AAPG Honorees, 2007

ARNOLD H. BOUMA
Sidney Powers Memorial Award

Citation—To Arnold Bouma, an extraordinary geoscientist, a prolific author and editor, an educator committed to the highest standards of teaching, and a researcher who advanced the geo-communities' knowledge through his innovation, creativity, and tireless contributions to deep-water sedimentology and stratigraphy.

In life, we meet and interact with many people. Although these friendships influence us, we are seldom privileged to know and work with someone we never forget because that person has left such a positive mark on our life. Arnold H. Bouma is one of those rare men. Although he is known as Dr. Bouma to many, he is also known to them simply as Arnold because of his willingness to share his knowledge and his experiences—not just academically or professionally, but personally as well. For his students and colleagues, a day-to-day relationship with Arnold results in as much personal growth as professional growth.

Arnold H. Bouma is one of today's premier geologists and is known and respected by geoscientists throughout the world for his contributions to deep-water sedimentology and stratigraphy. During his five-decade career, he has advanced our sedimentological knowledge as a researcher, consultant, and educator. The Sidney Powers Memorial Award recognizes the many contributions that he has made to our science in industry and academia.

Arnold was born in the Netherlands in 1932 and spent his formative years in Groningen. During his early teens, like many on the European continent, he had to deal with the hardships of WW II and occupation of his homeland by the German Army. Typical of Arnold, he used the lessons learned during these trying times to harden his resolve as he progressed to manhood and the pursuit of his dreams. Following a two-year shift in the Dutch Army, Arnold continued his geological career at the University in Groningen where he received a B.S. degree in geology in 1956 under the supervision of Ph. Kuenen, one of the first researchers to recognize, postulate, and document the processes by which sand was transported and deposited in deep ocean basins. Continuing his studies, he earned his M.S. degree in geology and sedimentology (1959) and Ph.D. in sedimentology (1961) from the University at Utrecht under the supervision of D. Doeglas. Selecting the Peira Cava Basin in the Maritime Alps (southeast France) as his field laboratory, Arnold set out with the objective of substantiating Kuenen's theories of deep-water gravity flows (i.e., turbidite) deposition and facies distribution patterns. Detailed mapping of the Annot Sandstone, however, revealed that the depositional dynamics in deep-water basins were more complex than proposed by the original models. In particular, the systematic and repetitious assemblage of facies, defined by Arnold in individual beds or flow events, later became known as the "Bouma sequence" and is one of the most defining and recognizable components of deep-water deposits. Arnold published his dissertation, which proved the first detailed documentation on the characteristics and basinwide distribution of turbidite and other sediment gravity flow deposits in the 1962 Elsevier publication *Sedimentology of Some Flysch Deposits: A Graphic Approach to Facies Interpretation*. This single publication has spawned the countless laboratory and field research studies of sediment gravity flows by several generations of researchers that have led to the current knowledge of deep-water sedimentology, stratigraphy, and depositional systems. The book is truly a geological milestone of the 20th century.

Arnold married Lieneke, the love of his life, while still in college in 1960. Together they have shared in his achievements and successful life and professional endeavors. They have three children (Mark, Nils [Bob], and Lars) and have lived in La Jolla (1 year), College Station (10 years), Menlo Park (3 years), Corpus Christi (2 years), Pittsburgh (2 years), Houston (3 years), La Habra (2 years), and Baton Rouge (18 years). They have seven grandchildren.

Arnold, Lieneke, and Mark spent one year at Scripps Institute of Oceanography (1962–1963), where he did a postdoctorate under Francis Shepard in which he evaluated the filling of canyons and compared his results with Shepard's studies. They loved the United States but had to return to Holland after Arnold completed his postdoctorate. In 1966, the Bouma family immigrated to the United States, and he assumed the position of professor of oceanography at Texas A&M University.

In 1976, he moved to the U.S. Geological Survey (USGS), Office of Marine Geology in Menlo Park, California, where he worked with Monty Hampton, Hans Nelson, Tor Nilsen, Bill Normark, and others on projects in Alaska. Arnold transferred to the USGS–Corpus Christi office in 1979. While in Corpus Christi, he led a joint USGS and Texas A&M research

team (with Bill Bryant and Dick Rezak) that conducted coring operations and seismic acquisition of shelf, slope, and deep-water systems in the Gulf of Mexico. Results from the study of mini-slope basins were published in AAPG Studies 15, *Seismic Expression of Structural Styles, Volume 1* (1983). In 1981, Arnold started a career in industry at Gulf Research and Development in Harmarville, Pennsylvania, and then went to Chevron Oil Field Research in Houston and La Habra, California following the Gulf-Chevron merger in 1984. During this period, he was the co-chief scientist (with James Coleman, Louisiana State University) on the Deep Sea Drilling Project (DSDP) Leg 96 on the Mississippi Fan and Texas-Louisiana continental slope in 1983 and applied the knowledge from the DSDP leg to a deep coring and regional project in the Permian Basin of west Texas.

Following a strong desire to return to academia and train new students entering the geological profession, Arnold assumed the McCord Chair at Louisiana State University (LSU) in 1988 and continued his role as an educator until his retirement in 2005. While at LSU, he formed the Geo-Marine consortia and directed research studies by graduate students (24 masters and 11 Ph.D. students) in South Africa, Arkansas, and other areas. The results of a number of these studies provided the basis for an important publication, *Fine-Grained Turbidite Systems* (AAPG Memoir 72, SEPM Special Publication 68), in which characteristic aspects of fine-grained submarine fans were detailed from numerous examples worldwide. This publication provides a meaningful contrast of depositional styles with the more commonly published sand-rich submarine fans. Studies from the Tanqua-Karoo will also be included in AAPG Studies in Geology 56, *Atlas of Deep-Water Outcrops* (in press). Upon retirement, Arnold and Lieneke moved back to Texas where their roots run very deep. He is continuing his role as educator and consultant and is an adjunct professor at Texas A&M University.

Although Arnold's significant contributions to deep-water sedimentology and stratigraphy have been numerous, two studies forever changed the prevailing view of deep water within the geological community. The first was his dissertation (1962). The second was the Mississippi Fan drilling results, which were published in *Initial Reports Deep-Sea Drilling Project*, *Volume 96* and in *Submarine Fans and Related Turbidite Systems*, published by Springer-Verlag (1985), both co-edited by Arnold. Prior to Leg 96, there was a prevailing belief that sand was rare or absent in passive margin (i.e., muddy) deep-water basins located downslope of major delta systems. One prominent geologist bet Arnold a case of cognac that no sand would be recovered on the leg. Even getting the scientific community to agree on a Deep Sea Drilling Project on the Mississippi Fan was a monumental task, but Arnold and Jim Coleman succeeded in selling the project and the results of that leg are documented history. Not only were high volumes of sand recovered in the lower fan greater than 600 km (370 mi) from the shelf break, gravel was recovered from channel lag deposits 250 km (150 mi) into the basin. This discovery completely changed the business strategy of the major oil companies relative to deep-water exploration and reshaped the types of research studies conducted in universities around the world.

Arnold has been a significant contributor to sedimentology and stratigraphy disciplines during his entire career through publications and participation on society committees. In addition to being the editor of *Marine Geology* from 1970 to 1984, he has published numerous books, papers in referred and other journals, abstracts, reviews, and reports. His willingness to serve on society committees is a reflection of his desire to influence how societies contribute to geological advancement. Arnold is a DEG charter member, and his DEG committee assignments include Environmental Issues, Continuing Education, Advisory Board, Education, and Publications. He was an AAPG Distinguished Lecturer in 1981–1982 and 1988–1991.

From a personal perspective, I am pleased that Arnold is one of the main inspirations to my career. We first met in 1979 at the USGS Office of Marine Geology in Corpus Christi. Coring and seismic acquisition cruises in the deep-water Gulf of Mexico ultimately led to the DSDP Leg 96, but these adventures on the high seas were also the start of a lifetime friendship and working relationship. When reflecting on the years at USGS, Gulf, and Chevron, two things stand out. First, he insisted that observation and interpretation always come before the model. Arnold believed that being model driven usually results in wasted effort and erroneous interpretations. Second, he never discouraged innovative and creative thinking. He might not always agree with my interpretations, but he never put them down. Instead, he provided guidance in evaluating data and allowed me to work through the process of realizing there were other or better alternatives. Twenty years later, these principles still impact my scientific approach. Having Arnold request that I be the citationist for his Sidney Powers Award is a privilege and an honor, and I am proud to recall the many contributions that he has made to geology over his illustrious career.

In summary, Arnold H. Bouma is truly deserving of the Sidney Powers Memorial Award. His commitment to scientific excellence and his dedication to family, friends, and colleagues are traits that we all know and appreciate. Congratulations, Arnold on this fine achievement!

Charles "Chuck" Stelting

Response

When AAPG President Lee Billingsley called and informed me that I was selected to receive the Sidney Powers Memorial Award, I was stunned and had difficulty realizing that the 2007 award is for me. Such an award can only be possible if one receives and provides continuous education from professors, students, and colleagues. Having moved around from university to government to industry and back to university broadened my knowledge and got me involved in activities of many societies.

Mentioning all the people who had a major influence on all this would be impossible because there are so many. Therefore, I take the liberty to mention those I can think about while writing

this response. Please excuse me for all the omissions.

After high school came seven months at the University of Groningen (Netherlands) followed by twenty months of military service. My father died during that time, and I was discharged four months early. One of my professors, Ph.H. Kuenen, told me that I was not a person for the armed services and introduced me to his experiments. For a year I taught students about fossils and was able to do my exams three months earlier than they. Then Ernst ten Haaf came to Groningen to work on a Ph.D., and I worked with him on Italian turbidites. During the summers, I helped L. M. J. U. van Straaten with his coastal and deltaic studies north of Holland and in the Mediterranean. My interest in deep water and deltas was established at that time.

It was impossible to stay in Groningen for a M.S. degree. In 1956, I moved to the University of Utrecht, and D. J. Doeglas became my major professor. I became his assistant and had a great time working with students who were interested in majoring in sedimentology. Kuenen had been on a three-day field trip in the Maritime Alps (southeast France) with French colleagues and informed his hosts that the Eocene–Oligocene sandstones were turbidites. A detailed study was needed, and he suggested to Doeglas that I should take care of that.

A presentation at an annual meeting of the young International Association of Sedimentologists (IAS) resulted in a no-no reaction by Madame Y. Gubler who told me that I could not work there. A long discussion between her and Doeglas resulted in permission that I could only study the turbidites east of the River Var. No explanations were given. With undergraduate students, I concentrated on detailed measurements. When back in Holland and laying out profiles on the floor the idea of $T_{a.e}$ came forward. Shell funded me to visit several locations in Europe. The turbidite cycle started to receive much interest. After I received my M.S. degree, Doeglas mentioned that I should continue for a Ph.D. He suggested that I make 40 copies of my dissertation and mail them to sedimentologists worldwide (1960).

Emiliano Mutti, his wife Edda, and baby Maria became our houseguests for a while. Emiliano and I visited several countries to look at turbidites. Interesting discussions resulted as well as a good friendship.

A meeting with Fran P. Shepard resulted in an invitation to attend Scripps Institute of Oceanography on a Fulbright postdoctoral fellowship (1962–1963). Meeting many colleagues during that year taught me a lot about canyons and deep-water sands as well as many other geological issues. Our experiences during that time made us decide to emigrate to the United States. Laws forced the three of us (our son Mark came too) to go back to Holland for a minimum of two years. This resulted in three years because of my involvement in Suriname offshore studies. The summer of 1966, we emigrated. On my way to Suriname, I had visited several interested universities and selected the Department of Oceanography at Texas A&M University (TAMU) because it provided an excellent opportunity to learn more. Working with Bill Bryant, Dick Rezak, and others was fantastic. The Gulf of Mexico and the Caribbean have more secrets than one can study in a lifetime. The many students I worked with were excellent critics, and they taught me a lot. Ninety-five percent of the students received excellent positions in the oil industry. The third quarter of 1973 saw me as a visiting professor at the Universidad Central de Venezuela in Caracas. I then followed by visiting some other states selling TAMU to many officials. Some visits to the island of Margarita north of Venezuela resulted in studying the possibility of a pipeline between the island and the mainland. There I worked with Don Goddard and other geologists.

In the middle 1970s, it was nearly impossible for students to find a job in the oil industry; however, I was able to open a few slots at the U.S. Geological Survey in California, providing I came also. From 1976 to 1979, I worked in the lower Cook Inlet, Schelikof Strait, northeastern part of the Aleutian Islands and Kodiak Island teaming with Monty Hampton. The interactions with him, Ed Clifton, Bill Normark, Tor Nilsen, and many others at Menlo Park were excellent. The Corpus Christi office wanted me to come and we moved in 1979. The marine office with Lou Garrison, Henry Berrihill, Ray Martin, and many others at the office, industry, Texas A&M, and Louisiana State University (LSU) made it an incredible time. Chuck Stelting was an assistant and joined me with deep-water studies. Then, Lou Garrison put me in command and told me to increase contacts with industry, add short courses, and increase cooperation and funding to TAMU and LSU. However, headquarters disagreed and suggested I move to Reston. In a few weeks, I had 15 offers from industry and selected the Exploration and Production Division of Gulf Research and Development in Harmarville, Pennsylvania (1981). With Joel Watkins, Tim Andersen, and a fantastic group of people, a unique period started. From senior scientist I was promoted to manager and then vice president. I was able to interest the several small groups in working together and merged those into a few administrative units. Chuck Stelting left the Survey and moved to Harmarville, where he became a strong partner.

