AAPG Honorees, 2022

JOHN C. LORENZ

Sidney Powers Memorial Award

Citation—To John C. Lorenz for outstanding contributions to the pragmatic understanding of the origin, significance, and exploitation of natural fracture networks in hydrocarbon reservoirs, driving the evolution of petroleum geoscience publication as Editor of the AAPG Bulletin, and freely sharing his profound knowledge with passion, humor, warmth, and humility.

John C. Lorenz grew up in rural Connecticut, helping milk cows on the dairy farm down the road. His father, a high school science teacher, wanted to live close to water, so he built a house in an apple orchard with a pond in back, where John, his sister, and his brother, spent hours playing hockey, catching frogs, and canoeing. It was a Norman Rockwell setting, with woods for exploring and hillsides for sledding.

John was active in Boy Scouts, and with the guidance of an excellent troop leader he earned the Eagle Scout award. This later served him well in everything from tying down bulky truckloads, to solving airplane mechanical problems, to building a sedan chair so his mother could enjoy some of the outdoors activities she had known before being stricken by polio. John worked summers at the local Boy Scout camp, and one summer as a ranger at the Philmont Scout Ranch in New Mexico, hitchhiking home to Connecticut at the end of the summer.

Growing up with an inventive but underfunded father, and in a town where his father and the fathers of so many friends were World War II vets, John learned economy as well as the confidence to consider a variety of solutions to problems. His high-school sweetheart and future wife, Liz, came from a very nontraditional family, adding variety, spice, and a wealth of useful experiences.

John's father sent him off to college with a copy of Arthur Holmes' *Principles of Physical Geology* under his arm, suggesting that the study of geology might be of interest. It was. At the same time, John and Liz carried on a passionate yet remote three-year, handwritten, letter-a-day, courtship while he went to Oberlin College in Ohio and she went to a small Catholic college in Connecticut. Liz finally transferred to Oberlin, and they were married the summer before their senior year. John had always been interested in aviation and started taking flight lessons as a freshman, as income from jobs as cafeteria dishwasher and cook allowed. He was able to defray the cost of some flight lessons by scraping down an old airplane, and he is still restoring and maintaining airplanes today.

Many colleges in the late 1960s, especially Oberlin, were steeped in anti-war sentiments. Much of this was translated into activity including protest rallies. At one rally, Liz and John were able to find each other despite the chaos, meeting at the Washington Monument in DC. Despite distractions, John earned a B.A. with dual majors in anthropology and geology, and he and Liz graduated together in 1972.

Liz and John went into the Peace Corps following college. Liz's approach was direct, "I'm going, do you want to come?" Having no other pressing focus, John agreed, and became a teacher of technical English in Casablanca for students who were to become the pilots and air traffic controllers for Royal Air Maroc. While in the Peace Corps he acquired a moderate ability with Moroccan Arabic, parlaying that into a job as translator for a geology reconnaissance trip into the Tindouf Basin in southern Morocco by the University of South Carolina.

This connection led to graduate study at USC and geologic field

work towards a thesis on the Triassic strata that fill the Kerrouchen rift basin in the Middle Atlas Mountains of Morocco. John's field vehicle was a 1950 BMW motorcycle, which he disassembled and shipped home in pieces. The field work culminated in his first publication and an M.Sc. degree from USC. It also led to a deep interest in the Triassic Period, which resulted in the book *Triassic-Jurassic Rift-Basin Sedimentology*. Work in Morocco and the ability to make himself misunderstood in Arabic began a longstanding relationship with North Africa and geologic studies in Morocco, Algeria, Tunisia, and Libya.

John was finally able to complete a pilot's license while a student at USC, but he quickly ran out of money and did not fly again for 16 years. With a master's in hand and a newborn son, Nate, he joined the US Geological Survey to do lease evaluations in New Orleans, Louisisana and Roswell, New Mexico. A second son, Mark, was born in Roswell, which Mark believes explains a lot. Job dissatisfaction after two years pushed John to return to graduate school for a Ph.D. at Princeton University. His initial field work for a dissertation was on the Nubian Sandstone in the Sahara of southern Libya, dodging Algerian border patrols and avoiding World War II minefields, but the politics got complicated and Americans were told to leave the country. John moved on to a dissertation project on the Cretaceous Two Medicine Formation, noted for its dinosaur nests, in Montana.

John was hired out of graduate school by Sandia National Laboratories in 1981 to be the geologist for the Multi-Well Experiment in Colorado, where he enjoyed the scientific advantages of collaborating with reservoir engineers. The goal of the experiment was to develop techniques for extracting natural-gas resources from difficult-to-produce, low-permeability Rocky Mountain reservoirs. Initially John's focus was on sedimentary characterization of reservoir shape, size, and heterogeneity. However, when engineers discovered that natural fractures were the main production mechanism for these reservoirs, his focus changed to natural-fracture origins and characterization, the effects of fractures on permeability, and the interactions between fractures and in situ stresses. This required a major, self-taught retooling of his geologic expertise from sedimentology to structural geology.

During his 26 years at Sandia, John worked on a variety of joint industry-government fossil-energy projects, all focused on understanding natural fractures in reservoirs to improve hydrocarbon recovery efficiency. These studies included such disparate units as the Lisburne Limestone, the Spraberry Formation, and the Tensleep Sandstone; related presentations at meetings received two AAPG A.I. Levorsen Memorial awards plus an AAPG Jules Braunstein Memorial award.

While at Sandia, John served as the AAPG Elected Editor (2001-2004), and served on or chaired numerous AAPG committees, earning a Distinguished Service award and Honorary membership. He served twice as treasurer for the Rocky Mountain Section of AAPG. During this time, he was also a Boy Scout leader as well as a soccer coach, encouraging the interests of his sons. With a steady income, he was finally able to resume flying, becoming a flight instructor as well as chief pilot for the Albuquerque squadron of the Civil Air Patrol.

John left Sandia in 2007 to form a consulting company, FractureStudies LLC, with Scott Cooper. The two have worked on outcrops and cores both nationally and internationally for the hydrocarbon industry from the North Slope of Alaska to Iraq. While doing so, they became aware of a need for a better understanding of natural fractures within the industry, and to that end he and Scott created hands-on, fracture-themed classes, field trips, and workshops. For the same reason, they wrote two books: *Atlas of Natural and Induced Fractures in Core* and *Applied Concepts in Fractured Reservoirs*. These texts share the authors' techniques as well as the knowledge acquired from their wide and varied applied experiences. While consulting, John was elected President of AAPG (2009-2010), and he served on the AAPG Advisory Council for the three following years.

John continues to consult and to fly (he is currently the president of the New Mexico Pilots Association), and he and Liz are the proud grandparents of Jackson, Bridget, and Alex.

Elizabeth Lorenz

JOHN RICHARD HOGG

Michel T. Halbouty Outstanding Leadership Award

Citation—A natural, influential, and inspirational leader both within the AAPG and Canadian frontier petroleum geology. Visionary, persuasive, energetic and courageous. Always the consummate professional - positive, informed and engaged. A champion for geoscientists, in our Association and industry.

The Michel T. Halbouty Outstanding Leadership Award is given annually in recognition of outstanding and exceptional leadership demonstrated, and extraordinary service given to the petroleum geosciences and the AAPG. Outstanding, exceptional, and extraordinary perfectly describe, John Richard Hogg, the 2022 recipient of our Association's second most distinguished award.

It is a privilege for me to write this bio for my friend of 44 years. John and I met in Hamilton, Ontario, in the summer of 1978. I had just graduated from high school and John had just finished his freshman year at McMaster University. I was dating John's cousin at the time, and we met totally by chance at a music festival. Amazingly, John had chosen to study geology as his major, a subject I was interested in after studying physical geography in my senior year of high school. Our decades long friendship began at that music festival. My relationship with his cousin, well, let's just say it didn't last that long!

John was born in Hamilton, Ontario Canada, on October 30, 1958. His parents, Christine and Melvin, were blue collar workers in Hamilton where John attended Prince of Wales public school, Scott Park secondary school, and Hamilton Collegiate Institute graduating in 1977. Upon graduation, John enrolled at McMaster University in Hamilton where he entered the general science program taking geology as his elective. John fell in love with geology and decided to pursue this as his major and never looked back at pursuing a career in the industry. It was at McMaster that John was first introduced to AAPG through the *Bulletin* and like most McMaster students at the time, focused on sedimentology and stratigraphy under the influence of AAPG Distinguished Educators Gerard Middleton and Roger Walker. John's first field summer job was in 1979 with Dale Leckie, an AAPG Gabriel Dengo Memorial awardee and Distinguished Lecturer. At the time, Dale was a Ph.D. candidate of Roger Walker's, mapping Cretaceous sediments in northeast British Columbia.

Following John's graduation from McMaster in 1981, he joined Gulf Canada Resources in Calgary, Alberta and began his 40+ year career in the oil and gas industry with additional stops along the way at Husky Energy, Petro-Canada Resources, PanCanadian/EnCana, Burlington Resources, ConocoPhillips Canada, MGM Resources and now at his own consultancy, Skybattle Resources. Throughout the majority of John's impressive career, he has been focused on high-risk exploration in Canada's frontier basins - the Sverdrup and Mackenzie/Beaufort Basins in the Canadian Arctic and the Scotian, Jeanne d'Arc and Flemish Pass Basins off Canada's east coast in the north Atlantic.

John is an expert in Canadian frontier petroleum geology with more than 50 oral and poster presentations on his resume. I think of John as the prototype explorationist, not unlike Michel Halbouty. John has described being an explorationist as being "the greatest job in the world." We all know the traits of great explorationists - curiosity, creativity, persistence, enthusiasm to name a few. John has all of these in abundance. But more importantly, John is an oil finder. Oil finders are rare. John has been involved with discoveries in the Sverdrup Basin in the high Arctic, the Jeanne d'Arc and Flemish Pass Basins offshore Newfoundland and gas discoveries offshore Nova Scotia and in the Mackenzie Delta. In his career, John has been influential in discovering more than a 1 trillion cubic feet of gas and 100 million barrels of oil. John's humble about discoveries, because to find oil in frontier basins means drilling far more dry holes than discoveries and every dry

hole is a profound disappointment, even if, a "technical" success!

John joined AAPG in 1981. His AAPG career has been punctuated by many "firsts." His "first" volunteer role with the Association was at the ACE meeting in Calgary in 1982 where his job was to move the clothes pins outside three oral session rooms to identify the current talk! Always a champion for international geoscientists, John was the chair of the 1998 International Representation Committee of the House of Delegates that conceived the concept of International Regions. This committee also reformed the Advisory Council adding International Councillors to the body. He was the "first" AAPG International Vice President of the Regions from 2007-2009, the "first" General Chair of both an ACE in 2005 and ICE in 2010, both held in Calgary. He was not quite the "first," but the second International President of AAPG in 2015-2016!

John has always tried to see our Association as a place for both pure and applied science and to ensure that the AAPG represents all members equally when it comes to governance. He has served in the House of Delegates, held all positions including Chair of the House in 1999-2000 leading the House when the Regions were voted into existence. John has served on the Advisory Council for many terms, first as an Executive Committee appointed member in the late 1980s and as both an elected member and ad hoc member. John has demonstrated key leadership in many AAPG programs. He worked in the House on the reduction of the number of sponsors, on the election of the Editor (which until that time was an appointed position) and in the Advisory Council, designed new awards and rewrote old awards, including the Halbouty! During his last two years, John drafted and implemented an Advisory Council procedures manual.

John's most significant leadership achievement for the AAPG was clearly his vision and implementation of the Regions. He initiated discussion on international representation in the mid-1990s with a focus on the disenfranchisement of "active" voting AAPG members around the world who had no voice without an affiliated society. John's constant push, over several years, to have all regions of the world represented in the House was eventually adopted by delegates. Change and influence are inextricably linked, and it was John's ability to influence and gain the compliance and commitment necessary to successfully implement the Regions concept.

John's year as President of AAPG was a challenging one. The Association faced significant budgetary challenges and unfortunately had to make the difficult decision to lay off several AAPG staff. John's Executive, AAPG Directors and the Executive Director worked on realigning and optimizing staff functions, stopped the Association from doing nonproductive work and eliminated committees that were not aligned with the new vision of AAPG.

During John's President-Elect year, he worked closely with the incoming House Chair to review the Constitution and Bylaws of the Association, which were tired and confusing after more than two decades of amendments. During John's Presidential year, he asked the Chair to work with the House on a new, simplified version of the Constitution and Bylaws. Those changes were passed by the House at the 2006 ACE meeting in Calgary at the end of John's term in office.

Suffice to say, John has been a tireless worker for the AAPG over four decades and has been at the forefront of much of the positive change for the Association. In addition, John has been the president of his home society, the Canadian Society of Petroleum Geologists in 2003 and was an elected Councillor for the regulatory board for geoscientists and engineers, APEGA, in his home province of Alberta for four years, 2009-2012, and during that time influenced and guided the process of obtaining a P.Geo. professional designation. At the time Alberta only had a P.Geol. and P. Geoph. status and, in essence, John's work took two smaller umbrellas and made one larger umbrella to allow all geoscientists to practice their profession with greater scope. John's changes even caused the Association to drop a "G" once it was passed by the Association from "Geologists and Geophysicists" to "Geoscientists" of Alberta.

John has been recognized for his extraordinary contributions to the AAPG with the Distinguished Service Award in 2002, Distinguished Member of the

House of Delegates in 2004, AAPG Honorary Membership in 2010 and Honorary Membership of the House of Delegates in 2011. John also received the Canadian Society of Petroleum Geologists President's Award in 1995 and 2005 and was bestowed Honourary Membership in 2013. John was also recognized by his alma mater, McMaster University, with its Distinguished Alumni Award in 2007 and by PanCanadian Petroleum in 2001 with the President's Award for the discovery of the Deep Panuke gas field.

John has had many mentors in his AAPG and professional careers. Past-President Pat Gratton said if he had to list the top-ten officers of the AAPG over its 105-year history, John would be on that list. Past-President Pete Rose notes that John always contributes with penetrating insight, uncommon wisdom and prescience, and, above all, omnipresent good humor. Pete feels that all successful leaders demonstrate the following five traits - vision, persuasiveness, energy, courage and character and John has displayed these through his AAPG and professional career.

John's mentors have always been important to him, and he has passed on those learnings to young geoscientists throughout his AAPG and industry career. John's only request of them is that someday, when they are busy and influential staff geoscientists or managers, that they stop and provide advice and guidance to a young geoscientist who reaches out asking for advice from them. One of John's mentees is current Canada Region Advisory Councilor, Ryan Lemiski. Ryan states that "without a doubt John is the most impactful mentor that I have had in my life". Ryan first met John when Ryan was entering the industry, and almost immediately, John took Ryan under his wing. John and Ryan worked on several AAPG strategic initiatives over the years and during a conversation about the future of the organization Ryan asked John where they should go from here. John's response was simple, yet profound telling Ryan, "This is your AAPG now." This quote is a testament to the type of leader that John is.

Over all the years I have known John, I can honestly say his impressive volunteer and professional pursuits have always come secondary to his family. His wife of 40 years, Amy, his two adult children, Sarah, and Logan and his granddaughter Sophie have been and continue to be an immense inspiration and source of pride. John and Amy, now empty nesters, split their time between their home in Calgary as well as enjoying their time as snowbirds at a second home in Arizona.

