal introduction of the petroleum system to industry occurred at the 1991 AAPG Annual Meeting in Dallas. Wally Dow and I organized this session where there was standing room only. Participants were asked to give a talk and to submit a petroleum system manuscript that was later published as *AAPG Memoir 60*.

During 1992, I presented the petroleum system to Amerada Hess, Arco, BP, Mobil, Exxon, Unocal, Elf, Total, and Shell where I received valuable feedback on the concept and methodology. Being invited into these companies to present the petroleum system was extremely helpful and was possible because I was with a noncommercial organization, the USGS. At the 1993 AAPG Annual Meeting in New Orleans, Wally and I gave our first petroleum system short course.

*AAPG Memoir 60* Published in 1994

*AAPG Memoir 60* was an immediate success when published in 1994. In 1995, Wally and I were selected as recipients to the Robert H. Dott, Sr. Memorial Award for Best Special Publication published by AAPG in 1994. In 1995, during the Pacific Section AAPG Meeting, Wally and I gave another short course. That same year I gave a short course at the Northwest Petroleum Association and the Los Angeles Basin Geological Society. In 1995 and 1996, I gave week-long workshops to Ecopetrol and Corpoven geoscientists. In 1997, I gave a two-day short course to Indonesian Petroleum Association and in 1998 to Petroleum Exploration Society of Australia. During 2000, I gave short courses to the Venezuelan national oil company and the Spanish Association of Petroleum Geologists and Geophysics.

Included in this memoir volume are 19 petroleum system case studies that I wrote or edited to conform to the theme of the concept. I authored several other case studies that have been published since this volume. The most detailed case study published in 2009 as a USGS Professional Paper 1713 is on the five petroleum systems in the San Joaquin Basin. Participants in this study include Allegra Hosford Scheirer, Paul Lillis, Zenon Valin, Ken Peters, and myself. I have reviewed numerous manuscripts and participated in many petroleum systems studies that affirm the validity of the methodology.

In 2001 the petroleum system took on new value as the basis for numerical modeling. For years, Dietrich Welte had a company IES that specialized in computer modeling. He invited me to Julich, Germany, to talk about the petroleum system. There Bjorn Wygrala immediately understood the petroleum system and applied the concept to one-dimensional modeling. The following year, Carolyn Lampe of IES, Ken Bird, and I built a three-dimensional model of the North Slope of

Alaska using their software, PetroMod. PetroMod was used by Ken Peters and Allegra Hosford Scheirer to build a three-dimensional model of the San Joaquin Basin for our appraisal.

In 2005, Stanford professor Stephan Graham, Ken Peters, Carolyn Lampe, and I started the Stanford University industrial affiliate program Basin and Petroleum System Modeling to train the next generation of basin and petroleum system modelers. Under the direction of Allegra Hosford Scheirer this affiliate program has thrived.

In addition to colleagues and friends mentioned I have been fortunate to work with Harry Cook, Gerard Demaison, George Gryc, and Keith Kvenvolden. A special thanks to all those who made this award possible and to my longtime friend, colleague and biographer, John Armentrout.

***Leslie B. Magoon***

## MAHMOUD ABDULBAQI
### Michel T. Halbouty Outstanding Leadership Award

*Citation*—To Mahmoud Abdulbaqi for his outstanding leadership of highly successful exploration programs, for founding and leading professional geoscience societies and conferences in the Middle East and worldwide, and for his devotion to the geological profession.

Mahmoud Abdulbaqi has had a distinguished career as the leader of exploration for hydrocarbons and as a founder and leader of professional geoscience societies at the Middle East and worldwide. He remains an avid supporter of geoscientists and their profession.

Mahmoud was born in 1944 in Acre, Palestine. His family was displaced by the 1948 war to Lebanon and Syria before they settled in Jordan where he completed his secondary education. He was awarded a scholarship to attend the University of Baghdad, and he chose to study geology because of his interest with the MOHOLE project, a precursor of the deep-sea drilling program. It was a good choice because Baghdad at the time had a strong geology faculty, including professors Bolton and Chapman, and was well connected with the Iraq Petroleum Company. Furthermore, the Zagros fold-thrust belt provided excellent outcrops for field studies. Mahmoud completed his B.Sc. degree in 1966, minoring in geophysics. He initially taught geology in Kuwait for 3 years, followed by 2 years as an engineering geologist on a dam project in Jordan.

Mahmoud's career in the oil industry started in 1971 when he was hired by the Arabian American Oil Company (Aramco), a joint venture between Chevron, Exxon, Mobil, and Texaco. Although Aramco had already discovered the world's largest oil fields, it continued exploring within its retained areas during the 1970s. Mahmoud worked initially in the well site geology unit, monitoring the drilling of exploration and development wells. He became particularly adept in the quick interpretation of raw well logs before the computer era, and his abilities to spot pay zones never failed to impress future generations of computer-savvy log analysts.

His intelligence, technical and leadership skills were quickly recognized by Aramco's management, which propelled him through technical and management assignments in various upstream departments including reservoir characterization, seismic processing, field development and prospect development. In 1982 he completed a special management program at Georgetown Law Center in Washington DC. In 1984 he completed "Managing the Enterprise", a special program for executives at Columbia University. He was promoted in 1986 to general manager of the Exploration Organization, responsible for wildcat exploration as well as the characterization of Aramco's large hydrocarbon reservoirs. In 1991, he was elected by the Aramco Board of Directors to vice president for the Exploration Organization.

After the incorporation of Saudi Aramco as the national oil company in 1987, Mahmoud's organization, previously confined to Aramco's retained areas, was charged with exploring for hydrocarbons throughout the Kingdom of Saudi Arabia. This started an exciting period of new plays that discovered the Hawtah and Nuayyim trends of super light crude in Permian-Carboniferous sandstone in

central Saudi Arabia. A total of 18 new fields were discovered in succession between 1989 and 1997. Exploration then extended to onshore rift basins along the Red Sea, where four oil and gas fields were discovered between 1991 and 1994, proving a Miocene hydrocarbon system in the Red Sea basin, and providing gas for clean power generation in northwest Saudi Arabia, which is the site of the recent NEOM urban development project. Additional gas discoveries were made in tight Paleozoic sandstones in northern and eastern Saudi Arabia, which are now being targeted as unconventional resource plays.

Starting in 1994, Saudi Aramco Exploration Organization, under Mahmoud's leadership, initiated an aggressive exploration program for nonassociated gas to meet the Kingdom's increasing demand for gas, required as fuel for utilities and feedstock for petrochemicals. The exploration was focused on deep Paleozoic clastic reservoirs, and the first discovery was a fault-unconformity truncation trap in Devonian sandstones on the east flank of the Ghawar anticline. This was followed by several new field wildcat gas discoveries in deep structural and combination traps, such as Waqr, Wudayhi, Tinat, Niban, and Ghazal fields. These discoveries benefited from investment in new technologies, particularly three-dimensional seismic surveys and new seismic processing algorithms. The success of the exploration effort is also measured by the effective replacement of Saudi Aramco's substantial oil production of ~3 billion barrels/year and the addition of more than 49 TCF of nonassociated gas reserves since the program started in 1994.

In order to meet the dual challenges of exploring the vast areas of Saudi Arabia and supporting the development of its giant oil reserves, Mahmoud built the modest group of 1986 into a large organization with hundreds of geoscientists. He paid particular attention to human assets and fostered the technical and leadership training of Saudi nationals, some of which succeeded him as leaders in the oil industry. He also supported upstream research in academic consortia, and also within Saudi Aramco, which led to the development of the Expec Advanced Research Center in Dhahran.

Mahmoud's leadership style was exemplary. He created a fertile culture in which ideas thrived and creative people could be themselves. He set high standards of integrity, professionalism and technical excellence. The Saudi Aramco exploration successes reflect, to a significant measure, Mahmoud's exploration acumen, his willingness to take risks and challenges, and his trust in the capabilities of his staff.

Mahmoud realized that exploration always requires new ideas, and therefore launched in 1992 the Creativity and Innovation initiative with the assistance of the Center for Creative Leadership. The outcome was the creation of multidisciplinary teams, and an annual awards program for exceptional performance. This initiative primed the Exploration Organization for the breakthroughs it made in the 1990s, and was followed by Total Quality Management programs for the acquisition and processing of three-dimensional seismic data.

Mahmoud retired from Aramco in 2005, leaving behind a well-managed exploration organization with an enviable record of success. After retiring, he established balance between his professional activities and his hobbies of traveling, reading, and playing with his grandchildren. Starting after his retirement from Aramco, he chaired the board of the Arabian Geophysical and Surveying Company (ARGAS) from which he retired in 2020. ARGAS is a joint venture between CGG of France and TAQA of Saudi Arabia. During those 15 years the company grew from a land seismic acquisition company operating within Saudi Arabia to an integrated geophysical company active throughout the Middle East in land, transition zone, and marine seismic acquisition, processing, and interpretation, and equipped with its own geophysical technology center.

Mahmoud has been a longtime sponsor of international and local geoscience organizations. He is a founding member of the Dhahran Geoscience Society in 1987. He has been a member of AAPG since 1983, served on its Advisory Council in 1999-2002, served as first president of AAPG's Middle East region in 1999, and was awarded Honorary Membership in 2003. He also served on the board of the European Association of Geoscientists and Engineers (EAGE) and became chairman of its board and the first non-European president of the association

in 2009. He helped establish and support the EAGE Student Fund and continues to chair its Advisory Council. He is also a longtime member of the Society of Petroleum Engineers (SPE) and Society of Exploration Geophysicists (SEG).

Mahmoud realized that the Arabian Gulf region, which contains most of the world's hydrocarbon reserves, needed to have a dedicated geoscience conference. He initiated and chaired the first GEO conference which was held in 1994, which has subsequently become a major biannual event with AAPG among its sponsors. He also supported the publication of GeoArabia (1995–2015), a highly rated scientific journal focused on the geology of the Middle East.

In addition to GEO, Mahmoud joined the board of the International Petroleum Technology Conference (IPTC) upon its creation in 2005 and is currently its chairman. IPTC is a joint venture of the AAPG, EAGE, SEG, and SPE and alternates its annual conferences between the Middle East and the Far East. Mahmoud also served on the boards of other companies and consulted with companies including ExxonMobil, JPMorgan, CGG, and TAQA of Saudi Arabia. He volunteers with nonprofit organizations and helps universities establish relations with the oil industry. He also enjoys helping and advising geoscience students and young professionals.

Mahmoud and his wife, Abiyya, have been married for 47 years and live in Dhahran, surrounded by their extended family. Together, they have raised son Mustafa, a lawyer, son Jareer, a financial analyst, and daughter Dana, a petroleum engineer. Mahmoud enjoys swimming, hiking, and yoga. His other pastime activities include travel, reading, and theater.

I have had the privilege of knowing Mahmoud Abdulbaqi during the past 30 years. He was my boss, and remains my cherished friend and mentor, as he is to many of our colleagues. His outstanding leadership record is a natural reflection of his genuine character and his caring for others. He coached and developed several future leaders in the oil industry who benefited from his advice and experience. He is highly respected throughout the oil industry not only for his integrity, leadership and dedication, but also for his compassion and support.

***Abdulkader M. Afifi***

**Response**

I was so pleased when I was named an honorary member of AAPG in 2003 that I did not think anything better could happen. What an honor! To be recognized by one's peers is one of the greatest fulfillments in life. I am humbled and profoundly honored to receive the Michel T. Halbouty Award. Being included among the distinguished recipients of this award is something I am grateful for.

On this occasion, I would like to recognize those individuals that have become so much a part of who and what I am.

My father, who passed away in 1970, had a very strong influence on me since I was able to observe him. I saw in him the role model of integrity and work ethics. Watching him I learned the habits of hard work and perseverance.

When I was in my teens, a friend of the family translated a book on the Moho Deep Drilling Project from English to Arabic. He presented me with a copy of his book. I was fascinated with those people who are able to "see below the surface of the earth" and draw conclusions on things that they cannot directly observe. After finishing the book, I knew that I was going to pursue geology in college if I could.

I was extremely happy when I was awarded a scholarship to study geology at Baghdad University: first because it was geology, and second because I could not afford to go to university without support. During my years in Baghdad, professor Bolton unveiled the secrets of rock outcrops to me. Accompanying him on field trips, both formally and informally, made me build a firm basis for my future career. I was lucky to be chosen for a summer internship with the Iraq Petroleum Company in the Kirkuk field. After that assignment, I knew that petroleum geology would be my choice for a future career.

I graduated in 1966, and the job market for geologists in the oil industry was no better in the Middle East than anywhere else in the world. I had to spend 3 years teaching geology and 2 years practicing engineering geology, waiting on the start of the boom of the early 1970s to get my job in the oil industry with Aramco. I learned a lot from teaching. I realized that

working with people is something that I enjoy and I am good at. My 2 years in engineering geology prepared me well for dealing with those petroleum engineers when the time came.

Soon after I arrived in at Aramco headquarters in Dhahran, I met Abiyya, my wife of 47 years now. Since we met, she has been the pillar of strength that I lean on, when navigating challenging passages. She is the rock of our family. Abiyya worked in Aramco for 26 years. During those years, it was a joy, but also a challenge, with both of us working full-time, to raise our two sons and daughter. I know I could not have made it without Abiyya.

I spent my entire petroleum career in the same prolific basin, the Arabian basin, with the same great company, Saudi Aramco. In the first few weeks Jim Kline helped hold my hand until I knew my way around those drilling rigs. It was great fun and very rewarding to be part of the biggest oil and gas field development effort ever accomplished by our industry. It was as much fun but even more challenging to be part of an ambitious exploration program. If I were given the choice, I would not hesitate to do it all over again.

Then came the people challenge. Moving up the executive ladder, I enjoyed working with people. I realized, also, that it can sometimes be harder than working with the rocks. I learned a great deal from those interactions, which broadened my horizons. I believe there are a lot of things that a manager can bring to his workplace from his or her home experience and vice versa. Working in a company that employs people from 57 different nationalities is a great experience that I was lucky to be part of. Developing people for our Exploration Organization is a task that I spent a lot of time on, and I enjoyed every minute of it.

In 1983 I got involved with AAPG, and helped establish in 1987 our own local Geoscience Society in Dhahran. I would like to recognize the late Abdulla Al Naim, Ibrahim Al Ghamdi, AbdulKader M. Afifi, and Said Al Hajri, all of whom helped me to further AAPG's presence in our region. I am happy to say that Abdulla Al Naim became the president of the Middle East Region and received Honorary Membership before he unexpectedly passed away. Ibrahim Al Ghamdi became the chair of the international Regions Committee, AbdulKader M. Afifi served on the Advisory Council and became president of the Middle East Region, and Said Al Hajri became president of the Middle East Region and an Honorary Member. I have to mention here that many other geologists worked hard on enhancing the presence of the AAPG in our region. Here I am recognizing the ones that helped me directly with my AAPG activities.

This would not be complete without mentioning the start-up of the GEO Conferences in Bahrain in 1994. GEO is now well established as the Middle East premier geoscience conference and exhibit. Here I have to recognize Ibrahim Al Jallal for working hard with me to put together the first one despite all the difficulties.

During my years on the AAPG Advisory Council and as Middle East president, I worked toward the "internationalization" of AAPG. I believe this will be good for the international petroleum industry, but more importantly, good for the future of our Association. Here I have to recognize Pinar Yilmaz, Ray Thomasson, and Robbie Gries, all of whom realized the importance of the international arena to the AAPG and worked to enhance the presence of AAPG internationally.

After retirement from Saudi Aramco in 2005, I wanted to continue my involvement with the geosciences in addition to my other post retirement activities. I ran a geophysical company as chairman of the board (Arabian Geophysical and Surveying Company [ARGAS]) , I did some consulting, I sat on a few boards, and continued my involvement with professional societies. It was fun to be "on the other side" from a business point of view. Learning to be the service provider or the consultant rather than the client or the decision maker. It is a completely different state of mind that needed some adjustments.

I mentioned earlier that I enjoyed interacting and working with people. After retirement I had more time to work with some universities on helping their students in the geosciences programs. I also advised young professionals on their career development. Interacting with young people keeps you young. You also need to be on your toes both mentally and

physically. An extremely enjoyable experience, very similar to playing and working with grandchildren. I encourage retirees to try it, you might find it rewarding also.

Last but not least I would like to thank my colleagues in Saudi Aramco's Exploration Organization and ARGAS company, past and present, for helping me with the achievements that are included in my biography. It is a team effort and without all of them it could not have been possible.

***Mahmoud Abdulbaqi***

## MISFIR AZZAHRANI
### Honorary Member Award

*Citation*—To Misfir AzZahrani for visionary strategic leadership, unwavering support of the global energy industry, and dedicated service founded on a lifelong passion for petroleum geoscience.

I have known Misfir AzZahrani as a colleague and friend for more than 30 years, so it is my pleasure to write this biography from first-hand experience. Misfir began his remarkable, high-impact career in petroleum exploration and development immediately upon graduation from King Saud University in 1982. Shortly thereafter, he joined Saudi Aramco as a geologist, where he developed into a seasoned professional, gaining a deep understanding of the geology and the hydrocarbon systems of the Arabian basins along the way.

Misfir is a passionate geologist whose professional curiosity began in childhood in a remote, mountainous region of southwestern Saudi Arabia. As a child, he enjoyed meeting strangers who frequently visited in helicopters, examining rocks near ancient mines and answering his inquisitive looks and questions with smiles. Years later, he learned that these strangers were geologists from the US Geological Survey conducting geological studies for the Saudi Ministry of Oil and Minerals. Little did he know that one day he himself would become a geologist, but searching for black gold instead of minerals.

Misfir's spectacular career has covered the full spectrum of the business from prospect generation to development and production. As his career developed, Misfir undertook supervisory roles, leading teams, task forces, and divisions within the exploration organization, which led to many onshore and offshore oil and gas discoveries. As Misfir's career progressed, he continually appreciated how enriching, rewarding, innovative, intuitive, and predictive geoscience is.

Misfir's outstanding leadership became more visible in 2002 when he commanded exploration programs in the southern area that resulted in numerous discoveries. Of course, success in oil and gas exploration does not belong to a single person, but these discoveries surely were the results of a well-led team. During his time as the chief explorationist for the Southern Area Exploration Division, Misfir was instrumental in the discovery of major oil and gas fields.

Misfir is a recognized leader in regional studies and prospect generation. I often am mesmerized by the huge regional cross sections he created to illustrate the geology and tectonism of Saudi Arabia. Misfir's technical expertise, alongside sound strategy development and decision making, next earned him the position of manager of the Reservoir Characterization Department in 2005. After 4 years of commanding the development of the giant fields of Saudi Arabia and supporting some massive expansions in those times, Misfir moved again in 2010 back to his first love of frontier exploration when he was put in charge of coordinating four important upstream joint ventures in the Empty Quarter for Saudi Aramco with Lukoil, Sinopec, Shell, and EniRepsa.

In 2011, and after 29 years of service, Misfir returned as manager to Area Exploration, the department where he started his career in Saudi Aramco as a protégé in prospect generation. These were exciting times for exploration, replacing prolific oil production and adding massive gas reserves.

With the expansion of Saudi Aramco's exploration frontiers to the Red Sea and other remote areas, Misfir was put in charge of the overall company exploration

portfolio as a general manager in 2013. His mandate included overseeing all geophysical operations and resource assessment for all of Saudi Arabia. After 5 challenging years with this important mandate, Misfir became the executive director of exploration in January 2019. In April 2021, Misfir attained the position of vice president, which is the title he now holds. Misfir's leadership brought prosperity to Saudi Arabia and its people, through a significant number of discoveries of oil and gas fields and reservoirs.

Misfir's thirst for knowledge has not faded during all these years and he still attends highly technical workshops. He presented an insightful overview of Saudi Arabian basins at the 2020 AAPG Global Super Basins event. He is extremely involved in shaping the academic curriculum for geosciences at King Fahd University of Petroleum and Minerals.

Misfir has been an early advocate for technology and industrial revolution taking geosciences to a higher level of performance and resolution as classical principles of exploration are integrated with new technologies and digital transformation in our industry. Misfir and the Executive Committee sagely proposed digital transformation as a theme for the upcoming GEO conference. Insights like these, as well as the capacity to address difficult and delicate issues, made it my pleasure to serve with Misfir on several GEO conference executive committees. As a result of his contributions to the success of GEO, Misfir will be the recipient of the Middle East Leadership Award at the next upcoming GEO conference.

Misfir is an outstanding communicator, and his presentations are colorful and elegant. Misfir's gracefulness, confidence, and vision make him an excellent public figure for Saudi Aramco. In fact, Misfir's leadership style has been sought after for a number of corporate and governmental projects because of his deep understanding of business drivers and global impact of the industry. On a personal level, Misfir is very kind, compassionate, and caring. Firm, but fair, he is understanding, considerate, and a good listener. He has a great sense of humor and an irresistible laugh.

Over the years, Misfir's role with AAPG has developed and evolved. Misfir now guides the Association through his appointment to the AAPG Corporate Advisory Board. Misfir is currently representing AAPG on the IPTC Board, and his leadership there will ensure bringing the latest advances in geoscience to the forefront of the industry. Misfir is pleased to receive the Honorary Member Award from the AAPG, which has been a hallmark throughout his professional career.

***Sa'id A. Al-Hajri and Gretchen Gillis***

**Response**

I am extremely privileged to receive the AAPG Honorary Member Award. For many years, it has been an honor to be a member of AAPG. AAPG has contributed to the spread of knowledge to the geoscience community around the globe. AAPG is an invaluable source of information for geoscientists, who are constantly learning about new innovations taking place in our industry, and how to apply these new technologies and methods to their day to day work. With the endorsement of Saudi Aramco, AAPG has been a constant touchpoint throughout my career, attending events, seminars, hosting panels, aided my learning and development enormously from a young professional, to now serving as a member of the AAPG Corporate Advisory Board and as an AAPG representative on the IPTC Board. I thank both Saudi Aramco for their continued support and encouragement of my service with the AAPG, as well as my esteemed colleagues in the AAPG organization, whom I have been fortunate to work alongside for many years. It is my hope that AAPG continues to enjoy continued success in the many years to come.

***Misfir AzZahrani***

**HERNANI AQUINI FERNANDES CHAVES**
**Honorary Member Award**

*Citation*—An extraordinary scholar, author, researcher, teacher, mentor, strong supporter of AAPG, and an engaged citizen, Professor Hernani Chaves greatly honors the AAPG Honorary Membership Award.

Born in Rio Grande do Sul, Brazil, Hernani Chaves graduated in agronomy from the Federal University of Pelotas in 1958. He was selected in a national contest promoted by Petrobras for a four-year contract, two for a petroleum geology course at the Federal University of Bahia (UFBA) and two for work. He received a specialization degree in petroleum geology in 1960, and immediately joined Petrobras, founded only 7 years before. While at Petrobras, he taught stratigraphy and sedimentology, at UFBA from 1966 to 1968, and quantitative stratigraphy at Petrobras' Academy for Geologists (Petrobras University) in Salvador, Bahia, from 1964 to 1965.

At Petrobras, Hernani Chaves was part of the early development of the oil industry in Brazil, worked with geomathematics, and pioneered the use of computers in geology, implementing the first databases for wells, gravimetry, and geochemistry in Brazil. As a field geologist, he participated in the revision of the geology of southeastern Alagoas and led the revision of the geology of Sergipe, both part of the Sergipe/Alagoas Basin. He also became one of the pioneers in the assessment of yet-to-find oil resources, utilizing a methodology involving modeling the exploration process.

His studies later resulted in seminal works, such as the 2015 assessment of the yet-to-find oil potential of the pre-Salt trend in Brazil, published with his mentee, Cleveland M. Jones. This unprecedented, robust quantitative assessment indicated that recoverable resources of the trend are 176 (P90) to 276 (P10) billion barrels of oil equivalent and achieved great international repercussion.

Hernani Chaves was manager for Petrobras of the Brazilian Continental Margin Survey Project (REMAC), which from 1972 to 1978 surveyed the Brazilian continental margin, generating a comprehensive set of maps, and accumulated a great deal of other geological and geophysical information that helped suggest areas with petroleum exploration potential. A joint project that involved United States research centers (Woods Hole Oceanographic Institution and the Lamont-Doherty Geological Observatory), the French Centre National pour l'Exploration des Océans, as well as several Brazilian government entities, universities, and the Brazilian Navy, the REMAC Project is considered one of the most important research efforts to date, for understanding the immensely prolific Brazilian continental margin.

In 1973, he was transferred to the "Centro de Pesquisas Leopoldo Américo Miguez de Mello," the famous Cenpes research center. He obtained a master's degree in informatics from the Pontifical Catholic University of Rio de Janeiro (PUC), in 1978, and then taught statistics applied to the geosciences at the Federal University of Rio de Janeiro, from 1979 to 1989.

Hernani Chaves retired from Petrobras as a geologist in 1989 and continued to live in Rio de Janeiro. Since 1990, he has been with the faculty of geology, at State University of Rio de Janeiro (UERJ), where he joined longtime colleagues and friends Jorge Della Fávera and Rene Rodrigues. Together with Jorge Della Fávera, he was one of the founders of the graduate program of the faculty of geology at UERJ.