During that five-year period, I was able to go as senior co-chief scientist on Leg 96 of the Deep Sea Drilling Project to deep-water areas in the Gulf of Mexico. Our findings of thick sands in the middle and outer Mississippi Fan changed industry. Instead of drilling in the top of salt domes, they moved to the sands in the depressions. When Gulf Oil became part of Chevron, we had to move to California, and it took a long time to redevelop a deep-water team. In 1988 we moved to Baton Rouge, Louisiana, when I received an invitation from LSU's Department of Geology and Geophysics to accept the McCord Endowed Professorship. My task was to teach geology students and later on petroleum engineering students.

In 1989–1990, 1 took over the function of director of the Basin Research Institute and from 1990 to 1992, I was head of the School of Geosciences. Major academic changes removed several functions, including mine. In the meantime, I was invited to give a short course in South Africa. An unexpected field trip to the southern Karoo turbidites resulted in an

invitation to return and help the state oil company Soekor set up field trips for their own personnel. Showing the initial results at an AAPG meeting in 1991 resulted in requests from companies to work with students on more details. This entailed my wife taking care of finances and organization, and me traveling ten times with students to South Africa. That resulted in 15 students, 4 from South Africa, obtaining a degree. These studies finally brought me to the realization that there is a major difference between coarse-grained and fine-grained deep-water deposits. The Permian Tanqua is presently horizontal, which makes it possible to carry out detailed studies from updip through downdip.

My next step of interest is to set up a center for shale studies. This will become a worldwide activity to help the industry obtain an understanding about finding the proper characteristics to identify a shale that is economic to produce natural gas.

The above shows my background and continuous education, which would never have been as broad if the different activities and the persons involved had not existed. I thank my wife Lieneke and our three sons, Mark, Bob, and Lars, for their continuous support and assistance. They were not always fond of my long trips away from home, especially during the summers.

Life is still very much enjoyed and will be continued through helping students with their studies and doing more geological research.

Arnold H. Bouma

JOHN J. AMORUSO

Michel T. Halbouty Outstanding Leadership Award

Citation—To John J. Amoruso for his exemplary and exceptional leadership in petroleum geology, for his extraordinary and peerless service to the Association and other professional institutions, for his unstinting dedication to the geological sciences, and for his untiring and effective promotion of the profession of geology and its practice in petroleum exploration.

The stated criteria for the Michel T. Halbouty Outstanding Leadership Award are demonstrated, exceptional leadership and extraordinary service given to the petroleum geosciences and the Association. John Amoruso fits the bill grandly. In fact, his dedication, devotion, and contributions to the Association are exceeded by no one and equaled by no one with the possible exception of Mike Halbouty. It seems especially fitting that John is the first recipient of the newly defined award named in honor of Mike.

John's presentations on the Jurassic and the Smackover have won several best paper awards; his leadership in the Gulf Coast Association of Geological Societies, the Houston Geological Society, the American Geological Institute, the Society of Independent Professional Earth Scientists, and the AAPG is the stuff of legends; and his record as a successful explorationist is thorough, extensive, and well established.

Although John's adoptive roots in Texas are deep, he came into this world three quarters of a century ago as a Yankee in Portsmouth, New Hampshire. He completed undergraduate work in geology at Tufts University in Medford, Massachusetts, in 1952, and after a three-year stint as an officer in the U.S. Navy, began graduate work at the University of Michigan, where he received an M.S. degree in geology in 1957. He has remained loyal to his old school, long serving as a member of the Geoscience Alumni Advisory Committee, which he chaired in 1987–1988.

John started his illustrious career as a petroleum geologist with a summer job with Stanolind Oil and Gas in Oklahoma City in 1956. After graduate school, he joined Pan American Petroleum as a junior geologist in Salt Lake City. In 1959, he was promoted and transferred to Farmington, New Mexico for a three-year stay. In 1962, he became a member of Pan American Division Consulting Group in Fort Worth, Texas, where he developed regional plays, as well as individual prospects. Thereafter, John spent a couple of years in Tyler, Texas, where he got his first taste of the Jurassic. He completed his career with Pan American with a four-year stint in Houston, supervising the company's east Texas activities in the Cretaceous and the Jurassic. His 12 years with Pan American, working plays and prospects across the nation, set him well for his second career as an independent, which has run from 1969 to the present day.

As an independent, John has been active in exploration in Texas, Arkansas, Louisiana, Colorado, Wyoming, and Nebraska, assembling prospects from a variety of plays, ranging in age from Cambrian–Ordovician to Miocene. He organized and managed a consulting group called the Amoruso Group for a consortium of companies participating in the drilling of the first five Continental Offshore Stratigraphic Test wells on the U.S. Atlantic offshore. John formed Amoruso Petroleum Company in 1977 and has been its sole owner since 1986. He is currently

serving in an additional role as vice president for Legends Exploration, L.P., focusing on large gas prospects primarily in the Gulf Coast region. John always displays humility and modesty regarding his exploration successes, but such comes from his character, not the bottom line. Perhaps the crowning achievement of his long career in oil and gas finding came with the major discovery in 2004 of the Amoruso field, a deep Bossier sand gas field in Robertson County, Texas. The field is still being developed with ultimate reserves not yet calculated, but they will be quite significant and a fitting capstone to the work of an accomplished and thorough explorationist.

Beyond his role as a successful independent, John has always given unselfishly of his time, talents, and energy to the geologic profession and its institutions and professional societies. In the Gulf Coast Association of Geological Societies (GCAGS), John was a longtime chairman of the Long-Range Planning Committee; he also served on the Awards and Honors Committee. He was elected vice president of the GCAGS in 1980 and in 1981–1982 served as president. In his home society, the Houston Geological Society, John has held a variety of positions, from Program Committee chairman to editor to vice president and in 1972–1973 served as president. He has served as treasurer, president, and director of the Society of Independent Professional Earth Scientists. He represented the AAPG on the American Geological Institute Member Society Council and in 1994 served as president of the Institute; he currently serves as a trustee of the AGI Foundation.

However, AAPG is the organization that has long been the major beneficiary of John's energy, dedication, and leadership. He has served in no less than 30 different capacities in AAPG, including vice chairman of the House of Delegates, Association secretary, president-elect, and in 1982–1983 president. From 1984 to 1987 John was a member of the Association's Advisory Council, chairing the Council, and also chairing its Honors and Awards Committee and its Nominating Committee. From 1984 to the present he has been deeply involved in the AAPG Foundation, from Trustee Associate, to a member of the Corporation, to Trustee, and currently as vice chairman of the Foundation's trustees. Notable among his many committees in AAPG was his chairmanship of the Twenty-First Century Committee on two occasions. John has long been active in the Division of Professional Affairs and is a founding member of the Division of Environmental Geosciences. Few people have contributed as much as Amoruso to the professional societies and institutions about him, and the profession of petroleum geology is infinitely better for his involvement.

John is a member of numerous other professional societies. He served as chairman of the Society Participation Committee of the International Geological Congress when it last met in the United States in 1989. John has brought his considerable background and industrial experience to several areas sorely in need of such. He served on the National Academies Board on Earth Sciences and Resources, and as a member of several other National Research Council committees assessing energy and environmental resources. In 1990, he was a participant in a workshop on oil import disruption and U.S. oil replacement capability, sponsored by the Office of Technology Assessment, an advisory organization to the U.S. Congress.

John's standing as a researcher of Gulf Coast geology is substantial and lasting. In the early 1970s, he twice received the A. I. Levorsen Best Paper Award for his work on the Jurassic and the Smackover; the Levorsen Award recognizes creative thinking toward new ideas in exploration. John served as a Distinguished Lecturer for AAPG during 1973–1974. He addressed the 1993 annual meeting of AAPG, DPA section, with a very well received paper on "Petroleum Geology in the 21st Century."

John has been named an Honorary Member in the AAPG, the GCAGS, and the Houston Geological Society, which also awarded him the Distinguished Service Award. He was elected to Honorary Membership in the Houston chapter of the Society of Independent Professional Earth Scientists in 1994, followed in 1998 by Honorary Membership in the national SIPES organization. In 2005, he was awarded the Don R. Boyd Medal for Excellence in Gulf Coast Geology, the highest award of the GCAGS; John and Don were close personal and professional friends, which made John's receipt of the Medal quite special.

One person you will always see by John's side is his gracious and supporting partner of nearly one-half century, Camille. Those of us blessed with the good fortune to have such support from our life partners know what Camille means to John. They have two sons, Jim and Mike, and three grandsons, Christopher, David, and Andrew.

I have had the pleasure and the honor to know Mike Halbouty and John Amoruso for more than four decades and to count both of them as very special friends and valued and trusted colleagues. We have shared several agendas through the years, even winning a few. I know Mike would have been particularly pleased to see John be named the first recipient of Halbouty Outstanding Leadership Award as it has been newly defined and established as the second highest recognition by the Association; I also know the special pride John takes in receiving an award named in honor of a great friend.

There is something very satisfying in seeing a person as accomplished, as dedicated, and as devoted as John Amoruso receive a major award from his peers. With the award of the Michel T. Halbouty Outstanding Leadership Award to John J. Amoruso, we bestow a truly fitting honor on a fully merited person, and perhaps even more important, we credit and enrich ourselves and our institutions in doing so.

William L. Fisher

Response

I am greatly honored to be selected as the first recipient of the Michel T. Halbouty Outstanding Leadership Award and give my heartfelt thanks to all those who were instrumental in my selection, especially the Advisory Council and the Executive Committee. I also wish to thank my great friend Bill Fisher for agreeing to be my biographer. Bill not only has very demanding responsibilities at the University of Texas at Austin but

is also vigorously involved in an almost unending list of professional activities. I am greatly indebted to Bill for his willingness to accept this additional assignment for an old friend.

This award is appropriately named; Mike Halbouty was a leader throughout his entire career. He has been a driving force in our science and profession and has been one of the foremost advocates for strong oil and gas exploration for many decades. We were friends for more than 40 years, and I am particularly proud to have my name linked to his by this award. Mike was a man of strong opinions and convictions, and even between friends it was not unusual to have differences of opinion with him. I fondly remember a friendly disagreement with him over an AAPG matter when I was AAPG president; now, I can't even remember the subject. Mike informed me in no uncertain terms that when he was president this is how he handled the problem. I was equally certain that it would be better to handle, the matter differently. I said, "But Mike, I am president now, and this is what I'm doing." For an instant he looked startled but then smiled and accepted the decision gracefully. Mike always wanted to be sure that his opinions were heard and at least considered.

I consider myself very lucky to have been selected for this award, and when I think back over my career, I realize that I have been very lucky from the start. When I was growing up in my hometown of Portsmouth, New Hampshire, I was curious about the various kinds of rocks around me but had no idea of what they were or what they meant. At Tufts College, now University, I took the first course in geology, taught by Robert L. Nichols, and found it so interesting and exciting that I changed my major to geology. Bob was an outstanding and mesmerizing lecturer and an untiring, dynamic role model in the field. He captured my attention immediately with the excitement of geology and started me off on a geological career. Many times through the years, especially when I see so many people in other professions crawling toward retirement in careers they can barely tolerate, I have mused about what my fate might have been if Bob Nichols had not been my first geology teacher. He, along with my other Tufts professors, Charles Stearns and Don Eschman, was instrumental in giving me the right foundation to be a geologist and nurtured my desire to be one.

After a three-year tour of duty in the U.S. Navy, graduate school at the University of Michigan got me back to thinking about geology. K. K. Landes taught petroleum geology with a style that made the subject come alive and instilled the drive to go out and find oil and gas. We became good friends and, until shortly before his death, he frequently called or wrote to let me know that he thought I did well or not so well on something that had come to his attention. That is a long and valued mentor.

A summer job with Stanolind Oil and Gas Co. followed by permanent employment with its successor, Pan American Petroleum Corp. (later Amoco, now BP) started me off as a petroleum geologist exploring for oil and gas. My 12-year stint with Pan American was very interesting and exciting and gave me considerable experience in a number of petroleum provinces, experience that I still find useful.

I opened offices in Houston as an independent geologist in 1969 and have been in the independent world ever since. The move from the resources of a major company to a small, two-room, do-it-yourself office took some adjustment, but nevertheless was accomplished with a minimum of difficulty. My heartfelt thanks goes to my fellow independents who were always willing to share their experiences with the new man to help him avoid some of the pitfalls.

After many years of operating as a sole independent, several years ago I joined forces with Denny Bartell and Larry Bartell to form Legends Exploration LP, a partnership primarily dedicated to exploring for large prospects, particularly large gas prospects. We are all independent and energetic thinkers but function happily and successfully together, just the right mix for generating prospects. Fortunately, we are currently very active and are pursuing a number of prospects in this time of increased exploration. I revel in my profession and hope to be able to continue exploring for oil and gas for many years to come.

I have always felt that a true professional should be actively engaged in activities that supported and promoted the science and profession, so I have been involved in the activities of local, regional, and national organizations throughout most of my career. I wanted to give something back to the profession I love and hopefully have done that. Working with geologists for the good of the science and profession is most satisfying and enjoyable. I tried to give back, but in reality got back far more than I gave, and because of it I have had a much fuller life. The friendships that have grown out of working together for AAPG and other geological organizations continue even though a particular project might have been completed.