In John's citation, I mention that he's a natural, influential, and inspirational leader. When I say natural, I mean, people just feel compelled to follow him. His passion is unmatched, and he exudes confidence. I've known John for most of his life. I'm not sure, but I think he was born this way! One thing I do know for sure though, John is a lifelong friend, and those friendships are rare and for that I'm truly grateful.

Congratulations my friend!

Marty Hewitt

EDITH ALLISON
Honorary Member Award

Citation—Honorary Membership in AAPG is bestowed upon Edith Allison, for her service to AAPG, the Eastern Section of AAPG and the profession of geology.

Edith's career began in Amarillo, Texas, after receiving geology degrees at West Texas State University and the University of Utah. Her career has spanned numerous positions, from exploration and development geologist to manager of government research programs in reservoir characterization and methane hydrate to geologic consultant and energy policy analyst.

Service to the Eastern Section of AAPG has included being the co-chair of the 2011 ES-AAPG meeting in Washington, DC and serving as the Section's Secretary and Treasurer. Edith was the Director of the Geoscience and Energy Policy Office of the AAPG (the GEO-DC office) from 2012 through 2016 and Edith has remained in Washington, DC as a geologic consultant since, working on numerous geoscience and energy policy projects.

From 2006 through 2008, Edith was a co-chair of the Professional Women in Earth Science (PROWESS) and more recently has been the co-chair of the Women's Network Honors and Awards Committee.

Whether as an exploration and development geologist in Texas, as a geologist in Bartlesville, Oklahoma, or a consultant, research scientist, and energy policy expert in the Washington, D.C. area, Edith Allison has remained a staunch supporter AAPG and for this we are happy to bestow on her Honorary Membership of AAPG.

Dan Billman

Response

I thank all those who contributed to my accomplishments and to this recognition, which was unexpected. My contributions seem minor relative to what I have gained from membership and involvement in this organization. AAPG has connected me with scientists and managers, who broadened my scientific knowledge, and helped me understand the business side of exploration and production.

Much of my career was spent in small companies or in engineering-focused projects, where there were few other geologists. However, there was always an AAPG-affiliated geological society to provide me with technical programs and publications, opportunities to talk with more-experienced geologists, and field trips to relevant basins and outcrops. Participation in affiliated societies and AAPG sections, as an officer or helping to organize meetings and conventions, also built my business and professional skills, and led to life-long friendships.

I worked for more than 20 years managing applied oil and gas research at the US Department of Energy. This put me at the intersection of academic and laboratory research, and oil field drilling and production. It was exciting to be at the convergence of basic research, resource characterization studies, and drilling, when shale-gas production boomed. I am looking forward to being involved in another multifaceted boom, growing domestic production while reducing its environmental impact, and applying industry knowledge to new energy systems.

After I left the federal government, I spent four years in one of my most interesting jobs. As Director of the AAPG, GEO-DC office, I helped AAPG members explain petroleum geoscience to nontechnical decision makers on Capitol Hill, and in research and regulatory agencies. I also gained greater appreciation for the skill and dedication of AAPG headquarters and international staff, who enable the work of hundreds of member volunteers. They also receive my wholehearted thanks.

Edith Allison

CLAUDIO BARTOLINI
Honorary Member Award

Citation—To Claudio Bartolini who has been and continues to be instrumental in increasing our geological knowledge through personal research, and by publishing the ideas of many other geoscientists as editor of their work, principally through the American Association of Petroleum Geologists, as detailed below.

I first met Claudio in 1994 during his Ph.D. studies when he joined Amoco's Mexico exploration team as a summer intern. His knowledge of Mexico's geology and his strong work ethic significantly contributed to our efforts as we were engaged in joint research projects with Pemex and the Instituto Mexicano del Petroleo. He and I became good friends, and our personal and professional association has continued.

Claudio's academic credentials are impressive. He received his Bachelor of Science from the University of Sonora, Mexico in 1983 following a three-year stint of practical work in mineral exploration. After several more years of geological fieldwork, he returned to academia to earn his Master of Science degree from the University of Arizona in 1988. He then resumed his professional career with the Gold Fields Mining Corporation doing mineral exploration in Arizona, California, and Mexico. Claudio returned to academia again in 1992 for his Ph.D. at the University of Texas - El Paso with a NASA scholarship. His fieldwork was supported by an Exxon research grant, with additional support from the American Geological Institute, the Houston Geological Society, the Peñoles Mining Company and the El Paso

Mineral and Gem Society. He received his doctorate in 1997 and was granted the College of Science's Outstanding Doctoral Student Award.

Upon graduation, Claudio was recruited by ARCO's Latin American exploration division before taking the assignment of basin and field researcher for IHS Energy in Houston, Texas. After several years at IHS, he joined Repsol where he coordinated Technical Collaboration Projects with Pemex in the Mexican deep waters of the Gulf of Mexico. He also was involved in the exploration assessment of the Chukchi and Beaufort Seas, and then served for two years as a member of Repsol's Regional Studies Group in Madrid, Spain working the Llanos Basin of Colombia and the Campeche Shelf of Mexico. For the following 10 years Claudio was part of Repsol's New Ventures Group for Latin America and Mexico.

A major direction for Claudio's geological career began in 1999 when he became the principal editor for the Geological Society of America's Special Paper 340: *Mesozoic Sedimentary and Tectonic History of North-Central Mexico*. This was followed by editorial work for AAPG on several important volumes, including: Memoir 74 (2001), *The Western Gulf of Mexico Basin: Tectonics, Sedimentary Basins and Petroleum Systems*; Memoir 79 (2003), *The Circum-Gulf of Mexico and the Caribbean: Hydrocarbon Habitats, Basin Formation and Plate Tectonics*; Memoir 90 (2011), *Petroleum Systems in the Southern Gulf of Mexico;* Memoir 108 (2016), *Petroleum Geology and Potential of the Colombian Caribbean Margin;* and most recently, Memoir 123 (2021), *South America-Caribbean-Central Atlantic Plate Boundary: Tectonic Evolution, Basin Architecture and Petroleum Systems*. For Claudio's work on AAPG Memoirs 90 and 108, the association twice awarded him the Robert H. Dott Sr. Memorial Award for Best Geological Special Publication. In addition to performing the difficult tasks associated with editing these landmark AAPG volumes, Claudio is an Associate Editor, and spends many hours reviewing papers for AAPG, and for other international geological organizations, while also staying involved in the organization of geological meetings and technical events. He is presently a very active member of the AAPG's Super Basins Committee, which has been publishing issues of the *AAPG Bulletin* that highlight the world's most prolific petroliferous basins.

In 2018, Claudio was accepted as a Correspondent Member of the prestigious Academy of Engineering of Mexico for his contributions to the geology of the country. He also continues to contribute to the geosciences of the Western Hemisphere by originating and being the Chief Editor of a bilingual (Spanish and English) monthly online magazine called the *Revista Geológica Maya* which has just finished its first year of publication. The *Revista* reaches hundreds of readers, as well as being linked to major geological societies and universities around the world, including AAPG. The *Revista* was originally created with the aim of supporting students and young professionals in the earth sciences, as well as geoscience communities of the Americas. It is aimed at an audience with varied experience in geology and related disciplines and provides an open forum with minimal publication restrictions that allows geoscientists to freely and rapidly share their ideas. The magazine is independent and is not under the direction of any geological society or investigative institution. Its website is http://www.revistamaya.com/.

Claudio Bartolini has already had a distinguished career, and his work for the betterment of AAPG richly merits the granting of this Honorary Membership. He surely has many more exciting and important achievements ahead of him.

Joshua H. Rosenfeld

Response

Like many other colleagues, I lost my job during the COVID pandemic and the deep crisis of the oil industry, so I have been at home for a while waiting for better times. When I received a phone call from AAPG President Gretchen Gillis, I thought she may want to talk about final steps of the publication of my new volume: AAPG Memoir 123. Great was my surprise when Gretchen said that I have received 2022 AAPG's Honorary Member Award. Receiving this award from such a prestigious organization is both an honor and a privilege. I am a very proud member of this international organization that supports advancement of the geosciences and petroleum exploration for the benefit of its members.

Over the past 20 years I have had the opportunity to edit five volumes for the AAPG, focusing on Latin America and the Gulf of Mexico. I've been Associate Editor

for the *AAPG Bulletin* and Special Issue Editor, and I have participated in the organization and coordination of national and international congresses. I will continue to support AAPG for it to remain the best organization in the world.

During the last couple of years, I have kept busy with the final details of the publication of my latest AAPG Memoir 123 on the geology of the Caribbean and northeastern South America, which has been already published. I have also joined Charles Sternbach in the compilation and editing of three special bulletins on Global Super Basins, which had never done before by AAPG. These fantastic basin studies will remain a landmark for new geoscience generations for many years to come.

At the same time I, along with a group of colleagues from different parts of the world, founded the *Revista Maya de Geociencias*; a monthly international, bilingual newsletter aiming to support earth science students and young professionals. The group of editors and collaborators have worked hard and efficiently to introduce this innovative concept of a newsletter for the world of geosciences.

Throughout my career I have reviewed manuscripts for international journals and coordinated the publication of technical programs and abstract volumes for geological associations in North America and across Latin America. I firmly believe that the publication of scientific papers is fundamental for the growth, evolution, and advancement of our profession, and I continue to be involved in national and international activities related to geology and hydrocarbon exploration.

Claudio Bartolini

WILLIAM BAXTER HARRISON III

Honorary Member Award

Citation—To William Baxter Harrison III, AAPG Honorary Membership, 2022, in recognition of: A lifetime of service, preserving a legacy of geologic data, and synergizing academia, industry, and government contributions that reach far into the future.

Remember the movie *It's a Wonderful Life*? Bill Harrison is the George Bailey of the Michigan Basin and the AAPG Eastern Section. For more than 40 years, Bill has been a keeper of the flame to preserve geologic data and its practical application by industry, academia, and government to further subsurface research and exploration. Bill is an exemplary researcher, teacher, and creator of a regional powerhouse in a global community, a shining example for all.

To fathom the depth and breadth of Bill's contributions, let us spotlight a few comments by those who know him well.

Wayne Goodman: "Under Bill's guidance, Western Michigan University became the in-State academic center of research on Michigan Basin geological topics. Bill established and broadened relationships with energy and mineral companies that would provide added career opportunities for WMU students for decades to come. A key part of Bill's ongoing legacy is the scores of students he mentored and influenced who have successful careers in the energy and extraction industries and other endeavors.

The Michigan geoscience community regards Bill as one of, and perhaps "THE" leader of the Michigan geoscience community. With the ongoing support of Linda, herself an outstanding geoscientist and educator, Bill established the annual Michigan Basin seminars nominally held under the aegis of WMU and the Petroleum Technology Transfer Council (PTTC). All of us who have participated in these annual meetings are forever grateful.

MGRRE has become the Michigan Geological Survey headquarters, which has become an even more significant contributor to research on the State's, and Basin's geology. None of this would have happened without the dedication, foresight, and ongoing efforts of Bill Harrison. Bill and Linda are a treasure to all who have pursued Michigan Basin geology."

Jim McDonald: "Bill has supervised or served on student committees for over 50 M.S. theses and

10 Ph.D. dissertations. These students did their work primarily on the subsurface and petroleum geology of the Michigan Basin, using the archived data at the Michigan Geological Repository for Research and Education. Many of these students went on to have careers in the petroleum industry.

Bill is also a leader in research on carbon sequestration and carbon capture, utilization, and storage. As an expert in Michigan Basin geology, he has led carbon sequestration research in the Michigan Basin since 2003. This research culminated in the large-scale CO_2 injection pilot project, which involved injecting CO_2 for enhanced oil recovery from the Niagaran pinnacle reefs of northern Michigan."

Peter Voice: "I have known Bill for more than half of my life. He has been my professor, mentor, colleague, and most importantly, my friend. Bill is an enthusiastic teacher.

After more than a decade retired from active teaching, Bill still gets excited about talking to students. Bill also ensures that the students realize that there are practical applications to many of the topics covered in their lectures and labs - helping our students to understand the many applied areas of geologic research.

MGRRE brings in students from WMU and many of our neighbors, including MSU, U.M., Albion, Calvin, Alma, CMU, GVSU, and WSU. Bill is the expert on the Michigan Basin - with very few competitors (most of whom he has outlived). Bill's proudest achievement in recent years is co-editing a Geological Society of America Special Paper volume on the Michigan Basin with his colleagues Mike Grammar and Dave Barnes.

Bill has not been afraid to learn new techniques to help that mission, like developing databases to store digital information on MGRRE's cores on the web, learning software for subsurface geological data management and analysis such as Petra, or developing new ideas to photograph and digitize samples. He has broadened his research from looking at conventional and unconventional hydrocarbon reservoirs in Michigan to looking at newer applications such as geothermal energy, energy storage, carbon sequestration, enhanced oil recovery, and critical mineral assessment describing the evaporite resources of Michigan, including the high-purity and relatively untapped potash resources in the central Lower Peninsula."

Autumn Haagsma: "Bill has been an unparalleled resource for me and many others. He is a supportive mentor, teacher, and collaborator who is always open to brainstorming and discussions. He also has a contagious enthusiasm, and everyone lights up when they talk with him."

Josh Kirshner: "Anyone interested in the subsurface geology of Michigan owes Bill (and Linda too). Their hard work has created and preserved an invaluable asset of geologic data lost without him."

Excerpts from Galey Award Citation, written by Charles Sternbach (2011): Bill's research, education, and outreach interests include energy and natural resources, Michigan Basin geology, geological data, and samples preservation. The breadth and depth of Bill's knowledge of Michigan geology are quite remarkable.

Bill has received a Doctor Honoris causa (Honorary Doctorate) from the University of Latvia, the Distinguished Service Award from Eastern Section AAPG, the Outstanding Educator Award from Eastern Section AAPG, Honorary Membership from Eastern Section AAPG, the House of Delegates Long Service Award, the AAPG Public Service Award, and Honorary Membership from the Michigan Basin Geological Society.

Bill's life is rich in friendships and meaningful contributions to our profession. He shares this wonderful life with Linda, his wife of 53 years. Linda is a geologist with a B.S. and M.S. One of Bill's hobbies involves his vineyards in southwestern Michigan and winemaking. He enjoys sharing the fruits of these labors (literally) with good friends while discussing the finer points of Michigan geology. The maps and cross sections we have drawn on cocktail napkins since 1984 would make quite a collection!

Linda Harrison's closing words: "Bill Harrison has worked more than 40 years to build collections at this repository. Anyone else would have given up long ago, but Bill kept working day by day. It reminds me of a quote from the movie *Field of Dreams*: "If you build it, they will come." And they have come from industry, government, and academia to use these resources and Bill's expertise. And he has loved every minute of it."

Charles Sternbach

IONE LINDLEY TAYLOR
Honorary Member Award

Citation—To Ione Lindley Taylor for her contributions to energy science, petroleum geology, and her colleagues across three sectors - the petroleum industry, US government, and academia.

I have known and worked with Ione Taylor for more than 37 years. When we first met, she was a new hire entrant into the oil and gas business. She came to Amoco Production Company in 1985 with a B.S. in chemistry from Guilford College and an M.S. and Ph.D. in geology from the University of North Carolina at Chapel Hill and a focus on hard-rock geochemistry. She arrived with the intent to work a few years, gain some practical experience, and then return to a university career. That aspiration would have to wait three decades.