In 1986, Hernani Chaves received the title of "Recognized Knowledge" by the Egregious Congregation of the University of São Paulo, and in 2000 obtained a doctoral degree in geosciences from the Federal University of Rio Grande do Sul and continued as a professor a tUERJ. In 2014, he received the Rodi Ávila Medeiros Prize, from the Brazilian Association of Petroleum Geologists.

Hernani Chaves is an emeritus member of AAPG and has tirelessly promoted AAPG in Brazil, helping establish new student chapters and increasing their participation in the AAPG Imperial Barrel Award (IBA) competitions. In 2002, he founded one of the first AAPG student chapters in Brazil, at UERJ, and since 2012 he has been chapter ddviser to the UERJ Student Chapter in the IBA competitions. In 2013, the UERJ student chapter won first place in the regional competition (Latin America), and participated in the finals of the international competition, in only the second year of their participation.

Hernani Chaves retired as adjunct professor of the faculty of geology at UERJ but continued

teaching energy resources at the faculty of geology and petroleum economy at the faculty of engineering. In the graduate program, he continues to be responsible for the disciplines of quantitative stratigraphy and basin assessment. He is also scientific coordinator of the specialization course in seismostratigraphic interpretation, a joint initiative of the UERJ, Statoil and Schlumberger, and also teaches the course.

Hernani has been a visiting professor emeritus (visiting researcher) at Rio de Janeiro State Research Foundation (FAPERJ), and is co-coordinator of the National Institute of Oil and Gas, a research institute that he helped create, based at UERJ, under Brazil's National Council of Technological and Scientific Development (CNPq). He also coordinates the PETROUERJ Research Group, under CNPq. He is a member of the Brazilian Geological Society, a collaborator of the International Geological Correlation Program, a charter member of the International Association for Mathematical Geology, a member of the E&P Permanent Commission of the Brazilian Petroleum and Gas Institute, a technical and scientific advisor and consultant to FAPERJ, São Paulo, Bahia, and Pernambuco, a consultant to the Brazilian National Studies and Projects Financing Agency, a collaborator of the CNPq, and an ad hoc judge of the Annals of the Brazilian Academy of Sciences.

Hernani Chaves and his wife, Eloá, have two daughters and two grandchildren. Always ahead of his time, he remains current on the issues, the research, and the leading-edge knowledge of the industry and of its contribution to society, and continues to write and work on several projects, regarding petroleum exploration, unconventional resources, geoeconomic assessment of energy mineral resources, energy geopolitics, and geoeconomic analysis of the oil industry.

An extraordinary human being, husband, father, scholar, author, researcher, teacher, mentor, strong supporter of AAPG and engaged citizen, Hernani Chaves greatly honors the AAPG Honorary Membership Award.

***Cleveland M. Jones***

**Response**

December 15, 2020, at 9:00, a surprising email from Rick Fritz, AAPG President, saying he needed to talk to me. What could it be? Perhaps an invitation to participate in some commission. I immediately called, and the surprise was even bigger and more emotional: I had received a commendation from AAPG. I was so confused, that I had to ask him to send me a message with the commendation name: Honorary Membership Award.

I was totally surprised when President Rick Fritz informed me and confirmed by message that I had received the distinction from the AAPG Advisory Council.

First of all, I want to thank the Honors and Awards Committee for submitting my name and AAPG for granting this honor, even more valuable coming from an entity that I respect and love. I am also very grateful to my dear colleague and former student Priscila Figueiredo Amaral for my nomination and to my friend and collaborator Cleveland M. Jones for accepting to be my citationist.

My knowledge of geology started in an agronomic engineering course at the Eliseu Maciel School of Agronomy. I monitored the discipline "agricultural geology" and the geology professor's discipline in the pre-university entrance exam for agronomy. At the end of my graduation, in a national competition, I was hired by Petrobras to take the petroleum geology course in partnership with Federal University of Bahia (UFBA), led by Fred La Salle Humphrey (Stanford University), along with foreign professors like Gilles Allard from Canada. At the end of the course, I chose surface geology in the Sergipe Alagoas Basin, leaving subsurface geology for later.

My field mapping choice proved to be fundamental for my training as a geologist and as a person. The hard daily work, the contact with field assistants, hired locally, and the need to show maps and report conclusions taught me humility, how to work in a team, and how to defend my opinions without disdaining divergent ones, presenting ideas clearly, and being responsible for my actions, even when they resulted in errors.

After 4 years in the field, while beginning to work in the Recôncavo Basin as an exploration geologist, the chief of exploration at Petrobras, Carlos Walter M. Campos, a great enthusiast of AAPG, who even received the memorial award for best international student paper, promoted a campaign for his geologists to join this

society, which I did in 1965. Through the Bulletin, I learned about the AAPG Continuing Education Program, and had the opportunity to organize and participate in its realization in Rio de Janeiro in January 1967, which had a great influence on the regional exploration coordinators who participated in the course. One of the speakers was Richard B. McCammon, and his talk was essential in guiding my career in geomathematics, eventually becoming a charter member of the International Association of Mathematical Geology in 1968, and a pioneer in the use of computers in geology in Brazil.

In the period from 1965 to 1967, in parallel, I started my career as a university professor, teaching stratigraphy and sedimentology at the faculty of geology at UFBA, where I lived with promising and brilliant students, such as the renowned paleontologist Diogenes Campos, and Paulo Souto, who after having a brilliant career as a geologist, would become governor of the state of Bahia.

In 1969-1970, as visiting scientist for 6 months at the Kansas Geological Survey, with Daniel (Dan) Merriam as a mentor, I had the extraordinary opportunity to share daily life with Frederick (Frits) P. Agterberg, John Davis, and John Doveton. I also met, during their passages at the survey, Richard B. McCammon, Walter Schwarzacher, John Harbaugh, and many others. It was a time of much effervescence in the discussions on the use of computers in geological exploration. On my return, I was transferred to the Petrobras teaching area, where I had the opportunity to work with distinguished geologists Aarne Hivary Munne, Rodi Medeiros, and Francisco Celso Ponte. The course developed to guarantee the continuing education of geologists (15 students) was successful and served as a model for the postgraduate program that we would implement at the faculty of geology of the State University of Rio de Janeiro (UERJ). In the two-part course, we joined renowned geologists, like Bill Fisher and others, first giving theory lessons, getting information about the material under study, and formulating a study program regarding Brazilian basins, and 6 months later, checking the results of the work done by the students.

After retiring from Petrobras, in 1989, as a petroleum geologist, in 1990 I joined the faculty of geology at UERJ. Together with geologist Jorge Carlos Della Fávera, we created the Basin Analysis Laboratory, and, with it, the basin analysis projects course that became the basis for the Postgraduate Program in Basin Analysis and Mobile Belts (PPGABFM) in 1995. In 1994, I was selected in the entrance examination and became a professor at the faculty of geology, responsible for the discipline "Energy Resources" in undergraduate studies, and "Basin Assessment" at PPGABFM, supervising masters and doctoral work. In 2006, I had to retire due to my age, 70, and received the title of emeritus researcher from FAPERJ, with a scholarship until 2010.

Between 2013 and 2016, I was scientific coordinator of the specialization course in seismo-stratigraphic interpretation. The course was a successful experience of an agreement between the DEPA of UERJ and Statoil Rio de Janeiro (today Equinor Brazil), in which 88 geologists and geophysicists received one-year hands-on training in the integration of seismic signals and sequence stratigraphy, an experience that would normally require 10 to 15 years of professional work in the company.

In 62 years of oil, I had the opportunity to study geological mapping, geomathematics; non-conventional oil and gas, evaluation of petroleum basins, distribution and uses of oil and gas royalties, energy policies, behavior and monitoring of oil and gas reservoirs, exploratory process modeling, and petroleum basin modeling.

***Hernani Aquini Fernandes Chaves***

## ANDRÉ COAJOU
### Honorary Member Award

*Citation*—To André Coajou in recognition of his early pioneering vision of the large potential of

the West African deep-water plays and his role in accessing the rights to, and implementing the drilling of, the plays' high impact discoveries.

André Coajou was born in August 1942 in Brest, France. He graduated in 1966 from the Ecole des Mines de Saint-Etienne, a coveted French engineering school.

He spent 18 months in the French Marines (1966–1968), then worked for Sofremines-Le Nickel, a mining company, as a project engineer in Paris and New Caledonia. He discovered that the petroleum industry did offer more varied and challenging opportunities and was soon hired by Elf, the French national company (now Total) as a geophysicist working in the North Sea (Frigg Field) and the Netherlands.

His following assignments bear witness to a broad international exposure to many basins and a large variety of play types, from mature to frontier, and business situations.

From 1971 to 1979, he was based in Lagos, Nigeria, then transferred to Egoco, Teheran, then to Bogota, Colombia. During this period he was closely associated with significant oil and gas discoveries, including the multi 10 TCF Kangan, Ahar, Nar giant fields of the Zagros area

In 1980 he was appointed geosciences manager for Africa in Paris, in charge of a new division established to improve the efficiency of multidisciplinary work between geologists and geophysicists, not so common at the time. As a result of the evaluation of Block 3 (offshore Angola), several fields were discovered, starting with Palanca, and Pacassa (200 MMbbl each), making this block a prolific core area for the company (1 billion bbl). At the same time a synthesis of the presalt geology and potential of South Gabon, Congo and Cabinda was carried out, paving the way to future projects of the play along the African margin.

After a short period in Ireland as exploration manager, he returned to his beloved main area of interest, based in Douala, Cameroon as exploration manager with a 65-person team, working on all the basins but especially, as operator and partner with Pecten on the detailed exploration, appraisal and development of the complex Rio del Rey fields, later considered as a model within Elf.

The next period (1987–1993) was one that counted most in André's achievements. As exploration vice president Africa and head of a 20 expert team he supervised all technical aspects of exploration operations and new ventures, as well as the company's strategy and planning in Africa, including approval of all seismic and drilling operations, a work resulting in several giant discoveries and pioneering a very successful growth strategy for the company in the whole area, exemplified by

- Discovery and appraisal of major fields: Amenam, Ofon etc. in Nigeria, (Cobo-Pambi in Angola, N'Kossa in Congo, Avocette in Gabon and several Chad fields (Miandoum);
- Instrumental role in the deep offshore of West Africa, leading to the discoveries in Angola of several giants: Girassol, Dalia (1200 to 1500 m water depth), in Nigeria of Bonga, as partner and Usan as operator;
- Evaluation and purchase of a 10% interest from NNPC in the whole Shell operated OML; and
- Evaluation and purchase of a 10% interest from Chevron in the major producing Cabinda area.

His technical and business experience led André to become vice president new ventures and negotiations in Paris from 1993 to 1997, a role in which he could add more jewels to the company's portfolio, namely a significant interest in a block of the Caspian Sea, Azerbaidjan, that would provide the giant Shah Deniz discovery and in the US Gulf of Mexico where some discoveries were also made.

From 1997 to 2001, he was general representative for Asia and Pacific and director of Elf Exploration Indonesia, based in Singapore.

Since retirement in 2001, he has practiced consulting and teaching, and is now president of Styx Energy, France, with particular involvement in the deep offshore of Ivory Coast.

He joined the Association in 1993, with the following activities: House of Delegates, Europe Region Alternate then Delegate (2010–2013, 2014–2017, 2018–2020), Corporate Advisory Committee (1995–1998), AAPG ICE Paris sponsor chair (2005), AAPG European Region Conference, Paris, sponsor chair (2009).

He received the Best Poster Award at the AAPG ICE, Nice, France in 1995 ("Angola Block 3") and has been one of the 101 honorees of the Heritage of Petroleum Geology during the 2017 AAPG ACE in Houston.

He has participated in several Hedberg Research Symposiums, (San Diego, Vera Cruz) and has attended assiduously many ACE and ICE meetings, focusing on Discovery Thinking and Historical Highlights sessions and regional papers on his favorite areas of interest and risk analysis.

He is also a member of European Association of Geoscientists and Engineers, South East Asia Petroleum Exploration Society, Association of International Petroleum Negotiators, Society of Petroleum Engineers and Evolen and says his participation in events has helped him considerably to improve and update his knowledge in geosciences and increase his networking, particularly those related to AAPG.

He is a modest person and makes a point of highlighting the role of his associates in all his teams' accomplishments. He contributes generously to communicating his experience in geosciences and related strategic thinking to colleagues of the industry through presentations and articles. He recognizes failures and shares their lessons without restriction. He also likes to help by reviewing his friends' papers and books. He is a member of Total Professeurs Associés and has been a teacher at the Ecole des Mines and HEC International Business School.

One particular trait of character is worth noting: a very special strength of conviction that allows him, in often outspoken language, to argue with unshakable energy in favor of what he profoundly thinks has to be done for his company's interest. For instance, he was successful in convincing a reluctant management to agree on a new strategy of deep-water exploration on the African side of the Atlantic (described above), in spite of this strategy having just been discarded for the Gulf of Mexico. Why not mention also a certain sense of controlled irony that with his natural humor makes his company and management style enjoyable and has certainly contributed to his successful contacts, leadership and negotiations in the industry?

In summary, a very successful career of petroleum geoscientist and manager, driven by a strategic vision, and remarkable negotiations skills.

***Bernard C. Duval***

**Response**

When Napoleon established the "Légion d'honneur", in 1802, he declared: "C'est avec des hochets que l'on mène les hommes" (It's with rattles that you lead people). Receiving, this year, the Honorary Membership Award is, I think, more a recognition of what I may have accomplished rather than an incentive to progress as I am 78 … I am very happy to receive it. It's also an opportunity to say a few words: souvenirs and remarks.

I started as a geophysicist at Elf (now Total) and when working in Iran, I went to North America in 1976, to compare seismic acquisition in the Zagros mountains and the Rockies. This gave me a chance to attend the SEG conference in Houston (at that time the highest point, downtown, was the revolving restaurant of the Hyatt hotel!). I discovered part of the American oil world and the interest of participating in such technical conferences. So, as soon as I was promoted, in 1987, to regional responsibilities, I started to come to ACEs and became a member of AAPG in 1993. Since then, I have attended as many conferences as possible: ACEs and ICES. What looks normal to an American is not so to one who isn't American. The corresponding budget is quite substantial and the value of such a participation is not always recognized by the high management (they are wrong … ). Personally, I always found an interest in such attendance. These conferences, the Bulletin and the EXPLORER are appreciated tools for training and technical information. The Discovery Thinking sessions are an important way to share experiences. During one of these conferences, in the late 1980s, some colleagues and I collected new data about Petrobras's giant discoveries in the deep offshore of the Campos basin. With this model in mind, we managed to convince the Elf management to take position in the deep offshore of Angola, especially the prolific block 17 where major discoveries like Girasol, Dalia, etc. were made with proven reserves of more than 5 Gbbls. We also established Elf in the deep offshore Nigeria. Of course, joint ventures are opportunities to establish a

network but the meetings during AAPG conferences are also a good way to enlarge and consolidate this network. After so many years I must say that some of these partners (sometimes competitors too) have become good friends.

My contribution to AAPG is rather modest. I will notice only my role as sponsor chair for the Paris ICE: $435,000 raised from 55 companies. But in doing so, I was also able to understand how the Association is working.

AAPG has evolved a lot during the last two decades, creating regional offices and international sections with a dedicated Regions vice president. About half of the awardees this year come from Regions. Now women have been elected president of the Association but we are still waiting for a non-North American president … unlike some other organizations like SPE for instance.

The oil industry is subject to many critics and yet … It has brought energy and commodities to the world for more than 150 years. It has brought technological progress in many places like, more recently, in digital acquisition and data processing and now artificial intelligence. Nevertheless, we have to question ourselves about our future and particularly the future of the young generations. We have to think about the climate change and how to address this issue.

The world is more and more global. We have seen this evolution in France too, with some of the French contractors, pioneers in their domain: Schlumberger, CGG, Technip … to name a few of them, becoming more and more multinational through mergers and acquisitions. We cannot avoid it.

I have been living in countries like Nigeria, Iran, Colombia, Ireland, Cameroon, and Singapore and traveling to many more. Set aside oil and gas discoveries (~100) I have enjoyed being involved with my different teams in those accomplishments, I have also discovered different cultures and ways of thinking and consider myself a "citizen of the world." I also remember difficult situations especially when I was a geophysicist, as in the Niger delta with venomous snakes like mambas, however, most of them had been eaten previously by local people; in Iran with earthquakes and (very few) hostile tribes; and in Colombia with guerrilleros and flying in difficult and scary conditions over the Andes, with helicopters and avionetas. But eventually I managed to stay unhurt from such potential dangers.

In short, oil exploration has been (and still is) for some of us a true passion. But we have to keep in mind our final target: finding oil and gas (with a profit of course). "Geology is a science; Exploration is a business … "

Finally, I would like to thank AAPG for this award, my biographer and good friend Bernard Duval, and the persons who have supported this nomination. Furthermore, I want to pay a tribute to Alain Perrodon who passed away 2 years ago. Alain is one of the pioneering thinkers of the petroleum systems. He was also an unrivaled teacher, second to none. At a time when multidisciplinary work was not common, in the 1970s, thanks to his papers and books, the geophysicist I was, got a better knowledge of the petroleum geology.

***André Coajou***

## THOMAS E. EWING
### Honorary Member Award

*Citation*— To Thomas E. Ewing for his exemplary service to the AAPG and his outstanding contributions to geoscience research and its application to petroleum exploration.

Tom Ewing's dedicated service to AAPG and its Divisions, Sections, and Affiliated Societies has been immense, long-term, and much to our delight, ongoing. He has served AAPG as vice president for Sections, Annual Convention general vice chair, and House of Delegates vice chair. Tom, who was a delegate in the House of Delegates for a total of 17 years, also served as a member of the HoD Constitution and Bylaws Committee. He served on various other AAPG committees as well, including as a member of the Gulf of Mexico Deepwater and Shelf Committee, the Sections

Committee, the Mentoring Committee, and the Geophysical Integration Committee, and as chair of the Field Trip Committee for the annual convention.

Tom's leadership positions in the AAPG Divisions included treasurer, vice president, president-elect, and president of the Division of Professional Affairs (DPA) and president-elect and president of the Energy Minerals Division (EMD). He also served the DPA as chair of its Bylaws Committee and member of its Government Affairs Committee and Nominating Committee, and the EMD as chair of its Publications Committee and vice-chair for EMD Activities at the AAPG Annual Convention.

His AAPG service includes numerous contributions at the Section and Affiliated Society levels, as well. Tom has served the Gulf Coast Section (GCAGS) as president, vice president, Annual Convention general chair and general vice chair, editor of GCAGS Transactions, Field Trip chair, and Technical Program cochair. Most recently, he has chaired the GCAGS GeoGulf Continuity Committee and was instrumental in the rebranding of its annual meeting. Tom has also served two of the AAPG Gulf Coast Affiliated Societies in leadership roles. For the South Texas Geological Society, he has served as president, president-elect, vice president, director, delegate to AAPG, and on various committees. He also served the Austin Geological Society as secretary, Publications chair, and Technical Program chair.

Tom earned a B.A. degree in geology from the Colorado College, an M.S. degree in geochemistry from the New Mexico Institute of Mining and Technology, and a Ph.D. in geological sciences from the University of British Columbia. As he was completing his doctorate, Tom joined the Bureau of Economic Geology (BEG) at The University of Texas at Austin. During the period from October 1980 through February 1985 at the BEG, Tom began his many contributions to the geology of Texas. His research projects included work on Gulf Coast Tertiary structural styles, Gulf Coast geopressured reservoirs, depositional systems of the Frio Hackberry, and compilation of the Tectonic Map of Texas and, with coauthors, the Atlas of Texas Oil Reservoirs. During a more recent period of contract work with the BEG from 2013 to 2015, Tom was the project chief and author for the highly popular Texas Through Time, a book and companion website explaining the geological history and character of Texas, a valuable resource for professional and general audiences alike.

Beyond his BEG projects, Tom has continued to be a highly regarded, top-tier researcher and prolific author, having written more than 180 articles, reports, book contributions, abstracts, and field guides. He is perhaps most widely recognized as a master of regional studies and is praised for his amazing ability to assemble geological pieces into the "big picture." Many of his studies have been focused on the geology of the Gulf of Mexico Basin, including work on the Yegua Trend of the Texas Gulf Coast, Late Jurassic depositional systems of the Northern Gulf of Mexico Basin, the South Texas heavy oil province, tectonic factors in the formation of the Pearsall arch, San Marcos arch and Sabine uplift, the late Quaternary Rio Grande Delta system, Pliocene stratigraphy in southeastern Texas, and the peripheral graben system in Texas. Another area of focus for Tom's regional tectonic studies, particularly recently, has been the West Texas (Permian) Basin. Numerous professionals have credited Tom's published works for aiding in their own research, applications, and publications.

Tom has generously shared the results of his research with the geological community not only through his publications, but also through the many oral presentations he has given at conventions, society meetings, seminars, field trips, and short courses. In recognition of the quality and significance of his work, Tom has received the prestigious A. I. Levorsen Memorial Award three times for presentations at AAPG Section meetings, as well as several best paper awards from the GCAGS and other professional organizations.

Following his initial association with the BEG, Tom moved to San Antonio and into the petroleum industry. Since 1985, he has been a partner and then owner of Frontera Exploration Consultants, Inc., first serving as geologist and geophysicist, and currently as senior exploration consultant. From 1985 to 2003, Tom consulted primarily to Venus Oil Company and then was employed as senior

explorationist for Venus Exploration, Inc. Since 2007, he has also been a partner in Yegua Energy Associates, LLC in San Antonio.

Tom's work in oil and gas exploration has included projects in several different basins and trends, but his greatest achievements came during his association with the Venus group, when he played a significant role in the discovery of large gas condensate reserves in the Yegua Trend of the Texas Gulf Coast. The Venus prospects led to the discovery of Vidor Ames field in Orange County, as well as new pays in Constitution and Nome fields in Jefferson County, Shanghai field in Wharton County, and several other smaller fields.

In recognition of his leadership and numerous technical contributions to the geological profession, Tom has previously been honored by AAPG and its affiliated organizations. He has received the AAPG Distinguished Service Award, EMD Honorary Membership, the EMD Distinguished Service Award, DPA Life Membership, the GCAGS Don R. Boyd Medal for Excellence in Gulf Coast Geology, GCAGS Honorary Membership, the GCAGS Distinguished Service Award, and South Texas Geological Society Honorary Membership.

Now, it is my greatest honor and pleasure to cite Tom Ewing for his exemplary service to the AAPG and for his outstanding contributions to geoscience research and the advancement of petroleum geology, as we bestow upon him the AAPG Honorary Member Award.

***Bonnie R. Weise***

**Response**

I first want to express my deep thanks and appreciation to AAPG for bestowing Honorary Membership on me. The Association and its constituent sections and local societies have been a big part of my professional life throughout my career. And particular thanks to Bonnie Weise, my citationist, who has been a friend and colleague for 40 years in the profession!

Just to add a few words on how I found geology. I'd always had a "thing" for maps, even tracing them out when I was four or five. And I discovered the outdoors and hiking through summers at camp and in high school clubs. But I was first introduced to geology by a Christmas present when I was living in New Jersey in 1968: *The Geology of New York City*, which included field trips! I took the train into the city and visited a number of the described localities, then signed up for an NSF summer course at Syracuse University. Then started doing geology in our home area. That's why I've written works of broader interest and led field trips at much as possible.

For college, I went back west to Colorado College, always in geology. There I had great mentors; David Norman in particular, who had oil and gas experience and later went back into the industry. Graduate school was at New Mexico Tech under Kent Condie; I also met many of the folks at the NM Bureau and had classes from some of them. Then to University of British Columbia working faulted Eocene volcanics and sediments under R.L. Armstrong and W.H. Mathews. There I got hands on my first well log—a 4000-ft test southeast of Vancouver as I remember.

In 1980, I headed south to Texas to plunge into the subsurface, arriving at the Bureau of Economic Geology in Austin. I had an offer from Exxon Production Research that would have paid better and been great, but the Bureau offered more freedom to "find myself" as a working geologist in varied fields. There I overlapped a year with Bonnie, worked particularly with Charles Winker and Bob Morton, and benefited from the expertise of Frank Brown, Bill Fisher, and Bill Galloway. Thanks to all!

In 1984, I met and married Linda (Son) Ewing, and then went into the consulting business with her as Frontera Exploration Services in San Antonio. She was my greatest mentor in the business and in practical geophysics, as well as great friend and companion until she passed on in 2008. And in San Antonio, I met and worked for many years (to some extent even now) with the folks at Venus Oil Company: Gene Ames, Grant Fergeson, Bonnie Weise, also Frank Vincent. Thanks to great people and great geologists. Our success at Venus has shaped our careers and allowed me to spend time and resource on research, mapping, geologic synthesis and publication.