Although, in my early days, I had been somewhat active in local societies as I was transferred to various locations around the country, my involvement with AAPG began in about 1968 as a member of the Program Committee for the upcoming 1971 AAPG Annual Meeting in Houston. The committee wanted a regional Smackover paper on the program but could find no one willing to volunteer for the job. I had received the A. I. Levorsen Award for a regional paper on the Gulf Coast Jurassic given at the Gulf Coast Association of Geological Societies convention the preceding year, so I was summarily drafted to present a Smackover paper. The paper was well received at the convention and resulted in my being selected as an AAPG Distinguished Lecturer for the 1973–1974 tour.

Since that time I have been continually involved in AAPG activities at all levels and have enjoyed every minute of it. I get a good feeling, a feeling of belonging, to be able to work with so many others in the spirit of cooperation for the good of petroleum geology and geologists. I have served in a wide variety of positions at all levels of responsibility. Along the way, I have been privileged to serve AAPG as secretary under presidents Edd Turner and Bob Gunn and as president-elect under president Jack Parker. The highest privilege was to serve as AAPG

president and to see so many geologists enthusiastically volunteer their time and expertise to further AAPG goals.

My career of exploring for oil and gas and being actively involved in professional activities has made for a very happy life. I thank all those who have extended their friendship to me all these years and made life even more enjoyable. Especially I thank my wife, Camille, and our sons Jim and Mike; professional activities frequently impacted their activities. Camille, the love of my life, enthusiastically encouraged my professional activities and, after our sons grew up, was involved in many of them. Camille is a pharmacist, and in that capacity has functioned as an unofficial pharmaceutical advisor to many of our members curious about their medications. Many times it seemed that members were more interested in talking with her than with me.

I thank everyone involved in my selection for this great award and thank all my friends whom I prize so highly. Thank you, Bill Fisher, for your kind and generous comments as biographer. I am truly a lucky man.

John J. Amoruso

EDWARD D. DOLLY

Honorary Member

Citation—To Edward D. Dolly, exemplary oil finder and professional, for his unparalleled service and leadership to the AAPG and the geological community.

Edward Dawson Dolly has established a remarkable record of achievement in, and service to, the science and profession of geology as an oil and gas explorer.

Ed was born in Davenport, Iowa in 1940. He grew up in the farming and coal mining area of central Illinois. He and his sister were raised in a small town by an extended family consisting of his grandfather (a blacksmith) and grandmother, great aunt, mother (teacher and homemaker), and father (attorney and independent oil producer). At times, the family also included an aunt, uncle, and cousin. Because both of Ed's parents loved the West, most family vacations were spent in the Rocky Mountains of Colorado and Wyoming. This background instilled in Ed dedication to family, respect and love for the land, and a strong work ethic. It also generated an interest in geology. By the time Ed was in the eighth grade, he was helping his dad in the oil field. By his junior year in high school, Ed was hooked and knew he wanted to be a geologist. He was able to correlate logs before he graduated.

Ed began his higher education at the University of Wisconsin on a football scholarship. After he and his high school sweetheart, Karmen, were married in 1960, they both transferred to the University of Illinois, from which Ed received a B.S. degree in geology. While there he worked in the Education Department at the Illinois Geological Survey, putting together rock sample kits for distribution in public schools throughout the state. He also assisted staff members with field trips. Ed continued his education at the University of Oklahoma, earning an M.S. degree in palynology under the guidance of L. R. Wilson. Ed chose to emphasize the stratigraphic aspects of oil and gas exploration in his doctoral studies under the direction of Daniel A. Busch.

To date spanning the past 37 years, Ed's career began with Shell Oil Company in Denver, Colorado. He subsequently worked for Trend Exploration Ltd. and its successor, Filon Exploration Corporation; as an independent; for James Energy Management (partner); for Consolidated Oil and Gas (vice president, geology); and for Anschutz Exploration Corporation (exploration manager of the Rocky Mountain Region.) Currently, Ed is a geologist with The Houston Exploration Company. By personal choice, he has spent his entire career in the Denver area.

Ed's exploration efforts have included work throughout the Rocky Mountain basins and structural provinces; the Anadarko basin of Oklahoma; the Sacramento and San Joaquin basins of California; the Basin and Range province of Nevada and surrounding states; the overthrust belt stretching from southern Canada through Montana, Utah, and Wyoming; and on frontier plays in such areas as northern California, Oregon, and Washington. Other exploration and exploitation ventures Ed has made include several areas on the Central Kansas uplift and the Nemaha ridge of eastern Kansas and northeastern Oklahoma, the Cherokee basin of northeastern Oklahoma, and the Illinois and Michigan basins of the Mid-Continent region. He also has some experience in west Texas and the Texas Gulf Coast.

During his career, Ed has earned the reputation of being a knowledgeable and respected professional as well as first-rate oil and gas finder. He was awarded the Rocky Mountain Association of Geologists' prestigious Explorer of the Year Award in 1980 for his work, performed jointly with the late Norman H. Foster, resulting in the discovery of the Trap Springs field in Nye County, Nevada. Ed and Norm received the A. I. Levorsen Memorial Award for their outstanding paper at the Rocky Mountain Section meeting in 1980 as co-authors of "Surface and Subsurface Techniques Utilized in Exploring for Oil and Gas in Nevada and the Ultimate Discovery of the Trap Springs Field."

A member of AAPG since 1965, Ed has served as member or chairman on numerous committees, including the following: Astrogeology, Conventions (chairman), Convention Coordination, Budget Review, Geophysical Integration, Membership (vice chairman), and History of Geology committees; Technical Program Subcommittee;

Committee on Committees/ Committee Oversight Committee; Membership Planning Subcommittee; and the 100th Anniversary Committee (ad hoc). Ed has represented the Rocky Mountain Association of Geologists in the House of Delegates (HoD) by serving seven terms as a delegate. He was elected chairman-elect and chairman of the House of Delegates, represented the HoD on the Executive Committee, and was HoD representative to the Advisory Council. He has participated on the Committee on Constitutionality and Bylaw Amendment Process (ad hoc) and Credentials committees, the HoD Committee on Operating Efficiency (ad hoc), and is currently chairing the HoD Nominations and Election Committee for the second year in a row. Ed was awarded Certificates of Merit for service as House of Delegates chairman, Conventions Committee chairman, and Technical Program coordinator of the 1994 AAPG Annual Convention. His many contributions were recognized by the Association with the Distinguished Service Award in 2000.

Ed has contributed significantly to the Rocky Mountain Section (RMS) of the AAPG as well, most recently completing a three-year term as the RMS representative to the AAPG Advisory Council. He was general vice chairman for the RMS meeting in 1997, and served as president of the Section in 2000–2001.

The Rocky Mountain Association of Geologists (RMAG) also has been the recipient of Ed's time and talents. He has served the RMAG in numerous roles, including second vice president, president-elect, and president. For several years, he has been a member of RMAG's Long Range Planning Committee, which brainstorms and implements new ideas for publications, symposia, and professional activities. In 1994 he was Technical Program Coordinator for the AAPG Annual Convention held in Denver that year. In recognition of his dedicated service, Ed was presented the RMAG Distinguished Service Award and named an Honorary Member in the organization.

In addition to the personal satisfaction derived from giving something of himself to the organizations representing members of his profession, as well as making a contribution to the profession itself, Ed considers his true reward for the time and effort expended on behalf of the RMAG, the RMS, and the AAPG to be the friends he has made among his colleagues in each group.

Ed and Karmen are proud parents of two children. Their daughter, Lana, is a self-employed background verification consultant. Their son, Hugh, is development supervisor for the San Antonio Zoo and Aquarium. The newest member of the family (two-year-old first and only grandchild) brings additional joy to her delighted Papa. Spending time with his family has always been of paramount importance to Ed. Over the years, he has also included community activities in his busy schedule. He coached midget football, served on the board of directors of the Denver YMCA, held several offices in the Clear Creek Booster Club, and donated nearly eight gallons of blood to the Children's Hospital of Denver. He played in competitive basketball leagues until age 48, and he enjoys reading and outdoor activities such as hiking, biking, camping, and snow shoeing in the mountains of his adopted state. In recent years, Ed has become increasingly interested in genealogy, a passion shared by his wife, and he looks forward to devoting more time to the pursuit of their family histories.

Stephen A. Sonnenberg

Response

Involvement in the AAPG has been a critical component of my professional life. To be named Honorary Member of this premier organization of my peers is an honor indeed. I thank the members of the Advisory Council and the Executive Committee for recognizing my contributions to the Association with this award. I also thank my longtime friend and colleague, Steve Sonnenberg, for writing my biography and citation.

Being named Honorary Member gives me the opportunity to provide a response that reflects on the significance of participation in the AAPG to the path my career has followed.

By the time I was in the eighth grade, I was tagging along with my dad in the oil field, and by my junior year in high school, I was hooked on the concept that the petroleum industry offered an exciting career and knew I wanted to become a geologist. I therefore pursued the appropriate educational foundation, as Steve mentioned in the preceding biography.

While attending graduate school at the University of Oklahoma, I became a student member of the AAPG. I joined the organization in 1965, due primarily to the influence of Daniel A. Busch. He was an advocate for the AAPG, recommending to his students that membership in the organization would be important to our professional careers. He told us about the benefits that the AAPG offers its members, of course, outlining the many educational and networking opportunities available through conventions, courses, and publications. He also gave us a few words of advice that particularly resonated with me and which I've found to be profoundly true. He advised us that, "You'll get far more out of the AAPG if you become actively involved and participate in the operation of the organization." I took Dan's advice and as time permitted, became an active member of our Association. I discovered for myself that actually participating is far more rewarding than merely maintaining membership and perhaps only reading the publications and attending the annual meetings. All the long hours of volunteer work have been repaid many times over via the contacts and friendships developed while working together with colleagues toward mutual interests and goals.

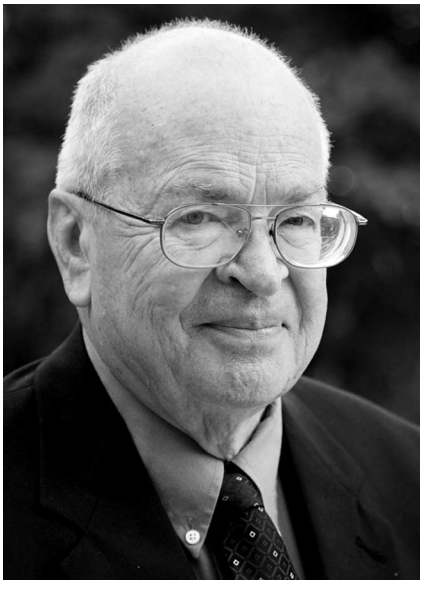
My involvement and volunteer efforts with the AAPG, and the Rocky Mountain Association of Geologists as well, have complemented my education, my practical experience, and my relationships established through working and exploring with, or selling to, my professional colleagues. Serving on committees and as an officer, helping to plan conventions and symposia, editing publications, raising funds, and recruiting new members have brought opportunities to meet far more fellow oil and gas industry professionals than would otherwise have been possible. Ideas exchanged have aided me in the development of many of my exploration ideas and

concepts. Friendships developed over the years have been greatly rewarding and personally enjoyable. My wife, too, has been the beneficiary of those friendships, and she looks forward to AAPG events because of them.

In conclusion, I would like to pass along a message to young geologists just entering the work force. Develop your career around active participation in the AAPG. Keep in mind that membership brings responsibility, responsibility to give something of yourself to the organizations you join. The service you give will be rewarded many times over throughout your professional life.

I deeply appreciate the honor the AAPG has bestowed on me. I thank the members who selected me for this award, and my teachers, colleagues, friends, and family who have provided knowledge, opportunities, and support throughout my career.

Edward D. Dolly



MARLAN W. DOWNEY

Honorary Member

Citation—To Marlan W. Downey, brilliant explorer and successful businessman, whose selfless dedication to the AAPG and the profession has benefited the science of geology, the business of exploration, and the energy industry.

Marlan W. Downey was born on October 2, 1931, at the height of the Great Depression in the small farming community of Falls City, Nebraska. His modest upbringing in this small town in the agricultural mid-west would forever influence his personality, interpersonal relations, and plain common sense. Having learned to read by the age of four, he began school early, and entered college by the age of 16. He received a B.A. degree in chemistry from Peru State College in 1952, left for military service immediately on graduation, returned to college from Korea, switched from chemistry to geology, and took an M.S. degree in geology from the University of Nebraska in 1957.

Marlan Downey has devoted his entire professional and business life to petroleum geology and related fields in two very significant ways:

1. AAPG—Marlan's long-standing service and dedication to AAPG for nearly 50 years is a matter of public record and appreciated by tens of thousands of earth scientists around the world, especially in the past 15 years in which he has held high-profile positions in the AAPG, including president, member of the Executive and Advisory Councils, Foundation Trustee, Trustee Associate, Distinguished Lecturer, Visiting Professional Geologist, conference chairman, as well as author and editor of dozens of technical/professional papers and witty contributions of thought-provoking articles for the *AAPG Explorer*. Marlan organized the first Hedberg Conference on Seals for Hydrocarbons, and with Ed Capen and Pete Rose, the first Hedberg Conference on Risk Analysis.
2. Corporate/Professional—Likewise of public record is Marlan's demonstrated success as a petroleum geologist, team leader, and corporate head (Shell Oil Company, 30 years; ARCO International 7 years, independent explorer, college professor, and advisor, 14 years). He has been influential in the development of new geologic concepts: the origin and migration of hydrocarbons, seals, the business side of geology, the importance of exploration post-mortems, risk analysis, methane hydrate potential, the relationship of hydrocarbon generation to tight gas production, and always, the proper use of such concepts in the exploration process. Teams that Marlan led explored in 62 countries and found commercial hydrocarbons in one-third of them; six countries yielded discoveries of over one billion barrels equivalent.