In her first assignment as an operations geologist on a barge rig in shallow offshore Louisiana, Ione had to rapidly learn two new languages and cultures: oil field and south Louisiana. With her passion for learning and application, she knew to ask questions of knowledgeable people, watch, and pay attention to see how things were supposed to work and how they actually worked. She quickly learned to do her job. The discipline of chemistry, coupled with field geology experience in New Mexico, provided a useful and strong foundation for this new work.

Together with husband Al, also an Amoco geologist, they have two wonderful children - a son and a daughter. They learned along the way how to juggle two demanding careers and coordinate travels to various job assignments, training functions, housekeeping, and amazing vacations together to see the geology of the United States up close and personal.

Ione quickly moved to a position as a geotechnical petrologist focusing on reservoir risk assessment in domestic and international projects. In 1991, she transferred to the Amoco Tulsa Research Center as research supervisor of Petrology and Lithochemistry research. Here she merged her learnings on good management and supervision with quality, effective, and efficient geoscience research projects. In 1992, she became Amoco's R&D technology director for Integrated Rock/Fluid Systems, a position responsible for oversight of Amoco's worldwide research on geologic prediction and evaluation of petroleum reservoirs.

After five years, Ione transferred to Amoco's Strategic Regional Studies Group and was made a vice president with Amoco Overseas Exploration Company. Under her oversight, she led the multidiscipline group in addressing new business opportunities for oil and natural gas. As group manager, Ione effectively saw to the integration of geotechnical, legal, environmental, political, and commercial work to assess investment risk and capture new business outside of Amoco's existing portfolio.

Following the BP-Amoco merger in 1998, Ione joined the BP Upstream Technology Group and oversaw the new company's portfolio of geological and subsurface analysis research, development, and worldwide application for reservoir description.

In 1999, Ione and Al moved back East to be near their families and take on new challenges at the US Geological Survey headquarters in Reston, Virginia. She became science center director of the Eastern Energy Resources Science Center, leading multiple teams in energy resource research in Alaska, the lower 48 states, and multiple international basins. Subsequently, she moved into additional senior USGS management positions: deputy eastern region director, eastern region chief scientist, USGS chief scientist for geography, and associate USGS director for energy and mineral resources and environmental health. Each of these brought on more responsibility, oversight, supervision, management, and integration of increasingly diverse and new fields.

In 2012, she led the Department of the Interior's participation in a Federal Interagency Task Force on Unconventional Gas that included the Department of Energy and the Environmental Protection Agency to focus on safe and responsible development of unconventional domestic natural gas. In 2013, Ione co-chaired the White House Office of Science and Technology Policy

Working Group on Critical Mineral Supply Chains addressing supply shortages of rare earth elements necessary for 21st century technology development and application.

Concurrently with these assignments, Ione co-developed and co-presented two leadership courses for first line supervisors. These courses introduced new ways of seeing, thinking about, and addressing the multifaceted challenges of natural resource science, assessment, and management. Ione also introduced to USGS multiple resource assessment methodologies, integrating economics and decision analysis with natural systems science, and coordinated interagency collaboration to provide experts and data necessary for multi-discipline assessments.

In 2014, Ione departed the USGS to become the executive director and co-creator of a new master's degree program in Earth and Energy Resources Leadership at Queen's University, Kingston, Ontario. Through this program for early to mid-career professionals, she took what she and her colleagues had learned in resource appraisal and management over the years and crafted it into a graduate degree program incorporating integrated concepts in geosciences, engineering, economics, law, policy, regulation, and societal impact within an earth systems science framework. This new curriculum addresses development opportunities for the next generation of enterprise leaders in the natural resource sector and prepares them to assess risk and make sound decisions. Having taught alongside her at Queen's, I saw her teach, mentor, and inspire not only me, but every one of her students and colleague professors.

Around this same time, Ione became a volunteer in AAPG's Visiting Geoscientist Program (VGP) and later served for six years as coordinator for the VGP for the Eastern Section.

Ione was recognized by AAPG in the book *Anomalies: Pioneering Women in Petroleum Geology* and documentary *Rock Stars: Women in Petroleum Geology*. She was also honored in the *Heritage of the Petroleum Geologist* during the 2017 AAPG Centennial. Even though she left Kingston in 2019, she continues to feed her passion for learning and teaching from the farm that she and Al have in southern Virginia. Today she works out of a coffeepot percolator-shaped, two-story office - a place she built for brewing ideas, storing old and useful memories, having the warmth and comfort of real friends and virtual colleagues from around the world, and a place to look back on lessons learned and forward on new opportunities to embrace.

For those like me, who may have missed the connection, the name "Ione" is the main support configuration for the powerful and illuminating word "pioneer". It only seems appropriate.

James L. Coleman, Jr.

Response

I am so grateful to AAPG for extending this amazing honor to me. I was truly surprised and thrilled when contacted by AAPG President, Gretchen Gillis, with the news. Receiving this award means a great deal to me, given the high regard in which I hold AAPG. Some of my very first professional presentations - talks and posters - were given at annual AAPG conferences. AAPG showed confidence in me even when I was so nervous to present in front of such an audience that my voice wavered, and my hands shook! I want to very much thank the AAPG Advisory Council for selecting me, as well as the persons who nominated me and those who supported this nomination.

I have been very fortunate to have discovered (more like stumbled upon) geology. This discipline has provided me with a wonderful career where I have been able to pursue what I was really interested in. That is, subsurface water-rock interaction. There have been so many intriguing puzzles to tackle and opportunities to work with very smart and talented colleagues! These include unraveling multiple episodes of mineralization associated with early rift vulcanism in New Mexico, predicting porosity basement for a rank wildcat well from outcrop samples in Myanmar, and having a first ever peek at the new frontier of subsalt section in the Gulf of Mexico. It has been my delight and privilege to take this learning journey and contribute to the industry and profession.

So many dedicated geologists have helped me along the way. Thanks to Chuck Chapin of New Mexico Bureau of Mines and Mineral Resources for teaching me what a geologist actually does. With the support of Marybeth Donaldson and Laura Sarle, I was able to get hired on at Amoco Production Company. Here, I received the education of a lifetime when thrown immediately onto

drilling wells. Laurel Babcock took a chance on me as I stepped into management at Amoco's Research Center and Dick Larese taught me what I needed to know to succeed in the job. I am particularly grateful to Amoco for their support of working women, especially working moms like me, at a time when many companies were not as supportive.

Leaving the industry and moving into the Federal government would not have been possible for me without the strong support of Dave Russ and Dave Houseknecht at the US Geological Survey (USGS). I am very proud to have been part of the important work of USGS colleagues related to energy and mineral resource security and environmental stewardship for the Nation. I owe my ability to finally return to the academic world to a job posting printed in the *AAPG Explorer* in 2013. Thanks to DJean Hutchinson of Queen's University in Ontario for affording me the wonderful opportunity to develop and launch an interdisciplinary graduate program for emerging leaders in the petroleum and mining industries.

I want to especially thank former (and first female) AAPG President, Robbie Gries, for inviting me to be part of her ingenious project to honor the contributions of women during the early days of the petroleum industry. Through her outstanding research, a group of us present-day women professionals were able to present the fascinating and challenging lives of our predecessors. For this project, I represented women from the World War II era. This was done through Robbie's book, *Anomalies: Pioneering Women in Petroleum Geology* and accompanying AAPG-produced documentary, *Rock Stars: Pioneering Women in Petroleum Geology*. AAPG's Professional Women in Geosciences (PROWESS) committee sponsored a kickoff event to premier the documentary during the AAPG 100th Anniversary Celebration in Houston in 2017. It was such great fun participating on a panel where all participants came in period costumes. I wore vintage clothes that belonged to my grandmother! The ability to interact with current outstanding women professionals, especially Robbie, while learning about the amazing and courageous lives of past women in our industry remains a career highlight for me.

When I was in graduate school, I aspired to have what I called a "three-legged stool" career that included experience in the commercial sector, experience in the mission-driven or government sector, and then, hopefully, a return to an academic setting. I have been so fortunate to have been able to do this. My AAPG membership, with its accompanying benefits of short courses, field trips, technical sessions, big picture convention luncheon talks and so on, has come right along to support me as I have leapt sectors! So, I was glad to be able to give just a little bit back by serving as a volunteer speaker and section coordinator in the AAPG Visiting Geoscientist Program (VGP). Here, I was able to witness firsthand the impact of placing working geologists and geophysicists into classrooms to interact with university students and share their industry experience.

I want to conclude by recognizing and thanking just two more geologists. The first is James L. Coleman, Jr. Jim is my biographer and citationist for this award, but more than that, he has been my friend and colleague for more than 30 years. We have worked together at Amoco, the USGS, and Queen's University. I have learned so much from him and relied greatly on his faithful scholarship and steady dedication to delivering clear and accurate geologic (and all other types of) information to help others - be they a high-profile oil industry VP, a member of the public, or a beginning grad student. Thanks, Jim. The other geologist I would like to thank is my beloved husband, Al Taylor (Carl A. Taylor, Jr.). His patience in teaching and orienting me into the oil business was essential to surviving those early years. He has been there to support, encourage, and champion me through every twist and turn, every step along the way. His partnership in our shared love for geology, in our 38 years of marriage, and in raising our wonderful son and daughter together has truly been the blessing of a lifetime.

Ione Taylor

SHERILYN C. WILLIAMS-STROUD
Honorary Member Award

Citation—For Sherilyn Williams-Stroud for her many contributions to understanding induced seismicity and her tireless work on diversity in the geosciences.

Sherilyn Williams-Stroud has made extensive contributions by publications and presentations about subsurface fracture mapping and geologic interpretations of induced seismicity. Most of her research findings are not only applicable to petroleum geology and mineral deposits but to subsurface injection of wastewater and CO_2 as well, both of which have growing importance to the future of oil and natural gas production in a more-carbon-constrained world. She has been on numerous organizing committees and has served as session chair for AAPG meetings throughout her career, including a term as chair of the AAPG Core and Sample Preservation Committee. As an AAPG Visiting Geoscientist for nearly a decade, she visits schools to give presentations and talk to geology students whenever she can. Sherilyn was a member of National Academy of Sciences Committee on Seismology and Geodynamics from 2014.

In addition, she is a constant strong supporter of diversity efforts in geological organizations and in the workplace: co-leader Mini-summit on diversity, 2002 AAPG Leadership Meeting; local chair, USGS Geologic Division Ethnic Minority Advisory Committee, 19921995; Seismological Society of America, Diversity, Equity and Inclusion Task force, 2020-2021; and chair, Geological Society of America Committee on Diversity 2020-2021, and a panel moderator for National Academies of Science Engineering and Medicine Fall 2020 Meeting, topic: Pathways Toward the Future Just, Equitable, Diverse, and Inclusive (JEDO) Energy Workforce.

She was a narrator in the 2017 AAPG documentary "Rock Stars: Pioneering Women in Petroleum Geology" and profiled in the associated book "Anomalies: Pioneering Women in Petroleum Geology 1917-2017". Her work on induced seismicity also led to her being interviewed for the IRIS Earthquake Science Series: Interview with a geoscientist - Dr. Sherilyn Williams-Stroud.

Sherilyn received her B.S. in geology from Oberlin College and earned her Ph.D. from John Hopkins University in structural geology. Her career began as a research scientist for the USGS in Denver, Colorado. In addition to her government work, her wide-ranging experience in the private sector included, having worked for large operators like Chevron Exploration and Production and Occidental Oil and Gas, and small service and consulting companies like Midland Valley Exploration as principal structural geologist and as chief geologist for MicroSeismic Inc. This has given her a wide perspective on the energy industry, which she enthusiastically shares with young professionals and students. She is presently a research geologist at the Illinois State Geological Survey specializing in faulting and induced seismicity. She has been a faculty or adjunct faculty at University of Houston, Whittier College, and California State University. She has been a mentor to countless students and has worked diligently in helping geology students from Historically Black Colleges and Universities become active members of the geologic profession.

As a friend and colleague, I am delighted that she has been awarded the Honorary Membership in AAPG for the tireless work she has completed in the field of not only petroleum geology but mineral mining and diversity of the profession.

Hannes Leetaru

YONGSHENG MA

Norman H. Foster Outstanding Explorer Award

Citation—To Yongsheng Ma for his visionary research and technical leadership resulting in a new way of thinking about marine carbonate petroleum reservoirs, and the successful discovery and development of the giant Puguang and Yuanba gas fields in the ultra-deep carbonate strata of the Sichuan Basin, China, with proven reserves of 25.1 TCF.

Yongsheng Ma has nearly 40 years' experience as a geologist in oil and gas exploration. In his career, he has made a series of innovative and important discoveries in

the theoretical and technological research of petroleum exploration in marine carbonates. He led the successful discoveries of two giant gas fields, the Puguang and the Yuanba gas fields in the ultradeep carbonate strata in the Sichuan Basin. He is also the key contributor to the exploration and development of the Fuling shale gas field, the first shale gas field to achieve commercial development success outside North America.

Ma was born in October 1961 in the Inner Mongolia Autonomous Region, China. He earned a bachelor's and a master's degree in geology from the Wuhan College of Geology in 1987, and a Ph.D. degree in sedimentology from the Chinese Academy of Geological Sciences in 1990.

From 1990 to 1998, Ma worked for the China National Petroleum Corporation (CNPC) and carried out research on hydrocarbon accumulation and play assessment in the Ordos Basin, Tarim Basin, and Bohai Bay Basin. He made pioneering contributions to the oil and gas discoveries in marine strata in these basins. The former chief geologist of CNPC, academician Chengzao Jia, recipient of the 2019 AAPG Norman Foster Outstanding Explorer Award commented on multiple occasions that "the systematic scientific research on marine carbonates in the Tarim Basin originated from Dr. Yongsheng Ma."

Since 1998, Ma has worked for China Petroleum and Chemical Corporation (Sinopec), and his research has focused on petroleum geology and exploration practices in southern China. The marine strata in southern China are characterized by their widespread distribution (mainly Proterozoic and Paleozoic), multiple episodes of strong tectonic movement and long-term thermal evolution, resulting in extremely complex conditions for hydrocarbon accumulation and preservation. Prior to 2000, several oil companies carried out multiple rounds of large-scale oil and gas evaluation and exploration but were only able to find about 100 small-scale gas fields discoveries at shallow to medium burial depth, with no gas fields larger than 100 BCM (3.7 TCF). Discouraged, many experts in the industry were convinced that massive hydrocarbon accumulation and preservation was unlikely in the marine strata in southern China. Nevertheless, Ma strongly believed that considering the vast areal extent of the territory in southern China, if there were a few modified and damaged hydrocarbon accumulation units, there could well be hydrocarbon accumulation units that could be preserved. Just because no large gas fields had been found at the shallow to medium burial depth did not mean they did not exist in deep to ultra-deep conditions.