I joined AAPG in April 1981 soon after I started working with the Bureau; I also joined the Austin Geological Society and helped lead a field trip in 1982, with Keith Young and Chris Caran. Moving to San Antonio, I joined the South Texas Geological Society; also joined SIPES, later porting my

certification to the Division of Professional Affairs. Guess I'm just a joiner—but I recommend that most highly! Working on events, trips, and publications first at the local level, then at the Section (GCAGS) and national levels, has been some of the most gratifying part of my career to date; meeting great people, doing good for the profession and sharing. I've felt it important to give back to the community, so I worked up a full-color field trip guidebook to San Antonio for general audiences, put together *Texas Through Time*, and am now completing quadrangle maps of the southern and central San Antonio metro area.

In my service in AAPG I focused particularly on the sections and the divisions. The divisions were (and are, along with TIGs and SIGs) the membership-based focus of effort on important parts of professional geoscience—directly with professional certification and career development, with DPA; or in manifold fields of non-oil energy geoscience at EMD; and environmental geoscience at DEG. Great folks and great places to be active! And the geographic sections of the Association are our great representatives in the main producing basins of the United States. AAPG, its Divisions and Sections form a large and sometimes fractious family, but we're all pointed at the same goals: to serve the growth of applied sedimentary and energy geology in all its forms, and to serve the people—all of you—who have the vocation to find the world's geo-energy resources. We're not done yet!

Finally, to close (as I'm supposed to do) with a few words of advice to those yet young in the profession. Don't try to follow my career path—it has had many twists and turns, but has been blessed by Providence, good friends, and hard work. But do be passionate about the geoscience! We have great stories to tell, based on hard evidence but reaching deep into geologic time and forward to finding and producing resource the world will need this century. Be flexible and wide-ranging in your skills, since you never know where your path takes you. Find and keep the best professional friends who share your passions and hone your arguments. Take some time to interpret what we do to a more general public, by speaking, writing or digital technologies. Take some time and cultivate your avocations—German choral music for me. And count your blessings as a human being placed on such a fulfilling and potentially rewarding path. God bless you all.

***Thomas E. Ewing***

**LEE F. KRYSTINIK**
**Honorary Member Award**

*Citation*—To Lee Krystinik, whose intellect and humility fuel a passion for geoscience and for service, displaying the character of servant leadership.

Lee F. Krystinik uses integrated geoscience and fit-for-purpose technologies to explore for oil and gas. He earned his Ph.D. in geology from Princeton University and began his career as a research geologist for the US Geological Survey. Over the years Krystinik served in various geological positions, rising to chief geologist for Union Pacific Resources and global chief geologist for ConocoPhillips before founding Fossil Creek Resources, a private equity funded start up, successfully sold in 2014. He is presently principal and founder of Equus Energy Partners, LLC, pursuing low-cost oil targets via advanced technologies. Krystinik has won a number of awards for technical and presentation excellence, has been an AAPG distinguished lecturer in North America and in Latin America and has had the honor to serve as president of both SEPM and AAPG.

***David K. Curtiss***

**FIONA MACAULAY**
**Honorary Member Award**

*Citation*—To Fiona MacAulay, AAPG Europe President 2017 to 2019, skillfully guiding the organization through a pivotal period, being a role model and diversity advocate, building a strong, well organized, and successful team.

If Fiona ever found time in her agenda to be an Avenger, she would be Captain Marvel: smart, brave, born to lead but above all else she knows what to do and gets it done. She represents the core of AAPG membership – hardworking, committed, a mentor to all and a cool head in a storm. For all these qualities and for leading AAPG Europe as president from 2017 to 2019, she well deserves the AAPG Honorary Member Award.

From a professional perspective her career has put Fiona at the front of a small but thankfully growing cadre of powerful women professionals. And she has earned her rightful place as a leader, and now mentor for oil company boards by working from the geological bottom (well site geologist) to the top as chair of a fast-moving aggressive gas exploration and producing company. She has done this by being very good at her job. Fiona joined the oil industry in 1982, exploring onshore United Kingdom with Floyd Oil, then in the North Sea and farther afield with Mobil, Amerada Hess and British Gas. She rapidly showed a flair for the practicalities of operations organizing flawless drilling programs and with BG undertook several key exploration manager and operations manager assignments overseas in Bulgaria, Pakistan, Yemen, Komi, Vietnam, and Trinidad.

In 2010, Fiona joined Rockhopper Exploration, responsible for exploration and appraisal of the 1 billion Barrel Sealion discovery in the frontier North Falklands Basin, becoming chief operating officer in 2013. Fiona's commercial and organization skills grew through Rockhopper acquisition of Mediterranean oil and gas, Falklands Oil and Gas, and the Egyptian assets of Beach Petroleum. And then, at the same time as taking on the role of president of AAPG Europe, in 2017 she joined Echo Energy PLC as chief executive officer. In an incredibly short period of time completed a significant acquisition in Argentina, diversified and completed the reverse takeover of AIM.

It was while excelling in her career that Fiona was playing a key role in developing the new organization in AAPG Europe and setting a new, more purposeful trajectory. Taking over the reins at such a time of turmoil, Fiona still managed to skillfully guide AAPG Europe through a very successful series of conferences and GTWs across Europe, developing a strong AAPG professional team and an innovative and challenging events program. This program included the visionary Energy Transition Forum (before ET was even a thing), placing AAPG Europe in the driver's seat on this agenda, now of course considered mainstream in Europe. Additionally, she strengthened the core technical program, putting on diverse events across Europe—beginning to better serve a wider European membership. During her two-year tenure as president of AAPG Europe, despite the pressure on her time from her career, as president she always made time for AAPG and selflessly gave time to the other members of the ERC, without letting them feel it was any sort of problem—an art in itself.

She transitioned to a non-exec role at Echo in 2019 and has developed a broad non-exec portfolio with diverse companies including non-exec chair of Independent Oil and Gas PLC. In 2019 Fiona was voted Female Executive of the Year by the Oil and Gas Council, an award I know I'll never receive myself. In her non-exec board advisory role Fiona brings a wealth of experience in stakeholder engagement including government relationships across many jurisdictions; and has significant exposure to United Kingdom and United States capital markets. Fiona is an active member of the industry, dedicated to supporting professional standards, education and diversity.

Despite developing as a role model for successful women and men in her industry career, she also has served in senior positions in numerous other voluntary roles. She has served on the Petroleum Group Committee of the Geological Society and has provided mentoring for women in the industry through both Powerful Women and the 30% Club. She is not only known and admired for her ability to get it done, but also her fairness and thoughtfulness all applied thankfully with lashings of humor. Her leadership role model is her real legacy, leading in diversity and empowerment that is a

great example to our industry and beyond.

AAPG is proud to offer Fiona the award of Honorary Captain Marvel. She has been a superb enthusiast, champion and role model to us all in AAPG and even beyond our Industry.

***Neil Hodgson***

**RANDI MARTINSEN**
**Honorary Member Award**

*Citation*—To Randi Martinsen for Honorary Membership in AAPG, an exemplary petroleum geologist, educator, past president of AAPG, and past winner of the A.I. Leversen Award.

To Randi Martinsen, for her exemplary contributions to the profession and dedicated service to AAPG. As a petroleum geologist, an educator who inspired future generations of petroleum geologists, and as a leader committed to furthering the mission of AAPG, Randi embodies the best of the organization that she cherishes and has served with distinction. Her extraordinary achievements and the respect of her industry colleagues culminated in her election as president of AAPG in 2014, only the second female to attain that honor. Her career accomplishments and commitment to the Association make her worthy and deserving of Honorary Membership in AAPG.

Growing up in New York City, Randi spent her summers scrambling around the Ramapo Mountains of New Jersey, which instilled in her a sense of awe of the natural world. As the only girl in her neighborhood, she learned early how to navigate a world dominated by males. Her curiosity about the natural world inspired her to pursue studies in earth and space sciences at Stony Brook University. She graduated with a B.S. degree in 1971 and then headed west to Northern Arizona University where she earned an M.S. degree in geology in 1975. As her roommate in graduate school, I was amused and impressed when Randi arrived home after a day of field work covered in mud and scratches, a testimony to her willingness to slash through the notorious Arizona bramble searching for clues to unravel the geology. Her old 1965 Rambler served as a field vehicle, complete with a chain that held the trunk closed and a battery that fell off its perch with too sharp a turn. This budding geologist demonstrated the grit, curiosity, and innate analytical abilities that led to her future success.

After graduate school, in 1974, Randi joined Cities Services Company in Denver as a petroleum geologist. She worked in both exploration and production, eager to learn all aspects of the industry. One of her proudest accomplishments was her work in Hartzog Draw, an oil field in the Powder River basin of keen interest at the time. In collaboration with Rod Tillman, she developed an integrated interpretation of the reservoir through detailed outcrop studies, core descriptions, and well-log analysis. Her oral presentation on Hartzog Draw at an AAPG meeting in 1978 won her the coveted A.I. Levorsen Award for Best Paper. While flourishing in her career at Cities, Randi met and fell in love with Jim Steidtmann, a geology professor at the University of Wyoming. To raise a family together in Wyoming, Randi became a consultant in 1979 and moved to Laramie. Shortly afterward, the University of Wyoming invited her to join their faculty in the Department of Geology and Geophysics and develop a program in petroleum geology. In addition to teaching, Randi conducted research and supervised graduate students, while continuing her consulting for industry.

Randi brought the same excellence and dedication to her university teaching that she exhibited in her industry career. In her highly regarded classes in petroleum geology, she taught students to give polished "AAPG-quality" presentations by requiring them to prepare presentations according to AAPG guidelines and to give the talks within the allotted time frame. She also petitioned the Graduate School to alter evaluations in some of her classes from A-F to pass-fail. This was because she wanted her students to develop their own theories regarding exercises, rather than worry about "what the correct answer was" or

grades. Among her proudest accomplishments and contributions to the profession, and one that gives her a great sense of fulfillment, is the creation of the Rocky Mountain Rendezvous (RMR) job fair, where she helped connect petroleum geology students from across the country who were eager to pursue careers in the petroleum industry with employers in the industry, landing the students jobs via the RMR.

Randi's keen analytical skills, and an ability to integrate disparate sets of data and observations into carefully reasoned interpretations, inspired colleagues and mentors to capitalize on her exceptional capabilities by opening doors to opportunities for growth that might otherwise not have been available. Among those who recognized her potential and for whom she feels a special debt of gratitude are Pete Rose, who taught her introductory geology, inspired her to become a geologist, and advised her career moves; Rod Tillman, her collaborator on several projects and who shared his extensive knowledge of sedimentology; Bob Colby, one of her strongest supporters and mentors at Cities Services; and Vernon Hill, a boss and another important mentor and supporter at Cities who enjoyed helping her break down gender barriers in the industry, which included her becoming the first female expert witness before the Wyoming Oil and Gas Conservation Commission. Randi's gratitude and humility for the encouragement she received belie the stature she attained through her own achievements, attested by the widespread recognition and admiration among her geologic colleagues. This industry-wide respect was demonstrated by her election to president of AAPG in 2014.

The common denominators that infuse all of Randi's life endeavors are her passion, curiosity, intelligence, creativity, persistence, and integrity—not to mention an irrepressible sense of fun. Randi faces life head on and never retreats in the face of a challenge. With a successful career, in which she delighted in her own work as well as inspired the next generation of geologists; marriage to another outstanding geologist who strongly supported her in her career—all while she raised three remarkable children, which she counts as her greatest achievement—Randi feels certain that she has truly "had it all" in life. She has also "given her all," and for this, I am certain that Randi's many friends and colleagues will join me in expressing our delight as she is awarded Honorary Membership in AAPG, an organization she has dedicated her time, professionalism, and energy to during her outstanding career in petroleum geology.

***Christine Turner***

**Response**

I'm very honored and grateful to be recognized by AAPG with Honorary Membership. More than this, however, I'm grateful for AAPG and for being a member of the Association, its affiliated societies, and the greater AAPG community.

I joined AAPG in 1973, when I was a graduate student. I don't remember why I joined; perhaps it was at the recommendation of one of my professors. I do remember that I wanted to work for an oil company, and that AAPG was THE ORGANIZATION that fostered and communicated top-notch petroleum geoscience. I went to my first AAPG conference, the RMS-AAPG event, which was held in Salt Lake City in fall 1973. It was a bit overwhelming, especially when I was invited to have dinner with a group of Exxon geoscientists, including Merrill Hass, then-president of Exxon and who was standing for AAPG president-elect. I don't remember what we talked about, but I do remember getting my first job offer from him. (As fate would have it, my contact information was lost, and thus also my offer.)

I'm also grateful that I went to work for a company (Cities Service) that valued and supported professional associations and professional service. Shortly after I started there my boss came to me with applications for several geologic associations and assured me he would take care of fees and sponsorships. Thus, I went from being an AAPG student member to being an AAPG active member, as well as a member of several other geoscience professional associations.

It was through participation in my local associations (Rocky Mountain Association of Geologists [RMAG], Rocky Mountain Section [RMS]-AAPG, Wyoming Geological Association [WGA]) that my participation in AAPG eventually grew. Luncheons, short courses, field trips—I couldn't believe I was being encouraged to

attend these events and meet such knowledgeable and interesting people. Then came conferences, and interaction with an expanded community of geoscientists. There I was, a young, wet-behind-the ears geologist, but that didn't seem to matter to any of the people I met, many of whom were highly regarded in the industry. And as my participation in so many career-enriching activities grew, so did my network.

My participation also evolved, from simply being an attendee on the receiving end of all AAPG and its affiliates offered, to a more active role in organizing and helping run programs, giving talks, and leading field trips. My motivation simply was to be an integral part of the AAPG community. The AAPG Bulletin, the EXPLORER, technical talks and workshops, field trips—they are all fantastic AAPG benefits, but community is the greatest AAPG asset. I'm so very grateful for the AAPG community.

My AAPG community played an integral role in my teaching at the University of Wyoming. I believe it must have been someone in my AAPG/RMAG/WGA community that informed the university's Department of Geology and Geophysics that I was living in Laramie, which resulted in my being hired to develop a program there in petroleum geology. I developed exercises on my own for my classes, but I also received exercises and data sets from several AAPG colleagues that I used in teaching. By continuing to be active in AAPG I kept abreast of new developments in petroleum geoscience. I also was able to help good students who, for whatever reason, had been overlooked for jobs, helping them find employment through my connections with AAPG colleagues.

And then there is the Rocky Mountain Rendezvous (RMR). AAPG already was committed to two job fairs then, but I wanted to have one in conjunction with the RMS-AAPG Section meeting I was hosting in Laramie – so I reached out to my AAPG community for help. I got commitments from a number of companies to attend the RMR and interview students and financial support from the RMS-AAPG Foundation.

I was astonished when AAPG asked me to stand for treasurer. I wasn't sure I was up to the job, but I was encouraged by colleagues and eventually accepted the nomination. I also didn't think I would win. When I won I was even more astonished. community. Yes, I knew I was part of a great community in AAPG, but I hadn't realized just how widespread it was. Being on the Executive Committee and interacting with AAPG staff on a regular basis was a wonderful experience and put me in touch with AAPG's global community. I learned so much from those with whom I served.

I was honored once again when asked to stand for AAPG president-elect and grateful to have been elected. Again, I learned so much from those I served with on the EC and with whom I interacted on committees. I have been so fortunate in my life and in my career. I am passionate about geoscience, petroleum geoscience and AAPG, proud to be a petroleum geologist, and I valued the opportunity to promote AAPG and our profession to our members and to the world. It was so exciting to meet people as AAPG president, especially students from across the United States and around the world.

Again, I'm honored to be awarded AAPG Honorary Membership, but I feel a bit sheepish in that I believe I've always gotten way more from AAPG than I've given. A big thank you to the AAPG community, to colleagues, staff and to the many friends I've made via AAPG, for enriching my career and my life.

***Randi Martinsen***

## DANIEL EVAN SCHWARTZ
### Honorary Member Award

*Citation*— To Daniel Schwartz, a dedicated geoscientist who shares his joy of geology and complex reservoirs through mentorship, training, and team leadership. His influence makes us better geologists.

Honorary Membership in AAPG is designated for those who have gone above and beyond in their efforts to contribute to our association

and the geoscience profession. Dan Schwartz checks all those boxes, and then some. Over the past several decades, he has had a positive impact on AAPG and the Pacific Section.

Dan is a Southern California native and grew up spending many hours, with his brother Dale, exploring Rustic Canyon and the Santa Monica Mountains outside their back door. From this and many trips to the Grand Canyon and rock and mineral shows with his family, Dan developed a passion for geology and the outdoors which would soon become his laboratory. Dan began his professional career in 1978 with Shell's Bellaire Research Center in Houston, after earning his bachelor's degree from the University of California, Berkeley in 1974 and his Ph.D. at The University of Texas at Dallas in 1978. While at Bellaire, Dan specialized in clastic reservoir analysis. In 1979, after Shell purchased Belridge Oil Company and its South Belridge Oil Field, Dan became acquainted with the unconventional Reef Ridge diatomite. This was the beginning of his long association with the siliceous rocks of California's Monterey Formation—that continues to this day. After several years studying the Monterey, the Pliocene-Pleistocene deep marine reservoirs of the Gulf of Mexico, the Tulare Formation of the San Joaquin, and leading the Production Geology Research Group, Dan transferred to California in 1985. As division geological engineer with Shell Western E&P, Inc., Dan lead a team of geologists working all of Shell's California non-Belridge assets. Here Dan began what would become a career filled with mentorship and training to countless geologists (inside and outside of Shell), willingly and effectively passing his passion and expertise on to the next generation. Among his notable roles in Shell California were leading the evaluation of waterflood effectiveness and CO2 flood potential at Ventura Oil Field; appraisal and development of the offshore Santa Maria basin discoveries; and geological modeling of the Reef Ridge diatomite at Belridge for primary, waterflood, and thermal development planning.

Dan's geologic expertise was leveraged throughout Shell's international organization, leading to a wide range of assignments. In 1992, Dan transferred from Bakersfield to Aberdeen, Scotland. He was head of production geology and geophysics for the Shell-Esso North Sea United Kingdom joint venture. In 1996 he returned to Houston and took on various business and finance assignments in Pecten International, Shell International, Shell Deepwater, and Shell Capital. From 1999 to 2003 Dan had roles in basin evaluation and stratigraphy covering global basin entries and was exploration manager for offshore Morocco. In 2003 Dan was named chief geologist for Shell Oil Company, overseeing staff development and deployment, workflows, software and databases, and technical assurance. In 2005, Dan was named chief petroleum engineer and regional exploration consultant for Shell International E&P, Inc. He had responsibility for all technical disciplines, technical assurance, special-services teams, and project resourcing for all Shell deep-water and Canadian unconventional and sequestration teams.

In 2009, Dan returned to California, first as a Shell secondee and eventually as an Aera employee. Reunited with the Monterey, he led Aera's exploration study team that developed a land position and identified exploration prospects for the San Joaquin unconventional play, underpinned by Shell and ExxonMobil technical contributions. From this effort evolved the four well drilling program (three Monterey tests and one Kreyenhagen test) that tested mature hydrocarbon in shale reservoirs with horizontal wells and complex completions. The wells were a technical success but have yet to reach commercial hurdles.

Dan retired from Shell in 2014 and from Aera in 2016, but that has not curtailed his activity level. As Daniel E. Schwartz, LLC, often in association with Driltek, Inc., he is a consultant for a number of endeavors and has led field and training courses for industry clients and run field courses for Pacific Section-AAPG (PSAAPG), San Joaquin Geological Society, SEPM, and Society of Petrophysicists and Well Log Analysts, and continues to present at sectional and national meetings.

Dan has been involved in Pacific Section activities several times in his career. In 1991 he was the general chair of the PSAAPG convention in Bakersfield. Since 2009 he co-led and presented at core workshops and short courses at various meetings. In 2014 he received the A.I. Levorsen best paper award for his Monterey exploration presentation and in 2018 received the

Victor Church best poster award for his work on the Capistrano Formation of Orange County, California. He contributed to the expansion and success of the Imperial Barrel Award (IBA) program in the Pacific Section, serving as a judge, team mentor, and hosting IBA gatherings. His tenure as president-elect, president, and past-president of the Pacific Section are indicative of his leadership skills, vision, and commitment. He worked to focus the organization on activities beneficial to members and helping to build the organization. He contributed to the Student Scholarship, IBA, Student Chapters, and Young Professional programs. He worked to improve alignment of the Pacific Section with its Affiliated Societies and to improve communications between the Sections and national AAPG.

Dan was elected vice president, Sections for AAPG for 2017 and 2018, and was a member of the AAPG Executive Committee. He represented Pacific Section on several AAPG committees (education, technical, conventions).

Dan's activities are not limited to AAPG. He established a geological graduate student scholarship fund at The University of Texas at Dallas, where he was awarded Alumni of the Year in 2015. He enjoys racing his 1958 and 1965 Turners.

The Pacific Section and AAPG have benefitted tremendously from Dan's activities. He has been a role model for contributing to our profession, and we are honored to contribute to this citation for his Honorary Life Membership.

***Cynthia Huggins, Jon Schwalbach, Jeff Sande, and Jeff Milton***

## JOHN A. PARKER
### Norman H. Foster Outstanding Explorer Award

*Citation*— To John A. Parker for his noteworthy exploration acumen and commercial leadership resulting in the discovery of the giant 2017 Zama Field, offshore Sureste Basin, Mexico. At 700–1000 MMBO 2C–3C recoverable resources, Zama Field is a historic find standing as the first hydrocarbon discovery made by the private sector in the history of offshore Mexico.

John A. Parker was born in Opelousas, Louisiana, June 1955. John spent his childhood working on his 1600-acre family cattle ranch in Grand Prairie, Louisiana, during the 1960s and 1970s. As a boy, John was very aware that working the ranch, which had been in his family for 175 years, was his heritage and of economic importance.

"Growing up on a family ranch was a great experience. We had 250 head of Santa Gertrudis cattle, so I grew up riding horses. We did roundups, spring and fall for inventory, branding, worming, and separating cows from calves, etc. We would start on Friday mornings, work 12-hour days and finish on Sunday night. Roundups were exhausting hot sweaty work, but always exciting and sometimes entertaining. It required teamwork and coordination. When separating bulls, cows, and calves in a corral, we would often get chased over a fence by an angry cow or bull. You had to be quick on your feet. My favorite job was rounding up a herd of cattle from outer pastures and bringing them to the corral. While bringing in the herd with my brother Morgan, a few cows and calves would always make a fast break for open pasture away from the herd. I loved chasing down the escapees and turning them back to the herd. It was hard work, but extremely rewarding and often fun. What I loved most was the great feeling of accomplishment when we finished the roundup on Sunday evening "Wow! We just finished a roundup of 250 head of cattle. Every roundup was a local rodeo."

John goes on to muse, "In today's world of brutal oil and gas market downturns, it is much tougher and less frequent to achieve that same sense of accomplishment that I felt from a roundup. Sometimes I miss that. I always get a huge rush of excitement and sense of accomplishment when an exploration discovery is made. The discoveries at High Island "HI" 52, HI 119, and MI 721, with Gryphon Exploration, Potomac, Thermopylae and Marathon at

Phoenix Exploration, and Tornado and Zama at Talos Exploration were proud and exciting achievements. They are admittedly a little more fun when prices are higher."

In the "global rodeo" of oil and gas exploration, John Parker has accomplished much because of excellent exploration sense, technical skill, business acumen and talent for encouraging teamwork.

John earned a B.A. from Louisiana State University in Baton Rouge in 1978. His interest in geology was inspired by living in Banff, Alberta, for two seasons where he came to appreciate glacial geomorphology.

His interest in Gulf Coast geology fired up through working as a field geologist research associate at the Institute for Environmental Studies, Louisiana State University. Under the direction of Charles Kolb from 1978 to 1980 he was responsible for a drilling and mapping program designed to map the regional stratigraphy of Quaternary and Tertiary terraces over salt domes in North Louisiana.

John earned his Master of Science degree in earth sciences from the University of New Orleans in 1983. There he worked with two professors, Bill Ward and Al Weide, who he describes as both "inspirational and challenging." Through their guidance and his work with Kolb at the Institute for Environmental Studies, he learned to integrate sedimentology, stratigraphy and develop depositional models culminating in his master's thesis titled "Depositional Environments of the Lower Tuscaloosa Formation."

John began his professional career with Shell Oil Company in New Orleans 1983 working the mid-dip Lower Tuscaloosa stratigraphic play. He and his team under the expert mentorship of Paul Garber, undertook seismic sequence stratigraphy and mapping of fluvial channels and point bar deposits in the Lower Tuscaloosa formation using closely spaced two-dimensional seismic. The team generated a regional depositional map over six counties in southern Mississippi culminating in the discovery of two discoveries at Olive and Liberty fields. This is where John was first exposed to AVO analysis on two-dimensional data. John made a transfer to Houston with Shell in 1986 working the Wilcox play from Louisiana to south Texas. He later joined Pecten International in 1989 to focus on exploration projects in the Trinidad basins where he drew additional inspiration and experience working under the leadership and mentoring of Mike Forrest.

John enjoyed his work with Shell and valued the excellent learning opportunities he received and guidance of highly experienced "oil finders" and "wise mentors." John attributes much of his expertise and success in exploration to the quality of Shell training and resources.