Marlan's career with Shell Oil Company began in 1957 with an assignment in the area office in Tulsa, Oklahoma, where, as Marlan likes to describe it, he started at the top and worked his way down! He was selected to go to Shell's Research Center in Houston, Texas, where he played a significant role in making Shell's theoretical work in organic geochemistry applicable and widely used in the search for hydrocarbons.

In 1967, he moved to Shell's Denver area, where he became Shell's youngest-ever chief geologist.

In 1973, he became Shell's first Alaska Division exploration manager, and learned much from adversity. Four close friends died in a helicopter accident on Sheep Mountain in Alaska, bringing home to Marlan the ultimate responsibility of being the boss. Marlan's division prepared carefully and participated heavily in the frontier Gulf of Alaska sale, the most important industry sale of the decade. Shell and industry drilling found no commercial hydrocarbons in this province; this remains Marlan's most deeply felt failure. He keeps a seismic section from the Gulf of Alaska mounted on his garage wall, near the entrance door, as a daily reminder that even a "bright spot" can be a failure.

In 1977, Marlan was promoted to general manager of exploration in Shell Oil Company's International Ventures organization (later named Pecten International). In this organization, he quickly rose to vice president, then president of Pecten. While at Pecten, Marlan's teams increased hydrocarbon reserves by 325% and production by 600% in a seven-year period, with significant discoveries in Malaysia, Cameroon, Syria, and Brazil.

Marlan always gave credit to his staff for successful achievements, yet he

clearly was a hands-on, in the trenches leader, whether in the development and application of technology, proper analysis of risk and profitability, or negotiation of overseas contracts.

In 1987, Marlan retired from Shell after 30 years of distinguished service, and formed his own small oil company, Roxanna Oil, a name borrowed from the earliest Shell organization in the United States. He put together a group that held several million acres in the Philippines, and served as a consultant to CNOOC (China National Offshore Oil Corp.) and Petroconsultants.

In 1990, ARCO recruited Marlan as senior vice president for exploration; he soon became president of ARCO International, and later senior vice president and executive exploration advisor to ARCO. During those seven years with ARCO, Marlan's teams tripled ARCO International's average yearly discovery rate while halving finding costs. As was typical for Marlan, he had the same single-minded loyalty to ARCO as he earlier had for Shell, putting all his energy into making each company the best it could possibly be.

In his many years in the petroleum industry, at home and abroad, his unassuming, but effective demeanor has allowed him with equal ease to meet and confide in heads of state of many nations, the most junior of geologists in his employ, and people of all levels and backgrounds in between.

By retiring in 1996, Marlan kept a promise to his family that he would retire at 65. However, retirement meant only from corporate life, not from the profession, or academia, and the world of independent exploration. In 1996, he was appointed professor and held the Bartell Chair of Geoscience and served as chief scientist of the Sarkeys Energy Center at the University of Oklahoma. In 1998, he chaired the conference on "Unconventional Methods of Oil and Gas Exploration;" in 2000, he co-chaired the second Pratt Memorial Conference on "Future Petroleum Provinces of the 21st Century." Also in 2000, the Houston Geological Society honored him as a "Living Legend in the Oil Business." In 2001, he convened the Presidents Conference in Washington, D.C. on "A National Energy Policy." In his heretical address, Marlan proposed that the government raise taxes on gasoline to provide money for energy research, Medicare, and Social Security. In the same year, Peru State College, Nebraska, awarded him an honorary Ph.D. in science. In 2003, he received the Hedberg Medal, and in 2004, the Petroleum History Foundation recognized him as a Legendary Explorer. In the same year, the *Encyclopedia of Energy* called on Marlan to provide the article titled "Exploration for Oil and Gas."

Marlan serves on the boards of three colleges, and has an advisory role on three corporate boards.

A true family man in every respect, Marlan's highest priority is spending time with his dear wife, Marea, six children, and four grandchildren. A favorite spot for relaxing is his ranch north of Dallas, where his hobby of blacksmithing, learned at his grandfather's knee, keeps him occupied.

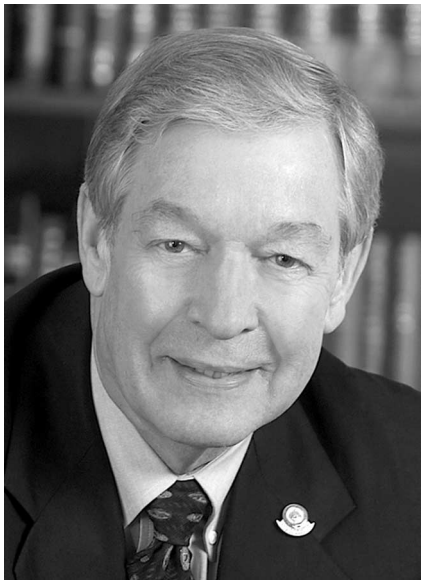
All his adult life Marlan has demonstrated his zeal to serve his profession, the petroleum industry, his country, and the world, all of who owe him a debt of gratitude. His thousands of friends and colleagues are delighted that AAPG is honoring him with the distinction of Honorary Member.

Jack C. Threet

Response

Thank you for granting me this honor; thank Jack Threet for so kindly describing me. I think Mark Twain said it best: "I wish my parents could have been here; my father would have enjoyed the presentation, and my mother would have believed it."

Marlan Downey



DAN L. SMITH
Honorary Member

Citation—To Daniel L. Smith, humble, diplomatic leader who, in applying his talents in many Association venues brought progress to AAPG and honor upon himself.

Dan was born in Houston and grew up during the poor economic times of the Depression. His father Virgil worked as an accountant for Superior Oil Co., and his mother provided a comfortable home for Dan and his older sister and younger brother.

While Dan was attending Lamar High School, a close friend and avid collector of minerals caused him to become interested in Earth science. At that time, Dan was also active in scouting, in which he persisted to reach the rank of Eagle Scout. Geology and scouting—an interest and a dedication—together, these foreshadow and portend Dan's later accomplishments.

From Lamar High School, Dan moved on to the University of Texas, from which he graduated in 1959 with a B.S. degree in geology. Early employment was with Amoco (Pan American Petroleum) followed by self-employment and work with various independent companies. Currently, he is executive vice president of exploration for Sandalwood Oil and Gas, Inc., developing exploration prospects in the

Gulf Coast. Most of his career has involved seismically assisted drilling programs focused on Tertiary objectives in Texas and Louisiana. This work has resulted in the discovery of more than 30 fields or major extensions.

Aside from Dan's successful professional career, and an "accomplished" personal life (Dan and his wife Laura are the parents of three daughters and a son, and grandparents of six grandchildren), Dan has been prolifically active in professional organizations. Outside of AAPG, Dan has been active in the Houston Geological Society (president 1987–1988); Gulf Coast Association of Geological Societies; Society of Independent Professional Earth Scientists (secretary 1992–1993, president of the Foundation, 1993); and several other AAPG affiliated and associated societies.

Inside AAPG, Dan's list of endeavors and accomplishments is even more impressive. He has logged over 25 years of continuous activity for the Association, and has served in over 20 jobs, many as chair of committees, as well as serving in the highest offices of AAPG.

To be more specific, in the House of Delegates Dan has chaired the Constitution and Bylaws Committee (1993–1995 and 1996–1997), the Nominations and Elections Committee (1992–1993 and 1995–1996), and the Operating Committee (1999–2000). Some of the most critical work was chairing the International Regions Amendment Resolution Committee (1998–1999) after he served as chair of the House of Delegates (1997–1998). He has of course, also served as president (2002–2003); more on that below.

Currently, Dan is a Trustee Associate of the AAPG Foundation, coordinator of the AAPG Membership Committees, and AAPG's representative to the American Geological Institute's Society Council. Dan has been previously honored with AAPG's Distinguished Service Award in 1997, Distinguished Member of the House in 2000, AAPG Certificate of Merit in 2002, and Honorary Member of the House in 2005.

That's an impressive list, but a mere list does not fully communicate Dan Smith's character of leadership, and the AAPG honorary membership award is not awarded for service alone. Given to less than 0.03% of Active members in any one year, Honorary Members distinguish themselves by their service and devotion to the science and profession of petroleum geology and to the Association. Allow me to move beyond the lists and tell you how I personally have experienced Dan's leadership.

International Representation: In moving forward this multifaceted issue, Dan's leadership was critical. His perseverance in the face of numerous obstacles was testimony to his intellectual focus and effective diplomacy. Others played important and key roles; however, I believe the Association would not have reached the more democratic form of representation in the House and Advisory Council as fast as we did without his considerable contribution. Facilitating change is usually difficult even when change is clearly desirable, but it is daunting when the rationale for beneficial change is either complicated or impacts the status quo of long-standing entities. Dan's success in achieving contested improvements is a credit not only to his vision but also to his sense of fairness and persuasiveness.

Presidential Term: Applying his background in the House and earlier service on the Executive Committee, Dan's term as president was characterized by much progress for the Association. He focused on providing and demonstrating value to Association membership. Initiatives to increase membership, to expand the digital programs (Datapages), to develop a strong public outreach, to improve and energize student relations, to make ethics a better appreciated element of membership, to help Association leaders be better public speakers, to emphasize intersociety cooperation, to revamp the education component, and to increase international development were successfully deployed.

Advisory Council Term: Dan's three-year term as an advisory councilor was especially unique. As chairman, he led the charge in developing a comprehensive strategic plan that has now been adopted and is the blueprint for the future of AAPG. He was also chairman of the Honors and Awards Committee and then chairman of the Nominating Committee.

In whole, I can say that Dan's leadership has been so exemplary that the benefits have not been restricted to the issues with which he dealt. Dan's example of how to formulate, explain, convince, and rally support for necessary change led others to emulate him. Simply put, whatever job he has taken on, both for those around and those following him, Dan Smith has raised the bar!

For that basic spirit of leadership, the same shown as an Eagle Scout, with the same interest in geology inspired by a friend so long ago, the Association owes much to Daniel Lester Smith. We thank him with this award.

Patrick J. F. Gratton

Response

I am extremely humbled to be named an Honorary Member of the AAPG. My activity and contributions are based entirely on the love of the profession and interest in professional activity. I thank the Advisory Council and Executive Committee for bestowing this prestigious recognition on me. I especially thank my friend and colleague Pat Gratton for serving as my citationist and biographer.

I was recently asked what it has meant to be a member of AAPG, and what the Association has offered that has benefited my career and career development. As the current coordinator of the Membership committees, I have given this some thought.

The bottom line: I attribute my nearly 50 years in exploration directly to my involvement in professional societies, especially AAPG. Here are some thoughts.

At the top of the list is professionalism. I can never emphasize enough the importance of networking and establishing relationships. Petroleum exploration is very much dependent on the massive exchange of information among peers. For me, continuous education and business opportunities have come mainly from association with other professionals. I could write a book on the many hundreds of situations of this nature that I have experienced and will relay one anecdotal example below.

Geoscience is an unusual pursuit in this regard. In discussing this with people in other professions, such as doctors, lawyers, architects, etc., I haven't encountered anyplace where professionalism is as important as in the area of geology.

AAPG has offered me so much value that I will forever desire to give back to the Association in whatever ways may come in my direction. One only needs to glance at the membership value pyramid to see the importance of AAPG and the many products and services available. There are too many to list here, but they offer opportunities for geoscientists everywhere. How could any geologist not see the value in AAPG and the value of service to the Association?

I will not use this space to detail my career. Pat Gratton has already done this. Suffice it to say that I have changed directions five times so far, and it's all been fun and exciting. I am very fortunate to have a career where one is rewarded financially for what one would otherwise do for free.

How did I come to be a geoscientist? It all started in high school with a good friend who collected mineral specimens and cut gemstones as a hobby. I was fascinated. Also, I loved the outdoors and took every opportunity to indulge.

While attending orientation upon entering college, I was exposed to a jam session where the geology professors described the opportunities. One in particular spoke of his many wild and exciting experiences doing mineral exploration in the Amazon Jungle of Brazil, and all the near misses with wild animals, etc. I was hooked. Well, I haven't made it to the Amazon but every single experience has been exciting, including the dry holes.

Here is the anecdotal story regarding AAPG's importance to my career. The scene is the late 1980s and my world seems to be collapsing. The oil and gas business has been declining for seven years, and it is evident that the company in which I am a partner will not survive. I have three children in college and a fourth primed to enter soon. I try not to panic. What to do…

New technology, 3-D seismic, had been working successfully in reducing exploration risk offshore Gulf of Mexico. My expertise was onshore where I had a large inventory of prospects based on 2-D seismic data, but there was no money for drilling. Where did I learn about 3-D seismic technology? I learned from personal conversation with peers on the floor of an AAPG Annual Convention and from attending technical papers on the subject.

I put together a business plan to find a company willing to risk using this new technology onshore Gulf of Mexico Basin. It worked, even though the vast majority didn't believe that it could be done economically onshore. I was able to stay in business as an explorationist and got my children through college.