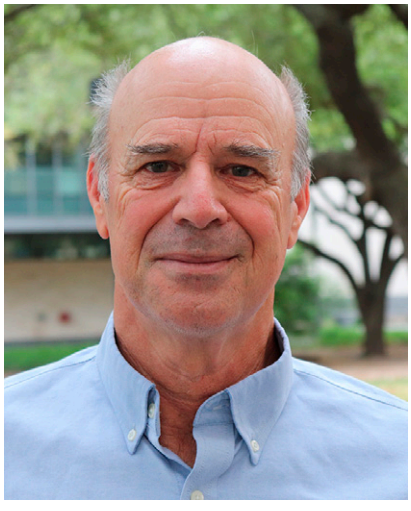
Maintaining an open mind and keen investigatory skills, Ma carried out research on oil and gas evaluation and exploration and in doing so, applied new geological theory and advanced technological equipment. He challenged the depositional model proposed by former researchers and predicted favorable reservoirs in the reef and shoal facies. He established the "three-element controlling reservoirs" model for the formation of favorable reservoirs, and argued that high quality reservoir rocks could still exist at burial depth of more than 3500 m. He also established the dynamic structural-lithologic hydrocarbon accumulation model and proposed new ideas on the dynamic natural gas accumulation mechanism. With these new research findings, Yongsheng Ma audaciously predicted favorable targets for natural gas exploration in the Puguang and Yuanba regions. Aiming at "lithologic traps" rather than "structural highs," Ma's creative understandings and exploration deployment plans were not accepted by many experts, and they were even labeled as "weird and absurd."

Ma fully respects the predecessors, but never blindly believes in authorities. It was quite often that his exploration deployment plan was not accepted by the decision-making business unit or the expert committee the first time he presented it, but he was not one to give up easily. In August 2001, Yongsheng Ma proposed the deployment plan for the Puguang 1 well, which later became the discovery well of the Puguang gas field. During the demonstration phase of Puguang 1, Ma faced many tough questions and received significant opposition. Nevertheless, he persisted. Finally, after presenting his ideas to the expert committee three times, he gained recognition and support. In May 2003, Puguang 1 well tested high-yield industrial gas flow from the reef and shoal reservoir rocks at a burial depth of more than 5000 m. Subsequently, Ma proposed a complete deployment plan of the Puguang gas field. Following the plan, a total of 29 wells were drilled with an exploration success ratio of 93% and proved reserves of 412.2 BCM (14.6 TCF) of

natural gas. In a block that had gone through large-scale exploration by predecessors but with no breakthroughs, such a highly efficient giant discovery brought a shock to the industry. The hope of the once unfavorably marine carbonates in southern China was rejuvenated.

Since the discovery of the Puguang gas field, Yongsheng Ma has continued to improve the established theory and technology. He and his team have gone on to discover and prove the Yuanba gas field, a biogenic reef gas field at a burial depth of more than 7000 m, and the Fuling gas field, the first shale gas field to achieve commercial development success outside North America. These theoretical and technological achievements and iconic hydrocarbon discoveries not only promoted the natural gas exploration in marine carbonates in southern China, but also set the first example for exploration in ultra-deep marine carbonates in mature exploration areas globally.

Susan Nash



CHARLES KERANS

Robert R. Berg Outstanding Research Award

Citation—To Charles Kerans for his for multiple contributions to carbonate geology, especially the advancement of stratigraphy in the Permian Basin in both subsurface reservoirs and analogous outcrop exposures of the Guadalupe Mountains.

Charles Kerans is a pioneering researcher in the field of carbonate geology and has a long career of integrating the most advanced stratigraphic concepts into the applied world of petroleum geology. He has impactful research and numerous publications on multiple carbonate systems, but Charlie's contributions to the Permian deposits of West Texas and New Mexico are at the top of the list. Over the span of his career at the Bureau of Economic Geology and now as the Goldhammer Chair of Carbonate Geology in the Department of Geological Sciences at the University of Texas at Austin, Charlie has personally contributed, guided and mentored his coworkers and students through a series of outcrop and subsurface studies that combined, have done more to further our understanding of the Permian Basin than any previous or current group.

In the mid-1980s, Charlie and his colleague, F. Jerry Lucia, began a research initiative to understand the fundamental relationship between carbonate facies and reservoir properties that control hydrocarbon production in carbonate reservoirs, especially the Permian San Andres Formation. This journey began the longest continuously funded Industrial Associates programs at the University of Texas Bureau of Economic Geology–the carbonate Reservoir Characterization Research Laboratory. With Charlie driving outcrop and core characterization efforts as well as looking for innovative ways to incorporate the key findings in geomodels, this group has maintained industry partnerships and funding since 1987 and has provided insight to the carbonate reservoirs in almost every major carbonate province in the world, most notably the prolific Permian Basin.

As the concepts of sequence stratigraphy emerged in the late 1970s and 1980, Charlie was a pioneer in applying these principles to the extremely rugged outcrops of the Algerita Escarpment and Guadalupe Mountains of New Mexico and Texas. The intent was to understand the vertical and lateral relationships of high-resolution carbonate facies in the exposed outcrop to enhance prediction of reservoir performance in subsurface carbonate reservoirs of the Permian Basin. Charlie tackled the physical challenges to compile the most detailed and comprehensive view of the Permian stratigraphy to date. However, he sought the application of the stratigraphic framework on reservoir producibility. This led to the 1994 paper in the *AAPG Bulletin* (1996 Wallace Pratt Award for Best Paper) titled, "Integrated characterization of carbonate ramp reservoirs using Permian San Andres Formation outcrop analogs." Charlie's research launched new initiatives in subsurface characterization of carbonates, especially geomodeling, and led to another highly sought SEPM course titled "Sequence stratigraphy and characterization of carbonate reservoirs," which he co-taught with Scott Tinker and authored a highly

successful SEPM Short Course Book of the same title in 1997.

Using similar concepts and techniques developed in the Permian Basin, Charlie spent the next decade working Cretaceous outcrops of Texas in conjunction with studies of the hugely prolific Shuaiba carbonate reservoirs of the Middle East. Kerans continued work in the Permian Basin and when the unconventional reservoirs of the early Permian became the dominant target, Charlie used his knowledge of the outcrops on the flanks of the basin and learnings from years of interactions with Permian operators to create a detailed stratigraphic framework of the Permian section of the basin. This effort represents the state-of-the-science shelf-to-basin model and solidifies Charlie as one of the legends of the Permian Basin of New Mexico and Texas.

Charlie has spent a career bettering the knowledge of students and petroleum geologists by leading countless field trips to the Permian Guadalupe Mountains, along with numerous other Paleozoic and Cretaceous strata for AAPG, SEPM, West Texas Geological Society and for his own research group; has been a contributor for two AAPG Hedberg Conferences on carbonate reservoir characterization; served as an AAPG Distinguished Lecturer, both national and international; taught numerous courses and workshops for AAPG and SEPM; and has been a chair for dozens of AAPG sessions. He continues to provide support and guidance to both AAPG and SEPM as a participant at impactful research conferences and workshops.

In closing, Charlie Kerans has been a world leader in carbonate systems and has spent a career bridging the gap between fundamental geoscience and applied petroleum geology. Charlie's effort and insight place him in elite company in carbonate geology as one of the most impactful geoscientists to work Permian stratigraphy and geosystems.

Christopher Zahm

LESLI WOOD

Robert R. Berg Outstanding Research Award

Citation—To Lesli Wood for her exceptional contributions to Petroleum Geology, domestically and abroad, and for her legacy educating and mentoring numerous explorationists and geoscientists worldwide.

Robert R. Berg Outstanding Research Award is named for one of the most influential scholars in modern times whose professional career left strong imprints both as an exploration geoscientist and as an educator. It is then fitting to give this 2022 award to Lesli Wood, a graduate of Colorado State University (1992), the University of Arkansas (1988) and Arkansas Tech University (1985). Lesli's remarkable professional career started as an explorationist in the oil and gas industry to then transition into research and teaching. For me, the second part of her professional life is the most fascinating, perhaps because she contributed to my own education, professional upbringing, and personal growth.

After earning her Ph.D. in 1992, Lesli started a successful career with Amoco where she made significant contributions to the understanding of the geology of the Columbus Basin in Trinidad. Lesli's initial exposure to Caribbean geology as an oil and gas explorationist influenced her later work as an academic. She has authored or coauthored numerous seminal papers on the geology of the Caribbean region with topics that include mud volcanism, continental margin evolution, tectonism, as well as shallow and deep-water sedimentation and stratigraphy. Her technical contributions are widely known through the Caribbean and South America regions and a point of reference for both academic and industrial endeavors. From all her papers, her 2000 *AAPG Bulletin* contribution on the "Chronostratigraphy and tectonostratigraphy of the Columbus Basin, eastern offshore Trinidad" is the one that best represents the uniqueness of her scholastic style, with a clear multidisciplinary and integrative approach that is both, academically rigorous and beautifully pragmatic. In addition to her work in the Caribbean, Lesli has published extensively in other

basins around the world including offshore Morocco, Permian Basin, Fort Worth Basin, Gulf of Mexico, Ouachita Mountains, China, Australia, New Zealand, Indonesia, New Mexico, and Norway. Broader academic publications that dive into key aspects of the geosciences, methodological approaches, as well as iconic case studies benefited from Lesli's work as an editor, these publications include but are not limited to *the Seismic Geomorphology* special volume 277 from the Geological Society of London and AAPG's Memoir 93 *Shale Tectonics*. Planet Earth has proven to be too small for Lesli's ingenuity and scientific curiosity and she has also made important contributions within the planetary geology community by providing terrestrial analogs for Mars environments, most notably her work on the geomorphology of the Mars Eberswalde Delta that was published by the Geological Society of America in 2006 way before rovers were sent to the red planet.

In 1997, Lesli took a position as a researcher at the Bureau of Economic Geology (BEG) at The University of Texas at Austin where she cofounded and codirected several Industrial Associate programs including the Quantitative Clastics Laboratory. During her tenure at BEG, Lesli supervised both undergraduate and graduate students, many of them international students from South America and other parts of the world, who came to The University of Texas at Austin with a dream to further their geoscience education and to better their lives. We were trained under Lesli's watchful eyes within a nurturing, inclusive, constructive, and technically challenging environment that prepared us to be at the forefront of energy exploration, geoscience education, and research around the world. The impact of Lesli's mentorship can be measured by following the career path of her students. During her time at The University of Texas at Austin, Lesli was an active lecturer at the Jackson School of Geosciences where her teaching was an appendix of her full-time research job at BEG and a testament of her passion for education. In 2015, Lesli took a tenure track position at Colorado School of Mines where she currently holds the prestigious Weimer Distinguished Chair at the Department of Geology and Geological Engineering and where she continues to advance science while advising and mentoring students and young professionals. The impact of Lesli's technical work and publication record in both industry and academia is unquestionable; however, she would agree that her most meaningful career contribution resides on what she calls "the apple orchard." "The apple orchard" is a plantation of students and young mentees that Lesli has supported and nurtured through the years via her devotion as an academic advisor, mentor, and friend.

In closing, I hope that this citation has honored the colleagues who have nominated Lesli Wood for this award, as well as all her current and former students and mentees who look up to her as a role model and as a dear friend.

Lorena Moscardelli

DAVID J. ENTZMINGER
Distinguished Service Award

Citation—To David J. Entzminger, for dedicated leadership within Southwest Section and to the HOD, outstanding service for educational and community outreach, and continued innovation in exploration.

David J. Entzminger was born in Germany and raised in Idaho where geology ruled the landscape. Fascinated with earth science and being the outdoor person he is, this sparked the geologic interest. Originally destined to get into the mining industry with his B.S. in geological engineering from the University of Idaho, the mining sector took an unfortunate downturn during his undergraduate work, but with the next step in obtaining his M.Sc. in geology from Idaho State University, this set his career path within the petroleum industry. Originally planning to stay in Denver with Cabot Petroleum Corporation, the eventual middle 1980s petroleum downturn caught up to David and his family. Humbled by this situation, David kept his head high

and persisted through this tough time and wound up moving to Midland to work with ARCO where he became a reservoir geologic manager. When ARCO merged into BP, a move to Houston followed; however, destined to continue his career in Midland, this led him to work with Tom Brown and Whiting Petroleum where he excelled to both regional exploration and development managing positions. Armed with a wealth of working knowledge in the Delaware Basin, a private equity group reached out to David to fully manage a drilling program in the Delaware Basin as their vice president of exploration and development. With having been through tough times before in his career, he was and has been prepared for all unexpected cycles within this business. Having a vast knowledge of key skills only acquired by time and experience, he currently manages his own destiny working for himself at Entzminger Geoscience Services.

While advancing through his career, David never forgot the importance of staying in touch with family and friends while being involved in professional and community organizations. Even though he was very busy, he would stop and help those in need within his profession and within the community. David fully engaged within the community of Midland, especially within his church community. Helping associates grow both personally and professionally are the cornerstones of David's character. Not only does he go out of his way to assist where it is needed, he patiently works with individuals to make sure they succeed. David knows how to light a fire to motivate people, so these motivated people can carry the torch forward through his experiences. Through his geologic background and his appetite for knowledge, as well as his desire to educate, he has authored more than 30 technical papers, traveled to local geological societies across Texas to present on core, sample cuttings, logs, and detailed geologic depositional environment descriptions. Fully committed to these societies and their advancement, David has served as president for West Texas Geological Society and Southwest Section AAPG. His service for AAPG, included chair on the AAPG House of Delegates, Division of Professional Affairs vice president, and served on AAPG's Executive Committee and Advisory Council. One can honestly say that after David had served within those ranking positions, the organization was left stronger with a clear set of defined goals for the next leaders to step into those roles. Through his leadership, which is grounded in his personality, David truly sets the bar for being a geoscientist in the 21st century.

Armed with a portfolio of geoscience tools, coupled with truly forward-thinking companies, his programs have generated millions of barrels of oil and gas reserves across multiple basins. For this recognition alone, associates noticed the hard work he put in to accomplish such challenging tasks. His patience for collaborating with people from diverse backgrounds and cultures, has allowed him to clearly communicate and directly obtain a desired result for these challenging tasks. The upper levels of AAPG executive committees can be challenging, bringing in a full suite of issues separate from the work culture. Members who elected David for these AAPG positions can fully count on him to accomplish a set of goals because they know when David is there, he will provide clarity and deliver for AAPG. David lives with his wonderful wife, Melanie, in Gig Harbor, Washington, where they both travel the nation to visit family and relax between family trips, fishing the rivers of the Pacific Northwest.

Nic Brissette

TERRA JANE GEORGE
Distinguished Service Award

Citation—To Terra Jane George, an exemplary petroleum geologist, a passionate advocate for diversity and inclusion and immensely contribution sharing her knowledge and promoting geoscience through the AAPG Women's Network.

Terra George has made exemplary contributions to the profession and dedicated service to AAPG. As a petroleum geologist and a leader committed to furthering the mission of AAPG, Terra embodies the best of the organization she values and has served with distinction, which has inspired future generations of petroleum geologists.

Terra George is originally from rural Oklahoma and is a proud citizen of the Cherokee Nation. She completed a Master of Geoscience at The University of Texas at Austin, where she worked with David Mohrig on depositional process in the Mississippi River Delta. She holds a Bachelor of Science in geology from Oklahoma State University. She has also completed significant course work towards an M.B.A. at Texas A&M Corpus Christi.

She began her geologic career in 2002 working for the USDA NRCS as a geology trainee. She spent several summers of undergraduate working on aging flood control structures across the state of Oklahoma. This gave her tremendous field and lab experience. However, her love of subsurface geology was realized when, in 2005, she became an intern with Chesapeake Energy. She enjoyed making subsurface maps with well data, two-dimensional, and three-dimensional seismic data. She was amazed by the use of AVO to detect drilling prospects and knew she wanted to go into a career in oil and gas.