Seeking more freedom to follow his own ideas and a long-held desire to start his own oil and gas exploration company, John left Shell and later joined Gryphon Exploration as one of their first few geologists., John had a play in mind, using AVO as an exploration tool in the Gulf of Mexico (GOM). Using petrophysical and fluid substitution models. John believed that he could use PSTM reprocessing to explore for Class II AVO prospects in the geopressured section, which was still highly underexplored in 1999. John and then vice president Ron Krenzke had the same idea. Gryphon underwrote the regional PSTM reprocessing of the Fairfield three-dimensional on the GOM shelf and generated several prospects. As "first movers" in AVO analysis using PSTM offset gathers and cross plots they were able to high-grade prospects. They bid at lease sales but were beaten out on every large prospect. Ultimately a farmout on HI 52, fell into place. The prospect was an AVO-supported stratigraphic trap generated with teammate Alan Warwick. Alan and John showed the HI 52 prospect to Mike Harvey, then Gryphon chief executive officer, who initially agreed to take only 25% of it. After John and Alan, pounded the table and offered to put their own money on the prospect, Gryphon agreed to keep 50%. The HI 52 was a big discovery for Gryphon in 2000 with three wells recovering 110 BCF and greater than 1MMBC. It was at Gryphon where John met with Tim Duncan, portfolio manager and reservoir engineer, which started a partnership of two decades. "I learned a lot from Tim. He taught me the strategy and process of prospect portfolio management, as well as leadership skills."

John and his partners launched Phoenix Exploration in 2006, with private equity funding. Their strategy was built around acquisitions as a route to exploration instead of immediate exploration, the working model with Gryphon. The plan was to acquire producing assets and utilize cash flow for exploration as well as infield development. When the Lehman Brothers financial collapse occurred in 2008, oil and gas prices crashed as well, and John found it difficult to convince the board to approve spending for seismic data. Eventually prevailing with the board, the reprocessing of seismic data sets over key assets was undertaken. The reprocessing efforts were a success and resulted in a significant imaging uplift to the original data. It was on this data in Atchafalaya Bay where three impactful prospects were generated by geologist David Kosmitis, who named the prospects after ancient Greek battles.

Two large and AVO supported prospects, Potomac and Marathon were identified. After drilling through the primary target at Potomac and intersecting a breached trap with poor shows, John bucked the pleas of others to stop the bit and insisted upon drilling another thousand feet to the second target.

His partners supported his recommendation. The second target encountered more than 90 feet of gas pay. That discovery allowed the team to be patient in considering external offers for the company. Two additional wells were drilled including the Thermopylae and Marathon prospects. Thermopylae, a stratigraphic trap with an excellent AVO signature and Marathon, a stacked Cib Op play were both wildly successful. Phoenix Exploration, which had nearly fallen victim to the commodity crisis, lived to see another day continuing to maintain full financial backing and beginning a run of eight out of nine commercial successes.

After the successful sale of Phoenix Exploration, John was instrumental in founding Talos Energy in 2011, along with his partners Tim Duncan and Steve Heitzman. He and his team had amassed extensive GOM basin Lower and Middle Miocene experience from their business strategy, technical work, and positive outcomes at Phoenix Exploration. With that expertise and a similar "acquisitions to fund exploration" business model, Talos Energy was formed and Tim Duncan, Talos CEO, had the vision to take aim in the deep water of the United States GOM and in offshore Mexico and within the changing environment of foreign oil and gas investment.

Upon the opening of Mexico's oil and gas fields to the outside, Talos bid in the 1.1 Licensing Round. The lure of underexplored terrain in the Sureste Basin beckoned John and his team despite hiccups including poor, scant, seismic data quality a dearth of subsurface basin control, and maps replete with mislocated wells. Through successful calibration of nearby well control and finding a well with a full suite of log data, a reconstruction of the seismic data was successful, resulting in a prospect, Zama, again generated by David Kosmitis. The proposed location was targeted at stacked Miocene amplitude anomalies on a large three-way structure. The drilling of the well commenced in May 2017 reaching total depth in July 2017. The Zama well drilled to 3380 m in water depth of 160 m, encountered more than 341 m of gross oil pay and is one of the largest shallow water discoveries globally in the past 20 years. As a result of the success of the Zama exploration effort, Talos Energy and partners were awarded the 2017 Global Discovery of the Year by Wood Mackenzie.

In 2018 in an AAPG ACE Discovery Thinking Forum John stated, "One can always find reasons not to drill a well. But successful oil finders have a vision of a discovery in mind and they focus on compelling reasons to get the well drilled that finds the next giant discovery." Through John Parker's technical and commercial leadership, the giant Zama discovery happened, but not without excellent integrated geological, geophysical, engineering, and operations work by a motivated and "success-case" thinking team. "One of the most important parts of any exploration strategy is to hire/assemble a great team of geoscientists with the right balance of explorationists and geoscientists with excellent field development skills."

***Bonnie Milne***

**Response**

I am deeply honored and grateful to receive the Norman Foster Outstanding Explorer Award. First, I want to thank AAPG for the opportunity to receive this prestigious award, and Bonnie Milne for the nomination. The Tornado discovery in 2016 was a significant discovery for Talos. I want to thank Ben Winkelman and Mike Albertson for all their hard work in getting the Tornado prospect to discovery. Making significant discoveries is very rewarding, but finding a giant discovery is just an incredible experience. The Zama discovery in the Sureste basin of Mexico is just such a giant. Talos drilled the Zama discovery well in 2017, and encountered more than 1100 gross ft of oil pay on a large 3600 acre structure. Regional basin analysis, calibration to key well control, fluid substitution modeling, seismic reprocessing, and applied AVO analysis were key to reducing risk on the prospect. The Zama No. 1 was the first purely exploration well drilled in Mexico by a private company in more than 79 years. I want to thank Tim Duncan, my partner and Talos chief executive officer for his vision to get into Mexico early on as a first mover and for his confidence in our exploration team. The Zama discovery was truly a team effort and I want to recognize and thank several members of the Mexico team. David Kosmitis, the primary generator, and Mike Albertson, Talos chief geophysicist, deserve much of the credit for the Zama discovery. Many thanks to David and Mike for all their hard work, amazing insight and creativity, and for putting up with my endless questions, suggestions, and "what if" scenarios. David and Mike were relentless in pursuing the goal to get Zama drilled, in spite of countless challenges too many to list. Loren Long dealt with numerous regulatory and logistical issues and kept the project moving forward. I also want to thank Alex Obvintsev, Jonathon Lindsey, and Jorge Garcia on the drilling team for drilling the discovery well, the sidetrack and two appraisal wells drilled, cored, and drill stem tested under budget and on schedule, in spite of many logistical challenges. Tom Hall, Joel Speights, James Pasley, David Tett, and many others helped in generating a development plan for the Zama discovery. Talos partners at the time of the discovery were Sierra Oil & Gas, and Premier Oil.

***John Parker***

**MARIE-FRANÇOISE BRUNET**
**Robert R. Berg Outstanding Research Award**

*Citation*—To Marie-Françoise Brunet for decades of executing and managing regionally integrated, multi-disciplinary petroleum geoscience research, together with her colleague Eric Barrier.

Marie-Françoise Brunet is a woman of real stature within the European to Central Asian geoscientfic community.

Frankly, I was impressed from the very first moment I met Marie-Françoise 10 years ago, when there was this workshop at the world-famous Paris university Sorbonne. She is not tall, but sensing her strength was not difficult. Since then we have been in touch and being now a project leader myself, she kept inspiring me on pursuing regional geology inside the oil industry and as a mom to reconcile family and professional life. Over the years, I realized in what way Marie-Françoise had influenced co-workers, researchers, and industry colleagues as well. Let's look back on how it started.

From the very beginning of her scientific career, the focus was on comprehensive, "bigger picture" subjects like basin evolution, subsidence, and lithosphere as well as geodynamics. During her Ph.D. she was examining the Paris Basin, later she focused on several sedimentary basins in France and, thereafter, she deployed her expertise to superregional areas including numerous basins, e.g., the Mediterranean, the Black Sea, the Greater Caspian, the Amu Darya Basin, and Central Asia.

It is impossible to refer to all her achievements, but it is worth stating that for about 35 years the

research was undertaken in the framework of global industry-academia collaboration. Very early in her career, she was accepted by the French National Centre for Scientific Research. In that role, at Institut des Sciences de la Terre de Paris of the Sorbonne Université she worked very closely with her co-honoree for the 2021 AAPG Robert R. Berg Outstanding Research Award, Eric Barrier.

Marie-Françoise is an excellent scientist, university teacher, author, and editor, at the same time thoroughly driving the incredibly efficient administration and co-ordination of mega-projects involving up to 350 scientists from 150 research institutions representing 25 countries.

These enormously ambitious multidisciplinary, multi-year research consortia included the Peri-Tethys Program, MEBE Program, and DARIUS Program combining field-based as well as applied research, getting in return detailed and updated knowledge about remote and difficult to access regions in the form of digital atlases of consistent, paleokinematically correct restorations of very large areas as an input for GDE maps, which are a critical input for hydrocarbon exploration by predicting petroleum systems. Since the maps are still widely used, and the publication extensively cited, they are benchmarks for geoscientists from industry and academia working these areas.

Behind the scenes, field trips and countless pieces of research have been enabled, and rather than these happening in isolation, overall 47 scientific teams worked together gaining greater and wider insights and leading to truly integrated collaborations—workshops were convened, sharing and discussion thrived; Ph.D.s were funded, papers written, and special publications co-authored and edited. ln all, a huge wealth of academic insight and learning was empowered and documented, and all of this in an impressively efficient manner for the industrial sponsors. It's a huge body of work achieved over three decades, truly a life's work of which to be proud.

Marie-Françoise has been an AAPG member since 1995 and succeeded to take full advantage of the extraordinary events the association offers like European Region Conferences, ICEs, Hedberg Conferences, and ACEs, where she regularly presented the results of the projects. She also chaired and co-chaired several sessions on those occasions. Furthermore, she served the association as European Delegate from 1999-2001.

Almost all her 150 articles that she has published/edited are in peer-reviewed publications, among them AAPG Studies in Geology and the AAPG Bulletin. Several became regional geology landmark papers with a remarkable number of citations. Key papers on the Greater Caspian region came with Sedimentary Geology and on the Black Sea and Central Asia with Geological Society of London memoirs and special publications.

Marie-Françoise's unprecedented legacy, apart from the documented scientific achievements, lies in her ability to bring colleagues and even scientific communities from unalike worlds together, allowing for learning from each other, exchanging ideas, opening doors for academic collaboration and influencing entire paths of life for some by enabling and (co-)supervising Ph.D.s as well as post-docs. Many teams continued working beyond the programs and the workflows and networks established by her tireless commitment and will continue to do so and will result in further insights.

As a person, she is modest and does not seek the spotlight, but she is indeed widely recognized as kind and patient, encouraging and supportive, nevertheless being rigorous in assessing the quality of academic outcomes. She is easy to work with, approachable, and always honest.

She serves as a role model for younger geoscientists. Merci beaucoup, Marie-Françoise!

***Karen Wagner Weise***

**Response**

I am deeply honored to receive the Robert R. Berg Outstanding Research Award with my co-honoree and colleague Eric Barrier. I am really sensitive to this recognition from AAPG considering that AAPG meetings are the most interesting places to learn and discuss regional geology with a large international community.

Our nominations were made possible through a carefully prepared application by Karen Wagner Weise assisted by Gabor Tari and with the help of Marc Sosson and the kind support of many colleagues from academy and industry, involved in our programs. A big thanks to all. I am particularly indebted to Karen for her initiative and for agreeing to be my

biographer as well. I was touched by her words, Karen being a passionate geologist from industry and of great human quality. Over the past decade we have had so many rich discussions about the Greater Caspian area, geodynamics and reconstructions, and also on our families; rreconciling family life with the profession of geologist is not always an easy task.

During my early years of study my preference for a profession was Egyptology but employment opportunities were so scarce that eventually I oriented my specialization towards geology. I am happy to have made this choice, which allowed me so many encounters and discoveries of remote countries.

I express my gratitude to my Ph.D. supervisor Gilbert Boillot at Pierre and Marie Curie University in Paris (now named Sorbonne-Université), and also to Xavier Le Pichon, both of them having taught me scientific rigor and supported my candidacy to the CNRS. Since my doctorate, I have been in touch with geologists from oil companies, beginning with Elf Aquitaine, and the fruitful collaboration with companies has never stopped. The first 10 years of research were devoted to the French and Western Mediterranean basins in the frame of French programs.

At the beginning of the 1990s, Jean Dercourt trusted me by offering, along with Eric Barrier, to join the organization team of the Peri-Tethys Program (PTP). From there, the experience of multiyear joint consortia with oil companies and French academic research organizations began for me. Within the PTP team, I was dealing with scientific communication, in particular I was in charge of collecting the reports from all the scientific projects' leaders funded by the program, in order to distribute them to the sponsor companies. Starting from the following Middle East Basins Evolution Program, I managed the financial administration and the grants to the projects. In addition, together with Randell Stephenson, we supported the head Eric Barrier as vice-leaders within the follow-up DARIUS Program. At the same time, I was leading the research group on the Caspian and Iranian basins. These new roles enabled me to learn a lot about scientific as well as administrative organizations.

For nearly 30 years, the members and participants of the successive consortia represented not only leading scientists of many different disciplines in geoscience, but were my daily collaborators and a kind of professional "family." Among them, my special thanks for a harmonious working atmosphere, go to members of the successive organization boards and group leaders: J. Dercourt, M. Gaetani, B. Vrielynck, J.-P. Cadet, B. Biju-Duval, E. Barrier, S. Crasquin, C. Homberg, R. Stephenson, J. Vergés, A. Zanchi, F. Fürsich, M. Sosson, J.-F. Brouillet, A. Robertson; to the representatives of our associated oil companies; to my co-editors of three special volumes presenting some of the results of the programs on sedimentary basins and on the Caspian-Iran area or Western Central Asia: S. Cloetingh, J. Granath, M. Wilmsen, T. McCann and E. Sobel and of course to the administrative staff of CNRS and Sorbonne-Université, our hosting laboratory and team who helped us a lot.

Indeed, there is hard work behind the scenes of all of these big research programs but also a rewarding experience to be in touch with so many great scientists in the world. There is also the deep satisfaction when a meeting or even more when a program is finished to see that everything went well and that the participants are satisfied with the scientific results, the good cooperation between universities, organizations of state research and oil companies.

As Karen mentioned, the atlases of palinspastic maps showing the results of the programs were based on detailed and/or regional studies. Surely, our academic research is not to explore directly for oil and gas but to better understand the sedimentary basins and to place their evolution in the general geodynamic framework of the surrounding region and of the Tethys.

For my own scientific research, the great adventure of the Greater Caspian region began 30 years ago also, in collaboration with many scientists, some from European countries but most from Russia, Azerbaijan, Uzbekistan, Georgia, and from Iran as well. This allowed me to co-supervise the theses of a few students with whom I am still in contact. Beyond the scientific contacts the journey of discovering people, cultures and countries has been truly enriching.

In closing, thanks to all for their support through a varied and interesting career.

***Marie-Françoise Brunet***

**ERIC BARRIER**
**Robert R. Berg Outstanding Research Award**

*Citation*—To Eric Barrier for decades of executing and managing regionally integrated, multidisciplinary petroleum geoscience research, together with his colleague Marie-Françoise Brunet.

Eric Barrier was born in Tours, in the Loire Valley, in the southwest Paris Basin, lying between the crystalline Armorican and Central massifs to the northwest and southeast, respectively. So good wine country and a good place to build famous chateaux and all of this very close by for a child growing up in a small city. Eric toured throughout Europe as a child with his family, experiencing its geological and geomorphological diversity first-hand at a young age, and the seed was planted for a life of geology. Tours has a famous university—but it did not offer geology as a degree subject at that time—so Eric "went up," literally went up the Loire River, to the University of Orléans, another famous university and one with a well-known geology department as well. Scholarships and graduate studies beckoned so Eric continued his trek northeast up the national highway, to where all national highways in France lead, to Paris. The University of Orléans was followed by Pierre and Marie Curie University (UPMC). The former was founded in 1306 and the latter was formed in the 1970s from the science faculties of the University of Paris that was founded in 1150. In 2018, UPMC became part of the Sorbonne University.

Eric's post-graduate research in Paris (with a 5-year stopover at CEA, the French atomic energy commission, at Gif-sur-Yvette in the Paris outskirts) and his geological career thereafter has been strongly focused on fieldwork. A conservative estimate is that Eric has spent 8 full years of his geological career in the field. That's a lot of meticulously filled field notebooks as it is well known that Eric made and kept copious and clear notes in the field. Field areas included Greece (Ph.D. at UPMC "Tectonics and neotectonics of Kasos and Karpathos islands"), Taiwan ("habilitation" at CEA "Tectonics of an active collision range: Taiwan") and, since then, all across the Middle East, Central Asia and Peri-Mediterranean domain (north Africa, near East, the Levant, and southern Europe) as well as Southeast Asia (Taiwan, Philippines, and South Korea) and Central America (Mexico and Guatemala).

The recording of precise, "immortal" notes in the field is not the only thing noted by colleagues who had the pleasure of working with Eric in the field. A number of them mentioned that he retains a photographic memory of each and every outcrop visited over the years (for example, in Iran or Azerbaijan or Uzbekistan) and that when talking about the geological details, ambiguities or diagnostics of those outcrops, it was not so much the field setting or its difficult access and key landmarks, or the difficult name of the local village, one seemingly much the same as another, but that his key database attribute for each field location is the meal that was taken (what the food was and how it was served). It is reported that this system worked well.

Eric's fieldwork activities were mainly guided by structural geology—brittle deformation and paleostress—but his goal was always integration by means of tectonostratigraphic reconstructions. This was the natural basis for his 25 years involvement in a succession of international consortia supported by oil companies and national research organizations—namely, the Peri-Tethys, MEBE and DARIUS programs, Eric's contribution to which, not only as a leader and driver but as a contributing geologist as well, has been recognized and honoured by being awarded the Robert R. Berg Outstanding Research Award.

Eric was co-leader and leader, respectively, of the last two of these consortia and was therefore the main cog in the wheels that produced the MEBE and DARIUS paleotectonic-paleogeographic atlases, 14 and 20 map sheets,

respectively, in 2008 and 2018, working with geologists from throughout Europe. These atlases represent an enormous and invaluable resource not only for the industrial sponsors but for the wider earth science community and they are widely cited in the scientific literature. In addition, Eric co-authored some 20 papers in top-ranked international journals during this time and more than 70 during his research career. Those of us who worked with Eric in the Peri-Tethys, MEBE and DARIUS programs know that he was dedicated not only to the science and the quality of the results but to creating a team environment that was always constructive, convivial, and collegial,l and always goal-oriented even though we hardly ever noticed this. He is remembered by us as a free man in every sense, from human relationships to research and management, friend and colleague and leader.

***Randell Stephenson***

**Response**

For almost 35 years, we have been developing and managing in Pierre & Marie Curie - Sorbonne University (Paris) international research consortia in relationship with the petroleum world through four major programs (Tethys, Peri-Tethys, MEBE, Darius). With my corecipient colleague Marie-Françoise Brunet, we actively participated to these programs, more particularly during the last 20 years.

I consider it a great honor to receive this award. First, I would like to thank the Advisory Council regarding honors and awards for submitting my name and AAPG for their recognition and continued support of the academic-industry partnerships. I certainly did not accomplish this on my own. I am very thankful to Karen Wagner Weise (Equinor) and Gabor Tari (OMV) for the nomination, and to many colleagues from academic and petroleum worlds.

My career can be divided into two important areas, including a first academic period, roughly before 1990, when I almost worked in the areas of seismotectonics, neotectonics, and brittle tectonics, in several academic programs in the Far East, Middle East and Central America. Then lasted a 25-years long period, when I worked alongside the petroleum industry in the research-industry consortia. During this latter period I maintained a major effort in keeping my field researches alive developing scientific projects in the Middle East, Mediterranean, Caucasus and Central Asia.

Let me say first a few things about the research-Industry consortia and my activities alongside the petroleum industry. This series of four programs targeted the geological evolution of the Tethys Realm. Each program produced an atlas of palinspastic maps and regional syntheses.

I joined the team of the Peri-Tethys Program in the early 1990s as coordinator for the scientific projects in the southern Tethys realm, i.e., North Africa, Levant, and Middle East. During this program I gained in experience in project management, cooperation with local scientists and institutions, and last but not least, I developed a greater knowledge of the regional geology. Then in 2002 I became coleader of the Middle East Basins Evolution Program, together with Maurizio Gaetani. Finally, I took the leadership of the Darius Program in 2009. These programs were well-run, well-funded, vibrant and productive research consortia. This is clearly illustrated by the number of articles, Ph.D. theses and communications that were presented and published.

During the Middle East Basins Evolution and Darius programs I had the pleasure to work intensely with Marie-Françoise Brunet and Bruno Vrielynck. The three of us was the backbone of these programs together with the members of the Planning Committees (B. Biju-Duval, J.-P. Cadet, , S. Crasquin, J. Dercourt, F. Fürsich, M. Gaetani, C. Homberg, M. Sosson, R. Stephenson, J. Vergés, A. Zanchi), mapping groups (J.-F. Brouillet, A. Robertson), and team of our Institute (ISTEP) in Sorbonne University.

During this 30-years long period working alongside with the petroleum industry, I collaborated with a number of outstanding colleagues from many countries and companies who helped me gain experience. At each level I have met colleagues who have become longtime friends. I cannot list everyone, and I will simply say thank you to all who have been part of my geological career over the years, both in the academic

and industrial worlds. I am sincerely grateful to all.

Finally, I should like to emphasize the decisive role of two of my mentors who have influenced me. I started my geoscience education at University Pierre & Marie Curie (Paris, France) under the supervision of Jacques Angelier through thesis works. He instilled in me the scientific rigor and stimulated a love of research. Later, I learnt a lot from Jean Dercourt who taught me the grounds for the management of international scientific programs and palinspastic reconstructions.

This intense activity involved traveling to many countries, as well as close collaborations with research organizations (institutes, universities, surveys) and oil companies of these countries. None of this would have been possible without the support for these last 30 years of my wife, Alice Aureli, and my three children. They have endured the inconveniences of my frequent absences and field trips.

Coming back to the award I would like to extend my warmest thanks to my award biographer, Randell Stephenson. I met Randell in the 1990s during the Peri-Tethys Program in which he was interested in the evolution of the basin of the northern Tethys Realm. He added his humor to keep the bio from getting too boring.

I extend a hearty thank you to the committees, and all within AAPG that have made this award a reality.

***Eric Barrier***

**ALEXEI MILKOV**
**Robert R. Berg Outstanding Research Award**

*Citation*—To Alexei Milkov for excellence in petroleum systems analysis, risk and resource assessments and exploration decision-making in pursuit of energy for the nation and the world.

Robert R. Berg Outstanding Research Award is named for one of the most quintessential geoscience scholars of the 20th century. I see no more fitting a tribute to those who established the Robert R. Berg Outstanding Research Award than to give this 2021 award to Alexei Milkov, a 2001 graduate of Texas A&M University, whose professional career has like Berg's, been in service of exploration for energy resources and education of young geoscientists.

After earning his Ph.D. in 2001, Alexei took up two successful post-doctoral positions and sailed as a scientist aboard ODP Leg 204. From this very productive time in his career, Milkov authored or co-authored no less than 24 papers surrounding his research in gas hydrates, methane seeps, mud volcanos and global gas hydrate resource volumes. The influence of his work in this area is illustrated best by his Earth Science Review paper, "Global estimates of hydrate-bound gas in marine sediments: How much is really out there?", which has been cited more than 1000 times since its publication in 2004. In 2003, Dr. Milkov began a successful career in the energy industry, holding positions from 2003–2015 with multiple energy companies (BP, Sasol, and Murphy Oil) across the globe. Alexei published extensively on the petroleum systems of basins around the world, including the Gulf of Mexico, the West Siberian Basin, the Mozambique Basin and the Tarim Basin, reaching beneath the hydrate stability zone to look at deep and ultra-deep petroleum accumulations. During his time in industry Alexei began to delve into not just the technical information needed to make exploration and development decisions, but the way decisions were made and how people were moved to make choices and decisions. This is a subject that would continue to gain his attention as he began teaching exploration science and decision processes to the younger generation.

In 2016, Alexei began the second phase of his career, returning to academia and taking the position of full professor at Colorado School of Mines in Golden, Colorado, where today he serves as the director of the Potential Gas Agency, supervises graduate research and teaches courses in his area of technical specialty—petroleum systems analysis and risk and

volumes assessment of plays and prospects. Alexei joined the school at a critical time, filling a critical need. With the energy industry in a time of flux, vacillating between conventional and unconventional hydrocarbon commodities, and struggling with how to transition to new forms of energy, Alexei is leading one of the premier national organizations in conventional and unconventional resource assessment, and leading from a position of knowledge in alternative resources. To understand his desire to engage and train people on how to make good decisions, one has only to read the titles of his most recent publications (i.e., "…randomness, serendipity and luck…", "…crowd-sourced prospect assessment…", "…web-based machine learning…"). His more than 60 peer-reviewed publications have been cited more than 7000 times by other authors. His ideas and tools for decision-making analysis have been broadly adopted by industry and governments. His documentation and quantification of natural geological sources for methane received acknowledgment by the Intergovernmental Panel on Climate Change, and natural sources for methane are now included in global methane budget calculations. His reach in refining and improving the way we use geochemistry in the study of basins and natural systems has changed our understanding of how hydrocarbons are generated, migrate, and reservoir in the earth, and like Berg, Milkov is passing his knowledge on to a new generation. Alexei has presented 18 papers and posters at AAPG meetings around the world, and has chaired sessions at the United States and international AAPG meetings. In addition, he has presented dozens of papers at other society meetings around the world. There is no doubt that Alexei's research is reaching huge audiences and the influence that his research has had on the global science and policy community is profound.