Again, I learned a valuable lesson. In the face of adversity, there is always opportunity, thanks to AAPG.

My career as a geologist has not always come up roses. Probably my biggest disappointments were identifying and generating two large prospects that I was unable to lease and drill.

The first was the south half of a large onshore dome where the land was owned in fee by a major company. After trying to negotiate a farm-out for at least five years, the fee owner decided to drill the prospect, resulting in the discovery of approximately one tcf of gas.

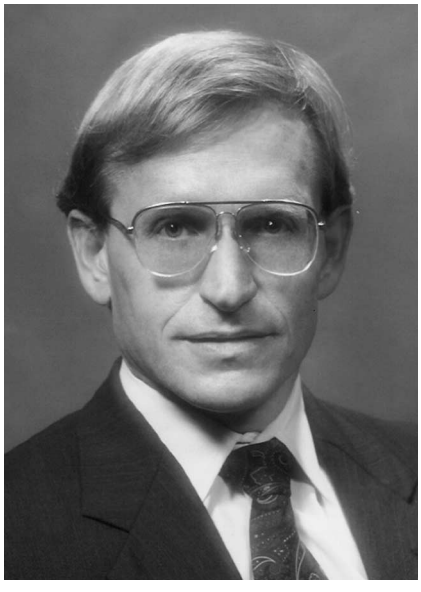
The second was the west flank of an onshore salt dome that was unleased when first checked. One month later, I sent land people to obtain leases, only to learn that another company beat me to the punch by two weeks. That field ended up with 30 wells finding 8 reservoirs containing approximately 200 million bbl of oil.

On the other side of the spectrum, I began working the geology of a salt dome in my early career that has continued to the present. Many times I was shut out of opportunities to drill. I practiced the one ingredient that is absolutely necessary for a successful explorationist—persistence. I never gave up and finally was instrumental in developing a nice oil and gas field.

One of my passions is participating in AAPG's Visiting Geologists Program and making presentations to university students and faculty. I explain to them that the oil and gas exploration business has always been cyclical, with downswings and upswings, but this is typical of most businesses. A career in geoscience offers the unusual opportunity of a lifetime in a very satisfying professional career. I have found three things to be critical:

- Professionalism and ethics are first and foremost. The reputation that one establishes will determine success. One screw-up in ethics can ruin a career.
- Continuing education through involvement in professional associations is necessary to stay current with fast-changing technology.
- Contacts and business relationships are essential. Thus, actively volunteering in local and national professional societies, where most contacts are made, is a big plus.

Dan L. Smith



DAN B. STEWARD

Outstanding Explorer Award

Citation—To Dan B. Steward, for over 20 years the undaunted champion of the Barnett Shale play of the Fort Worth Basin, for his tireless efforts to discover the secrets of the Barnett, for his leadership in developing the

nation's most exciting play, and for his critical role in changing the exploration paradigm.

The Barnett Shale of the Fort Worth Basin is widely recognized as the most active gas play in the nation. It has spurred the exploration of similar shale-gas reserves the world over. Put simply: the Barnett play has changed the exploration paradigm, and seemingly overnight. However, when one digs a little deeper into the history of the play, it's surprising to learn that the first Barnett production occurred nearly 25 years ago. Why did it take so long for the Barnett to go from the initial discovery to full-scale development and widespread industry recognition? The answer is that it may never have reached full-scale development if not for the efforts of many excellent geologists, engineers, and managers (including George Mitchell himself) at Mitchell Energy, the company responsible for the success of the play. No one was more involved with the amazing transformation of the Barnett from a minor curiosity to the most exciting gas play in the nation than Dan B. Steward, this year's Outstanding Explorer.

Dan began his career in the oil and gas business in 1972, immediately following his graduation from the University of Houston with a bachelor's degree in geology. He didn't begin work as a geologist; he began his career as a mud engineer in the field, and later worked for Shell as a production engineer. As will be shown, his work in the engineering fields of the industry would prove invaluable during the development of the Barnett play.

In 1981, Dan left Shell and began work at Mitchell Energy as the company's north Texas district geologist, responsible for the team of geologists maintaining the development program in the Atokan Boonsville Bend gas field. The Boonsville conglomeratic-channel reservoirs lie above the Barnett interval and have produced more than 2 tcf of gas over the past 60 years. During that same time, Mitchell was beginning the fracture stimulation ("fracing") of the Barnett discovery well, the 1 CW Slay (the Barnett was not the original target in this well), in far southeast Wise County. Two years before, Mitchell began searching for a source of gas to replace the dwindling production from the Boonsville, and the Barnett was one of the horizons targeted in that effort. During the ensuing years, Mitchell engineers and geologists attempted to improve well performance by experimenting with several different fracing and drilling techniques, improving their characterization of the reservoir and attempting to increase the per-well gas recovery. However, the first 15 years of Mitchell's efforts with the Barnett led to only marginally economic results; only a favorable gas contract (and the need to replace the declining production from the Boonsville Bend field) kept the effort alive at Mitchell. Throughout this period, Dan and only a few others at Mitchell believed that the Barnett could someday become economic in its own right.

Beginning in early 1989, Dan began to take on a larger role in the Barnett play at Mitchell with the addition of all the Barnett exploration and exploitation activity to his responsibilities as manager of geology for north Texas. In this role, Dan acted as the central hub of Barnett activity in the company. He worked with folks in reservoir and production engineering, drilling, land, legal and regulatory affairs, and, of course, he managed the geologic and geophysical staffs during the time Barnett drilling activity was mildly increasing (mild when compared to the current rate). Dan's previous experiences as a drilling and production engineer were essential to his ability to understand the engineering issues unique to a reservoir like the Barnett. The level of enthusiasm for the Barnett within Mitchell Energy during this time varied, but Dan remained committed to the play and doing what he could to ensure its success. In 1991, Dan helped coordinate a large study of the Barnett with the cooperation and support of the Gas Research Institute (now GTI). This effort led to a much better understanding of the geology and petrophysics of the Barnett, including the direction of the induced fractures, a value for the gas in place, and a characterization of the natural fractures in the rock. A Barnett horizontal well (the B-1 T. P. Sims in Wise County) was also a result of this research effort. In 1995, Mitchell's gas contract was bought out, so the preferred gas price that supported the Barnett effort was no longer available, but throughout this period, Dan and the geology and engineering staffs at Mitchell worked to improve the economics of the play.

Even with a quick glance at the monthly production chart for the Barnett, it is apparent that something happened in the late 1990s that led to the explosive growth of the play—growth that continues today. Actually, two independent, but nearly simultaneous, revolutions occurred at Mitchell in the late 1990s, and Dan was critical to both. First, in an effort to reduce costs in areas of the basin where the then-current (and relatively expensive) fracing technique was uneconomic, a few courageous Mitchell completion engineers proposed fracing with just water (actually a mixture of water, some friction reducer, and a relatively small amount of sand/proppant). Many in the organization believed this was foolhardy, since everyone knows that shale and water don't mix, or, more precisely, that they mix too well. Dan was an enthusiastic supporter of this heretical idea, and helped gain management approval for the initial experiments of this stimulation technique in several wells. Most of these early attempts were not successful, but with some modification in the amount of fluid pumped, the "light-sand fracs," as Mitchell called them, proved superior to the previous gel fracs and at nearly half the cost. This development caused a huge change in the economics of the Barnett play.

The second revolution, which occurred in the late 1990s, originated in Dan's geology department. Information from a 1997 Chevron well, located far to the south of Mitchell's activity, indicated that the GRI/Mitchell gas-in-place value published in 1992 was over three times too small. Dan and his staff quickly began an extensive coring program of the Barnett to verify Chevron's results. By early 1999, it was apparent that the true Barnett gas in place was substantially higher than thought previously. This meant that instead of recovering about 20% of the gas in

place as was determined earlier, Mitchell was only recovering about 6%. With the development of the less-expensive light-sand fracs, combined with the new gas-in-place values, Mitchell began an extensive program of re-fracs, down spacing, and adding the previously uneconomic upper Barnett to vertical-well completions.

In 1998, Mitchell began a concerted horizontal drilling program in the Barnett in an area west of the Viola pinch-out. Vertical wells drilled west of the pinch-out were unsuccessful, and many of Mitchell's engineers and geologists believed that horizontal wells would be successful where vertical wells were not. Again, Dan was a champion of this effort and actively participated in the planning and drilling of these wells. These early horizontal wells laid the framework for today's massive drilling effort in parts of the play west of the Viola pinch-out.

Dan has been a critical participant in the growth and understanding of the Barnett Shale play for more than 20 years, and his knowledge of the play and its geology and engineering is unsurpassed. Dan's selection as Explorer of the Year is well deserved.

Kent A. Bowker

Response

I was introduced to the oil field at the age of three. My father was a tool pusher on a drilling rig at the time, and my siblings and I would often accompany him to drilling locations. In the early 1950s, OSHA was not around and our society was less litigious. Trips such as these were not frowned upon as they seem to be today. My dad was careful to watch over us, but these visits began my fascination with the industry. On my mother's side of the family were her three brothers who were all in the drilling business. Two of them had been involved in the development of Ranger field in north Texas in the 1920s. Drilling stories dominated family discussions. We were an oil field family, or what some of us respectfully refer to as "oil field transients." We lived in trailers or rental houses following the rigs from one field to the next.

Our lives approached what some would call normalcy in the mid 1950s when my father was promoted to drilling superintendent and the family settled in Houston, Texas. At this point, my field trips were few and far between. However, in 1964 my father's career took us to western Kentucky where he was responsible for all field operations for a small oil and gas producing company based in Houston. There my twin brother Sam and I really began our indoctrination into the petroleum industry.

We spent a large percentage of our free time observing all manner of drilling, completion, and facilities operations in oil and gas fields covering a four-county area around Madisonville, Kentucky. During this time I had the opportunity to meet four geologists: Brandon Nuttal, Arthur Stegelman, Joe Landers, and Richard Mead, all of whom worked the Illinois Basin and western Kentucky area. Although the tutelage of my father and mother was responsible for my love of the oil field, these four geologists initiated my interest in geology.

My parents had made it clear that I was expected to attend a university for a minimum of two years to further my education and to settle on a career. My brother and I graduated from high school in May 1967 and were accepted at the University of Houston in the Engineering Department. Although the operational side of engineering had always intrigued me, the academic side did not. I ultimately switched to the geology department and obtained a Bachelor of Science degree in May 1972.

I met the love of my life, Gilda Moore, in 1968, and we married a week after my graduation. In 1972, there were very few openings for geologists in any field and almost none for someone with a bachelor's degree. I was very fortunate to obtain a position with Dresser Magcobar as a drilling fluids engineer trainee, and I began mud school two days after our marriage. This class consisted of approximately 30 people, half of which had college degrees; the other half possessed oil field experience.

Upon completion of this school, Gilda and I were sent to Laurel, Mississippi, where I performed the duties of a mud engineer for 18 months. I consider this experience to have been crucial for my career, giving me hands-on experience with drilling problems and the opportunity to observe the effects of geology during the drilling process. My ability to work with both engineering and operations personnel also proved invaluable.

The oil embargo of 1973 brought about all manner of changes in our society and created a demand for trained and experienced people in the petroleum industry. In January 1974, Gilda and I moved back to Houston where I had obtained a position of geologist with Ames Oil & Gas Company. By late 1974, the majors were so desperate for geologists that they began interviewing experienced geologists with bachelors' degrees. I was fortunate because my sister Gueydon had married a young petroleum engineer with Shell Oil Company in 1960 named Jack Thurber. Jack had obtained considerable respect within the Shell organization by 1974, and he recommended that I apply for a job with Shell. I was well aware of the excellent training Shell gave their geoscience and engineering professionals and jumped at the chance to work for such a prestigious company.

Shell hired me in November 1974 just as our first child, Brent, was born. We moved to New Orleans, Louisiana, where I began my Shell career in a production engineering training position. Our stay in New Orleans proved rewarding for both personal and career development. We were blessed with three additional children, LaVona, Neil, and Johnathan, during this period. My production-engineering trainer, Jack Moore, provided me with a tremendous opportunity to work both normal and geopressure gas wells and the challenges that are associated with their operation. Within two years, Shell moved me into geological engineering where I began by proposing wells from an existing field study and then moving into a field study project of my own. These projects proved valuable for understanding small-scale geological complexities in a producing environment. During this time I received tutoring and assistance from two Shell geologists, K. O. Williams and Don Brammer. In the late 1970s, Shell was involved in the downdip Tuscaloosa play, and I was moved into

the production department team that interfaced with exploration on the project. In this position, Ernie Werren was my supervisor and provided great insight on exploration techniques and transitioning plays into developmental programs. Following this assignment I worked the south Texas Wilcox and was a production department liaison with exploration. In 1980, I received a promotion to division geological engineer, a first-level supervisor position within Shell, and I was responsible for overseeing a staff of geological engineers dedicated to Shell's south and east Texas fields. In this position I was liaison with exploration and involved in planning division drilling programs and budgets.