Terra George moved to Texas for graduate school and was selected as a ConocoPhillips (COP) Fellow and a SPIRIT Scholar, which led to a wonderful internship and full-time employment with COP. She was at COP from 2007-2017 and worked many basins. The highlight of her time at COP was her role as lead geologist for the Melmar drilling prospect in the Perdido foldbelt. However, she also greatly enjoyed getting to take part in the horizontal drilling revolution that took place onshore.

In 2017, Terra moved to Diamondback Energy and began working a new leasehold in the Delaware Basin of West Texas. This was a great opportunity to work with a fast-paced startup company and she enjoyed being able to make an impact. She continued in the fast-paced development and was fortunate to join EOG Resources in the Midland Division in 2019, which she enjoys working onshore development, Lea County, New Mexico.

Terra has been an AAPG member since 2003 and was active as a student in AAPG activities on campus and later, as a working professional, helped students find employment at the AAPG Student Expo. I was fortunate to have met Terra George in 2016 and we hit it off as we both were involved and became active in PROWESS. I was impressed with Terra's commitment and dedication to the assigned volunteering event and since then we have been very good friends and professional compadres sharing AAPG's visions and goals. Following up from that event, Terra George became active in PROWESS, organizing many events around the globe.

She became cochair in 2017, serving in that role until 2020. In 2019, during her time as cochair, Terra worked closely with her fellow chair, Amanda Haddad, and with me - Stephanie Nwoko, then the AAPG Executive Committee Secretary, to rebuild and rebrand PROWESS as the AAPG Women's Network (AAPGWN). Since that change, the AAPGWN has exploded in activity, with more than 800 members and a vibrant pipeline of leadership impacting the industry. AAPGWN has hosted more than 20 events and reached more than 2000 people daily on various social media platforms. Additionally, Terra bravely spoke out in support of women geologists in a viral open letter which helped gain further support for AAPGWN within AAPG.

Terra is passionate about supporting and retaining women in the geoscience pipeline and has continued to serve the AAPGWN as a past chair on the AAPGWN Advisory Committee. In addition to her work with AAPGWN, Terra has served as a lead on the 2021 IMAGE committee, a co-chair for siliciclastic theme, and an abstract reviewer. She has also served as a coauthor on an upcoming paper that has been submitted to the *AAPG Bulletin*. She also served on the components committee of the AAPG Society of Petroleum Engineers merger effort.

In addition to AAPG, Terra is part of the Southwest Section and supports her local society, the West Texas Geological Society. She also serves as a board member for the University of Texas at Austin Jackson School Friends and Alumni Network. She has been a Junior League member for 11 years, volunteering at Texas Children's Hospital's Playroom, as an ESL Pen Pal for Piney Point Elementary, and Parkway Place Senior Living Facility. She has received the 2020 Ally GRIT Award and a 2012 Subsurface Excellence Award from ConocoPhillips. Terra has been a champion and continues to be a voice for women in petroleum geoscience. She is honored to be selected for the Distinguished Service Award.

Stephanie Nwoko

AMANDA HADDAD

Distinguished Service Award

Citation—To Amanda Haddad: A dedicated advocate for women and recognized leader of the Women's Network, as well as an exceptional petroleum geoscientist.

Amanda was raised amongst the mountains and desert of Phoenix, Arizona, where she developed a love for the outdoors from an early age. Her rock collection started with "cool rocks" from camping trips and grew into an extensive variety of colorful minerals, marine fossils, and ore rocks from Arizona mines. It was the curiosity of what controls color in minerals that inspired Amanda to pursue geology in college.

She began her B.S. in geology at Arizona State University (ASU) in 2002, and after a chemistry professor heard about her fascination with mineral forms and colors, he encouraged her to undertake a double major in chemistry. During this time, she also became an isotope geochemistry lab assistant for the Chemistry Department. It was a winning combination for Amanda that allowed her to develop her creative, practical, and analytical skills, while spending the perfect amount of time in both the laboratory and in the outdoors.

During her undergraduate, she had become fascinated with the interfaces between the two disciplines—how chemistry controls geology and vice versa. Fortuitously, Katrina Edwards from the University of Southern California had come to ASU to give a colloquium talk on her geomicrobiochemistry research on the interface of microbes, chemistry, and mineralogy of the seafloor. Amanda was fascinated by her presentation and asked to speak with her after her talk. Before long, Amanda was accepted as a graduate student in the Edwards Lab and would be the geologist that complimented her lab full of microbiologists and chemists!

Amanda graduated with dual B.S. degrees with geology and chemistry from ASU in the spring of 2008 and started that fall in the Ph.D. program at the University of Southern California (USC). For her dissertation research Amanda participated in three research cruises, operated a synchrotron beamline at a national lab, participated in a geobiology summer course all over the United States, and traveled to multiple countries for research and conference presentations.

After graduating from USC in 2013 with a Ph.D. in geology, Amanda worked as a geological consultant for a year before joining BHP in 2014 as an exploration geologist in their new ventures team. From day one, she was hooked by the endless challenges waiting to be tackled and the impact that tackling them would have on world energy. It was the perfect mix of geology, chemistry, practicality, four-dimensional thinking and creativity. In her 8 years at BHP, Amanda has contributed as an exploration geologist, a technical team lead, and a planner, and worked in both technical and leadership roles. But it was her assignment in Perth, Australia, as a production planner that sealed her interest in global and cross-functional leadership.

Amanda joined AAPG in 2011 as a student who became interested in applying her skills to solving the world-scale energy challenge. She quickly became involved in the Women's Network (formerly PROWESS) and the History of Petroleum Geology committees. She has also chaired the History of Petroleum Geology session at ACE. In the Women's Network, she co-led the Pioneering Women sub-committee and the production of the First 100 timeline highlighting the contributions of the first 100 women members of AAPG. She also served on the Awards & Nominations subcommittee as well as served as cochair, led the rebranding of PROWESS to the Women's Network. She continues to serve on the Women's Network Advisory Board as a past-chair.

Amanda and her husband, David, live in Houston, where both Amanda and David work in the energy industry. When they're not working, they love to travel and have a goal to visit every national park in the United States.

Rachelle Kernen

VICTOR OGUNMOLA
Distinguished Service Award

Citation—To Victor Ogunmola in recognition of his exemplary service and dedication to the development and growth of students and young professionals in the Africa continent.

Victor Ogunmola came from a humble background having been born and raised in an agrarian town, Itaogbolu, Ondo State Nigeria. He had his early education at St. John's Anglican Primary School, Itaogbolu, and Anglican Grammar School Iju/Itaogbolu, also in Southwestern Nigeria.

Victor was trained as a geoscientist at the University of Aberdeen, United Kingdom; Obafemi Awolowo University, Ile-Ife, and the Federal University of Technology, Akure Nigeria, Victor has garnered more than 15 years of consistent professional career experience in the oil and gas upstream industry. He is a science and technology enthusiast and expert. He skillfully leverages technology to drive efficiency and productivity in Geoscience operations. Before his current role as a geoscientist at ExxonMobil, he had worked for Statoil, Halliburton, and Guaranteed Petroleum Nigeria Ltd, across three continents –Africa, Europe, and North America.

Victor is naturally passionate about strategically creating opportunities for mentoring and developing the next generation of leaders. His volunteering efforts is a testament to this.

Victor joined AAPG as a student member in 2000. As a professional geoscientist, Victor is an active member of the Houston Geologic Society where he works and resides, the AAPG Africa Region as well as the Nigerian Association of Petroleum Explorationists in their key goal of building the next generation of geoscientists. He meritoriously served, for several years, as a member of the AAPG's Grant-In-Aid and Membership Career Service Committees. Victor currently serves as an application reviewer for the L. Austin Weeks program, a member of the AAPG's Education Awards Committee, and a Visiting Geoscientists Program (VGP). As a visiting geoscientist, Victor has visited, delivered lectures, and shared practical experiences with thousands of students and faculty members at more than universities in North America and African in the last couple of years. Over the last 5 years Victor has used practically every business and personal trip to deliver the VGP lecturers to geoscience students.

As the immediate past Students Chapter Coordinator for the AAPG Africa Region, Victor led several initiatives geared toward promoting networking, collaboration, and integration between the university community and the industry in a strategic way that enables research and knowledge sharing among professionals, students, and faculty members. Working with the African Region Leadership, Victor initiated and piloted the Africa Undergraduate Geoscience Competition (AUGC) with the full participation of 25 Student Chapters in 2019. Victor has cultivated an extensive network of contacts and developed friendships across the world. During the inaugural AUGC I Lagos he was able to co-opt more than 50 university professors into the planning and execution of the program.

Driven by the desire to build a healthy pipeline of talents and skills for the African innovative and creative growth, Victor partners with a team of other equally passionate volunteers to identify and strategically invest in the career aspirations of the self-motivated and inventive minds among African youth. Through a not-for-profit organization, i-Scholar Initiative (iSI), a very robust end-to-end mentoring is being provided, and tens of thousands of US dollars are being raised and invested in young, vibrant, and academically gifted and driven Africans seeking foreign opportunities to advance their academic careers. With an investment of more than USD $100,000 in the last few years, iSI has enabled and facilitated more than $10 million in scholarships for more 120 young Africans at world-class universities in North America, Europe, and other parts of the world. He is convinced and confident that such a modest intervention is key to driving the acquisition of the requisite skills required for the 21st Century growth and development of a continent that is in a dire need of transformation in every key metric of nation-building.

Outside professional engagements, Victor enjoys outdoor activities, soccer, road trips, family time, and voluntary activities.

Victor is happily married to his best friend, Beatrice Funke, and they are blessed with David, Hannah, Daniel, Stephen, and Timilehin.

Femi Esa

JAMES H. PAINTER
Distinguished Service Award

Since March of 2018, James H. Painter is a cofounder of PaintMire, an advisory firm. From 2005-2017, Painter held various positions at Cobalt International Energy. Cobalt was established in 2005, and Painter was one of the founders of the company.

Most recently at Cobalt, he served as interim chief operating officer and then president, exploration and appraisal. Prior to that, he was executive vice president of worldwide operations and appraisal. During his 12-year tenure, he served as executive vice president in various roles including exploration, Gulf of Mexico, and execution and appraisal.

Prior to he and his cofounders starting Cobalt, he was senior vice president of worldwide exploration and technology at Unocal Corporation (following the merger between Ocean Energy and Devon Energy). Until the merger with Devon Energy, Painter held various leadership roles for Ocean Energy from 1995 to 2003 with his final role as senior vice president, Gulf of Mexico and international exploration.

From 1980 to 1995, Mr. Painter had various exploration and development roles at Forest Oil, Mobil Oil, and Superior Oil Company. Painter has more than 40 years' experience in the oil and natural gas industry. He holds a Bachelor of Science in geology from Louisiana State University.

MICHAEL A. RAINES
Distinguished Service Award

Citation—To Michael A. Raines for his dedicated volunteer service to the AAPG and Petroleum Geology in general. He has spent many years dedicating his time and effort to furthering the profession of geology.

If you need assistance with geology-related matters in the Permian Basin, you call Mike Raines. Everybody does; and I don't think that he has ever neglected to volunteer his services.

Mike is always willing to lend a hand if there is a need in the SWS AAPG, WTGS, PBS-SEPM, and all those other acronyms related to West Texas geology. He will do what he can to help promote his chosen profession of petroleum geology.

Mike received a Bachelor of Science in 1991, with a geology degree from West Texas State University, in Canyon, Texas. He followed that with a Master of Science in geology, from the University of Oklahoma, in 1995. His thesis topic was *Saturation Effects on Gypsum Dissolution Kinetics with Implications for Karst Development*.

After receiving his master's, Mike immediately moved to Midland, Texas, to begin his career, and has been there ever since. His work experience has mostly been in the Permian Basin. Projects included enhanced oil recovery and reservoir characterization, especially in Permian Basin carbonates.

The importance of volunteering for geological organizations was obvious to him from early in his career, where many around him put in valiant efforts on local, regional, and national scales. Following that example, he often served as an officer or a chairman for many of those associations. Mike's roles have included Southwest Section AAPG president and numerous offices for the Permian Basin Section of SEPM. He has served in many ways for the West Texas Geological Society, including president, other officer positions, and multiple committee chairmanships for the WTGS Fall Symposium, including general chair.

Mike has authored or coauthored publications on numerous topics on the Permian Basin. Many pertained to core analysis, enhanced oil recovery, and/or carbonates. He has given several poster sessions, talks, and even a few web training sessions for AAPG.

Lastly, Mike is always willing to take a fellow geologist's phone call and answer any questions he can, especially those pertaining to West Texas geology and/or many of the organizations in which he is involved.

Darrell Mauldin

MARJORIE CHAN

Grover Murray Memorial Distinguished Educator Award

Citation—To Marjorie Chan for decades of inspirational and innovative teaching, and for sharing her passion for geoscience with students and the public alike.

Throughout distinguished professor Marjorie Chan's diverse and fascinating career, her continued commitment to academic and educational excellence has never wavered. Marjorie strives to empower her students and train up the next generation of scientists, academics, and professionals using tools inside and outside of the classroom, and to expand geoscience education and curiosity in the public sphere.

Marjorie was fortunate to grow up in a family where the natural sciences were emphasized. Their family vacations were conducted like field trips, traveling across the western United States along with numerous extended trips to Baja California to study ecosystems and marine biology. Due to being prone to seasickness, she chose geology, and received her B.S. from the University of California, Davis, followed by a short stint working at Lawrence Livermore Laboratory in California. She completed her Ph.D. at the University of Wisconsin-Madison, under the tutelage of esteemed sedimentologist Robert H. Dott, Jr., with summer internships at Marathon Oil Company's research laboratory in Littleton, Colorado. Her job at The University of Utah presented her with the magnificent and accessible geology of the Colorado Plateau, and she has continued her work there ever since.

Over her 40-year career at The University of Utah, Marjorie Chan has developed a world-class research program studying rocks from the Precambrian to the Pleistocene and nearly every period in-between. Her work has highlighted the unique geologic beauty and academic opportunities present within sedimentary rock sequences, and she worked closely with numerous undergraduate and graduate students to unearth the story of these rocks from deposition to diagenesis. Chan's recent planetary research puts geoscience education on the international stage and at the forefront of our search for life on other planets. Her Mars analog research inspired the Mars for Earthlings curriculum, which teaches students the fundamental skills of scientific inquiry in a fun and engaging way. Marjorie's most recent efforts focus on leadership in geoheritage and the preservation of our natural wonders for generations of students to come.

In addition to new discoveries, Marjorie's research has the added impact from the compounding effect of her many students. In addition to her graduate students, Marjorie has taught sedimentology and stratigraphy to hundreds of undergraduates since 1982. As one of Marjorie's recent Ph.D. students, I have greatly benefited from her mentorship and teaching. As I entered my first year as an exploration geologist, I could clearly see the ways in which her guidance helped me to grow as a scientist, researcher, and teacher.

Marjorie Chan brings recognition and prestige to geoscience education through her engagement with professional societies and the public. Marjorie often gives lectures at national and international universities and conferences on a variety of topics including geoscience education and preservation, and in 2014, she was selected as the Distinguished International Lecturer for the Geological Society of America where she gave more than 50 lectures across Asia, and Australia and New Zealand. In addition to her professional service, Marjorie is known for her active engagement with the public. She has appeared on shows such as National Public Radio's Science Friday and been featured in National Geographic and the

Discovery Channel. For the recent 100th anniversary of the National Park Service, her work was featured in the American Geophysical Union's *EOS* publication. While Marjorie is well known on the national and international stage, she continues to give back locally through various programs within the state. These community events bring education beyond the classroom and inspire the public to engage more deeply with geoscience.