In closing, I hope that this citation has honored the colleagues and friends who have nominated Alexei Milkov for this award. I have no doubt that the awarding of the 2021 Robert R. Berg Outstanding Researcher Award to Milkov is a recognition of the quality of the Berg award and of Alexei Milkov's scientific excellence and societal impact, and a decision that would be highly approved of by Berg.

***Leslie Wood***

## SAM AKANDE
### Distinguished Service Award

*Citation*—To Sam Akande for his devotion to the growth of AAPG Student Chapters, reinvigorating the Visiting Geoscientist Program in Africa and his service to AAPG.

Having known Sam Akande for over two decades as a professional colleague, I consider it an honor and privilege to be write his citation. Sam Akande attended the University of Ibadan, where he successfully completed the B.Sc. Honors geology in 1973. A Federal Government of Nigeria Overseas postgraduate scholarship in 1975 took Sam to the University of Western Ontario, Canada where he completed his M.Sc. degree in 1977 followed by a Ph.D. at Dalhousie University in 1982.

Sam's Ph.D. dissertation supervised by Marcos Zentilli at Dalhousie University on the depositional environments, fluid inclusions and isotopic characterization of carbonate hosted lead-zinc-barite deposits in the Fundy Carboniferous Basin of Atlantic Canada, revolutionized the previous diagenetic hypothesis for the origin of this class of mineralization, which he reinterpreted as products of hot saline brines similar chemically and isotopically to oil field brines.

Sam's postdoctoral research was supported by the Canadian International Development Agency/Natural Sciences and Engineering Research Council in the continued research on the hydrocarbon charge modeling and petroleum system evaluation in the rift basins of Atlantic Canada and applications to Nigeria rift basins.

His appointment as a lecturer in the Department of Geology at University of Ilorin in 1982 was combined with postdoctoral

research and the initiation of research projects on the hydrocarbon potentials of Cretaceous subbasins of the Nigerian Benue trough with his colleagues and graduate students. The team established the thermal maturation patterns, stratigraphic variations, and production of a vitrinite reflectance map of the entire Benue trough.

The German Alexander von Humboldt Foundation Research Fellowship award resulted in similar collaborations with other International Institutes in Germany from 1990 onwards. These long-term collaborations complimented his field-oriented research in the Nigerian frontier basins leading to completions of several M.Sc. and Ph.D. students' theses.

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

His contribution to the Department of Geology at University of Ilorin cannot be overemphasized. His dedication, hard work, passion for excellence, and a student-focused approach have contributed greatly to the legacy of excellence for which the department is known. Akande's students were some of the first participants from Africa to compete at the Global Imperial Barrel Award competition. Many of Akande's former students have become very successful professionals and academicians many of whom are now professors.

He uses his extensive industry connections for the benefit of the geoscience students across Africa by collaborating with former students to give guest lectures and Visiting Geoscientist Program talks. Since he took over the leadership of the Africa Region's Visiting Geoscientist Program (2014-2020), an average of aproximately 1500 students from across the continent have been reached each year. This is despite the complexity of travel within the region, the diversity of languages and cultures and the fact that some of the country have a minimal AAPG footprint. This outstanding effort has led to the expansion of the AAPG footprint on the African continent.

Sam Akande has a long, dedicated, and exemplary service to the AAPG: Sub Sahara network (1996–2001), Education Committee (2008–2011), Technical Advisory Committee (2010–2013), started the AAPG Student Chapters in University of Ilorin and Federal University Oye-Ekiti, and was faculty advisor between 2000–2020.

Widely recognized by his peers, and beloved by students, he is a recipient of multiple awards, his passion to mentor young geoscientists is legendary and this led to his conferment of the prestigious Fellowship of the Nigerian Association of Petroleum Explorationists (NAPE) (2009), Fellowship of the Nigerian Mining and Geoscience Society (2011), and he was named the Petroleum Technology Development Fund- PTDF/ Rilwanu Lukman Outstanding Teacher in Petroleum Geoscience in Nigeria (2011). He received the 2014 Nigerian Outstanding Earth Science Professor by NAPE and the AAPG Grover Murray Distinguished Educator Award in 2015.

Although all the members of AAPG Africa leadership are much younger than Akande and a significant number were his former students or students of his students, Akande is always eager to participate in any task or assistance asked of him. It is indeed a great honor to document Akande's contributions.

***Femi Esan***

## MAREN BLAIR
### Distinguished Service Award

*Citation*—To Maren Blair for outstanding leadership within the Canada Region and meritorious service to the House of Delegates.

Maren was born and raised in Sarnia, Ontario, just across the border from Port Huron, Michigan, and moved to Moose Jaw, Saskatchewan, at the age of 12. Like most geologists, as a child, Maren kept a box of "cool rocks" under her bed. However, her formal education and love of geology came somewhat by accident during an introductory earth science class at Grant MacEwan College in Edmonton, Alberta. As she tells it, "the lab tutorial alone had me hooked, looking at rocks for grades seemed like a win-win scenario to me."

At the encouragement of her college professor, Maren applied and was accepted to the University of Alberta, in Edmonton in geology. Initially concerned about her mediocre calculus grades from a one-year stint in the faculty of engineering, she was assured by the geology department's associate dean that there would be less math in this department (which was only half true). Maren remembers that her parents never really understood her decision to switch from engineering to general studies to geology, but they gave her the freedom to fail at something to succeed at something else.

After graduating from the University of Alberta in Edmonton in 2002 with a B.Sc. specialization geology, Maren spent the first few years of her career as a wireline geologist for Schlumberger working in the Western Canada Sedimentary Basin (WCSB). She spent the first 3 weeks in Houston and Tulsa learning about the business, and the very night she got back to Alberta she was standing at the base of a Champion drilling rig somewhere near Jenner, Alberta questioning her life choices. With the initial shock of wireline logging under her, Maren spent the next 2 years running wireline jobs out of Brooks, Alberta, and traveled all over Alberta and Saskatchewan. She feels that the time in the field was beneficial because it toughened her up and taught her a whole different side of the petroleum business.

Maren transitioned away from the field and into the office in 2005, entering a career as a petroleum geologist with Sproule, specializing in reservoir characterization for corporate reserve and resource reports. She worked for Sproule for almost 15 years doing reservoir characterization studies for oil and gas reserve and resource reports. Maren says that she has probably evaluated almost every producing formation in the WCSB at one point during those 15 years. In retrospect, she thinks it was very interesting to look back at the transition from evaluating and booking reserves for vertical wells versus booking reserves for horizontal wells and the decade long evolution of evaluating contingent and prospective resources.

While working at Sproule, Maren was encouraged by her mentors to join AAGP, becoming a member in 2007. In 2013, her mentor and colleague George Strother-Stewart encouraged Maren to run for a seat on the House of Delegates with the Canada Region, not knowing how this would bring her into the AAPG volunteer clan.

Maren served on the HoD for two terms from 2013-2019, holding several committee appointments, including the Nomination and Election Committee, the Credentials Committee, the Rules and Procedures Committee, and in 2018 was elected by the House to be secretary-editor (2018–2019).

During this time, Maren also served in several executive positions with the Canada Region, including vice president-treasurer (2014–2017), president (2017–2019), and continues to serve as the past president (2019–2021) of the Region.

Maren and her husband, Sean, live in Calgary, where Maren is now pursuing an M.Sc. in sustainable energy development at the University of Calgary and is excited to bring the conversation surrounding sustainability and the energy transition back to AAPG. After graduation, Maren hopes to pivot into a career in evolving energy policy research or sustainability reporting and apply this to the energy sector.

***John R. Hogg***

## MARSHA BOURQUE
### Distinguished Service Award

*Citation*—To Marsha Findlay Bourque, who is more than an exploration geoscientist, she is an

indefatigable advocate for students in the geosciences, for teachers of earth science and for the societies she joins.

Marsha Findlay Bourque was pre-law while at Vassar College when she took a geology course. This changed everything. She found herself not just fascinated with geology, but after talking to a recruiter, she decided to join the petroleum industry. She acquired a master's degree from the University of South Carolina, where she studied Tunisian Mesozoic carbonate stratigraphy and the opening of the Tethyan seaway.

Her professional career began in 1976 with Chevron in New Orleans, Louisiana, assigned to Gulf of Mexico exploration. In 1981 she moved to Mobil Oil, where she gained experience in development geology, becoming team leader, working with partners on joint field operations. In 1989, Marsha moved to Houston with BP Exploration. She was an exploration geologist for their Louisiana Deepwater and Upper Slope Teams and later, pperations coordinator. In 1996 Marsha joined Statoil Exploration (US) Inc. as senior geologist, becoming license coordinator for the Fuji Field.

After Statoil closed their Houston office, Marsha worked briefly in risk analysis before joining Conoco in Lafayette, Louisiana, where she was hired to become operations manager. When Conoco merged with Phillips and exited deepwater, Marsha partnered with a petroleum engineer to develop technical training courses emphasizing collaborative skill sharing. This set a new path for her, training young professionals. While teaching over the next 15 years she enjoyed the international experience. Teaching in Saudi Arabia was especially rewarding. She worked with young women new to the petroleum industry who were pioneers, as she had been.

Marsha's commitment to youth and diversity are exemplified by her work within professional societies. The American Geological Institute created the Minority Participation Program, inviting her to join the Advisory Scholarship Program in 1977. For several decades Marsha mentored undergraduate and graduate Native American, Hispanic, and Black students. She continues to follow her proteges, who became academicians, researchers, hydrogeologists, meteorologists, and petroleum geologists. She led by example, reinforcing the concept of resilience. She wanted them to arm themselves with the best of skills, and the confidence to take or make opportunities throughout their career.

Marsha joined AAPG in 1977 and made a notable impact at ACE with the AAPG Teachers' Day Program. She dedicated 25 years to the Youth Activities Committee. The Houston Geological Society has enjoyed her contributions as a director and on the Membership Committee. She was previously active in the New Orleans Geological Society. Marsha was a member of the National Science Foundation Committee on Equal Opportunity in Science and Engineering and collaborated on a report for the United States Congress in 1993. She was a member of the University of Houston Global Energy Management Institute in 2005 and was on the Geological Advisory Board at the University of South Carolina for 2 years.

Marsha was a member of the National Science Foundation Committee on Equal Opportunity in Science and Engineering and collaborated on a report for the United States Congress in 1993. She was a member of the University of Houston Global Energy Management Institute in 2005 and was on the Geological Advisory Board at the University of South Carolina for 2 years.

Marsha is active in the Houston community. She has been a successful fundraiser for the Leukemia and Lymphoma Society for many years. She has been a board member with the Houston Grand Opera Guild, and continues to volunteer. Marsha volunteered for the Citizens for Animal Protection. While in New Orleans she was appointed by the mayor as a commissioner on the Regional Transit Authority. Mobil Oil selected her to be the company representative for the New Orleans Chamber of Commerce.

Karin Wright, retired Shell geophysicist, said, "Marsha Bourque is one of those rare individuals who combines a robust intellect with exceptional people skills. She gets things done. Marsha's special gift is networking—I'd like to share a small anecdote. One evening, while driving home from the opera, we chatted about Marsha's

seemingly endless network of contacts. On a whim, I remarked to her that she was likely the only person that I knew who probably knew someone who speaks Swahili. She paused for a moment (no doubt going through her mental Rolodex) and laughed, telling me that she actually knows two Swahili speakers. One is the mother of Marsha's goddaughter, with whom she shares her love of classical music treating her to performances of baroque music."

Gretchen Gillis, a colleague working for Saudi Aramco, said of Marsha, "…her adaptability and interest in other cultures stood her well. She managed to make a full house of drilling engineers appreciate petroleum geoscience!"

Lori Glassgold Gibson commented, "Marsha is among the most committed volunteers I know to the organizations and nonprofits she supports. She fundraises year-round for the Leukemia and Lymphoma Society, has fundraisers and organized a team for years for the annual Leukemia and Lymphoma Society 'Light the Night' event, has assembled groups of ladies for March of Dimes events, and serves on numerous cultural and arts boards and committees, including the Houston Ballet and the Houston Grand Opera. She works nonstop for these organizations."

Marsha Bourque and geologist Michael Bourque have been married more than 40 years. They take great pride in their independent and loving daughter Veronica, who lives in Houston.

***Robbie Rice Gries***

## C. ELMO BROWN
### Distinguished Service Award

*Citation*—To C. Elmo Brown, in recognition of his long-term and dedicated service to the American Association of Petroleum Geologists, and for his scientific and educational outreach to the general public and geoscience community.

AAPG proudly recognizes C. Elmo Brown as a 2021 recipient of the AAPG Distinguished Service Award for his leadership and commitment to the geological community, both locally and nationally. Elmo Brown spent his professional career engaged in petroleum exploration and development, with a focus on the identification of sedimentary facies variations across complex structural settings, to petrophysical analysis of petroleum reservoirs. Elmo received a Bachelor of Arts degree in geology from The University of Texas at Austin, in 1976. That was followed by coursework and sedimentary field research toward a Master of Science degree in geology, also from The University of Texas. In 1979, he began his professional career with Placid Oil Company, in Denver, Colorado, where he had the opportunity to explore many of the sedimentary basins of the western United States, as well as thrust belts in Utah, Wyoming, and Canada. Following his tenure at Placid Oil, Mr. Brown worked as a consulting geologist and focused on generating and managing projects from inception to completion. He was also asked to advise exploitation teams on how to delineate field boundaries and high-grade areas of existing production. He utilized these same skills when he worked as an exploitation geologist for Voyager Exploration. Later in his career, he served as a senior geological advisor for The Discovery Group, a highly respected geoscience consulting firm in Denver, Colorado, that provided petrophysical evaluations and highly detailed field studies. He assisted many clients, ranging from small independents to major oil and gas companies.

Elmo's distinguished service to the geoscience community is visible by his extensive involvement with several professional organizations, including, the Rocky Mountain Association of Geologists (RMAG) (secretary, 1990; treasurer, 1998; first vice president, 2001; president, 2005, and later recognized as an Honorary Member). He was also the chair of several RMAG committees, including the Publications, Popular Geology, Finance, Membership, Employment and Public Outreach committees. He was also a co-instructor for the RMAG Teachers

in Training class. He was also active in the Rocky Mountain Section of AAPG (president, 2014), and he was the recipient of the 2003 AAPG Public Service Award. He has served multiple terms on the AAPG House of Delegates and was a member of the AAPG Public Outreach and Youth Education Activities Committee. He is a Registered Professional Geologist in the state Wyoming (PG-3016).

For many years Elmo was a docent with The Friends of Dinosaur Ridge, a world renown dinosaur track site on the Dakota Hogback west of Denver, Colorado. In this role he was a mentor to hundreds of future geoscientists and spent many hours presenting the science of geology to students, ranging in age from kindergarten to high school. Elmo's engagement in public service is predicated on his belief that one should always reach out to improve one's profession and community.

***John Robinson***

**WILLIAM D. DEMIS**
**Distinguished Service Award**

*Citation*—To Bill DeMis, for meritorious, dedicated, long-term, and inspiring contributions advancing AAPG's core mission of professionalism and energy finding geoscience.

William D. DeMis has a long history of distinguished service to AAPG and the petroleum geology profession. He has served three terms as an associate editor for the AAPG Bulletin: 2000–2003, 2004–2006, and 2015–2016. He also reviewed numerous manuscripts for the Bulletin and memoirs in the intervening years, when he was not on the Bulletin's masthead. Bill served as cochair and chair of AAPG's Publications committee, 2002–2006. Bill served as editor-in-chief for AAPG's book editorial board from 2015 to 2018. In 2017-2018, he cochaired the Haynesville DPA Playmaker Forum.

Bill chaired a session for the AAPG national convention in 2006 and team-taught a heavily attended class at the AAPG annual conventions in 2006 and 2008 on bypassed pays and plays. Bill served in the House of Delegates, 2007–2009, and Bill's enthusiastic support for the West Texas Geological Society earned him their Dedicated Service Award in 2001.

Bill has presented more than 30 technical papers to geological and engineering societies across the United States. Bill's 1993 paper on production-controlling carbonate stratigraphy of the Upper Smackover Formation, co-authored with Jeff Milliken, earned the best paper award (third place) from the Gulf Coast Association of Geological Societies. His groundbreaking papers on the effects of the United States dollar's value on OPEC's price policy won best paper awards at the AAPG national conventions in 1996 (San Diego, DPA-Best Paper Award) and 2000 (New Orleans, EMD-Frank Kottlowski Award for Best Paper).

The beautiful geology of the Adirondack Mountains first inspired Bill's curiosity about geology. His eighth-grade earth science teacher in Missouri, Hugh O'Brien, ignited his passion for making geology his life's study. Bill recounts that learning geology was "like pouring water onto dry sand. It all went in."

Bill began his professional career in Denver, Colorado as an associate geologist for Pennzoil in 1983. In 1987, he joined Marathon Oil Company and worked in the Gulf of Mexico, international new ventures, West Texas, Oklahoma, and held various technical and managerial positions. In 2008, he took a job as exploration vice president at Roxanna Oil Company. Bill joined Southwestern Energy's New Ventures group in 2009 as a senior staff geologist and rose to technical expert geologist. In 2016, Bill joined Goldman Sachs as a senior vice president and chief geologist. He now has a consulting company that occupies his time when he is not traveling with his wonderful wife of 35 years, Mary, and enjoying visits with his beautiful children and grandchildren.

***Charles Sternbach***

**SCOTT DUROCHER**
**Distinguished Service Award**

*Citation*—To Scott Durocher for unwavering dedication to the AAPG Africa Region and in particular the development and growth of student chapters in Egypt and throughout North Africa.

Scott Durocher is a native of Windsor, Ontario. He has spent his professional career exploring for oil and gas across North America and Egypt, but that almost didn't come to be. In his youth Scott was torn between several paths to potential fame. First, with several friends he formed a rock band, with himself on keyboards. They recorded one album, which did not go platinum. Next, Scott was always a fanatical motorcyclist, of all types. This led him to ice track racing – the bikes with the tires with the big spikes protruding out – culminating in two Canadian National Motorcycle Ice Racing championships. And finally there was geology, Scott's back-up plan. Thankfully, for all of us who have had the pleasure to work with him and everyone involved with AAPG, he chose plan C.

Scott undertook his undergraduate studies at the University of Windsor where he graduated with honors in 1992. He then continued at Windsor completing his master's in 1994 on the dolomitization of the Mississippian Debolt Formation in northeastern British Columbia. This was a very impressive study and was subsequently published as an AAPG Bulletin paper in 1997. An important outcome of Scott's studies is that he developed into a superb writer, and this has served him well throughout his subsequent career.

Following his graduate studies, Scott moved his young family to Calgary in 1995 and joined the staff of Phillips Petroleum Resources. He gained experience on the various basins of Alberta and then in 1996 Phillips transferred him to Houston. This enabled him to work on numerous play types in the Gulf of Mexico and to participate in United States federal lease rounds. In 1997 Scott moved back to Calgary with Pioneer Natural Resources/Chauvco Resources to continue exploring in western Canada. He probably just wanted to return to a place where he could drive his motorcycles on ice again. Once in Calgary he continued to change jobs, progressing to smaller and smaller companies, and finally in 2004 cofounded Argent Energy which was successful and sold in 2007.

To this point, Scott's geologic experience was very broad in terms of play types and basin settings but was confined to North America. He wanted to go international and was given this opportunity by TransGlobe Energy Corporation in 2014, still working from Calgary. His role as exploration manager of their Egypt assets started to bring him to Cairo on a regular basis. This is when I first met Scott, and we soon discovered that although we worked for oil companies in offices, our deeper interest was in field geology. For the next few years Scott and I were able to make many trips to the Gulf of Suez, Sinai, and Eastern Desert of Egypt. We also shared a mutual interest in contributing to the activities of AAPG in Egypt and the Africa Region.

In 2016 Scott took on the role of AAPG Africa Region vice president and participated in the planning and execution of the region's first continent-scale meeting—the Africa Energy & Technology Conference—held in Nairobi in December of that year. After his term of vice president expired, he was elected to the position of Africa Region secretary, which he held until 2020. During these years Scott also helped organize or chaire the technical committees of three AAPG Geotechnical Workshops, with two held in Egypt and one in Morocco.

Scott played essential roles in both the leadership team and scientific programs of the Africa Region, but his deepest commitment was to the students of the many AAPG Student Chapters across Egypt and North Africa. Scott routinely gave his personal time to make presentations at student chapter meetings and conferences and is an understanding and able mentor. He often spent weekends in the field assisting students with their graduate

mapping projects. Scott's dedication to the young geoscientists of the Africa Region will have a longlasting impact and served as a role model to all of us.

In 2016 Apache Egypt was very fortunate to hire Scott into its Khalda Petroleum joint venture company. Scott made contributions to many new Western Desert discoveries and, in particular, brought his broad experience in carbonate reservoirs into play. Starting in early 2020 Apache underwent significant organizational changes, and Scott was transferred to Houston where he is now the Houston-Egypt geoscience manager. Despite being a resident of Texas now, Scott's career is still focused on exploration in Egypt and I'm sure he will continue to make important contributions to the Africa Region far into the future.

***Bill Bosworth***

## ANA MARIA GONCALVES
### Distinguished Service Award

*Citation*—To Ana Maria Goncalves for her strong motivation, immeasurable passion, unconditional support, and extraordinary contribution sharing her knowledge and promoting the geoscience. Outstanding geologist and inspiring human being.

Ana Maria Goncalves was born in Guayana, Venezuela, place of the oldest formations in the planet and an extraordinary geology. She spent her childhood and youth there, climbing mountains and raising animals. Her father always encouraged her curiosity and fully supported all her decisions saying that there were no barriers for women. This outdoor lifestyle and the support of her parents took her to study geology.

She has shown a great interest in science since she was in high school where she won the first place in College Physics Olympiad. Then, she moved to Ciudad Bolivar, Venezuela to pursue her aspirations an obtained geological engineer degree from Universidad de Oriente in 2007 occupying the rank number one within the cohort of graduates.

Ana Maria started her career in 2007 in Petróleos de Venezuela S.A. PDVSA as a seismic interpreter and structural geologist working for exploration team in Venezuela. During this time, she participated in petroleum systems studies and construction of structural models ranging from compressive to extensive systems for Barinas, Guarani, and Pirital Areas.

In 2009, she was transferred to Bolivia to evaluate the exploratory potential in the Sub Andean zone as secondee of PDVSA in YPFB Petroandina S.A.M. where she performed construction of balanced structural models and restoration in compressive systems as well as prospects volumetric estimations. At the same time, she was Master of Science candidate and obtained her degree in earth science from Universidad Simón Bolivar, Venezuela in 2015. In addition, she holds a master's in business administration in oil industry management from Caribbean International University of Curaçao.

Since 2016, she has been a seismic interpreter and structural geologist at YPFB Chaco S.A. in Bolivia. She is leading high technical level exploration studies in Sub Andean zone and Boomerang and is in charge of seismic evaluation, development of prospects, and quantitative and qualitative evaluation projects with outstanding results.

Going further in her professional career, she joined AAPG in 2009. Ana Maria found in AAPG a place to serve with motivation and passion. She was a cofounding member of Young Professional Bolivia Chapter in 2016, part of the Organizing Committee of Bolivia Geosciences Technology Workshop 2018, cochair and part of the Organizing Committee of the AAPG Specialized Workshop Bolivia 2019. Currently, she is a delegate of Latin American and the Caribbean Region (2018–2021), and since 2019, Foreman Delegate.

As the delegate in Bolivia, she has carried out several activities that expanded AAPG presence in this country. She has supported the foundation of three student chapters: Universidad Mayor de San Andrés–La Paz, Universidad Técnica de Oruro–Oruro, and Universidad Autónoma Tomás

Frías–otosi. In addition, her contribution to the geoscientist community includes being as speaker of the Visiting Geoscientist Program and part of the Organizing Committee of the Ready to Work Program Bolivia 2019, in its first edition. As AAPG representative, she has also participated in two Women in Energy–SPE local events, in Foro Internacional del Gas y Petróleo – Bolivia and in university activities (Escuela Militar de Ingenieria; Universidad Autónoma Gabriel René Moreno; Universidad Central de Venezuela).

Besides her professional career, she discovered yoga in 2012 due to back pain and since then she has never stopped practicing it. Currently, she holds a master's in yoga and she is a certified professor in postgraduate studies of this discipline. Yoga taught her to have better concentration and a unique self-connection. In addition, she enjoys practicing rock climbing, caving, trekking, hiking, and outdoor-mountain related sports.