Mitchell Energy and Development approached me in September 1981 for a position as district geologist in the north Texas region. Although there were concerns over challenges and opportunities, I would be working for two ex-Shell managers, Don Covey and John Hibbeler, both of whom I have tremendous respect; therefore, Gilda and I decided to accept the offer. The next 21 years proved the most challenging of my career. Mitchell began its evaluation of the Barnett Shale in late 1981, and I am blessed to have been a part of the play essentially from inception to fruition. Over the years, my positions and responsibilities changed, but the Barnett Shale always made up part of my duties. It took on an increasingly larger share from the early 1990s until January 2002 when Mitchell merged with Devon Energy.

During my entire career, the value, and in my opinion the absolute necessity, of teamwork has been clear, particularly as it relates to large projects. Mitchell's Barnett play was worked by an informal team with every member having additional unrelated responsibilities. In the early years, outside operational problems took precedent, but with time, the increasing importance of the play became apparent, and the team became more focused. The success of the Barnett is in large part due to the vision, commitment, and perseverance of George Mitchell. However, all the vision and money in the world cannot buy success in the absence of a competent, hardworking, and dedicated staff. The Barnett team that provided this included management, technical, operational, and administrative personnel, and they made this play happen. I am thankful for my share in the success, but just as importantly for the expertise and efforts displayed by all the team members. No professional develops or operates in isolation. They are therefore indebted to family, friends, and compatriots for any measure of success achieved. For this I sincerely thank all those who helped bring me to this point today and to the AAPG for bestowing this honor on me, and more importantly, Mitchell's Barnett team.

Dan B. Steward

ADEKUNLE ADEGBOYE ADESIDA

Distinguished Service Award

Citation—To Adekunle Adegboye Adesida, geoscientist, role model, and outstanding leader whose vision was responsible for the establishment and nurturing of several AAPG Student Chapters in Nigeria and Africa.

Adekunle Adegboye Adesida was born in Akure, Ondo, State of Nigeria, to the Adesida Royal Family line to the throne of Deji of Akureland. He received his early education in Ondo and Ibadan in southwestern Nigeria and later attended Nigeria's premier university, the University of Ibadan, where he received a B.S. degree in geology in 1978. He proceeded to the University of Ife, now Obafemi Awolowo University Ile Ife, where he received his master's degree in applied geology in 1980. While attending the University, he was awarded the German Academic Postgraduate Scholarship in 1979 and a French Government Postgraduate Scholarship in 1980 for his Ph.D in France, which was not utilized because he gained employment with Shell.

Kunle was employed by the Shell Petroleum Development Company in December 1980 in Lagos, Nigeria. Almost immediately, in April 1981, he was posted to the Shell International Maastschappij B.V. KSEPL Research laboratory in Holland as a stratigrapher/geologist. Back in Nigeria, in 1985 he was promoted to head of the stratigraphy unit for Shell's Lagos office. Later the same year, he was posted to Brunei Shell Petroleum, Sultanate of Brunei, as a stratigrapher. He returned to Nigeria in 1988 and from 1988 to 1991 worked as regional geologist responsible for regional evaluation of Shell fields and wells in Shell Warri. In 1989–1991 he was senior review geologist, Shell New Ventures and Deep Water Exploration, Lagos, and in 1991 was promoted to head of the Corporate Geological Laboratory.

Although Kunle started as a classical stratigrapher, he was exposed to research early in his career. In 1996, he was named head of Spills and Waste Management. During this tenure, he also worked briefly in Holland and Scotland. In this capacity, he and his colleagues introduced the use of geophysical tools in studying and managing possibly polluted sites. In another exciting career-enriching move, he was appointed to the position of corporate exploration adviser in which capacity he managed Shell's Joint Venture Partners' relationships. In 2005, he was appointed to the position of Business Manager in the Commercial Crude and Gas Handling Group of Shell's Regional Support Directorate in Port Harcourt. In addition to these enriching positions he held, Kunle has the distinction of having worked in several other parts of the world, including Brunei; Aberdeen, Scotland;

and the Netherlands. Kunle is one of the few geologists that has truly had well-rounded oil-industry exposure. In his 26 years in the industry, Kunle and his colleagues have authored or coauthored more than 20 technical papers.

Kunle joined the AAPG in 1985 as an Active member and has participated in its activities and organization very actively since then. He is a member of Division of Professional Affairs and is a certified petroleum geologist. He is also member of the Division for Environmental Geology (DEG) as well as the Energy Minerals Division. He has held several committee positions in these organizations.

Apart from AAPG, Kunle holds membership in several professional societies. He is an active member of the Nigerian Association of Petroleum Explorationists (NAPE), an AAPG affiliate. He also belongs to the Nigerian Mining and Geosciences Society, the Society of Petroleum Engineers, and the Society of Exploration Geophysicists.

He held several Executive positions in NAPE for over a decade, including the important position of chairman of the University Assistance Program (UAP). In this capacity, he evaluated and developed strategies for the NAPE Foundation to assist various Nigerian Universities to maintain a minimum standard of earth science education and research. In 2002, he was elected Fellow of NAPE in recognition of his efforts to uplift the standards of these universities.

Kunle's activities in AAPG spanned almost two decades. He contributed tremendously to the affiliation of NAPE with AAPG. He also served AAPG on several committees, including the House of Delegates (1997–2004), Membership Committee (1999–2002), DEG Hydrogeology Committee (chairman 1999–2001), DEG Environmental Issues Committee (1999–2002), Africa Region (officer 2001–2003, president (2003–2005), Publication Pipeline Committee (2002–2008), Membership Enhancement and Development Committee (2002–2005), and Membership Recruitment Subcommittee (2003–2005).

The most important role he has played in support of AAPG programs is mentoring and sustaining 24 student chapters all over Africa, 12 of them fully registered with AAPG. This important role dovetails effectively into his role as chairman NAPE-UAP. Kunle effectively evaluated the needs of universities offering earth science education in Nigeria and annually brought all stakeholders together to deliberate on the way forward. As chairman of NAPE-UAP, Kunle also influenced and implemented the publication of geological field guides to several sedimentary basins in Nigeria.

Adekunle Adesida participates actively in community service associations, especially the Rotary Club in which he has held several positions in Seria, Brunei. He is a Fellow of the School of Mines and Earth Sciences, Federal University of Technology, Akure (2005) and received the Distinguished Alumni Contributors Award from Obafemi Awolowo University, Ife, Nigeria, in 2006.

Kunle is married to his childhood sweetheart Olusola, and they are blessed with three children.

Adebayo O. Akinpelu

ALFREDO E. GUZMÁN
Distinguished Service Award

Citation—To Alfredo E. Guzmán, who has inspired many professionals, led the recognition of the petroleum geosciences in Mexico, and made outstanding contributions to professional associations.

Alfredo was born in Mexico City in 1947, the oldest son of Eduardo J. Guzmán, also a petroleum geologist, and María Luisa Baldizán. From them he inherited a strong character, great determination, exceptional loyalty, and a fine sense of humor.

In 1971, he obtained a Bachelor of Science degree and in 1973 a Master of Science degree, both from Texas Tech University in Lubbock, Texas. In 1974, he joined Pemex Exploration and Production as an exploration geologist and has worked for Pemex's Northern Region most of the time since then. During his first 15 years, Alfredo did field work in the basins located in this region: Gulf of California, Chihuahua, Sabinas, Burgos, and Tampico-Misantla. In 1994–1995, he was team leader for the Burgos Basin project, and then advanced to regional exploration manager, regional planning manager, national exploration vice president, and until early 2007 North Region vice president.

His most significant achievements follow:

- Implemented, for the first time in Mexico, exploration and production activities of multidisciplinary integrated teams, first for the rejuvenation of the Burgos Basin in 1994–1995 and later for the Veracruz and Tampico-Misantla basins.
- Led the Burgos Basin rejuvenation, which increased gas production from 180 MMCFGD to 1400 MMCFGD today, and led to the discovery of more than 90 new fields.
- Led the discovery of the first offshore non-associated dry gas province in Mexico, with the Lankahuasa field (located off central Veracruz state), which has almost 500 bcf of gas as 3P (proved, probable, and possible) reserves, and came on stream in March 2006.
- Implemented the rejuvenation of the Veracruz Basin, which increased gas production from 150 MMCFGD in 2003 to 1 BCFGD at the well head, coming from nine fields recently discovered.
- Led the rejuvenation of the offshore Golden Lane with the discovery of six new reservoirs, four of them new fields, which are developed in the

Tampico and Poza Rica areas and have 300 million bbl of new reserves of light oil.
- Implemented a development project to develop the Chicontepec paleochannel, a tertiary subbasin located in the northern part of Veracruz state, which has more than 130,000 million bbl of undeveloped original oil in place.

Besides his passion for geology and having mentored many young professionals, Alfredo enjoyed teaching young generations of geoscientists. He started as a teaching assistant at Texas Tech University (1971–1972), and taught different geological subjects at the University of Hermosillo (1979–1980), the Autonomous University of Chihuahua (1983–1984), and the Autonomous University of San Luis Potosí (1987–1989).

His involvement in professional associations includes the Asociación Mexicana de Geólogos Petroleros (having been national president in 1999–2001), AAPG, since 1969 (having participated on several committees, candidate for president-elect 2005–2006, general chair for the 2004 Cancun Conference and Exhibition, and Latin America Region president 2003–2004), Asociación Mexicana de Geofísicos de Exploración, Academia de Ingenieria, Society of Petroleum Engineers (Mexican Section secretary and chair for the 2001 Villahermosa Conference), and Circum Pacific Council for Energy Mineral Resources (having served as regional director).

During his career, Alfredo has been distinguished with several awards:

- Scholarship recipient: Instituto Mexicano del Petróleo, 1967–1971; Union Oil of California, 1971; State of Texas Good Neighbor, 1970–1972
- W. A. Tarr Award from Sigma Gamma Epsilon
- Best paper presented at the XXIII Nacional Congress of the Asociación de Ingenieros Petroleros de Mexico in San Luis Potosí, 1985
- Best paper presented at First Week of Engineering, organized by the Tampico Section of the Asociación de Ingenieros Petroleros de Mexico, 1989
- Mexican Petroleum Institute Award from the Asociación de Ingenieros Petroleros de Mexico at the XXXVII National Congress, Merida, Yucatan, 1999
- Numerary Member from the Academia de Ingenieria, 2000
- Recognition from the Asociación Mexicana de Geofísicos de Exploración, National Congress, Villahermosa, Tabasco, 2000
- Recognition from the AAPG at the Heritage of Petroleum Geologists DPA/SIPES luncheon, Annual Convention, Houston, Texas, 2002
- Miguel Angel Zenteno Award from the Asociación de Ingenieros Petroleros de Mexico, at the XLII National Congress, Acapulco, Guerrero 2004

Alfredo has published more than 50 papers, articles, and interviews and has presented more than 2000 talks for all the mentioned associations and other institutions.

Genaro Ziga Rodriguez

ANDREW HURST
Distinguished Service Award

Citation—To Andrew Hurst, petroleum geoscientist, educator, sedimentology research group leader, founding editor of *Petroleum Geoscience*, vice chairman of the AAPG Publications Committee, and member of the Advisory Council for the European Region.

Andrew Hurst is a broad-based petroleum scientist and sedimentologist who, since 1992, has combined these skills as professor of production geoscience at Aberdeen University, Scotland. He studied geology at Aberdeen (B.Sc.) and at Reading, England, where his Ph.D. studies were guided by J. R. L. Allen. Andrew then had time with Knut Bjørlykke as a research fellow at Bergen University, Norway, before spending almost 10 more years in the country on the staff of Statoil. There, he crossed the boundary into petrophysics and reservoir engineering by pioneering the construction of laboratory tools for the non-destructive measurement of porosity and permeability in core and outcrop and by working on some of the first three-dimensional reservoir modeling programs. During those years, he also began to educate non-geologists in the science of petroleum geology.

Andrew's publication record shows a strong early commitment to understanding all aspects of North Sea geology, including the analysis of different aspects of many oil and gas fields. Indeed, his strength as a scientist is the ability to define problems and to design innovative research programs to investigate them, often crossing disciplinary boundaries to do so. By the early 1990s, he was beginning to publish on the applications of wire-line logs, electron microscopy, and heavy mineral analysis, which was followed by the development and applications of probe permeameters. By the end of the decade, he was well into the study of deep-water sediments, beginning with turbidites and moving on to the now economically important sand injectites. His broad-based research is driven by an underlying interest in sedimentary materials, their transport, deposition, and preservation, and their stability during the weathering-transport-diagenesis cycle. He is driven by a love of earth science and its importance for the future wealth and prosperity of society, and by a fascination with the breadth of sciences that can be applied to earth science. In this respect, he is an enthusiastic and inspirational world leader and head of an always varying international research team that cooperates with other universities in these studies, toward continuation of

which he has raised over £4.6 million research income for Aberdeen's Geology Department. Andrew also has a strong record of crossing the boundaries of sedimentology and petroleum geoscience research to impact on such diverse topics as decision-making theory, medical mineralogy, and civil engineering. Andrew now has almost 150 publications to his name as sole or coauthor. An AAPG memoir coedited with Joe Cartwright of Cardiff University is currently (2006) in press.

In addition to formal teaching and research, Andrew has a long history of service to others, which undoubtedly is one of the many reasons for his receipt of the Distinguished Service Award. This service began during his stay in Norway and continues today; he was an external examiner at four universities and led undergraduate courses at two of these. He was on the Norwegian Geological Society's Advisory Panel on "The Future of Earth Science in Norway" and still serves on the Norwegian Petromaks research review board.