Throughout her career Marjorie Chan has been heavily involved in outreach, including focused efforts to encourage women and minorities in science. When she was hired as a tenure-track faculty in 1982, she was the only full-time woman faculty within the entire College of Mines and Earth Sciences (four departments). From there Marjorie went on to become the first woman department chair of a science or engineering department at The University of Utah and she was the initiating leader for widely recognized national programs for women and minorities in professional societies (e.g., AAPG's PROWESS committee, and Geological Society of America's On to the Future).

One thing that sets Marjorie apart is her ability to "do it all" and to do it well. In addition to her academic awards and other accomplishments, Marjorie is an excellent administrator and has left an incredible positive impact on The University of Utah. During her seven-year appointment as department chair, she was the visionary force for creating an "experiential learning environment" during the new construction of the Frederick Albert Sutton Building where exquisite geologic displays line the hallways. The award-winning, LEED-certified building serves as a symbol of how to "do it right" and provides a template for other geology buildings across the country. Marjorie's effort has resulted in strong outreach of the Sutton building as not only a classroom and laboratory facility, but as an inviting place with artistic presentation of the science for the university community as well as the public.

Marjorie Chan has had a diverse career that has underscored the importance of geoscience education. The vast majority of her career has emphasized revealing the mysteries of the Earth and Mars, and sharing those findings with local, national, and international communities. Thank you, Marjorie, for your steadfast commitment to educating and empowering the next generation.

David Fairchild Wheatley

Response

I am truly honored to receive the 2022 AAPG Grover E. Murray Distinguished Educator Award!

Throughout my career, I have had the privilege to interact with many students, from youngsters to retirees, and to advanced graduate students in classroom teaching and in field research. Their penetrating questions have stretched me and enriched my own learning tremendously. I have enjoyed not only teaching, but counseling college students and getting to see them grow as many go on to great success. Beyond the classroom, my goal as an educator is to share stories about the amazing planet we inhabit, be a resource to assist student explorations and develop their critical thinking, and to help create opportunities for students. Student success is the validation of being an educator, and I take great pride and pleasure in my students' careers.

I fell into geology as an undergraduate and found both the discipline and the people involved to be a lot of fun. Although I had no women geoscience professors throughout my entire academic education, I was extremely fortunate to have wonderful mentors at nearly every stage of my career. They helped provide me with tremendous opportunities that I never dreamed would be possible. As an educator, I have tried to follow in the footsteps of those I respected and learned so much from.

Geoscientists get to be ambassadors for understanding Earth systems and environments.

I like to encourage enthusiastic students to share their knowledge, and use it to excite others around them. Outreach can give them a lot of satisfaction, help build communication skills, and increase their confidence. Those communication skills and confidence can translate to many situations, in the workplace and beyond.

I have also enjoyed being able to inspire students outside of the classroom in a way that will outlive me and my career, through the Frederick Albert Sutton building, home of the Department of Geology & Geophysics at The University of Utah. I was department chair at the time we constructed the Sutton building, through the generosity of lead donor Marta Sutton Weeks-Wulf, daughter of geologist Frederick Albert Sutton, and daughter-in-law of geologist Lewis G. Weeks (founder of Weeks Petroleum Corporation). Throughout the

building, we emphasized experiential geologic displays that tell the story of our discipline, provide valuable examples for teaching, and inspire visitors and students alike. This approach has been emulated by other departments (even from other campuses) who have seen our building, and how it can help attract new majors and nurture current students. Students have told me of the inspiration they find in receiving their education in a building that is designed for them. Seeing graduating seniors proudly bring their families to tour "their" building shows me that the hard work, careful planning, and geological expertise that went into our built environment makes a difference in their education and lives.

Being in geoscience and academia is about as good as it gets. A big plus is that we get to spend time outdoors in fantastic landscapes, and there are all kinds of questions and problems to address, from the microscopic to planetary scales. Putting together clues to solve ancient geologic mysteries has made me a detective of depositional environments and diagenesis, spanning multiple eras. I have had many rich experiences in spectacular geologic settings.

Some of the best science seems to be an outgrowth of serendipity, the unexpected. I've had the good fortune to meet and interact with many great colleagues who have helped take me on unexpected journeys. When I started my career, I never dreamed that I might someday be thinking about the sedimentology of Mars. This detour was facilitated by international colleagues asking me if I'd ever thought about diagenetic hematite as a possible explanation for the hematite on Mars. From there it took off, especially serendipitous because we had formulated the ideas just before the Mars Exploration Rover Opportunity started sending back the 2004 images of Martian blueberries that resembled diagenetic concretions.

Since then, several of my graduate students have incorporated Martian geology into their sedimentological research, using Earth analogs as a way to explain the amazing information that is now available on the red planet.

My most memorable year of sharing stories of red rocks on Earth and Mars was in 2014 while serving as an international lecturer with the Geological Society of America. That was the travel year of my life! I was able to meet with hundreds of students in India, China, Japan, Korea, Australia, and New Zealand with stimulating interactions across multiple cultures. Most often my assigned guides were engaging young women students, and it was an opportunity to encourage them in their personal pursuits. It is clear that we need both international collaborations, and diversity and inclusion, to make more voices heard, and bring more perspectives to address challenging issues.

The discipline of Earth science often feels like it's a small world. We build strong connections with mentors, colleagues, and students through field experiences, and our paths often cross throughout our careers. Being a part of professional organizations like AAPG builds networks and connections that are important in our career and enable us to achieve things as a community that would be more difficult as individuals. Some of my greatest satisfactions have been helping lead initiatives to help others make connections.

Going forward, there are exciting frontiers on the horizon for both educators and students. We must invest in the students that are our future colleagues in professional societies, and who will work for the sustainability of our planet. Most recently I've been involved in geoheritage initiatives that seek to understand and protect geologic sites with features of significant scientific, educational, cultural, and/or aesthetic value. The geoheritage movement is international, and touches on values of research, education, recreation and tourism, aesthetics, history and culture, and economics and resources, combined for the benefit of all. I hope the new generations will add the ideas of geoheritage and geoconservation to our current suite of academic emphases, in addition to the digital technology tools that will enable our science to achieve new levels of integration.

Thank you to the many students and colleagues who have contributed to my success and enjoyment of a career in sedimentary geology. I've met so many wonderful people, and those involved in society leadership are particularly exemplary. I am truly grateful to be recognized as an AAPG Grover Murray Distinguished Educator.

Marjorie Chan

KATHERINE A. GILES

Grover Murray Memorial Distinguished Educator Award

Citation—Recognizing Katherine Giles for thirty years of unfailing devotion to her students. Through teaching, mentoring and example she converted raw students into scientists, professors, and friends!

Katherine A. Giles was born Sheboygan, Wisconsin. She is the youngest child of the four girls and two boys born to Edward H. Goebel and Jeannette M. Goebel. Kate enjoyed a blissful childhood in the idyllic surroundings of Sheboygan. She loved spending long summer days on the Lake Michigan shoreline swimming and fishing with her family or friends.

Kate's entry into the world of geology started at the University of Wisconsin (UW) in Madison when her roommate urged her to take an introductory geology class. She went on a class fieldtrip to Baraboo area and was immediately hooked. She benefitted greatly from being a field assistant to UW graduate students Margie Chan and Christine Rosen. Kate became especially intrigued by carbonate rocks while taking a class from Lloyd Pray and participating in a fieldtrip to the Permian reef complex in the Guadalupe Mountains, Texas. Kate earned her B.S. in geology in 1981 and then went to the University of Iowa for her M.S. degree (1985). Building on her interest in carbonates, she worked with Phil Heckel. Her thesis topic was *Stratigraphy, petrology, and interpretation of the Iatan Limestone (Upper Pennsylvanian) in northwestern Missouri and adjacent states*. She followed this by adding a focus on the interaction of tectonics and carbonate sedimentation during her Ph.D. (1991) studies at the University of Arizona under the mentorship of William R. Dickinson. Her dissertation is titled *Interpretation of the lower Mississippian Joana Limestone and implications for the Antler orogenic system*.

Upon graduating university, Giles spent the next several years working as a senior carbonate research geologist for Exxon Production Research Company in Houston, Texas, where she taught in-house professional courses on carbonate facies architecture, reservoir characterization and sequence stratigraphy. However, the pull of academia was strong and in late 1993 she accepted a tenure tract position at New Mexico State University (NMSU) in Las Cruces, New Mexico. Giles taught both undergraduates and graduate students at NMSU for 18 years. It was here at NMSU that Giles infused the core geology classes with her unique and personal style of teaching. It was also here that she developed her own courses in carbonate petrography and carbonate depositional systems that have become her hallmark. In recognition of her long-standing teaching role and dedication to mentoring students, the NMSU academic administration gave her the University Research Council Distinguished Career Award in 2009. Impressively, she is the only million dollar grant recipient in NMSU history. During her tenure at NMSU, Giles graduated some 25 master's students and served on another 45 committees.

Along with her teaching, Giles developed a research plan that focuses on understanding the interplay of tectonics and sedimentation patterns and the interpretation of controls on the stratigraphic record. She is particularly interested in salt tectonics, which plays an important role in hydrocarbon traps in salt basins worldwide. Much of her research has direct application to the discovery and recovery of energy resources. A nice byproduct is that Giles' research has generated quite a few well-read papers published by AAPG and other journals. One of the things that Giles is most proud of is the fact that the majority of her publications and abstracts are coauthored with her graduate students. When each student is accepted into her graduate program, they enter forewarned of her high professional standards and requirements. Both Master and Ph.D. students are expected to present their research to the Geology Department colloquium, the research consortium meetings, local professional societies, and national/international research conferences. This requirement has had the effect of creating long-lasting personal relationships with many of her students and fostered continued research interests with some others.

In 2012, Giles accepted an appointment as the Lloyd A. Nelson Endowed Professorship in the Department of Geological Sciences from the University of Texas at El Paso (UTEP). Rather than become simply a research professor, she expanded her course offerings to better interact with geology students. Giles strongly believes that her classes must stay current so she is constantly updating the material she presents. She also believes that her students should be knowledgeable of current technology trends and best practices in the environmental and resource industries. Student coursework should focus, at least in part, on the development of presentation skills and use of various basic computer software programs. To that end she has added assignments in all her classes that involve giving oral presentations, writing up results, using spreadsheets or tables, and making computer drafted figures. In addition to classwork, Giles requires that most degrees involve a fieldwork component. She has a long running research program in the Paradox Basin of Colorado and Utah that allows her to put student in the field. Additionally, she has put some students overseas in the Spanish Pyrenees and in the Flinders Ranges of South Australia. Outside the classroom she was the faculty coadvisor to the 2012 Imperial Barrel Award team from UTEP.

To support her students and fund their research takes industry support. To that end, Giles founded the Institute of Tectonic Studies (ITS) and the Salt-Sediment Interaction Research Consortium (SSIRC). She formed the ITS in 1998 and the SSIRC in 2005 while in tenure at NMSU, later transferring them with her to UTEP. The long-term goal of the ITS is to pursue the understanding of tectonic processes and evolution of tectonic provinces. The ITS helps drive tectonic research by directing money to fund faculty and student research that otherwise might not be funded through traditional means. The day-to-day goal of the ITS is to foster the growth of expertise in tectonic studies for all faculty and graduate students in geology. These would be very lofty and altruistic goals for any university department or public research entity. However, they simply reflect the inner desire of Giles to promote intellectual collaboration and create meaningful research opportunities for her students, research colleagues, and industry sponsors. One person really can make a difference and she does.

Joseph Fiduk

TOYIN AKINOSHO

Geosciences in the Media Award

Toyin Akinosho has always believed that the activity of the oil industry needs to be part of a robust conversation on national development. He came to this realization on his first day on an oil rig, as a trainee geologist for Chevron Nigeria (then Gulf Oil Company Nigeria) in July 1988.

So, who is Toyin Akinosho?

Alfred Oluwatoyin Akinosho was born in Massey Hospital in Lagos, on Tuesday, May 17, 1960.

He attended Baptist Academy in Lagos and went on to earn a bachelor's degree in geology at the University of Ife (now Obafemi Awolowo University) in 1983.

Toyin started work as the first Energy Reporter for *The Guardian*, Nigeria's flagship newspaper, in 1984 and joined Gulf Oil Company of Nigeria (GOCON- forerunner of Chevron) as a trainee geologist on July 1, 1988. He remembers the experience in the same year, as a new earth scientist, he attended his first edition of the monthly technical meeting of the Nigerian Association of Petroleum Explorationists (NAPE). At the meeting, a more senior geologist made a presentation on a proposed hydrocarbon opportunity with rather complex geological characteristics, which took Toyin back memory lane to his second-year geology classes. He leveraged his previous reporting exposure and proceeded to summarize the meeting as a report and same forwarded to *The Guardian* newspaper, which published it as a big story on the back page at a time when technical insights within the confines of the petroleum industry rarely filtered to outsiders of the oil and gas sector.

Upon reading the publication in *The Guardian*, the then president of NAPE, Laide Adegbola, invited Toyin to act as the publicity

secretary of NAPE even without formal membership of the association. As he continued to demonstrate robust coverage and dissemination of NAPE activities across the industry, Toyin eventually remained as publicity secretary for two additional terms during which his membership of NAPE was regularized.

In October 1988, barely 3 months after joining Chevron with a daytime working life of a geologist charged with subsurface mapping of petroleum accumulation in the Eastern Niger Delta, Toyin used a pseudonym to launch the "Oil Watch" column in *The Guardian*.

In 1990, whilst acting as publicity secretary of NAPE and having been following global petroleum industry trends, Toyin discovered in an article published in the *AAPG Explorer* that there was a distinguished lectureship program in which a scholar visits countries in a region to give lectures to create effective industry-academia collaboration. He immediately wrote AAPG saying that Nigeria deserved to host such a program and proposed that NAPE would facilitate it. The AAPG responded positively and the foundation was laid for NAPE to become an AAPG affiliate followed by an age-long collaboration to date. In 2005, he returned to the NAPE Executive Committee as the secretary.

So, from day one, his had been a hybrid career of geoscience and media that he joyfully combines with equal passion. In 1993, he was appointed West African contributing editor for *Offshore* Magazine, published by PennWell Publishing in the United States. He wrote a monthly column for that widely read journal and in 1996 became a founding member of the Advisory Board of Offshore West Africa Conference, an annual event which has had more than 17 annual editions, hosted in 6 different African cities including Libreville, Accra, Abidjan, Abuja, Windhoek, and Lagos. He freelanced for Vertical Net's *Oil and Gas Online* between 1998 and 2000. In 2001, motivated by a desire to ensure that reporting of the energy business was current, factual, analytical and educative to the public, he founded *Africa Oil+Gas Report*, which remains to date the premier source of energy intelligence and hydrocarbon trend information and analysis on the African market. Due to his conviction that the activity of the oil industry in Nigeria needs to be transparent and part of a robust conversation on national development, he speaks truth to power fearlessly. With oil and gas as the mainstay of the Nigerian economy, his firmness and recalcitrance have often brought him into conflict with the top echelon of the industry sometimes at great personal sacrifice and discomfort. These activities were carried out in parallel with a daytime career working as a geologist with Chevron.