Ana Maria is an extraordinary and humble human being. She has always shown passion and professionalism in whatever she carries out. She has put all her energies to grow in her professional career being an example for many students and young professionals. She is also going to share her time and love with her twins in a new episode in her life. More challenges will come for her, but she has all the skills and attitude to face them.

For her willingness to share her knowledge, her valuable contribution and her commitment to promote and expand AAPG in the Region she has well deserved the Distinguished Service Award.

***Andrea Lopez***

**STUART HARKER**
**Distinguished Service Award**

*Citation*—To Stuart Harker, for decades of dedication to exploration and production geology making his knowledge available and encouraging achievement and enjoyment in those around him.

Stuart Harker is one of those people who is enthusiastic about whatever he does. Since graduating with a geology B.Sc. from Kingston (London, United Kingdom) in 1972 he has demonstrated that by continuing to encourage those around him to enjoy the employment of their skills—particularly anything related to geology in its broadest sense. He followed his B.Sc. course with an M.Sc. degree and a Ph.D. from University of Saskatchewan, Canada (Upper Cretaceous dinoflagellate stratigraphy.) Those algae didn't allow his enthusiasm to bloom sufficiently, so he joined the global search for oil and gas through a succession of jobs with major, national, and large independent oil companies. Having participated in successful teams in many basins around the world he then moved to consultancy and subsequently transferred to a role as a senior manager of a small oil company. There he was material in establishing their exploration portfolio and production base across north Africa and the Middle East. Following that he set up his own consultancy working from his Edinburgh home.

Early in his career (1981) Stuart joined AAPG and from 1991 onwards contributed on various committees including as associate editor of Publications. From 2005–2009 he was on the Advisory Council representing the Europe Region and from 2011–2013 he was on the Executive Committee as vice president of Regions. He was also a vice-chairman of the Petroleum Exploration Society of Great Britain and has been lead- and co-author of many papers on United Kingdom North Sea geology and presented on many other topics at AAPG ACE and other events. Stuart won best paper at the Geological Society of London Conference in Bath (United Kingdom) 1991, and won the Total Innovation Award for the Development of the Otter Field (United Kingdom North Sea) in 2003.

He has always shared his innovative skills with those around him, mentoring junior staff and participating in regional meetings. He has joined in formal education firstly with the University of Aberdeen in the hydrocarbon experience M.Sc. program, the AAPG Visiting Geoscientist Program and

more recently as honorary professor at Heriot Watt University in Edinburgh developing and delivering part of their petroleum geology and reservoir engineering M.Sc. classes.

Stuart has cultivated an extensive network of contacts and developed friendships in many places through his career, interest in geology, rugby, and more recently singing with a community choir. He is known for generating poetry adapted to many occasions and was co-organizer of the Geopoetry 2020 virtual event for the Geological Society of London.

I have had the pleasure to work with Stuart on and off since 1981. A dedicated team player he has always insisted on letting the rocks speak for themselves and the value of field observations. With his career and the time he has given the Association he thoroughly merits this Distinguished Service Award.

***Adrian Burrows***

**MICHAEL D. VANDEN BERG**
**Distinguished Service Award**

*Citation*—To Michael D. Vanden Berg, Dedicated petroleum geologist, for his widespread support of AAPG through presentations, publications, workshop and field trip leadership, committee service, and convention organization.

Michael Vanden Berg grew up in Grand Rapids, Michigan, and gained a love for earth science from his father who was a fourth-grade science teacher. Mike earned a B.S. degree in geology from Calvin College in 2000 and a M.S. degree in geology from the University of Utah in 2003. He worked as an intern at the Utah Geological Survey (UGS) starting in February 2003, and then at the Utah Energy Office in Salt Lake City, compiling energy statistics and preparing energy reports (coal, geothermal, etc.). Mike returned to UGS in 2005 where he has since excelled as a petroleum geologist, program manager, and major contributor to AAPG and the entire geo-community.

In his 18 years at the UGS, Mike has become an expert on lacustrine deposition, especially the Eocene Green River Formation, a major oil producer in the Uinta Basin in eastern Utah, and the modern Great Salt Lake. His research includes Green River facies analysis, outcrop reservoir analogs, horizontal drilling targets, and microbial carbonates in the Uinta Basin. Mike's recent work on Holocene microbialites in Great Salt Lake has received international attention. In addition, he has assisted with projects pertaining to the sampling protocols and the recognition of microbial biosignatures for the Mars Perseverance mission using Utah analog sites. However, Mike's research also involves other projects and areas including carbon capture and sequestration, surface geochemical surveying, and the Cane Creek horizontal drilling play in the Paradox Basin of southeastern Utah. Both universities and industry have turned to Mike to draw crucial information from his wealth of knowledge through inquiries, core workshops, and field trips. Mike is the program manager for the Energy and Minerals Section (oil and gas, coal, metals, industrial minerals, geothermal resources, the Utah Core Research Center, etc.) of the UGS where he is an excellent supervisor and mentor to younger staff as well as university students; he has served on the thesis committees for many students. Mike's enthusiasm for our science and work ethic endears him to his colleagues, staff, and students making them all better geologists. While at the UGS, Mike has earned the Employee of the Year Award and the prestigious Crawford Award for best UGS publication in 2019.

Mike has shared the results of his research with his fellow geologists through his many presentations and publications, and by conducting numerous core workshops and leading field trips. Specifically Mike has author or co-authored more than 30 papers in peer-reviewed publications, published an astounding 100 abstracts for presentations mainly as part of AAPG meetings, served as an editor/co-editor of 2 guidebooks, and taught 8 AAPG core workshops and led 16 AAPG field trips, not to mention numerous informal workshops and field trips. Mike and his research have been featured

in several issues of AAPG's EXPLORER.

For AAPG, Mike became the AAPG Rocky Mountain Section (RMS) secretary-treasurer in 2011. Mike served as an excellent RMS president in 2013, was co-general chair of the 2013 RMS meeting in Salt Lake City, and later as general chair for the very successful 2018 AAPG ACE in Salt Lake City. Mike was heavily involved in all aspects of the planning and running these conventions. In addition, he instituted innovative new ideas and activities to attract more participants to the "non-oil city" of Salt Lake. For example, the huge core and dinosaur displays during ACE in the exhibit hall were his doing. Rather than purchase small speaker gifts, Mike used those funds to make a significant donation to the Great Salt Lake Shorelands Preserve managed by The Nature Conservancy. Having AAPG help preserve the unique ecology of the lake reflected well in the eyes of the local environmental community. Who could forget his skiing video at the beginning of the opening session to set the exciting tone for the 2018 ACE. While running both the section meeting and ACE, Mike still made time to present his own research at various technical sessions (as he has done at regional and the ACE year after year) as well as lead field trips and conduct core workshops featuring his work in the Green River Formation and Great Salt Lake!

It has been an honor to call Mike Vanden Berg a good friend and colleague. AAPG has truly benefited from his leadership, creative ideas, long volunteer hours, and extensive technical contributions. Mike is truly worthy and deserving of AAPG's Distinguished Service Award.

***Tom Chidsey***

## STANLEY RICH WHARTON
### Distinguished Service Award

*Citation*—To Stanley Rich Wharton, mentor, musician, sportsman—is recognized for his outstanding contributions to AAPG and other societies as well as his innovative and successful approach to exploration.

Stanley Wharton is like a racehorse that only needed "free rein." Not only has he excelled at his petroleum geoscience endeavors, but he has also been a natural leader, instigator, and enthusiastic volunteer. His first job as a geologist was with the Trinidad & Tobago's Ministry of Energy (1983–1990) where he enjoyed a highlight experience representing the country at the United Nations meeting on marine engineering in Guangzhou, China. Stanley next worked with Petrotrin in the early 1990s doing field and prospect evaluation that culminated with team leadership for exploitation projects and new sequence stratigraphy applications.

In 1996, Stanley joined AMOCO where he quickly became lead geologist and team leader in exploration projects. During his 12 years with bp Trinidad and Tobago, his expertise grew to include geophysics as he introduced innovative new seismic facies mapping technology. He developed three-dimensional seismic facies mapping techniques for gross depositional environment assessment and reservoir characterization. His experience was highlighted by successful exploration drilling and as a bp worldwide champion for the technology.

From 2008 to 2019 Stanley worked in Saudi Arabia with Saudi Aramco prospecting first in Paleozoic reservoirs in South Ghawar. He introduced seismic facies mapping to the Paleozoic and shallower reservoirs. Upgrading exploration software was a priority for him. Working on the Central Playfairway mapping team broadened his knowledge to Mesozoic reservoirs and new three-dimensional software mapping programs. In his last years, he helped the Exploration Resource Assessment team efforts in business planning and reservoir characterization.

Stanley formed his own company in 2006, Subsurface Imaging Company Limited, which combines resource assessment with prospect generation. In all his endeavors he has embraced new technologies including PaleoScan, dGB's Seismic Stratigraphy Interpretation System, Paradigm Stratimagic, Geoteric, ARCGIS, Petrel, Geoframe, LANDMARK and Spotfire Analytics, to his new projects.

Stanley's world has also always included exceptional contributions to professional societies. Hard work within the Geological Society of Trinidad and Tobago propelled him to the office of president. He took great pleasure in establishing the first AAPG student chapter at the University of the West Indies, Trinidad.

He was active in the AAPG Latin American Region and served as secretary/treasurer in 2002–2006. He coconvened two AAPG Hedberg Conferences: Mobile Shales—Genesis, Evolution and Hydrocarbons, Port-of-Spain, Trinidad, 2006; and Sediment Transfer from Shelf to Deepwater—Revisiting the Delivery Mechanisms, 2008, Ushuaia, Patagonia. Stanley served on the International Distinguished Lecturer, the Visiting Geoscientist Program, and the Student Chapter committees for AAPG. Stanley has mentored and guided countless young earth scientists throughout his career.

Active in the Middle East with AAPG and SEG, Stanley has been a proposer and co-chair for SEG/AAPG Mesozoic Intrashelf Basins workshop, 2015, in Dubai. He also proposed and cochaired EAGE's workshop on the Mesozoic intrashelf basins of the Middle East, 2017, in the United Arab Emirates. In 2020, he was keynote speaker and organizing committee member for EAGE's first conference on machine learning in the Americas. He is also part of the organizing committee for EAGE's first Guyana conference in 2021, which follows on work convening and chairing a session for AAPG on southeast Caribbean and Guiana basins in 2020. Publishing since 1985, Stanley has an impressive list of papers and talks to his credit. He was assistant editor for the seismic chronostratigraphy special section in the Interpretation journal, 2015.

His collaborator on many projects, Lesli Wood says, "For the 2008 Hedberg, he tirelessly helped organize the meeting, hosted discussions among the attendees, and famously set the social agenda. We wanted "Trinidadian flavor" and to that end he organized steelpan music and people dancing into the night. The next day, in the middle of conference discussions, we felt the room shake and the chandelier started swaying. In those 10 seconds we did not know if the building was going to collapse or not. When the earthquake was over, Stan took the mic and said, in his lovely lilting Caribbean English, "Now you have experienced all that Trinidad has to offer! There aren't many AAPG tectonic conferences where we organize an earthquake just for you!"

His longtime colleague and friend, Anthony Paul, says, "At the Ministry we had a wide remit—everything geological, from oil and gas, mining, geohazards and marine and coastal processes. This Stanley embraced with enthusiasm and, aside from his well-known petroleum geoscience work, he was particularly influential in our landslide work."

"Stanley's impact is a lot more than just geoscience though. He is an avid sportsman, renowned for his soccer and field hockey skills. His love for music led him to excel at two of the indigenous forms. His calypso writing and singing were featured during the Carnival season. As he and his wife, Christine, raised their three lovely daughters, they managed to integrate them into his love for music, performing traditional Parang music at Christmas time, bringing joy to their community."

Stanley Wharton received his bachelor's degree in geology from the University of the West Indies, 1982, and his M.S. degree in geology from the University of Windsor, Canada, 1989. He completed a management program at the Jesse Jones Graduate School of Administration, Rice University, Houston, Texas in 1997. A lesser-known accomplishment, Stanley represented Trinidad & Tobago (1983–1986) on their men's national hockey team at the Pan American Games in Caracas, Venezuela.

***Robbie Rice Gries***

**XAVIER MOONEN**
**Grover Murray Memorial Distinguished Educator Award**

*Citation*—To Xavier Moonen for his exemplary, passionate, and dedicated service teaching in at all levels of geosciences and being an inspiration for students and young professionals everywhere.

Xavier Moonen is a passionate advisor, mentor, and teacher. He is super personable, open-minded, highly technically competent, and knowledgeable; this all works together to make him a natural leader. His peers and junior peers follow him in a passionate and enthusiastic way, which is precisely the tone that Xavier sets. Xavier is a rock star in the Caribbean.

He earned his Master of Science in structural geology with geophysics at the University of Leeds, United Kingdom, and was awarded a Top Ten Presentation by AAPG for his presentation on the Penal Barrackpore Anticline at AAPG ICE Conference in Milan, 2011. He has developed his career between the industry and the academy.

He has been a great asset to the Petroleum Studies Unit teaching at the University of the West Indies (UWI), St. Augustine Campus, and the University of Trinidad & Tobago (UT&T). Additionally, he has run innumerable geological field trips for many visiting groups including Anton De Kom University of Suriname, Dalhousie University. and University of Toronto.

He has always made emphasis on the progression of the petroleum geoscience programs through teaching and industry-based field trips over the past years. Xavier is to be commended for his professionalism, genuine concern for his students, and excelling at teaching. His students admire his love for structural and field geology. He has made an outstanding effort to incorporate AAPG within the Petroleum Geoscience Program at UWI. This is evident in successfully initiating one of the most vibrant AAPG student chapters in the region and its yearly participation in the prestigious Imperial Barrel Award. He has always managed to encourage students to gravitate toward attending and organizing technical sessions and workshops, emphasizing the importance of collaboration and participation. He has also organized and hosted through the AAPG and Geological Society of Trinidad and Tobago, numerous Industry technical sessions at UWI. This has brought great public awareness and industry linkage to the UWI and UT&T.

He is senior geoscientist at Touchstone Exploration in Trinidad & Tobago and it has brought his experience in the industry to his activities as educator. He has constantly impressed his peers and scholars by the quality and quantity of the monthly activities (field trips, talks, short courses, and workshops) that Xavier coordinates for both AAPG T&T Young Professional Chapter and the Geological Society of Trinidad and Tobago. These activities engage numerous students and young professionals, and help them network with more established professionals, build confidence and build technical skills. He has always been a supporter and advocate for the AAPG and its philosophy of nurturing and educating young minds to create an innovative and sustainable knowledge resource for the future.

Actually, he led by example, he served as the convener for the 20th Caribbean Geological Conference Trinidad 2015, as Program Committee Trinidad representative for AAPG ICE Cartagena, 2013, and as general cochair for AAPG Geoscience Technology Workshop (GTW) Trinidad 2014, GTW Guyana 2017 and GTW Suriname 2019 and as technical program chair of the AAPG South East Caribbean Virtual Research Symposium in 2020.

Xavier is a model professional who these students and young professionals admire, respect, and look up to.

Thank you, Xavier for your energy, for your willingness to share your knowledge with students and young professionals, for your love and passion to geosciences, for your example of hard and still work, for your readiness to action, for molding next generation into better scientists and professionals, and for your friendship.

***Elvira Gomez Hernandez***

**Response**

I am truly humbled to be the recipient of the Grover Murray Memorial Distinguished Educator Award. I wish to sincerely thank Elvira Gomez and Noel Sardjoe for nominating me for this award and for the many, many students, and young professionals that have given me the drive to continue mentoring the next generation geoscientist.

Having had the privilege of being mentored by an array of

petroleum geologists in my undergraduate years, it was second nature to me to be inclined to mentor as many geos as possible that I interacted with thereafter. I was first able to do so through the Geological Society of Trinidad & Tobago where I found it more effective and far reaching to accomplish by taking up an executive position. Naturally, I began supporting the AAPG through the Latin America and Caribbean Region, hosting, coordinating and of course participating in many workshops, field trips, symposia, conferences, short courses and the Visiting Geoscientist Program. Spurred on by the adventurous and passionate folks, especially from the AAPG Young Professionals Trinidad & Tobago Chapter and the AAPG Suriname Student Chapter, we conducted the first ever AAPG visit to an active wellsite in the Region, possibly worldwide.

But fanfare events aside, I've found that some of the most fulfilling mentoring moments have been in holding simple conversation with students and young geoscientists. Making oneself approachable is a first key step towards starting such conversation. And making oneself available through various social media platforms enables dialogue with the next generation in a virtual environment that they feel comfortable in.

Receiving this award has also inspired many young folks in my country, Trinidad & Tobago. This award is the first recognition at this level that a national has received from AAPG. And I'm truly honored to make my country proud.

***Xavier Moonan***

## BRIAN P. J. WILLIAMS
### Grover Murray Memorial Distinguished Educator Award

*Citation*—To Brian P. J. Williams for an inspirational teacher and researcher who has shared his passion for geology, and its applications, with students, colleagues and the public, worldwide.

It is the measure of Brian Williams' inspirational teaching and mentoring that at various times in the last 30 years, the majority of senior professors in sedimentology in the United Kingdom, especially in applied sedimentology, were either taught as undergraduates by Brian, or were supervised by him for their doctorates. The global oil and gas industry has also been populated at senior levels by his former students.

Brian's fascination with geology began at Dynevor Grammar School in Swansea, which was one of many high schools in Wales which then taught geology as a separate subject. Brian later graduated with a B.Sc. in geology from University College Swansea, an institute renowned for its teaching and research in stratigraphy. He commenced his Ph.D. studies at that university on the Devonian Ridgeway Conglomerate of South Pembrokeshire in South Wales, supervised by Gilbert Kelling. This was the beginning of Brian's lifelong interest in the late Silurian-Early Devonian continental "red beds" of the Old Red Sandstone of the British Isles.

His interest in the Devonian continued with postdoctoral research fellowships at the Universities of Ottawa and Wales (Swansea), including work on the lacustrine Escuminac Formation of Gaspe, southeastern Quebec. In later years Brian formed a highly productive collaboration with John (J. R. L.) Allen, the preeminent physical sedimentologist, producing a series of benchmark papers on the Old Red Sandstone of Wales. Further "Old Red" research took Brian to studies in southwestern Ireland and eastern Canada.

From 1967–1970 Brian was employed as a hydrogeologist at the Water Resources Board in Reading (United Kingdom) and investigated groundwater systems of the eastern Midlands (Lincolnshire Limestone & Sherwood Sandstone Aquifers), and southern England Chalk Aquifers. He was not tempted to focus on carbonates, which he would refer to with students in future years as "fizzy rocks."

Brian's teaching career began in 1970 when he joined the staff of the Geology Department, at the University of Bristol where Brian stayed until 1988. There he taught sedimentology and hydrogeology, and where he also began supervising a string of highly successful Ph.D. students. No one who attended Brian's lectures, practicals, or field classes could fail to be

enthused. The combination of his infectious enthusiasm coupled with the skilful manner in which so much information was imparted, provided his students with the desire and tools to tackle sedimentary successions; and many, many have done so for their whole careers including some of us who went on to specialise in "fizzy rocks." Another key aspect of Brian's teaching has always been his approachability and genuine friendliness, something so many of us have appreciated and still do. Brian supervised 40 Ph.D. students, most of whom still keep in touch with their mentor.

In 1988 Brian took on the challenge of management and was appointed chair in Petroleum Geology, director of the Graduate School and coordinator of the M.Sc. course in petroleum geoscience at the University of Aberdeen. Geology in the United Kingdom was in need of some stability at that time as a brutal restructuring of geosciences was taking place, leaving some departments with industry links reeling from the imposition of a very narrow view for the future of geology. Brian provided the vision and was instrumental in the development of the Department of Geology and Petroleum Geology, and also establishing a M.Sc. course in petroleum geoscience at the University of Brunei Darussalam.

Brian took early retirement from Aberdeen in 1998, but his talents were much sought after by other academic institutions, and the oil and gas industry around the world, as a teacher, and examiner and consultant. Besides being an emeritus professor at Aberdeen University, he has also held adjunct and visiting positions at University College, Dublin, University College Cork, Bristol and Manchester universities.

As well as having co-authored and co-edited several books Brian has published more than 110 peer review papers. Besides his Old Red Sandstone research Brian has published extensively on late Paleozoic glacio-fluvial and glacio-aeolian deposits in Australia and Oman, Triassic dryland deposits and the basins of the North Atlantic borderlands, and the Triassic–Jurassic of the North Sea, amongst many other themes. In 2004 Brian was awarded a D.Sc. degree by the University of Wales for his global research contributions on nonmarine deposystems.

When today we hear so much about outreach from universities to the public at large, Brian has always been active with such public engagement activities. Throughout all his career Brian supported local geology groups, as a lecturer and field trip leader, especially in the West of England and South Wales. He has always been willing to share his knowledge, and since 2011 Brian has reached new audiences by lecturing on educational cruises covering northwestern Europe, Antarctic, the Pacific rim and many other parts of the world.

Brian is a very knowledgeable jazz lover, collector, and radio presenter and, being Welsh of course, is a rugby devotee. As anyone who knows him can vouch, he is also a great storyteller, all of them true!!

In his extensive research activities Brian Williams has illuminated many parts of the geological record. As an inspirational teacher and mentor he has inspired so many students to make significant contributions in academia and industry. Brian is a very deserving recipient of the Grover E Murray Distinguished Educator Award.

***V. Paul Wright***

**Response**

I am truly humbled by this prestigious AAPG medal celebrating my long career as a geology educator. It is a great honor and I am hugely flattered. It came as a total surprise to me and I am extremely grateful to Paul Wright for his citation and acting as my biographer for this Award, in addition to the many other old students of mine from around the world for their huge support.

My initiation into geology was in Dynevor Grammar School (high school) in Swansea, my hometown in Wales, birthplace of, and captured by, the sublime prose of Dylan Thomas. South Wales has a strong legacy of coal mining, limestone extraction, and metal smelting, and due to this intimacy of industry and the impressive landscape of steep valleys and rolling hills, geology was taught in most schools in Wales. The geological trigger for me was being given a copy of Arthur Holmes book *Principles of Physical Geology*—a volume way ahead of its time. I knew there and then that geology was to be my future career. In Dynevor, there were nine of us in the geology cohort; taught over a two-year period by Curtis Grove with some help from Dick Owen of the local university and Emlyn Evans of the

National Museum of Wales in Cardiff. Two wonderful years of teaching and field trips in the Welsh Valleys and the Gower Peninsula resulted in three of us becoming Ph.D. geologists and having full academic careers.

My passion for geology was cemented by my degree training in University College of Swansea (UCS). A magnificent department where teaching was of the highest quality and which was led by Frank Rhodes—later president of Cornell University—and inspirational teachers such as Dick Owen. Dick was an extraordinary educationalist who often voiced his opinion that "all university staff should do a one-year diploma course in education, so that they could pass on their knowledge and enthusiasm for their subject to the students." How right he was, as even today some big departments are no more that research institutes with little or no time for teaching undergraduates. It was also Dick who encouraged me, as a postgraduate, to commence what has become an enduring interest in teaching adult education classes.

After graduation, Frank Rhodes obtained a research award for me to conduct Ph.D. research at UCS on Devonian alluvial red-bed conglomerates in Pembrokeshire in southwestern Wales. Under Gilbert Kelling's excellent supervision and with Brian Bluck's help I successfully completed my Ph.D. and developed a lifelong passion for red rocks.

Frank Rhodes then helped me again, this time to obtain an NRC (Canada) Post Doctoral Research Fellowship (PDRF) to work at the University of Ottawa—the first Welsh geologist to get such an award. There, in addition to teaching, I worked alongside David Dineley, becoming the first sedimentologist to detail the depositional aspects of the Late Devonian lacustrine sediments of what is now a UNESCO World Heritage Site at Miguasha southeastern Quebec. While at Ottawa I teamed up with Brian Rust, and together we attended our first-ever AAPG conference in New Orleans—driving there and back in a black Volkswagen Beetle.

After Ottawa another PDRF, courtesy of Frank Rhodes, brought me back to UCS and more teaching and publication of my southwestern Wales and eastern Canada research. My career then took a sudden turn into the world of Hydrogeology as a Government geologist with the Water Resources Board (WRB), based in Reading, United Kingdom. There, my learning curve was subvertical, but under the guidance of two of the most eminent hydrogeologists in western Europe—Jack Ineson and Dick Downing—I was delighted to be able to combine fluid flow analyses with my sedimentology skills to define subsurface reservoir systems. My three-year tenure at the WRB really changed me into an "applied sedimentologist," which turned out to be pivotal for my future career in geology.

My heart lay in academia, so when the University of Bristol advertised for a hydrogeology and sedimentology lecturer it was a "no-brainer" for me to apply. The next 18 years were the best and most definitive period in my academic career. Bristol was a prestigious university with a very powerful science faculty and an excellent teaching-oriented Department of Geology. The university attracted high quality students and it was a joy both to teach undergraduates in the classroom, lab or field, and to supervise and debate with Ph.D. students in their research areas. I helped develop the applied geology course, which was a differentiator for the Department, and worked closely with my esteemed colleagues Paul Hancock and Mike Bennett.