In academia, he has had an expanding extramural career of helping the greater geological community. He served as advisory editor of *Sedimentary Geology* (1990–1998) and was the chief (founding) editor of that excellent journal *Petroleum Geoscience* (1994–2000), which, of course, he built from scratch. He is currently a vice chairman of the AAPG Publications Committee. Andrew has served as a research assessor and advisor for the United Kingdom, Danish, Dutch, and Norwegian research councils. During his time at Aberdeen, he was also on the technical committee of both the fifth (1997) and sixth (2003) conferences on the Petroleum Geology of Northwest Europe, and was chairman of the deep-water clastics section of the latter. In 2000, he was appointed technical program officer (petroleum) for the European Association of Geoscientists and Engineers (EAGE), which, in the same year, included being on the Organizing Committee for the EAGE Annual Conference in Glasgow. In that year, he was also co-chairman of the Society of Professional Well Log Analysts Annual Research Conference, Taos, New Mexico.

Although a member of AAPG since1978, his first significant involvement with the organization was in 1999–2000, when he was a European visiting lecturer. In 2002, he joined AAPG's Committee for International Affairs and became the European representative to AAPG's Advisory Council. He was also an AAPG Distinguished Lecturer in 2003. His research potential was recognized by receipt of the William Smith Award of the Geological Society of London in 1993. His research achievements and contributions to the international oil industry were recognized by receipt of the EAGE Wegener Award in 2004.

Ken Glennie

JOHN C. LORENZ
Distinguished Service Award

Citation—To John C. Lorenz, in recognition of distinguished and long-term service to AAPG in increasing publication quality while bringing efficiency and transparency to the dissemination of scientific knowledge.

John Lorenz was born in Ohio, but his father moved the family east to escape in-laws soon after. John grew up in rural Connecticut, where his first job was milking cows on the neighboring farm. Getting up regularly at 4:00 a.m. didn't appeal, and the potential career of "farmer" was eliminated early. A summer job hand-moving dirt and several summers as a Boy Scout camp counselor effectively quenched aspirations in the fields of construction and teaching. It wasn't obvious which career might suit or accept him, so in desperation his father guided him toward a liberal arts college, handing him an early edition of Arthur Holmes' *Principles of Geology* as he left home.

John sporadically took and enjoyed geology courses during his four years at Oberlin College, but was persuaded to major in anthropology by a professor of the 1960s. Nevertheless, the final semester of his senior year found the anthropology course work complete, yet several empty course slots to fill for the total-hours requirement. By taking three advanced geology courses he could acquire a double major, and hat in hand, he approached the Geology Department with this proposal. Because he had never taken the summer geology field camp, the Geology Department was understandably reluctant, but with support from Lee High, they agreed that John might eventually overcome this deficiency and become a credit to the department.

Still unsure of a career path, and in fact unaware that one could be actively pursued, John followed his new bride into the Peace Corps. Since he had taken pilot training, John and Liz shipped out to Morocco to teach aviation English to Moroccan pilots and ground controllers, living the ex-patriot life in Casablanca. He learned more in Morocco, including enough Arabic to get into trouble, than he probably ever taught anyone.

As the couple was leaving the Peace Corps, John stumbled across a group from the University of South Carolina that was studying Moroccan geology in light of the emerging theories of plate tectonics, and was lucky enough to be enlisted by Bill Kanes to work on a master's thesis that delineated and described the Triassic Kerrouchen rift basin. John's lack of field experience was obvious and even debilitating at first, but was overcome by dint of necessity and with some help from Franklyn Van Houten. The following two summers were spent happily doing field work from the back of a cranky,

creaky BMW motorcycle in remote parts of the Middle Atlas Mountains, where John finally decided that he wanted to make a career of geology.

However, a year and a half of living on food stamps at the University of South Carolina was enough for the family, now with an added son, and with master's degree in hand, John leapt at an offer from the U.S. Geological Survey (USGS) in Metairie, Louisiana. A fortuitous opportunity led to a transfer to the Roswell, New Mexico USGS office, but the opportunities to advance the science of geology rather than just apply it were limited, and John, now with two sons, reapplied to graduate school. Princeton and Van Houten took him in.

A potential dissertation on the Nubian Sandstone in Libya fell through after three months of work and some minor Saharan adventures, but a USGS-funded opportunity to work on Cretaceous strata in Montana eventually led to a Ph.D. On graduation, John took a job with Sandia National Laboratories in Albuquerque, New Mexico, where he was the geologist for the Multi-Well Experiment that helped unlock natural gas from the low-permeability sandstones of the Rockies. Originally hired to determine reservoir dimensions using sedimentology studies, the abundant core soon made it apparent that in fact natural fractures controlled the deliverability of the wells. John had to redefine his field of geological specialization, and for the past 25 years he has analyzed, interpreted, and published on the origins and effects of natural fractures in hydrocarbon reservoirs in various places around the world. He maintained his interest in sedimentary stratigraphy however, and wrote a book ("a hobby that got out of hand") synthesizing the history and techniques of sedimentological studies in the Triassic rift basins that parallel the Atlantic margins.

Along the way, John has contributed to AAPG in several capacities. Most notably, he served as AAPG Editor from 2001–2004, helping to institute a system composed in equal parts of reviewer harassment and electronic manuscript submission. This system reduced the submission-to-print time and in turn increased the yearly number of manuscripts submitted to the *AAPG Bulletin* by making it a more desirable place to publish. He has also been a member of AAPG committees such as the Publications Committee (which he currently chairs) and Distinguished Lecturer Committee, and has been an elected representative to the AAPG House of Delegates and the AAPG Advisory Council. He has served locally as president and vice president of the Albuquerque Geological Society and is currently their irreverent secretary/newsletter editor, and was elected twice as the secretary-treasurer of the AAPG Rocky Mountain Section.

Scott Cooper

ERIK P. MASON

Distinguished Service Award

Citation—To Erik Mason, in recognition of his outstanding leadership, technical excellence, and distinguished service on behalf of AAPG and geoscientists everywhere.

Erik has served as a leader of professional societies at both the national and local level. Erik's long and distinguished service to AAPG includes service as vice president on the Executive Committee, general chairman of the AAPG 2000 convention, chairman of the Committee on Conventions for three years, chairman of the Reservoir Development Committee for 2 years, chairman of the International Conferences Subcommittee, and member of the Technical Program Committee and Budget Review and Finance Committee. In 1999, Erik co-convened a Hedberg Conference entitled "Horizontal Wells, Focus on the Reservoir" and co-edited an AAPG special publication of the same title. Erik has chaired numerous technical sessions at AAPG conventions and international conferences and given many talks and posters on various topics focused on exploration and production. Erik has been awarded three Certificates of Merit for his chairmanship of the Reservoir Development Committee, serving as general chair for the 2000 AAPG convention and co-convener of a Hedberg Conference. Erik joined AAPG in 1980 upon entering graduate school and has been active ever since. He is also an AAPG Certified Petroleum Geologist. Quite simply, he loves working in AAPG and with AAPG members. His strengths are his positive attitude, energy, enthusiasm, organizational skill, and willingness to serve, all of which he has brought to bear at AAPG with great results.

On the local level, Erik has also been active in both the New Orleans Geological Society (NOGS) and the Houston Geological Society (HGS). In NOGS, Erik served as vice president and program chairman, Continuing Education Committee chairman, and AAPG delegate. He was awarded the Presidents Award as well as a "Best Paper" award. Within the HGS, Erik is presently serving as a director through June 2007 and has previously chaired the Continuing Education Committee, received the HGS President's Award, and also received an HGS "Best Speaker" award.

Erik was born in Illinois and raised in Minnesota. He attended Principia College in Illinois and graduate school at Oklahoma State University. In 1982, upon completion of an M.S. degree at Oklahoma State, where he studied under Zuhair Al-Shaib, Erik joined Phillips Petroleum in Houston, where he worked development projects onshore and offshore Louisiana and Texas. He was transferred to Bartlesville,

Oklahoma, where he worked on an Indus Basin regional study. In 1988, Erik joined Shell Oil Company and has spent the last 18 years with Shell, 14 in New Orleans and the last 4 in Houston.

At Shell Erik has held several different assignments in both production and exploration. Most have been technical, but recent assignments have been in management, planning, and strategy, which he is presently doing. Some of Erik's fondest memories were the months he spent on a dirty, beat-up, work-over rig offshore Louisiana steering horizontal wells in an old salt-dome field.

Two of Erik's dominant characteristics are his genuine optimism and his willingness to take risks. Erik has drilled many wells, including a number of very successful ones as well as a number of dry holes. He always wants to drill more. Even when things go bad, as they sometimes do, Erik maintains a positive attitude and tries to understand why and learn from it. As for risk taking, he is always looking for a new opportunity and ready to participate in good prospects, which is why he is so at home within exploration. Presently, Erik is working in exploration in the deep-water Gulf of Mexico Paleogene play and loving it.

Erik has been married to Charlotte "Niki" Mason for 19 years. Niki is also a geologist, having been a rock hound since childhood where she was raised next to an iron mine in southeastern Pennsylvania. Niki has B.S. and M.S. degrees in geology from Duke University as well as an M.B.A. degree from the University of Tulsa and is presently a stay-at-home mom working at their son's school and on his sports teams. Niki and Erik met in Houston in 1986 at an HGS geochemistry short course and were married in 1987. They have one son, Will, who is 11.

Charles A. Sternbach

VALARY LEIGH SCHULZ

Distinguished Service Award

Citation—To honor Valary L. Schulz for resolving life's challenges in the diligent and successful pursuit of her profession, and continual dedication to the AAPG.

The Distinguished Service Award is presented to those members who have distinguished themselves in singular and beneficial long-term service to AAPG. I know of none more deserving of this prestigious award than Valary L. Schulz.

I first met Valary in May 1977 when I was vice president of Exploration for Alamo Petroleum Company, a subsidiary of Rosario Resources Corporation based in New York. The industry was in a boom cycle, and I was on a quest to hire experienced petroleum geologists. As a courtesy to the Minerals Exploration vice president of Rosario, I had reluctantly agreed to interview this mining geologist who was working at Rosario's El Mochito silver mining district in Honduras, Central America, although knowing full well that I was not at all interested in hiring a "hard rock geologist!" (best laid plans…). During the interview, her contagious enthusiasm and vigorous spirit won me over, and she was hired. Thus began her oil and gas career in July 1977.

Valary became an American citizen in 1992 and enjoys dual citizenship. She has deep roots in rocks; her father, Verne Hogg, was formerly the deputy minister of Mineral Resources in Saskatchewan, and Valary's older sister is a geologist. Valary was born and raised in Regina, Saskatchewan, entered the University of Saskatchewan at the age of 17, and earned a B.S. degree in geology in 1971. As social chairman of the Ore Gangue student society, she was instrumental in convincing a local brewery to sponsor the group; this was considered a tremendous public service feat by her fellow members. She also organized the first class reunion in 40 years. Her contagious enthusiasm was already at work.

Following graduation, Valary began her career as a mining exploration and ore reserve geologist for Campbell Chibougamau Mines, Ltd., working at the Henderson copper mine in Quebec from 1971 to 1973. In 1973, Rosario Resources Corporation employed her as a mining geologist in the El Mochito Mine in Honduras, Central America. In 1977, Valary chose to become a petroleum geologist and accepted the transfer to Alamo Petroleum Company. Since her initial venture into petroleum geology with Alamo, she is one of those fortunate geologists whose diverse and productive career has spanned almost every phase of minerals and petroleum geology. From 1979 through 1984, she worked for oil and gas companies in exploration, development, and property appraisal, including Bonanza Petroleum, Inc., Willis and Associates, and Quanah Petroleum in Dallas. Following this experience, she, once again, returned to Rosario in Honduras, where she planned and implemented all local and national surface mineral exploration programs, resulting in several ore discoveries from 1984 to 1987. Relocating to Dallas, Valary worked as a consulting geologist and later a partner with LaRoche Petroleum Consultants, Ltd. from 1987 to 2003. She is currently working in her preferred field of petroleum exploration geology at Wynn Crosby.

Beginning in the early 1980s, and throughout her tenure in Dallas, Valary has been actively involved in the affairs of the Dallas Geological Society (DGS) and the AAPG. She held several offices on the DGS Executive Committee culminating in becoming president in

1984 and has subsequently served on and chaired several committees. Valary was awarded DGS Honorary Life Membership in 2002. She joined AAPG in 1978 and has served on numerous committees and been very active in the Southwest Section, serving on its Executive Committee as secretary, 1994–1995; president, 2000–2001; and Advisory Board, 2001–2004. Valary was awarded AAPG's Certificate of Merit in 1983 and 1991, for serving on the Section's Conventions Coordinating Committees.

Valary's involvement and long-term service to AAPG began in 1992, as an elected delegate member of the House through 2004; she became an at-large member in 2005. During her tenure, she has served on several House committees, including the Resolutions Committee, chairman, 1998–2001; Constitution and Bylaws Committee, chairman, 2002–2003; and Newsletter, editor 2006–2007. Valary was selected as chairman-elect, 2003–2004 and served as chairman, 2004–2005. As vowed in her nominee's speech to the House, her plan to deliberate House business affairs and to represent AAPG members was very efficiently accomplished during her tenure. It was a real treat for Valary to chair a very succinct and successful annual meeting in Canada, bringing her full circle to her roots! The House has honored Valary with the Recognition of Service Award, 2005, and the House's highest Honorary Member Award, 2006. As House chairman, she served on AAPG's Executive Committee, 2004–2005 and as past chairman, on the Advisory Council, 2005–2006. In addition, Valary has well served the Visiting Petroleum Geologists Committee, 1999–2002, and the annual convention's Coordinating Committees in 1983, 1991,1996–1997 and 2004–2005, in Dallas, and received a Certificate of Appreciation in 1997.