At Chevron he was involved in everything from subsurface mapping to competitive intelligence. As two-time chairman of the Exploration Subcommittee of the Oil Producer Trade Section of the Lagos Chamber of Commerce and Industry, he led two industry-wide efforts in Nigeria to find common ground and developed a framework alignment on unitization of Straddle Fields and new Template for Well Classification, both of which have contributed immensely to shaping major narratives and policies for Nigeria petroleum management.

He won, amongst other notable accolades, Chevron Nigeria's internal award for participation in gas reserves assessment for Brass LNG Project (2005) and Lease Renewal Effort (2007). These two awards are further testimonies to Toyin's borderless professional outreach.

In 1993, Toyin started to publish Festac News, a broadsheet focused on local community reporting and the arts sector. This effort officially made Toyin a publisher of the news and became a precursor for his involvement in arts publishing and activism.

In 2006, the Committee for Relevant Art, a culture advocacy group he cofounded, was awarded the Prince Claus Award for Culture and Development. In 2007, the year he was promoted advisor, joint venture relations for the Reservoir Management/Geoscience Group at Chevron Nigeria, he won the CNN/Multichoice Award in Economics and Business Category presented in Cape Town, South Africa, for highlighting, in compelling prose, a trend in Intra-African oil and gas deals.

Toyin has published extensively on the geology of the Gulf of Guinea and frequently authors general interest articles about the industry. He has used his many platforms to promote the ideals of NAPE, as an organization committed to the highest ethical values in oil and gas exploration and extraction. His key passion lies in gathering and disseminating energy intelligence in a way that both technical professionals and business can equally find useful. Toyin elected

for early retirement from Chevron, in 2008, after a 20- year career, to focus on this unique challenge.

In 2015, for his iconic and vibrant contributions, he was granted the Distinguished Industry Award at the (then) 22-year-old Africa Oil Week Conference in Cape Town, South Africa.

Given that many associates, both contemporaries and younger, agree that Toyin is the natural go-to person on wealth of information gathering and dissemination in the oil and gas sector confirms that he is particularly suited and deserves the 2022 AAPG Geosciences in the Media Award.

Kenny Olafiranye

ALBERT DICKAS

Geosciences in the Media Award

"Opportunity is missed by most people," Thomas Edison famously said, "because it is dressed in overalls and looks like work." Clearly, Albert Binkley Dickas is not one of those people.

It began when he was a boy and for nearly a decade delivered the daily newspaper in his hometown of Sidney, Ohio. The money he earned enabled him to attend and eventually earn both a bachelor's and master's degree at Miami University in Oxford, Ohio. There he found his passion for geology, sitting in classrooms where Karl E. Limper made the science come alive, grading written laboratory reports to a tenth of a point. Today, the geology museum at the university is named after Limper, and on one wall is a sculpture Dickas commissioned in his mentor's honor.

Hoping eventually to teach at the university level, Dickas believed strongly that even with advanced degrees working in the field was also a prerequisite, so he took a job as a development geologist with Magnolia Petroleum, a pioneer in offshore Gulf of Mexico Basin exploration.

In 1956, notified by the United States government that he would soon be called to serve in the military, Dickas volunteered for the US Navy and was assigned to the Naval Hydrographic Office, Washington, DC, where he mapped the distribution of volcanic islands and charted ocean-floor depths in various sectors of the South Pacific Ocean. Once this service was complete, he decided to pursue his Ph.D. at Michigan State University. There, again, he recognized his opportunity to learn from an especially adroit educator. William J. Hinze insisted that his students defend with direct language and solid science any and all work they presented and offered just the kind of challenge, not to mention mentorship, that cemented for Dickas his own commitment to geology. His dissertation research centered on the depositional environment of the Upper Cretaceous rocks of the Central Mississippi Embayment, with emphasis on the Tuscaloosa Formation.

In 1963, degree in hand, Dickas accepted a position with Standard Oil of California as exploration geologist in the Sacramento Valley region. One particular memory of that assignment acts as a kind of "stick pin on the map" of his professional trajectory. One of his superiors, hearing he and a colleague discussing plate tectonics, called Dickas aside and suggested he would be a better scientist if he would not engage in theoretical conjecture that would "never be helpful in finding a single barrel of oil."

Ready, finally, to launch his teaching career, Dickas joined the faculty at the University of Wisconsin-Superior. The fact that he remains in contact with several of his then-students a half-century later is testimony to his skill in the classroom. Plus, for 10 summers he directed the National Science Foundation Student Science Training Project in Superior. He also formed an environmental research institute and became intensely involved as the primary source of information for public media outlets regarding the (until that time) unprecedented industrial exploration for oil in the Precambrian strata of the Midcontinent Rift System. That, in turn, spawned copious papers, for both general audiences and scientists. Local community speaking engagements and television interviews eventually gave him the opportunity (There's that word again!) to speak on the economics of Precambrian oil to audiences as far afield as Japan and Russia.

When Dickas finally retired in 1997, he found himself, as he

describes it, "able to let all kinds of people know how important, interesting, and even exciting earth science really is." Since then, he has written four travel guides–all published by Mountain Press in Missoula, Montana –two with a nationwide focus and two limited to specific states. Taken together, they encompass more than 300 sites that not only represent the full array of geologic features and processes but are accessible and safe for children and adults alike to visit.

Dickas has spent seven decades in one way or another doing what one of his friends calls "honoring the earth." On his desk in his home office on Brush Mountain in southwestern Virginia is the working draft of yet another book, coauthored with two other geologists, on America's quest for oil independence. A Fellow in the Geologic Society of America and a member of AAPG since 1958, he continues to share his excitement about geology in print and in public arenas.

HALA AL-WAGDANI
Young Professionals Exemplary Service Award

Citation—To Hala Al-Wagdani for her inspiring leadership and unwavering dedication leading to unparalleled achievements and positive impact to all Young Professionals & Students across the world.

One day in June 2017 and after a long morning at work, I decided to go attend a Toastmaster session during lunch break. I sat down at the back of the room waiting for the session to start while thinking of work-related matters. Few excellent speakers finished their turn until a young lady came and sent sparks all over the room and ignited everyone with her public speaking skills and confidence. As the President-Elect for the AAPG Middle East Region (AAPG-MER), I was recruiting for a Young Professional and Student chairperson (YPS), and after Hala's speech at the Toastmaster session, she became a potential candidate for the YPS position. That was further confirmed by Exploration's Organization top management for Hala to become the chairperson of YPS committee at AAPG-MER in 2018.

Hala is a bright and talented professional with a strong passion for geoscience, often volunteering her extra time spreading knowledge with young professionals and students across the Middle East and beyond. She joined Saudi Aramco in 2015 as a prospect generator after graduating cum laude from the University of Arizona. Hala has more than 6 years of proven track record in excellence, leadership and integrity.

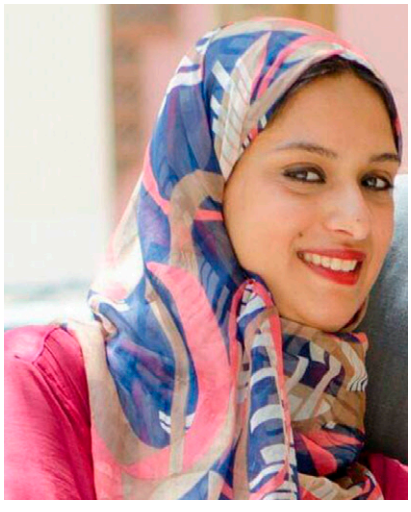
Hala's initiatives are numerous, impactful and unparalleled since she has assumed the role of YPS chairperson. She has been instrumental in giving back to AAPG members via many programs and initiatives. Hala is viewed as a high potential and a notable female geoscientist with outstanding leadership skills. She is a role model for her hard work, dedication and volunteering that enabled her to chair committees, spread petroleum geoscience and serve AAPG members. In 2018, she planned and executed a Geo tourist challenge in Al Wusta region of Oman as lead geological consultant. With 80 participants, the project aimed to highlight geologic features and formations across to non-scientists through a treasure hunt of prominent locations.

Her passion for geosciences fits perfectly with AAPG's vision. With her competencies, she soon assumed several roles: Imperial Barrel Award (IBA) coordinator, Visiting Geoscientist Program coordinator, and Student Chapters Liaison. As IBA Middle East coordinator, she worked tirelessly to enroll more schools, which lead to a region all high registration in 2020 and solicited sponsorships leading to the Middle East region ranking highest in terms of sponsorships with $70,000 USD. She sought diligently to incorporate a field trip with the 2018 competition in collaboration with GUtech University in order to showcase the unique geology of Oman. After observing the disparity some schools faced in attaining an industry mentor and their importance on a school's outcome, Hala recruited more than 15 professionals from different companies to serve as IBA mentors.

Hala created the IBA exploration webinar series that aims to give an in depth course on various exploration themes necessary for the competition. The series engaged highly qualified speakers from companies such as Saudi Aramco, Petroleum Development of Oman, Kuwait Oil Company, and Tatweer to offer participating students an overview of (1) petroleum system evaluation, (2) well data, (3) seismic interpretation, and (4) volumetric and risk assessment.

Under Hala's leadership, AAPG and petroleum geoscience has been well promoted to even other technical societies and local affiliates. She has been working on a multitude of projects that aim to spread geoscience education under the AAPG umbrella: (1) Saudi Aramco Employee Association - Camp, Hike, and Run in Al Ula region; (2) the Society of Petroleum Engineers Discovery Thinking Series; (3) International Petroleum Technology Conference Train the Trainer on Energy; and (4) King AbdulAziz Center for World Cultures (Ithra) Rocky Road Experience.

Hala has led diverse teams of young professionals with the sole purpose of planning the YPS program to happen in conjunction with the prime geoscience conference in the Middle East, GEO2020. She managed to coordinate and prepare an unprecedented program rich with technical sessions that includes AI and Machine Learning in Geosciences, core workshops, field trips, soft skills, and a Mineral Museum in collaboration with King Abdulaziz University, KSA. When the conference was postponed due to the pandemic, Hala led the committee to create more for conference attendees and the general public by starting an online webinar series targeting Young Professional and Students. She also planned out and launched the GEO Wiki Challenge Write-off Competition. The aim is to involve students and Young Professional in the process of making petroleum geoscience and oil and gas knowledge easily researchable and available for all through the AAPG Wiki website. Hala's achievements are numerous towards serving geosciences students and young professionals in the Middle East region and globally.



HEBA ASKAR

Young Professionals Exemplary Service Award

Heba Askar is an Egyptian geologist working for Apache Corporation for 10 years. She has a degree in geology with specialization in geochemistry. She initially joined Apache through the Al-Amal program, which is a training program sponsored by a large group of multinational petroleum companies. Al-Amal was created by the Egyptian Geophysical Society and Apache is a charter member.

Bill Bosworth encouraged Askar to become a member of AAPG and to help organize and host AAPG student chapters. Her mission is to inspire new geologists and geoscientists to contribute effectively to the oil and gas industry in Egypt and throughout Africa.

As a geologist she worked on important bid rounds and Apache oil and gas discoveries, including the invaluable experience of being a wellsite geologist. She is always interested in applying new technologies to my work, and she strives to help fresh graduates learn how to start their professional careers.

She is a wife and a mother of two sons ages 5 and 3 years.

Askar says, "Geology for me is not only a job but also always a continuous success story to achieve and be a part of our experience to extend to the next generations."

DAVID EASTWELL

Young Professionals Exemplary Service Award

Citation—To David Eastwell for his commitment to the growth

of Young Professionals in the European Region and inspiring the next generation of YP geoscience leadership.

David Eastwell started his career at TGS in Perth, Australia in 2014 where he contributed to several seismic acquisition and interpretation projects in Southeast Asia. In 2020 he transferred to Ikon Science in London as an AVO geophysics subject matter expert. Post-COVID in 2021, he transitioned out of the petroleum industry into nuclear waste services where he interprets geophysical subsurface data to support site characterization for underground nuclear waste storage.

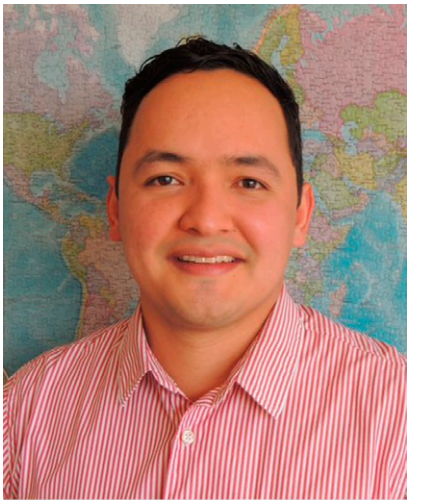
David became involved with AAPG early in 2017 when he first submitted abstracts for the International Conference and Exhibition and coordinated several lecture series for young professionals. In 2018 he became president of the London Young Professionals (YP) chapter during a time when YP participation in other areas European countries was actively shrinking. His enthusiasm, outspoken publicity, and engagement with the greater geoscience community helped rally activity to the London chapter, which grew to act as the regional European YP leadership committee.

He spent significant effort recruiting additional YP officers, establishing subcommittees, and delegating meaningful roles to other YPs to cultivate a strong leadership team. This included starting two new YP chapters in France and the Caspian region to extend AAPG involvement to culturally distinct areas which had significant membership growth opportunities. His ability to franchise the AAPG YP brand into new territory uncovered a huge untapped network of local professionals eager to contribute to AAPG.

He also helped generate professional development content aimed at early-career audiences, such as the "Core Skills for Geosciences" lecture series in 2018, and the "Future of the Energy Industry" series in 2019. During the COVID lockdowns in 2020-2021, he helped build a system of incentives to grow online lecture attendance, which included distributing tickets for paid-entry events to early-career participants who stayed through the entire Zoom meeting and engaged with comments and questions. Recognizing the power of social media, he also led the development of a stronger Linkedin presence that engaged a wider audience and grew AAPG YP participation in Europe virtually by more than 300% during lockdowns.

Before graduating from the Young Professionals organization, David mentored several other geoscientists to ensure that the Europe YP committee and the local London YP chapter would be left in good hands. His effort, enthusiasm, and organizational leadership in the Europe Region was unparalleled, and set an excellent example for YP committees in all regions. His leadership tenure is succeeded by Imran Ali and Marcella Cilia on the European YP committee, and Irma Panou-Filandra leading the London YP local chapter.

Telemachos "Telly" Manos



RICARDO VARGAS

Young Professionals Exemplary Service Award

Ricardo Vargas is one of our region's best and brightest young leaders. He has developed a legacy in Colombia and the region for his long trajectory of service to the association, more than 11 years serving in different positions and successfully leading several programs. Ricardo works as a development geologist in Perenco Oil & Gas Colombia, holding a B.Sc. in geology from the Universidad Industrial de Santander and a Master Petroleum Engineer from Universidad de Los Andes, Colombia.

He started his AAPG engagement as a student, being the vicepresident of the Universidad Industrial de Santander Student Chapter, promoting activities to keep the chapter active and growing. One of those activities was the promotion in his university participation in the Imperial Barrel Award, accepting the challenge in 2009 as part of the team.

His service and passion to AAPG continue to be noticeable

as cofounder of the Young Professional Colombia Chapter in 2014, the first in Latin America and the Caribbean Region. As vice-president of the chapter, from 2014 to 2016, he encouraged Colombian young professionals to join the association and benefit from the membership. He decided to be the cofaculty advisor of the Universidad Nacional de Colombia, 2017-2018, sharing his knowledge and helping cultivate future AAPG members. Furthermore, he was part of the pioneer group working on Earth Science Week and became the program coordinator in 2017.