The geology Ph.D. school in Bristol was truly remarkable and of my 18 Ph.D. students I secured, a third worked on hydrogeology projects and the remainder on either sedimentology of Silurian-Devonian red-beds in southwestern Wales, southwestern Ireland and eastern Canada, or Gondwanan Permian-Carboniferous oil and gas reservoirs in Australia. I am delighted to see how well they have done as professional geologists in the water and oil and Gas industries and in academia.

While at Bristol I taught a fantastic geology adult education class on a weekly basis and was also asked by John (JRL) Allen—a very close friend and research colleague—to teach a module at the University of Reading on his M.S. course on "Sedimentology and its Applications." I subsequently spent 8 years teaching there and was made an associate professor as a result. In 1980 I took a one-year sabbatical from Bristol when Al Donaldson invited me to West Virginia University. I taught "Applied Sedimentology" to their

M.S. class and learned much from Steve Warshauer on Appalachian field trips.

In addition to the academic commitments in the United Kingdom, I also undertook reservoir sedimentology consulting with David K. Davies in Calgary and Houston,and, courtesy of Bevan Devine, on the gas and oil reservoirs of the Cooper and Canning Basins in Australia. From these, I developed and led training courses to industry staff in the outstanding core libraries in Adelaide and Calgary.

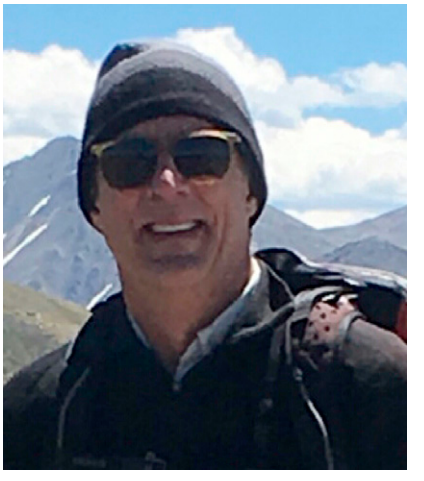
In 1988 I was awarded the Chair of Petroleum Geology at the University of Aberdeenwith a clear remit to enhance the Post-Graduate School and make the one-year M.S. course in petroleum geoscience the best in the United Kingdom. I achieved this with the support, time, and funding of the major oil companies in the city, in particular Shell, BP, Conoco, Amerada Hess, Total, and Mobil North Sea. I secured the services of Ken Glennie (an AAPG Sydney Powers medalist) as an honorary professor upon his retirement from Shell and I helped Shell set up a new department and M.S. course in petroleum geology in the University of Brunei Darussalam. This prompted a unique visit by the Sultan of Brunei—one of the biggest events in Aberdeen University's 500-year history.

Despite being involved in management, I taught on the M.S. course and supervised another 16 Ph.D. research projects, ranging from the glaciogenic reservoirs of Gondwana (with Ken Glennie) to the fluvial/aeolian red-beds in the North Sea and southwestern United States and in the Triassic basins of the North Atlantic Borderlands (with Pat Shannon, University College Dublin and Jonathan Redfern, Manchester University). This latter project supported three PDRFs and eight Ph.D.s across the three universities.

I went freelance in 1998, continuing the academic teaching and research in Bristol, Manchester, University College Cork and University College Dublin and with Industry training courses via Nautilus, PetroSkills, Shell, and several other oil companies. My involvement in adult education continues to this day for geological associations in the United Kingdom and as a lecturer on small cruise ships around the world.

Finally, let me again express my sincere appreciation to AAPG for honoring me with the Grover E. Murray Memorial Distinguished Educator Award, to those who wrote in support of it, and to my family, in particular my wife Liz—another geologist—for her patience and support over nearly four decades.

***Brian P.J. Williams***



**MARK KIRSCHBAUM**
**Harrison Schmitt Award**

*Citation*—To Mark Kirschbaum for a career of public service in energy-related issues, contributions to our knowledge of stratigraphy, and generosity in sharing his time with the geologic profession.

Mark A. Kirschbaum was born in Cincinnati, Ohio, in 1954 where, at an early age, he fell in love with geology when he found his first fossil, an Ordovician brachiopod of the genus *Platystrophia*, which is still in his possession. He received a B.S. degree in geology from the University of Miami of Florida in 1975 and attended the Miami University of Ohio field camp, where he was first exposed to the geology of Wyoming that dominated much of his career. He worked with the US Geological Survey (USGS) as a research geologist from 1979 to 2012 on energy related topics mainly in Cretaceous strata of the Rocky Mountain and Colorado Plateau regions.

Mark worked in coal-related projects for more than half of his career culminating in two major studies: the paleogeography and sediment accumulation of Upper Cretaceous strata with Laura Roberts and as project chief of the Colorado Plateau Coal Assessment where he was the main editor of a 1000-page professional paper on the subject. Later stages of his career were in oil and gas studies and he was task leader for the assessments of the Uinta-Piceance, Greater Green River, Wind River, and Bighorn Basins that led to the publication of studies popular with oil and gas companies working in the Rockies, including his 2013 paper with Tracey Mercier

published in the AAPG Bulletin. He was also involved with the world-energy project looking at numerous basins around the world and led the assessment of the Nile Delta.

Field and core work is Mark's forte and it has provided the solid backbone to his papers of regional stratigraphy and depositional systems. During his long career, he authored more 70 articles, maps, and cross sections, that have been extensively cited and put to practical use in industry. He has authored or co-authored more than 40 abstracts given at professional societies, given more than 25 invited lectures to state surveys and universities, given core workshops, mentored numerous students, and led many popular field trips. He is a passionate lecturer made more interesting by his often-irreverent sense of humor.

Mark retired from the USGS in 2012, became a research associate with the Colorado School of Mines from 2012 to 2015, and then consulted with Whiting Petroleum for 2 years. He is currently an independent geologist from Evergreen, Colorado, pursuing interesting geologic problems. He is a great choice for the AAPG Harrison Schmitt Award.

***Steve Cumella***

**Response**

To be mentioned along with Harrison Schmitt is honor enough, a brave man who chose an exciting and dangerous field area in which to work. Although I did not go to the moon, more than one field partner described the Mancos Shale in which we worked as a barren moonscape. In reality, it has been a privilege to study rocks in the rugged topography and extreme exposures of the Rocky Mountains and Colorado Plateau in such colorful and scenic areas as the San Rafael Swell, Book Cliffs, and Rock Springs Uplift.

As a research geologist with the US Geological Survey, I had good fortune to be mentored by some of the best field geologists in the business: scholarly Tom Ryer, methodical John M'Gonigle, cantankerous Hank Roehler, gentlemanly Wally Hansen, and erudite Pete McCabe. I owe them a debt of gratitude for endless help and patience. My contemporaries at USGS, state geologic surveys, academia, and industry, women and men too numerous to mention, provided a passionate atmosphere for a job, described by consummate field geologist Bob Hettinger, as requiring one to "fathom the unfathomable". We did our best to fathom ancient landscapes though physical contact with rocks, thoughtful discussions, and screaming arguments, and when passion died down, we settled things over a beer and much laughter, often at the desert oasis, Ray's Tavern in Green River, Utah.

I would like to thank all those mentioned above, those in my thoughts especially my wife, Kathleen, and all at AAPG for the science and camaraderie related to geological investigation. Except for Schmitt, we didn't travel into space but into an immense journey through time and with that in mind I gratefully accept the 2021 Harrison Schmitt award.

***Mark Kirschbaum***

## HILARY C. OLSON
### Public Service Award

*Citation*—To Hilary C. Olson for exceptional contributions to promoting interest in the geosciences through teaching, outreach, and an enduring commitment to supporting all learners in an inclusive and welcoming environment.

Born in Venezuela to American parents, Hilary C. Olson is a creative and inspired geoscience educator and research scientist. Raised in Texas, she is an alumna of Ursuline Academy of Dallas, a college preparatory school for girls. She attended the University of Notre Dame, earning a B.S. degree in earth sciences in 1983, and then a Ph.D. in geology from Stanford University in 1988. Hilary's first job as a young geoscientist was as a research geologist with the Mobil Research and Development Corporation where she developed expertise integrating biostratigraphic and paleoenvironmental data (foraminifera), core, well-log, and seismic data to examine the Earth's stratigraphic record. After leaving Mobil, Hilary joined The University of Texas Institute for Geophysics as

a research scientist associate. She worked on projects supported by the National Science Foundation, the Ocean Drilling Program (now the International Ocean Discovery Program), the US Office of Naval Research, and industry partners.

Hilary's passion is geoscience education and community engagement. As a senior lecturer in the Department of Petroleum and Geosystems Engineering (PGE) in The University of Texas at Austin's Cockrell School of Engineering she teaches courses, serves as PGE's Director of Education, Training and Outreach, and manages the Petroleum Science and Technology Institute for Texas High School STEM Teachers. Her programs provide high-quality education to state and federal regulators, K-12 teachers, and the public. Hilary reaches beyond her geoscience expertise to embrace teaching strategies that benefit learners of all types and backgrounds. She crossed effortlessly into the domain of geoscience education to forge fruitful collaborations with educational researchers and engage in original research that has produced contributions to the emerging body of scholarly work in geoscience education research. In addition, Hilary has designed online curriculum, teamed up with Jon Olson and others to create engaging local, regional and international field trips, and built community partnerships that have led to expanded opportunities for funding.

Hilary's exceptional commitment to enabling and expanding diversity, equity, and inclusion within the geosciences is particularly noteworthy. Her involvement in STEM education for pre-university girls emphasized the societal impacts of addressing energy, climate and water issues in the 21st century, and building confidence in middle- and high-school-age girls. In 2005, she cotaught a geoscience course at Huston-Tillotson University, an HBCU. An African American student who took the class went on to become a science specialist at a magnet school in Houston and credits her career decision directly to the class. Hilary also co-led the Texas Earth and Space Science (TXESS) Revolution project. Acknowledged as a model for good earth science teacher professional development, the project provided professional development in geoscience to more than 177 educators at minority-serving schools throughout Texas. TXESS Revolution educators directly impacted more than 30,000 learners. Several TXESS teachers have become recognized leaders in the field of geoscience education.

Service to community and the geoscience profession is a core value that defines Hilary Olson. She has served as a president of the North American Micropaleontological Section, SEPM, and was an Ocean Drilling Program Distinguished Lecturer in 1998 to 1999. AAPG recognizes Hilary Olson's service and honors her many accomplishments and sustained leadership in geoscience, geoscience education and outreach with a 2021 Public Service Award.

***Katherine K. Ellins***

## SANDY RUSHWORTH
### Public Service Award

*Citation*—For Sandy Rushworth, who instead of worrying about what is wrong with the world, spends her days improving it. We salute, we appreciate, and we thank you.

A decade ago, after the release of our energy documentary film Switch, I was contacted by Sandy Rushworth. Sandy said she loved the film and had developed a lecture around it that she was giving in Houston magnet high schools, to the Young Women's Prep Academy in Houston, and to STEM classes. She wondered if I would take a look at the PowerPoint deck to see if it made sense. I thanked her for the nice compliment and, after reviewing the deck, asked if I could use some of it in my own lectures!

Not too much time passed before I was giving a lunch lecture to the docents at the Houston Museum of Natural Science. Afterwards, a pleasant woman approached and introduced herself. "I help coordinate the docents at the HMNS," she said. "I'm Sandy Rushworth."

As a docent, Sandy leads tours for children and adults through the Wiess Energy Hall. Further, Sandy has introduced museum docents and the public to the broad spectrum of energy education. Sandy recently mentored a group of college students in India competing in the Switch Energy Alliance Global Energy Poverty Solution Case Competition.

Sandy Rushworth is just that kind of person—giving her time and expertise at all levels with the specific intent of increasing awareness and nonpartisan education. More than her time, Sandy began sending annual donations to the Switch Energy Alliance, putting her money where her heart is as well. I was then, and remain now, so very impressed.

Sandy Rushworth received her B.S. in environmental geology and biology from Beloit College in Wisconsin and her M.S. in oceanography at the University of Hawaii. In her M.S. thesis, she calibrated oxygen-18 in coral skeleton growth and water temperature and devised an oxygen-18 paleothermometer for seawater from coral skeletal growth over time.

After graduating from the University of Hawaii and working as a "low-paid" lecturer, Sandy left her Hawaiian paradise to join Amoco in Denver in 1979. Sandy joined AAPG in 1976 and has served in the House of Delegates, and is active in the Energy Minerals Division.

During her 32-year career, she also worked for Texaco, IHS Energy, and Marathon, mainly in new ventures and basin analysis. While working in Denver, Sandy helped establish Dinosaur Ridge in 1990, with dinosaur bones and footprints 12 miles from Denver with sponsorship from Amoco.

Sandy is now a Master Docent and first vice president in the Houston Museum of Natural Science Guild; judging cochair for two Gulf Coast Association of Geological Societies Houston conventions; and a counselor at Texas A&M Sea Camp for young people, where she teaches oceanography, paleontology, and geology to seventh-grade girls. She also teaches conversational English in Poland and Hungary.

If the world contained more Sandy Rushworths, imagine what would happen. We would all be too busy to worry about the things going wrong because our days would be packed doing something to improve it.

Sandy, for your ongoing exemplary service to AAPG and society, we salute you, we appreciate you, and we thank you.

***Scott W. Tinker***

## STEPHEN M. TESTA
### Public Service Award

*Citation*—Stephen M. Testa's career is a story of service to others: From consultant to state board executive officer serving the public's interests, to public outreach.

Stephen M. Testa's career is a story of service to others. Fortunately, Stephen has had some amazing mentors and teachers including the late James Slosson, state geologist of California in the mid-1970s who also taught Stephen in a geology class in 1971. Slosson not only performed at a high technical level but was also involved in public service. Stephen considers himself an environmental geologist, which is reflective of his belief that all human endeavors have some environmental impact. Stephen noted the significant role geology plays in the quality of life we have as a society and its sustainability; its impact on the environment.

After 30 years as a geological consultant, Stephen changed career direction and interviewed for the position of executive officer for the California State Mining and Geology Board (SMGB) in Sacramento, California. The SMGB has the distinction of being the oldest geoscience board in the nation, whose mission is to serve the public's interests in geohazards and mining issues. After undergoing a highly competitive hiring process in the summer of 2005, Stephen began his role as executive officer of the SMGB. Stephen participated in hundreds of public hearings. As executive officer, he established agendas and prepared reports for all agenda items. These reports incorporated background information, critical issues before the board, statutory and regulatory considerations, technical discussions, recommendations, and draft motions for the board to consider. During his tenure as the executive officer, he streamlined procedures and allowed for a better flow of information to the public on

important issues directly related to their communities.

The SMGB hearings were typically very well attended when dealing with controversial items such as permitting of industrial activities including oil and gas drilling, mining, hydraulic fracturing, etc. Stephen helped guide the board members to educate the public on complex geologic and statutory and regulatory topics. During some of the more contentious meetings, Stephen used his personal communication skills to keep discussions moving forward since he realized that many of the attendees would not be pleased with the outcome of the board's decision. As Stephen noted, "After conducting numerous hearings, one learns the importance of knowing your audience and communicating in a manner that allows you to engage them. These opportunities also allow one to inform and educate. You may not win them over, but you do have the opportunity to make them more knowledgeable about a particular issue than when they arrived. This is important."

Stephen has interacted with the public as an instructor at the University of Southern California and California State University at Fullerton where he had a chance to teach and mentor students and provide them with a model of a working professional geologist. Stephen is a welcomed lecturer and speaker on the history of petroleum from rotary and garden clubs to geological associations, having given dozens of public lectures on the rich cast of unusual characters as well as the geologic and technical challenges facing them.

Stephen has an exemplary record of long-term service to the geologic profession as past president of the American Geological Institute, American Institute of Professional Geologists (AIPG), Los Angeles Basin Geological Society, and AAPG Energy Minerals Division and AAPG Division of Environmental Geosciences (DEG). His leadership and work ethics have earned him the AIPG's Parker Medal, Martin Van Couvering Award and Honorary Membership, AAPG DEG's Research and Public Outreach Awards, the Thomas W. Dibblee Jr. Honorary Map for the North Chalone Peak Quadrangle, California, and the Roy Shlemon Geology Mentor Honorarium for excellence in application of applied earth science.

Stephen's countless editorials reflect the need to be pithy, informative, and entertaining, leaving the reader to pass by the media sound bites and appreciate the fact that earth science issues are multifaceted and complex. As an author, Stephen has written hundreds of technical articles and more than a dozen books, including *Restoration of Petroleum-Contaminated Aquifers* (coauthored, 1991), *Geological Aspects of Hazardous Waste Management* (1993), *The Reuse and Recycling of Contaminated Soils* (1997), *Acid Mine Drainage* (coauthored, 2014), *Oil Spills and Gas Leaks* (coauthored, 2014), and *Environmental Considerations Associated with Hydraulic Fracturing Operations* (coauthored, 2019). He is also the author of *One Man's Planet: Earth in Today's Political Culture* published by AGI. The book goes a long way in defining how Stephen views the world we live in and the significant role the geosciences play in our everyday lives. His wife, Lydia, has been his partner in business and in life.

Stephen M. Testa has demonstrated that he has served the public by being a distinguished public administrator, prolific writer, engaging speaker, diligent scientist, detailed historian, patient teacher, and uncommon leader. As the executive officer for the California SMGB from 2005 to 2016, as well as his countless interactions with the public on earth science topics and our profession, the AAPG Public Service Award is being presented to Stephen M. Testa.

***James A. Jacobs***

## CINDY YEILDING
### Pioneer Award

*Citation*—Cindy Yeilding's career challenged dogmas using new and/or unpopular thinking to find hydrocarbons, fight for a cleaner environment, and create a role model that set new standards.

Cindy Yeilding's career challenged dogmas using new and/or unpopular thinking to find hydrocarbons, fight for a cleaner environment, and create a role model that set new standards.

She found oil in a "dead sea," turned "cast off" properties into valuable assets, established that one can be a successful global explorationist without moving around the world, and helped to dispel the notion that women cannot be accomplished leaders and scientists. She also refused to change her attire at work to "bland" and instead challenged the dogma of what it takes for women to be successful. And won.

She has been an active voice in low carbon and the energy transition, a proponent for diversity and inclusion, education, and a leader in cross-industry collaboration. Cindy has a rich history of successful leadership, most recently chairing a 300-member multidisciplinary team to deliver the National Petroleum Council's study on carbon capture, use and storage. Cindy currently serves on the Board of Denbury, the Board of the Center for Houston's Future and is chair of the Offshore Technology Conference (OTC). Her activities in the OTC greatly expanded greatly the participation of women and students, and helped OTC embrace the energy transition.

Cindy retired in 2020 as the senior vice president of strategic initiatives, bp America. In this role, she led the difficult closure of bp's Deepwater Horizon response, and her diverse accountabilities included leadership of bp's United States Country Support Team, bp's executive sponsor for Princeton University, membership in bp's D&I Council and board member of the Greater Houston Partnership.

Previous roles include vice president Gulf of Mexico exploration and appraisal, vice president global basin analysis/new ventures and geoscience R&D manager. She served on the boards of BPX&P (Gulf of Mexico [GOM]) and BPAPC (United States onshore) and held an oversight role on the bp America Board. Cindy's career highlights include.

- Having been an instrumental player in the delivery of bp's deepwater GOM portfolio, leading to the more than 2 billion BOE discovered and the creation of one of bp's core businesses.
- Transformation of bp's global geoscience technology and research program through cutting-edge geophysics and geologic research.

Probably the only AAPG Distinguished Lecturer who toured while pregnant, Cindy continued to expand the role model for women in our industry. Cindy resides in Houston and Austin with her geologist husband Art Donovan. Their children are daughter Tyler, at Duke University and son, Zack, in high school in Houston. Cindy earned her M.Sc. in geology from the University of North Carolina and her B.S. in geology from Southern Methodist University.

***Robbie Rice Gries***

## CHRISTOPHER AIDEN-LEE JACKSON

### Geosciences in the Media Award

*Citation*—To Christopher Aiden-Lee Jackson in recognition of your notable achievements in increasing public understanding of earth sciences, STEM and diversity through television documentaries, public lecture series, and social media.

Christopher Jackson was born in Derby in the East Midlands, United Kingdom. He completed a B.Sc. in geology at the University of Manchester in 1998. He stayed at the University of Manchester to undertake a Ph.D. in the tectono-stratigraphic evolution of sedimentary basins, completing in 2002.

Jackson's research focuses on geodynamic, structural, and stratigraphic evolution of sedimentary basins. After completing his Ph.D. in 2002, he was an exploration research geologist in the Norsk Hydro research center in Bergen, Norway. In 2004, Jackson joined Imperial College London as a lecturer in basin analysis in the Department of Earth Science and Engineering, where he was appointed Statoil Professor of Basin Analysis in 2015. In 2014, he joined the Applied Geodynamics Laboratory

at The University of Texas at Austin as a visiting scientist. Between 2015 and 2016 he was a visiting lecturer in petroleum science at the University of Namibia. He was promoted to Equinor Professor of Basin Analysis at Imperial College in 2018. In 2019, he was the H. Burr Steinbach Visiting Scholar at the Woods Hole Oceanographic Institute. In 2020 he was appointed to the chair in sustainable geoscience at the University of Manchester.

Jackson has participated in the two-episode BBC 2 television documentary "Expedition Volcano" about the Nyamulagira volcano in Congo. His "How to Look Inside a Volcano" lecture at The Royal the Institution features seismic data from Australia and Ireland and has more than 20,000 views on the Ri YouTube channel. He delivered the closing of the 2015 Geological Society of London lecture series, "Terra Infirma: What has salt tectonics ever done for us?" that features examples from the United States, Brazil, and Gabon and has more than 4,000 online views. Jackson actively uses social media to promote the earth sciences, STEM and diversity with more than 10,000 Twitter followers. His style is accessible to a wider audience and his lectures span a broad range of earth science topics. His commitment to public outreach is also evident from his 2016 Geological Society of America-Thompson Distinguished Lecturer Award and 2012–2013 AAPG Distinguished Lecturer tours.

Jackson is on the editorial board of the *Journal of Petroleum Geology* and a Fellow of the Geological Society of London. Part of the open access movement within academia, Jackson founded EarthArxiv, a free preprint service for the earth sciences.

***Nick Lagrilliere***


## MICHAEL WYSESSION
### Geosciences in the Media Award

*Citation*—We recognize Michael Wysession, a multimedia communicator of geology's wonder, for his spellbinding lectures that inspire geoscience education and literacy.

During the past 20 years, Dr. Wysession has worked hard to make major contributions in three areas that have increased public information relating to seismology and geophysics: (1) geoscience education, (2) geoscience literacy, and (3) seismology-related education and outreach.

Also, Wysession has presented videos and public lectures on a large variety of public education of the geosciences. Michael Wysession, professor of earth and planetary sciences in arts and sciences at Washington University in St. Louis, was appointed executive director of the university's Teaching Center, effective July 1, 2018

Wysession is also the author of national K-16 science programs and textbooks, 2001-present; consultant for K-12 curriculum development, 2006–present; professional development for high school science teachers, 2003–present; and author of a college digital-format physical geology textbook (in preparation).

He is an author and lecturer for two video courses as part of the "Great Courses" series: How the Earth Works, 2008 (48 half-hour lectures); and the World's Greatest Geologic Wonders, 2013 (36 half-hour lectures).

All 36 lectures of Michael Wysession's Great Course on the Geologic Wonders of the World are among the most outstanding programs promoting general public interest in the geosciences available anywhere. Even experienced geoscientists will learn something from every lecture, and once you get started, you will want to watch every episode, perhaps more than once.

Wysession is the scientific host of "Journey to the Earth's Core," a television show produced by Wall-to-Wall Media for the History Channel, March 2011. He is also a frequent commentator on local and national news following large earthquakes.

Wysession has given more than 75 lectures in the past 5 years at teachers' meetings, museums, colleges, and other informal education venues on geoscience topics that include natural hazards,

natural resources, human impacts on the earth, climate change, and science literacy.

One of the early recipients of this award, Walter Sullivan, was Wysession's high school idol. Wysession was the feature editor of his high school newspaper (Teaneck, New Jersey) and a young geophysics major in the making. He thought the "Science Tuesday" section of the New York Times was just the most fantastic thing (especially with Walter's fascination with plate tectonics). His goal was to be the next science editor of the New York Times, after Walter. That never came to be, but Walter did once interview Wysession and write about his research in a "Science Tuesday" edition. Perhaps Wysession will likewise inspire future recipients of this award?

***Charles A. Sternbach***

**LIZBETH CALIZAYA**
**Young Professionals Exemplary Service Award**

*Citation*—To Lizbeth Calizaya for leading by example and for being bold and passionate in her commitment to growing the Latin American and Caribbean Region's young professional community.