He has further contributed by being the VGP Latin-American and the Caribbean Coordinator in the *Visiting Geoscientist Program*. From 2016 to 2018, he managed the program in the Latin America Caribbean Region (LACR) with exceptional impact on students across the region, demonstrating his outstanding skills in leadership, good relationships, and effective communication. Currently, he continues in the Visting Geoscientist Program as a visiting geoscientist lecturer teaching a high-demand successful short course. As part of his engagement with AAPG, he helped organize the 2016 Cancun and 2018 Bogota Student Chapter and Young Professional LACR Leadership Summits, benefiting AAPG students and young professionals, volunteers, and advocates in this impactful program. Ricardo is a Regional Delegate in the House of Delegates since 2018, acting as the regional Foreman Delegate since 2019, inspiring other delegates to work hard in the region.

Thank you, Ricardo, for your energy, for trajectory and willingness to encourage students and young professionals, for your example of hard and still work, for your readiness to action, for molding the next generation into better scientists and professionals, and for your friendship.

Elvira Gomez

ALEXEI MILKOV

Wallace E. Pratt Memorial Award

WILLIAM C. NAVIDI

Wallace E. Pratt Memorial Award

The Wallace E. Pratt Memorial Award for the best paper published in the *AAPG Bulletin* is presented to Alexei Milkov and William C. Navidi for "Randomness, serendipity, and luck in petroleum exploration" (*AAPG Bulletin*, v. 104, no. 1, p. 145–176).

Petroleum explorers commonly acknowledge the contribution of luck in exploration outcomes. Our survey of 237 current industry practitioners revealed that 90% of them believe that luck affects the outcome of exploration projects. However, luck has never been quantified before as a factor in petroleum exploration, and therefore, it remains an abstract concept that is not deeply considered by geoscientists and exploration managers. Luck clearly exists in petroleum exploration, because it contributed to many serendipitously discovered plays and pools. Luck is also a factor in the relative performance of different exploration companies. Looking at companies exploring on the Norwegian Continental Shelf in 1966–2005, we concluded that differences in success rates of individual companies are essentially random. Using a global data set of 3258 conventional exploration wells in which 733 companies took 8096 equity positions in 2008–2017, we calculated that the proportion of variance in geological success rates among the companies is 39% attributable to luck (25% for commercial success), the rest being related to skill. In frontier plays, luck contribution to the variation in geological and commercial success rates between different companies is 100%. The factor of luck is relatively less in emerging (67% for geological success), maturing (38%), and mature (29%) plays. Recognizing that luck is a part of the exploration

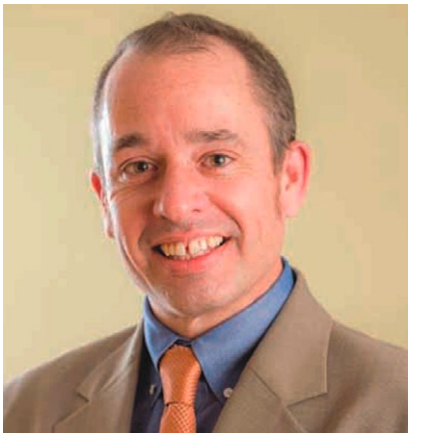
success equation has numerous implications for exploration strategies, investors, companies, managers, and individual explorers. The factor of luck can be reduced only through a sustainable long-term exploration program with numerous independent wells. Explorers should focus on developing their prediction skills rather than obsess about the binary outcomes of each well.

WAYNE CAMP

Robert H. Dott, Sr. Memorial Award

NEIL FISHMAN

Robert H. Dott, Sr. Memorial Award



PAUL C. HACKLEY

Robert H. Dott, Sr. Memorial Award

JOE H. S. MACQUAKER

Robert H. Dott, Sr. Memorial Award

KITTY MILLIKEN

Robert H. Dott, Sr. Memorial Award

KEVIN TAYLOR

Robert H. Dott, Sr. Memorial Award

The Robert H. Dott, Sr. Memorial Award is presented to honor and reward the author/editor of the best special publication dealing with geology published by the Association. This year's award is presented to Wayne K. Camp, Neil S. Fishman, Paul C. Hackley, Joe H. S. Macquaker, Kitty L. Milliken, and Kevin G. Taylor for *Memoir 120: Mudstone Diagenesis: Research Perspectives for Shale Hydrocarbon Reservoirs, Seals, and Source Rocks*.

Research into the diagenetic alteration of sandstones and carbonates began in earnest in the 1970s and has been successfully applied to petroleum exploration and development of conventional reservoirs: progressing from a qualitative understanding of evolution of reservoir quality to today's advanced computer models to quantify and predict reservoir quality ahead of drilling. The current industry focus on unconventional shale (mudstone) reservoirs has provided a wealth of new data and techniques

to begin meaningful study of the potential impacts of diagenesis on mudstone reservoirs, much of which has yet to be fully realized. We believe that this field provides many research challenges, which if successfully addressed, will significantly improve understanding and prediction of reservoir and source rock quality in unconventional mudstone oil and gas plays.

The petroleum industry, academia, and government agencies are currently performing many studies to better understand the geologic processes involved during burial of mudstones and their evolution to form petroleum reservoirs, seals, and source rocks. Until recently, most researchers investigating mudstones concentrated their research efforts toward understanding (a) hydrocarbon generation and expulsion, (b) seal capacity, and (c) overpressure generation. Most data used to support these investigations were derived from organic geochemistry, relatively low magnification optical petrography, and bulk rock characterizations. Notably lacking from these past studies are the characterization and evaluation of the potential impact of mudstone diagenesis other than mechanical compaction.

Application of new analytical techniques, particularly with scanning electron microscopy (SEM), has facilitated the investigation of mudstone properties down to the nanometer scale (Camp et al., 2013; Olson, 2016). SEM observations of a variety of mudstones (shale reservoirs) have revealed the presence of authigenic minerals (cements and grain replacements) and have captured various stages of the transformation of organic matter during petroleum generation, including secondary porosity development within organic matter. This new research has led to an improved understanding of organic and inorganic diagenesis in mudstones that is required to better predict shale reservoir quality and heterogeneity.

JESSICA DON

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 Jessica Don for "Characterizing the growth of structures in three dimensions using patterns of deep-water fan and channel systems" (*AAPG Bulletin*, v. 104, no. 1, p. 177–203).

Channel and fan systems in deep-water continental slopes respond to active deformation creating patterns within growth strata that record the history of deformation. These patterns provide important constraints on the timing and kinematics of structural deformation. We show how the location and orientation of depositional systems are affected by the emergence and growth of fault-related folds.

We develop two end-member three-dimensional kinematic models to describe the reaction of channels to growing structures. In the first model, structures grow through lateral propagation, causing channels to migrate laterally outward through time. In the second model, structures grow with fixed lateral limits, and channels maintain relatively fixed positions through time. We compare our models with structures in the outer fold–thrust belt in the Niger Delta. The initiation of structural growth is recorded by a dramatic change in channel architecture with a reduction in sinuosity followed by deflection around the lateral edges of folds. Subsequently, in some examples, channels maintain relatively fixed positions through time, reflective of fold growth with fixed lateral limits, whereas other examples show channels that migrate laterally outward through time, reflecting fold growth by lateral propagation. We corroborate our interpretations by comparing our analysis of channel distribution to isopach and structure contour maps. Results indicate that structures in close proximity can grow through different mechanisms or a combination of mechanisms over different stages in their development. The resolved patterns of channel and fan systems provide insight into the complex distribution of reservoir facies, which has

important implications for reservoir characterization.

The co-authors of this paper are John H. Shaw, Andreas Plesch, Daniel D. Bridgwater, and Gbenga Lufadeju.

KEVIN MEAZELL

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 Kevin Meazell for "Seal capacity and fluid expulsion in hydrate systems"

PATRICK SULLIVAN

Jules Braunstein Memorial Award

The Jules Braunstein Memorial Award for the best poster presented at the AAPG Annual Convention and Exhibition is presented to Patrick Sullivan for "Stratigraphy and source rock characterization of the Early Cretaceous Skull Creek Formation, Denver Basin, Colorado."

ELEINE VENCE

SEG/AAPG Best Paper in *Interpretation* Journal Award

PAUL MANN

SEG/AAPG Best Paper in *Interpretation* Journal Award

Eleine Vence and Paul Mann have been recognized for their authorship of the best paper published in the SEG/AAPG *Interpretation* journal titled "Subsurface baesment, structure, stratigraphy, and timing of regional tectonic events affecting the Guajira margin of northern Colombia" (*Interpretation*, v. 8, no. 4, p. 1N–T1095).

In this paper, the authors combined previous data from Mesozoic-Cenozoic outcrops in the Guajira Peninsula of northern Colombia with regional gravity, bathymetric, and seismic interpretations to demonstrate the existence of a 280 km long western extension of the Great Arc of the Caribbean (GAC) along the continental margin of Colombia. Seismic data reveal an 80–100 km wide domal-shaped basement high that exhibits internal chaotic seismic facies. This elongate and domal-shaped structure extends 1800 km from the Aves Ridge in the Caribbean Sea to the study area in offshore Colombia. The western extension of the GAC in Colombia and western Venezuela is buried by 700–3000 m of continental margin sedimentary rocks as a result of the GAC colliding earlier with the Colombian margin (Cretaceous-early Paleogene collision) than its subaerially exposed eastern extension along the Leeward Antilles ridge (late Paleogene-Neogene). Our compilation of geologic information from the entire GAC reveals that GAC magmatism occurred from 128 to 74 Ma with magmatism ages progressively younger toward the east. Six upper Eocene to recent marine seismic sequences overlying the domal basement high of the GAC have been mapped by our analysis of 2400 km of seismic lines and 12 well logs. Based on subsurface mapping correlated with well-log information and onland geology in the Guajira Peninsula, these six sequences record four major deformational events: (1) late Eocene rifting in an east–west direction produced half-grabens in the northern part of the area, (2) Oligocene transtension in the southern part of the area expressed by right-lateral Oligocene strike-slip faulting and extensional basin formation, (3) early-middle Miocene transtension, and (4) late Miocene-early Pliocene Andean uplift accompanied by rapid erosion and clastic infilling of offshore basins by the Magdalena delta and deep-sea fan. The significance of this basin framework is discussed for known and inferred hydrocarbon systems.

JAMES A. GIBBS
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 2022 recipient is James A. Gibbs.

Jim Gibbs, in announcing his retirement as chair in October 2021, immediately became a Foundation Trustee Emeritus and a permanent member of the Foundation's Members of the Corporation – appropriate roles for him based on a lifetime of service and leadership.

His accomplishments as chair included growth for the Foundation's portfolio—sometimes in dramatic terms—and innovative changes and wide-reaching impact for Foundation-supported programs.

Support for geoscience education, particularly, benefited under Gibbs' leadership, both in providing scientific expertise as well as in recognizing educational excellence.

Gibbs himself contributed to geoscience education and professional development over the past several decades, lecturing to groups and in 1999 writing what proved to be a seminal publication, "Becoming an Independent Geologist: Thriving in Good times and Bad."

He received his bachelor's degree in geology from the University of Oklahoma, served a stint in the U.S. Navy and then returned to OU for his master's degree. His career started with the California Company (now Chevron), but after two years he opened an office in Dallas as a consulting geologist and independent producer. He started Five States Energy in 1985.

Gibbs also is an AAPG past president and Honorary Member, and has served or led a plethora of AAPG committees and activities. He also is a recipient of AAPG's Michel T. Halbouty Outstanding Leadership Award.

RICHARD "RICK" FRITZ
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 2022 award is presented to Richard "Rick" Fritz.

Rick Fritz, who has spent much of his life in leadership roles, became an AAPG student member in 1975 and was active in AAPG activities practically from the start of his professional career, which began with Exxon following graduation (bachelor's and master's degrees) from Oklahoma State University.

He left Exxon in 1982 to work for Masera Corp., becoming its president in 1990. Five years later he was named president of MXC Corporation, working as an independent explorationist.

But his AAPG career began to hit full stride in 1999 when he was named executive director of AAPG and the AAPG Foundation, becoming responsible for management of the Foundation's programs and for managing funding requests from geological groups and the general public.

He also recommended and was responsible for the oversight of a $35 million development campaign.

Fritz stepped away from his AAPG jobs in 2011, first as an explorationist with SM Energy, based in Tulsa. He then started Council Oak Resources in 2015 and Fritz Energy Partners in 2019.

His involvement with AAPG as a volunteer, however, has remained active and often intense. He had important leadership roles with the Division of Professional Affairs (president), for the House of Delegates and on a host of committees, in addition to recently serving as AAPG president and as chair of the Advisory Council.

Awards and recognition for his volunteer efforts include a Certificate of Merit, the Harrison Schmitt Special Award and the AAPG Distinguished Service Award.

He was chair of the Foundation Trustee Associates from 2015-2016.

TOSHIMIA FUJIKAWA
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 Toshimia Fujikawa as the recipient of the 2022 Teacher of the Year award.

A geology teacher in San Lorenzo, California, Fujikawa has been praised by her peers passionaately helping students to discover knowledge and relevance in the geological world where they live. The honor arrives as she completed her fifth year of teaching geology at Arroyo High School, where she leads five sections of geology, yearlong course comprising mostly 10th-graders in classes of up to 36 students.

"I am honored to be chosen … (and) I am passionate about teaching my geology class about California Bay Area's regional geology," Fujikawa said in response to her selection as this year's top geoscience teacher.

Fujikawa received a bachelor's degree in geology from the University of California-Davis in 2007, then her geoscience teaching credentials and master's degree in educational/instructional technology from California State University-East Bay.

Her first experience in teaching came as student teacher at Arroyo High School in 2016, and she's been on staff at the school since June 2017.

AHMED ISMAIL
Inspirational Geoscience Educator Award

Amed Ismail, a passionate geoscience educator who not only showed potential but also sensed a career calling as early as grade school, has been named this year's recipient of the AAPG Foundation's Inspirational Geoscience Educator Award.

Ismail, who has international experience in academia, the energy service sector (Schlumberger) and with the Illinois State Geological Survey, is an assistant professor at the Boone Pickens School of Geology at Oklahoma State University, where he has taught since 2016.

His teaching load (undergraduate and graduate levels) includes advanced studies in geology, seismic interpretation, introduction to geophysical exploration, a geology colloquium and special problems in earth science.

Ismail was born and raised in Egypt. His capacity to inspire others would be years away, but the realization that he could connect with others by simply talking came at an early age. Fifth grade, to be precise. He was singled out by a teacher who called him the "best in class" at expressing to others what he himself had just learned.

His teaching career started—shortly after graduating with his bachelor's degree in geology—as a middle school science teacher.

After receiving his master's degree in applied geophysics from Egypt's Mansoura University, Ismail traveled to America and received his doctorate in applied geophysics from the Missouri University of Science and Technology in Rolla, Missouri.

His career path led to stints as a geophysicist with the Illinois State Geological Survey; as the multicomponent seismic processing group leader for Schlumberger in Denver; and then in 2018 to return to the Illinois survey as a research affiliate for the Prairie Research Institute (a connection he still maintains).

Since arriving at OSU in 2016 he developed an interdisciplinary research program with a focus on geophysics and emphasis on multicomponent seismic analysis, seismic characterization of fractures, and hydrological applications, geotechnical and geohazards applications.