Lizbeth is a remarkable, caring, warm, and brilliant young professional. She has developed a full career in AAPG. She has started as student member back in 2013 being part of the student chapter in San Marcos University and has never stopped promoting AAPG and motivating and leading her peers and colleges since then. She has always been willing to give and serve others, and this is an outstanding example for other Young Professionals. Inspired by her participation in the first pilot of the Latin America & the Caribbean Region Leadership Summit held in the framework of the 2013 AAPG International Conference and Exhibition in Cartagena-Colombia, Lizbeth decided to be part of the organizing committee of the last four SC&YP LACR Leadership Summits (2015 Bucaramanga, Colombia; 2016 Cancun, Mexico; 2018 Bogota, Colombia; 2019 Buenos Aires, Argentina), investing her time and hard work to benefit AAPG students and young professionals, volunteers and advocates from this impactful program. During her AAPG service, she has helped dozens of student chapters to get started or reactivated as well as providing guidance to 40 student chapters as the LAC regional Liaison of Student Chapters (between July 2015 and June 2017) and acting on their behalf in the Global AAPG Student Chapter Committee. Additionally, acting as the student activities cochair, she helped scholars to be part of the 2016 AAPG International Conference and Exhibition held in Cancun, motivating them to actively participate.

In last few years, she was acting as the regional Liaison of Young Professional Chapters in the Latin America and Caribbean (from July 2017 to June 2020), where she has led eight young professional chapters across the region and representing them in the Global AAPG Young Professionals Committee. Her main achievements are the successful spreading of the Young Professionals program at the university and professional levels and the sponsoring of an effective transition of students to young professional members through networking of recent graduates with junior and mid-career professionals. Her further contribution includes being part of the organizing committee for the successful Ready to Work Brazil, regional new educational program, with exceptional impact on students and young professionals with less than 2-years of experience. Finally, as a progression of her career inside AAPG, she became regional delegate for the House of Delegate in July 2020, where she has excelled and has been demonstrating her leadership skills. She is just amazing.

***Elvira Gomez Hernandez***

**ANNA PHELPS**
**Young Professionals Exemplary Service Award**

*Citation*—To Anna Phelps for her commitment to the growth of Young Professionals in the Rocky Mountain Section and her dedication to volunteerism in her geologic community.

From a young age, Anna Phelps was fascinated with the physical sciences and natural landscape, but it wasn't until college that she fell in love with geology. Anna received her B.A. in geology from Colorado College in 2010 and her M.Sc. in geology from the University of Montana in 2015. For her master's thesis work, Anna studied the facies and stratigraphic architecture of the Upper Devonian-Lower Mississippian Sappington Formation in southwestern Montana and published a paper on that work in the AAPG Bulletin in 2018.

Anna began her career at SM Energy, where she continues to work today. Anna has worked in exploration and development, conducting basin-wide evaluations of resource plays in Rocky Mountain basins and driving development optimization in the Permian Basin. She currently works in reservoir characterization, building three-dimensional geocelluar models in the Midland Basin. Anna has quickly become a role model and leader at SM Energy. She has shown a passion for recruiting and is committed to the mentoring and professional development of interns and early-career employees.

Anna is enthusiastic about giving back to her local and regional geologic community and actively seeks out volunteer opportunities. Her list of accomplishments and roles is impressive, especially given her short time in the industry. Anna first got involved in AAPG at the University of Montana (UM), where she served as secretary in the UM AAPG Student Chapter and led the UM Imperial Barrel Award (IBA) Team to win the Rocky Mountain Section (RS) IBA Competition. After graduate school, while working for SM Energy in Billings, Montana, Anna actively volunteered in the Montana Geological Society (MGS). Anna served as the MGS Awards Committee Chair, MGS Educational Outreach Committee chair, and publicity chair for the 2017 AAPG RMS Meeting in Billings. Anna was also involved in local STEM initiatives and became an RMS IBA Coordinator, which she continues today.

When SM Energy transferred Anna to Denver, Colorado, she immersed herself in the Rocky Mountain Association of Geologists (RMAG). Anna participated in the RMAG Mentorship Program, served as secretary to the RMAG Board, joined the RMAG Membership Committee, and became an officer on the board. Anna currently serves as vice president for the RMS, coordinator of the RMS IBA, RMS delegate for the AAPG House of Delegates, and member of the RMAG Membership Committee.

Time and time again, Anna has shown her commitment to Young Professionals' growth in the Rocky Mountain Region through her volunteerism and by serving as an inspiring leader and mentor.

***Mark Millard***

**PETER GRANT**
**Vlastimila (Vlasta) Dvôŕaková International Ambassador Service Award**

*Citation*—To Peter Grant for tireless championing of AAPG programs that help to develop students, young professionals and professionals throughout the Asia Pacific region.

Peter D. Grant, known as "Granty" to all, graduated with a B.Sc Honours degree in geology from the University of Nottingham in 1974.

Through his career Peter held various technical and management

roles with Seismograph Services Limited (SSL), British Gas, BHP Petroleum Limited, and Woodside Energy Limited and in 2013 started his own successful consultancy International Energy Solutions in Perth, Western Australia.

Peter's time as a geophysicist and party manager with SSL took him to Indonesia, Brunei, Malaysia, Singapore, Nigeria, and the United Kingdom and introduced him to the art of working with a variety of E&P companies both large and small, national regulatory authorities, local and state governments and large local workforces and their leadership. Peter then gave up the delights of working in the tropics to join British Gas in London in1979 and learn how to successfully work field operations from the opposite side of the table plus the art of turning all those wiggles into subsurface maps, prospects, and leads.

Peter emigrated to Australia in 1982 joining BHP Petroleum in Melbourne where he was successively exploration manager for northern Australia (with a string of oil discoveries credited to his team), project manager for Myanmar stationed in Yangon and then exploration manager Africa and Middle East based in London. Peter became the general manager of BHP's operating office in Sana'a Yemen and led the successful evacuation of all his expatriate staff at the time of the civil war in 1994 while providing for the financial well-being of his local staff through that difficult time.

Peter then joined Woodside Energy Limited in Perth in 1995 and once again was exploration manager for northern Australia, where his team delivered a string of valuable oil and gas discoveries, before becoming a very central figure in Woodside's successful expansion into the international arena in various geographies and geologies.

Throughout his career Peter has distinguished himself in many ways but primarily through his ability to build trusted relationships with all levels of government, with joint venture partners, with suppliers and with local communities. Peter's other defining personal trait is his commitment to developing people, be they his own staff, students, national oil company staff, or just about anyone needing a helping hand.

When I asked Peter to take over from me as deputy vice president for the Asia Pacific region of AAPG in 2012 he jumped at the chance and, in his usual indefatigable way, threw himself into the role becoming president and the very visible face of AAPG throughout the region. He has taken a leading role in promoting all of the student, young professional, and conference events, while also finding time to be a valued member of the AAPG global Advisory Council from 2014 to 2017. He continues to promote AAPG and enthusiastically support every AAPG event in Asia Pacific.

Peter is truly a global ambassador for both our industry and AAPG and a worthy recipient of the Vlastimila Dvořáková International Ambassador Service Award. I salute him.

***Agu Kantsler***

## DAVID W. HOUSEKNECHT
### Wallace E. Pratt Memorial Award

The Wallace E. Pratt Memorial Award for the best paper published in the *AAPG Bulletin* is presented to David W. Houseknecht for "Petroleum systems framework of significant new oil discoveries in a giant Cretaceous (Aptian–Cenomanian) clinothem in Arctic Alaska" (*AAPG Bulletin*, v. 103, no. 3, p. 619–652).

This paper documents the geological framework of a giant siliciclastic clinothem comprising the Aptian to Cenomanian Nanushuk (topset) and Torok (foreset-bottomset) formations across 150,000 $mi^2$ of the Alaska North Slope and adjacent shelves of the Chukchi and Beaufort Seas. Following 69 years of more than 150 exploration-well penetrations of the Nanushuk Formation, mostly to test deeper objectives in some of the most prospective areas of the Alaska North Slope, multiple giant oil accumulations in shallow (~4,000 ft) stratigraphic traps of the Nanushuk Formation have been discovered since 2013 and currently are being developed. Oil-saturated sandstones

in the deeper Torok Formation also have been discovered through many years but development thus far has been impeded, mainly by reservoir-quality issues.

The regional stratigraphic and structural setting, source rocks and hydrocarbon generation and migration history, deposition and basin-scale architecture of the clinothem, sequence stratigraphy and stratigraphic trapping elements of the new oil discoveries, and regional reservoir quality of the Nanushuk and Torok Formations are documented and integrated into a genetic synthesis. Finally, the geological framework and main petroleum-systems elements of the Nanushuk and Torok Formations, as well as the abundance and sizes of untested seismic amplitude anomalies in the clinothem, are used as a regional context to discuss exploration potential.

Dave Houseknecht is a senior research geologist with the US Geological Survey (USGS) in Reston, Virginia with a focus on basin analysis, geological controls of petroleum resource occurrence, and petroleum resource assessment. This work mainly is concentrated in Arctic Alaska and adjacent regions. He frequently represents the USGS scientific perspective on petroleum resources in the Arctic National Wildlife Refuge, National Petroleum Reserve in Alaska, and other areas of Alaska and the global Arctic to the administration and Congress. Dave joined USGS in 1992, serving as energy program manager through 1998 and then moving to a research position. Previously, Houseknecht was a professor of geology at the University of Missouri-Columbia (1978–1992) and consultant to the oil industry (1981–1992), working on domestic and international projects. He received geology degrees from Penn State University (Ph.D. 1978, B.S. 1973) and Southern Illinois University (M.S. 1975).

## TESS MENOTTI

### 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 affiliated society, division, or section, is awarded to Tess Menotti for "Integrating strike-slip tectonism with three-dimensional basin and petroleum system analysis of the Salinas Basin, California" (*AAPG Bulletin*, v. 103, no. 6, p. 443–1472).

This paper presents an updated model of the evolution of the Salinas Basin, California and the petroleum system it contains. The approach utilized in this work applies a novel methodology that integrates lateral strike-slip motion in a three-dimensional basin and petroleum system model with the goal of testing various explanations for the basin's unusual oil field size distribution. The Salinas Basin petroleum system comprises a primary depocenter containing Miocene Monterey Formation source rocks directly west of the 500 million bbl San Ardo oil field. This depocenter is bisected by the Rinconada Fault, which has offset the western side of the depocenter approximately 40 km to the northwest. Six additional oil fields that together comprise only 1% of the total oil volume in the Salinas Basin are found in a line extending northwest of San Ardo, following the strike direction of the Rinconada Fault. The four-phase tectonic history interpreted from two-dimensional seismic reflection profiles of the depocenter and San Ardo field provides the basis for the relative timing of petroleum system events that were incorporated into and tested with the basin model. Model scenarios of petroleum generation, migration, and accumulation roughly replicate the distribution of existing oil fields, supporting the position that incorporation of the tectonic history of the basin is critical in understanding its petroleum system evolution. This research was made possible through the support of the Stanford University Basin and Petroleum System Modeling Industrial Affiliates Program.

The co-authors of this paper are Allegra Hosford Scheirer, Kristian Meisling, and Stephan A. Graham.

Tess Menotti received her B.S. in geosciences from Penn State University in 2006, then discovered her interest in petroleum systems

while working in the Appalachian Basin for Equitable Resources until 2009. She earned her Ph.D. from Stanford University in 2014 under the supervision of Stephan A. Graham, where she focused on basin and petroleum systems analysis. Her research interests were in the interplay of tectonics and basin evolution with petroleum generation and migration, and the role of silica diagenesis. Tess spent 5 years with Chevron in Houston as a basin modeler, enjoying projects in the North Sea, Niger Delta, and offshore Brazil. Driven to broaden her career toward a design field that can benefit from a geoscience perspective, Tess joined the Masters of Landscape Architecture program at Texas A&M University in 2019, where she now applies her expertise as an earth scientist to spatial and environmental design challenges.

**DAVID M. PETTY**
**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 David M. Petty for "Duperow reservoir characteristics in Beaver Lodge field, North Dakota"

A key conclusion from this study is that the Devonian Duperow oil accumulations in Beaver Lodge field have an east-southeast tilt induced by a regional hydrodynamic gradient.

David Petty received a B.S. degree in geology from Texas A & M University in 1976 and an M.S. in geology from New Mexico Tech in 1979. He has 39 years of industry experience doing reservoir characterization studies, prospect generation, development geology and well site operations in the Williston Basin, Permian Basin, Michigan Basin, Tunisia, and Egypt. This includes employment with Tenneco Oil Company (1979–1989), British Gas (1989–1994), American Exploration (1994–1996), Belco Energy (1996–2001), Westport Oil & Gas (20012004), Kerr-McGee Corporation (2004–2006) and Hess Corporation (2006–2016). Most of his work experience and all of his research has focused on the Williston Basin. Current research projects include Bakken stratigraphic geometry analysis, Madison sequence stratigraphy investigations, and Williston Basin hydrodynamics studies.

**MICHAEL FONSECA**
**Jules Braunstein Memorial Award**

**LORI HATHON**
**Jules Braunstein Memorial Award**

**THOMAS J. LAPEN**
**Jules Braunstein Memorial Award**

The Jules Braunstein Memorial Award for the best poster presented at the AAPG Annual Convention and Exhibition is presented to Michael Fonseca, Thomas J. Lapen, and Lori Hathon for "A real-time method to identify brittle zones in carbonate rich mudrocks using bulk and trace element geochemistry: A study in the Eagle Ford, Niobrara, Haynesville, and Woodford Formations."

Authigenic cements can negatively impact the porosity and permeability of conventional reservoirs; however, in unconventional reservoirs, significant volumes of authigenic minerals can increase fracture propensity. Currently, the industry uses several geochemical

signals (Si/Al and Si/Zr) to identify authigenic silica phases present in unconventional reservoirs. No such technique has been demonstrated to identify the other authigenic mineral phases commonly present in organic-rich mudrock reservoirs, such as the carbonate cements.

Using petrographic analysis, electron probe microanalysis, energy dispersive spectroscopy, wavelength spectroscopy, and basin modeling software, this study documents and demonstrates that carbonate cements differ from biogenic carbonate. Factors that largely influence carbonate cement composition variability include changing thermal stress, stage of diagenesis, and the formation's depositional environment.

This study shows that authigenic silica, or biogenic quartz is not the universal key to formation brittleness. Cements such as authigenic carbonate have unique and distinguishable compositions relative to depth and contribute to formation brittleness. The carbonate proxies outlined in this study can be used to identify authigenic carbonate cements and can be used to indicate brittle zones for target adjustment at the wellsite.

Michael Fonseca earned his B.Sc. (2017) and M.Sc. (2020) in geology at the University of Houston (UH). Researching between both the UH Earth and Atmospheric Sciences Department and the UH Petroleum Engineering Department, his research focuses on developing new and integrative methods in subsurface characterization with implications for optimized drilling locations and source-reservoir rock quality evaluation. He evaluates how the interactions of subsurface fluids, burial history (chemical, thermal, and stress), and the depositional environment influence rock physical properties and bulk compositions, from the petrographic scale to the basin scale. He studied the source and diagenetic processes of authigenic carbonate cements which have utility in the evolving carbon sequestration industry.

Lori Hathon received a Bachelor of Science with honors in geology from Michigan State University in 1984. She then received her Ph.D. in sedimentary petrology from the University of Missouri. She joined Amoco Production Company in 1991, working on exploration projects in the Asia Far East, and East Africa regions. After 3 years she joined Amoco's technology organization. After 6 years at Amoco, she joined Shell's technology organization, working on forward modeling of reservoir properties, developing Shell's internal image analysis tool, and building models for physical rock properties from image analysis data. After nearly 20 years at Shell, Hathon joined the Petroleum Engineering Department at the University of Houston where she teaches well log analysis and a course on unconventional shale reservoirs. She is currently developing a course on geothermal reservoirs.

*Editor's Note: Biographical information and photo for Thomas J. Lapen were not available at the time of publication.*

**KYLE REUBER**
**SEG/AAPG Best Paper in *Interpretation* Journal Award**

**PAUL MANN**
**SEG/AAPG Best Paper in *Interpretation* Journal Award**

Kyle Reuber and Paul Mann have been recognized for their authorship of the best paper published in the SEG/AAPG *Interpretation* journal titled "Control of Precambrian-to-Paleozoic orogenic trends on along-strike variations in Early Cretaceous continental rifts of the South Atlantic Ocean" (*Interpretation*, v. 7, no. 4, p. SH45-SH69).

The Early Cretaceous (135–130 Ma) continental rupture of Western Gondwana to form the South American and African plates closely paralleled the elongated trends of Precambrian and Paleozoic orogenic belts. These orogenic belts were produced as a result of the Neoproterozoic convergent and strike-slip assembly of Gondwana that redeformed during later, Paleozoic orogenic events. Continued continental rifting led to the formation of conjugate, South Atlantic volcanic passive margins

whose widths vary from 55 to 180 km. Along-strike variations in crustal stretching, as measured from deep-penetration seismic reflection profiles, correlate with parallel and oblique orientations of rifts relative to the trend of the orogenic, basement fabric.

Kyle Reuber, Ph.D. is a geologist for ION's Team based in Houston. His primary area of focus is Latin America and the Caribbean. Kyle's remit primarily consists of designing ION SPAN programs and regional interpretation projects that integrate the regional 2D-SPAN and available reprocessed vintage datasets. Kyle earned his Bachelors of Science degree in geology from Wright State University and a Ph.D. from the University of Houston.

*Editor's Note: Photograph and biographical information were not available for Paul Mann at time of publication.*

**JERRY NAMY**
**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 2021 recipient is Jerry Namy.

Namy has been an AAPG member since 1973 and a Foundation Trustee Associate since 1996. His time since joining the TAs has been spent in supporting and promoting the Foundation is a number of ways.

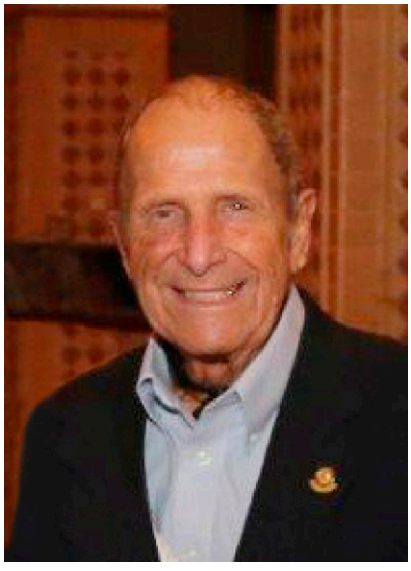
Namy earned his bachelor's degree in geology from Case Western Reserve University in Cleveland, Ohio, in 1960, and a Ph.D. in geology from The University of Texas at Austin in 1967.

Most of his career he has been with Fort Worth-based Texland Petroleum, which he has owned since 1978, serving as its chief executive officer from 1999 to 2009. The company has had much success in the Permian Basin, especially in its activity within Lubbock County and a much-praised association with Lubbock, Texas, where Texland promotes health and safety methods while operating more than 100 wells inside the city limits.

Of note, Namy stepped down as chief executive officer in 2010 after surviving a deadly airplane crash and added a second career, owner of Namy Thoroughbreds, which to date has finished in the money on more than half of all its entries, including nearly 140 first place finishes.

Namy, who grew up on a Kentucky farm, has said in the past that he "fell in love with horse racing when his dad showed him entries for the 1947 Kentucky Derby." The love affair continues.

Despite the dual career, Namy still devoted much of his time and efforts toward the Foundation, serving as secretary-treasurer in 2004-2005; vice chair in 2008; and chair in 2011.



**STEWART "STEW" CHUBER**
**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. The 2021 award is presented to Stewart "Stew" Chuber.

Chuber, a native of Queens Village on Long Island, New York, has been an AAPG member since 1953, one year after graduating with a degree in geological engineering from Colorado School of Mines. His older brother, who was then working with Gulf Oil in Venezuela, suggested that geology and Stew would be a good mix.

Like his brother, Stew worked for Mobil Oil after graduation, but simultaneously he earned both a master's degree and a doctorate in geology from Stanford University.

In the early 1970s he became a Houston-based consulting geologist, then was named vice president of exploration for Five Resources Inc., also in Houston. He moved to Schulenburg, Texas, as an independent geologist in 1974, where he eventually started his own companies, Fayette Exploration and Mascot Oil, which he continues to operate.

On his own words, he's "worked all over the Gulf Coast," although, admittedly, the Wilcox has been an especially good part of his life.

Of note, he has a passion for aviation and has been a pilot for most of his life – in part because as a well-rounded adventurer it's his way of having fun, but also because as a geologist he's "always been fascinated by how easy it is to see fracture patterns from the air."

He has a particular passion for education, and has generously devoted time and money to developing scholarships and establishing mentorships to encourage the next generation of geoscientists.

He also believes in the privilege and responsibility of engagement and "giving back" to others, whether the group is professional, cultural, religious or philanthropic. And as such he has been active in dozens of groups throughout his career.

His time with AAPG, for example, in addition to being a Foundation Trustee Associate since 2006, has included service on nearly 20 separate committees and groups—including terms in leadership in the House of Delegates and as both a society and Section (Gulf Coast) president.

For AAPG, Chuber served on the Executive Committee as vice president in 1994–1995.

His efforts have earned him a host of professional honors and awards, including from AAPG a Certificate of Merit, three awards from the House of Delegates—including the Distinguished Member of the House honor—plus the AAPG Distinguished Service Award and, in 2004, honorary membership.

**SABRINA EWALD**
**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.

The AAPG Foundation has named Sabrina Ewald as the recipient of the 2021 Teacher of the Year award.

You could call it destiny – Sabrina Ewald's family history, after all, is dominated by those who either worked in the oil industry or were teachers.

"My father worked at an oil refinery, my uncle had a career in oil exploration and extraction, and even my grandmother worked on an offshore oil platform," she said. "My mother was a teacher, and I had many family members who were teachers at all levels of academia."

Add in frequent family trips spent hiking in the Ozarks and Rocky Mountain National Park—plus her own love of collecting rocks and minerals.

"These experiences shaped my plan for the future, and I always had two ideas of what I wanted to do with my life – geologist or teacher," she said.

Guess what won out?

Trick question. The immediate answer is "both": Ewald has been a high school science teacher for her entire career – and for the past 16 years for the Frisco (Texas) Independent School District, bringing science and, specifically, geology and energy education to high school students in Clinton and Denton counties, covering Frisco, McKinney, Plano and Little Elm, Texas.

But the winner in the bigger picture is not just her, and not even just her students. "What" is winning is best described as perhaps the entire contemporary initiative

to bring via the ripple effect a deeper and more complete understanding of energy to the entire world.

Ewald's teaching method and purpose is designed specifically to help students "have a better understanding of why fossil fuels are so imperative and so important to the economies all over the world" – and to help them be informed and energy-aware when, as adults, they make decisions.

For her passionate, comprehensive and experience-driven efforts – and for being exceptionally creative in a difficult year of pandemic-forced virtual learning – Sabrina Ewald is this year's AAPG Foundation Teacher of the Year.

"I am beyond humbled and honored to be selected for doing what I love most, teaching earth science and helping students make real-world connections by engaging in hands-on learning," Ewald said when notified of the award. "I am fortunate to teach about what I am most passionate."

"It is a blessing to be recognized for my work in the classroom in helping students to see the value and importance of geology," she added.

Innovative geoscience education was celebrated and a bit of AAPG history was made as Clemencia Gómez was announced this year's recipient of the AAPG Foundation's Inspirational Geoscience Educator Award.

Gomez, a tenured professor at the Universidad Nacional de

**CLEMENCIA GÓMEZ**
**Inspirational Geoscience Educator Award**

Colombia, in Bogotá, is the first educator from Latin America to receive the Foundation's annual honor. She's taught there since 2017, teaching courses in geodynamics, field geology, Quaternary geology and the economics of mining and oil projects.

But those classroom experiences are only a part of the impact she's having throughout her community and entire region. As described by her faculty peers, "she has raised the awareness of all of us of the crucial role that we as geoscientists play in the community."

And that's in addition to her involvement with the industry and the profession throughout Colombia. In addition to being an AAPG member, Gomez also is a member of the Professional Geologist Association of Colombia, past president of the Colombian Society of Geology and current president of the Colombian Association of Petroleum Geologists and Geophysicists.

Gomez becomes the tenth recipient of the AAPG Foundation's Inspirational Geoscience Educator Award, created to honor college and university professors who have demonstrated outstanding leadership in the field of geoscience education. Each year the IGEA honoree receives a $6,000 award from the Foundation, plus recognition at the Chairman's Reception during the AAPG annual convention.

"It is encouraging and, appropriately, inspirational to encounter examples of outstanding geoscience education that's being offered around the world, as evidenced by Clemencia's excellent career," said Foundation Chair Jim Gibbs. "We also were very impressed by her tireless engagement with the general public, helping them to better understand and appreciate the dynamics of our profession and industry.

"I'm sure most of our supporters know by now that the Foundation actively and passionately supports and encourages geoscience education," Gibbs continued, "and extending our reach into the international arena is certainly gratifying for all of us."

Clemencia Gómez received a bachelor's degree in geology from Caldas University (Colombia), then attended Alcalá University near Madrid, Spain, where she received her doctorate in 2007.