Having been a mentor and close friend for 30 years, I am honored to write this biography and citation for Valary. Her many accomplishments have been tremendously beneficial to AAPG and our profession. Those of us who have known and worked with Valary admire the manner in which she accepts responsibility, discharges her duties with great enthusiasm in a timely basis, and recognizes and inspires others to get involved.

Tom Mairs

JANOK P. BHATTACHARYA

Grover E. Murray Memorial Distinguished Educator Award

Citation—To Janok P. Bhattacharya, an exceptional teacher whose contagious enthusiasm has inspired students and professionals alike, and whose superb body of research is a statement to his rigor and dedication to the spirit of discovery.

Janok Bhattacharya's career is characterized by excellence in every endeavor. Highest honors have distinguished his achievements as a geologist and professor. In his involvement in professional service and organizations, he has repeatedly received recognition from peers for the outstanding quality that characterizes his work.

As a former graduate student, I have tremendous gratitude for Janok's mentorship and the exceptional qualities that make him deserving of this award. These include a contagious enthusiasm that inspires those around him; a generosity with his time spent with his students; and insightful guidance through the process of initiating, writing, and publishing research. Accordingly, all of his Ph.D. and masters' students are following successful paths in academia and the petroleum industry. More than almost anyone I know, the spark of creativity is always evident with Janok.

Janok brings a unique energy and an engaging style to his teaching that, combined with his technical mastery, makes him a popular classroom lecturer and a sought-after speaker and educator to professionals across the country. It is not unusual for him to come into his classroom having just reviewed an important new paper for a journal, and want to excitedly discuss how it alters our understanding. He loves to share the thrill when new knowledge provides insight to his research. In 2005, he received the AAPG Southwest Section Distinguished Educator Award. He was also an AAPG Distinguished Lecturer for 2005–2006, and has been honored with Best Oral Presentation at the Canadian Society of Petroleum Geologists Annual Meeting in 2004, Best Oral Paper Award from the Houston Geological Society in 2002, and the AAPG A. L. Cox Award for best poster in 2001.

Janok is an unusually productive researcher, and has built a superb record of original research that reflects his tenacious drive toward new ideas. He has 39 papers published or in press in peer-reviewed journals and books, more than 30 published and unpublished field trip guides and short course notes, and 100 published abstracts.

His involvement with professional service allows the greater geologic community to benefit from his expertise and ability to organize quality research. He is currently an Associate Editor of AAPG and SEPM (Society of Sedimentary Geology), and a reviewer for numerous other journals. He was the Technical Program chair for the 2004 AAPG Annual Meeting in Dallas, and Field Trip chair for the 1999 AAPG/SEPM Annual Meeting. He served a two-year term as a panelist for the National Science Foundation in 2002–2004. He is currently SEPM vice chair for the AAPG/SEPM 2008 Annual Meeting, and holds the position of president-elect for the Gulf Coast Society SEPM. In addition, he is very active with local groups and geological societies and has presented more than 40 invited talks, lectures, and short

courses, and chaired numerous conference sessions.

Janok was born in 1960 in Coventry, England, and moved to Newfoundland, Canada, when he was eight years old. He was raised to value curiosity from an early age. His interest in the outdoors led him to pursue science at Memorial University of Newfoundland in St. Johns, where he began his studies at the age of 16. His older sister, twin brother, and father had all studied medicine, but Janok's contrarian nature led him in a different direction. Geology allowed him the most time to devote to his early ambition of being a drummer in a rock band. However, geology eventually eclipsed his music career, and he graduated in 1981 after completing an honor's thesis on the geology and geochemistry of early Paleozoic granites.

His first industry job was at Esso Resources Canada in Calgary, the Canadian branch of Exxon Corporation, where he was introduced to seismic stratigraphy and the idea that sea level, as a primary driver of the sedimentary rock record, could be quantified and studied. Through field trips and discussions with colleagues, he began to realize how critical sedimentology and facies analysis was to well-log and core interpretation. He decided to go back to school and focus on this area of study.

In 1984, Janok began his Ph.D. at McMaster University in Hamilton, Ontario. He studied under Roger Walker, a leading researcher in the field of sedimentology and depositional environment analysis. Eventually, Walker and his students became one of the only academic groups combining Exxon's ideas on seismic stratigraphy with facies analysis to form a surface-based interpretation scheme. Janok's dissertation was on the stratigraphy of the Dunvegan Formation of Alberta, and he completed his degree in 1989.

Following postdoctorate work at the Alberta Research Council in Edmonton, where he contributed to the compilation of the Geological Atlas of the Western Canada Sedimentary Basin with his late mentor, Grant Mossop, Janok took a job with ARCO. Before he moved to the United States in 1991, he married Cyndy Penner, whom he had met in Edmonton. At ARCO, he was involved with subsurface reservoir characterization of the giant Prudhoe Bay field in Alaska. After five years at ARCO, Janok moved to the Bureau of Economic Geology in Austin, Texas. Here, Janok began working the spectacular outcrops around the Powder River Basin of Wyoming. His research on the Cretaceous Frontier Formation led to one of the first published examples of an ancient tide-dominated delta. He spent two years commuting to Austin from Dallas so that his wife, Cyndy, could continue her career. Finally, Janok returned to Dallas in 1997 and rejoined ARCO's research lab. During this time, he began to formulate his research on asymmetric wave-influenced deltas, a topic with which he is still heavily involved.

In 1998, a position for a sedimentologist opened up at the University of Texas at Dallas, and Janok realized his long-held dream of becoming a professor. He furthered his research program on the Frontier Formation as well as originating outcrop-based research in diverse areas from the Book Cliffs region of Utah to north Texas. He formed the University of Texas at Dallas Sedimentary Research Consortium and secured significant funding for several projects. He was tenured in 2001 and promoted to full professor in 2004. In 2005, Janok moved to the University of Houston, where he is currently the Robert Sheriff Professor of Sequence Stratigraphy. He and his students have continued the Quantitative Sedimentology Research Consortium, and in addition to research in Utah and Wyoming, they are expanding into three-dimensional seismic geomorphologic studies of shelf-edge deltaic systems.

Michael M. Adams

Response

In 1995, I helped to nominate my former Ph.D. supervisor, Roger Walker, for the AAPG Distinguished Educator Award, which he deservedly received in 1999. Gerry Middleton, also one of my professors at McMaster, received the award in 1998, the year I began teaching at the University of Texas at Dallas. I am sure you can imagine my surprise when Lee Billingsley called me to tell me I had won the award, a scant eight years into my own career as a university professor. As the youngest award recipient among this very distinguished group of scholars, I now have to actually live up to the honor!

Nobody gets to this position without a lot of help and support, and I am overwhelmed by the many colleagues and mentors who have written recommendation letters and expressed their confidence in me over the years, huge names in their own right, such as Shirley Dutton, Bill Fisher, Bil Haq, James MacEachern, Dag Nummedal, Val Schulz, and James Syvitsky.

I am indebted to my dad, who liked to describe me as obstreperous but who fostered that trait by example. In England, my dad was advised that my late-blooming Anglo-Indian twin brother and I were probably mentally retarded and ultimately decided to move to the new world where he sensed far greater opportunity. Dedicated to helping humanity as both a physician and humanitarian, he helped to found the Newfoundland and Labrador Human Rights Association in the Province of Newfoundland Canada, where I grew up, and won the Noble Peace Prize in 1985 for his work as a member of the International Physicians for the Prevention of Nuclear War.

Like many geologists, I fell into the profession, initially toying with physics, math, and music. I was grabbed by the dynamic program and uniquely informal atmosphere offered in Earth sciences at Memorial University of Newfoundland, then a hotbed of outcrop-based research in the emerging science of plate tectonics. Of the many outstanding professors there, I have to thank the late Lars Fåhraeus for encouraging me to think about research as a career; Dave Strong who supervised my undergraduate thesis, where I first flexed my research muscles; and the illustrious Noel James, the single most dynamic lecturer in geosciences, who also advised us that the next revolution in geology would be the documentation of global sea level changes.

At the tender age of 21, armed with my B.Sc. degree, I moved to Calgary to work for ESSO Resources Canada, where much of the mystery of the new global cycle charts and seismic stratigraphy were suddenly revealed. I clearly remember taking a field trip to look at fluvial deposits in the Judith River Formation in the Alberta badlands. Several geologists on the trip, including

Greg Nadon, Dave Taylor, and Dale Leckie, after looking at the rocks, disagreed with the field trip leaders interpretations and some of the observations. Their interpretations seemed to be more sensible, and I was genuinely amazed about how quickly they could analyze facies. I realized that they were all McMaster graduates, trained by either Roger or Gerry. Goaded on by Dave James and Scott Gardner at ESSO, who seemed to think I knew something about looking at cores, I was soon at McMaster learning from the leading lights in sedimentology and fighting "fuzzy thinking."

Following completion of my Ph.D., the late Grant Mossop gave me the opportunity to work on compiling the *Atlas of the Western Canada Sedimentary Basin*. I called Henry Posamentier to see if he would help me write the chapter on the then-new sequence stratigraphic aspects of the basin. Henry agreed and I met my second great mentor. Henry helped me get a position in the newly formed sequence stratigraphy research group at ARCO, where I worked with many outstanding colleagues from whom I learned much, including Jim Lorsong, Bo Tye, Bill Morris, and Russell Davies.

Later, at the Bureau of Economic Geology in Austin, I met two of the greatest colleagues of my career, Brian Willis and Chris White. We worked hard and argued even harder, all in the search for the best answers to our scientific dilemmas in sequence stratigraphy and sedimentology. Brian taught me much about how to conduct a major field program and Chris, the engineer, taught us how to render our fuzzy qualitative geological information into hard numbers, ready for his flow simulators! Many of our discussions spilled late into the evening, lubricated by the good ales at the Draft House Pub in Austin.

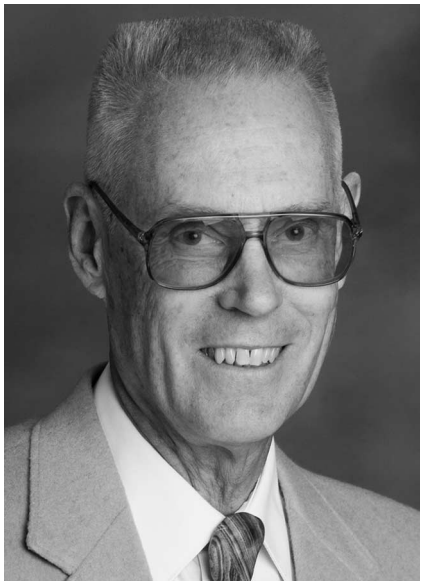
Finally, I landed my first tenure-track teaching job at the University of Texas at Dallas. My two key mentors, department head, Bob Stern and close colleague George McMechan, taught me much about the academic game. The financial support of ARCO, BP, and Chevron, driven especially by Howard Harper, Terry Wiseman, Art Donovan, Ed Westergaard, Marge Levy, Bruce Power, Bryan Bracken, and many others, was essential to the development of my research program and my rapid progress to full professor.

It all seemed like a dream come true, and I couldn't imagine how things could get any better when I got the call from Bill Dupré at the University of Houston asking if I would be interested in applying for the Robert E. Sheriff Professor of Sequence Stratigraphy. So here I am in Houston, a year later, my feet barely dry, and somehow I have been given one of the top geoscience honors in the world.

Of course, the job of a professor is to do just that, and in my short eight years I have been graced with some gifted students. I especially thank Michael Adams, my first master's student, who wrote such a praiseful citation, but I am also crossing my fingers that my former graduate students at the University of Texas at Dallas, Rucsandra Corbeanu, Annie Covault, Royhan Gani, Scott Garrick, Chuck Howell, Karen McGowen, Stephanie Nyman, Cornel Olariu, Junaid Sadeque, Boyan Vakarelov, and John Wagner, as well as my new University of Houston students, will exceed my own successes.

Last, without my wife Cyndy to share this award, and my many friends and family members around the world, it would be truly meaningless.

Janok Bhattacharya



A. EUGENE FRITSCHE

Grover E. Murray Memorial Distinguished Educator Award

Citation—To A. Eugene Fritsche, for tireless dedication and inspiration as an educator, who found more not only in his students but also within himself as he explored and introduced us to Earth's wonders.

Gene Fritsche was born and raised in Los Angeles. He earned his bachelor's degree and Ph.D. in geology from the University of California, Los Angeles (UCLA) and proceeded to move 20 miles north to California State University, Northridge (CSUN), where he spent his professional career of 37 years as a professor of geology. It sounds like he didn't get very far. Quite the opposite: Professor Fritsche was hard on his students; often we felt too hard on us. He demanded perfection; nothing less would do, but what he demanded of us, he was also ready to deliver. He taught us to observe, to write, and to think. Most of all he brought the love of geology to us. How could we do less?

California was a great place to grow up. Geology was everywhere in southern California and Gene's family also had a cabin near Angels Camp in the middle of the California gold country. His love of nature and geology blossomed. He put his local geology experiences to work and did his dissertation on "Miocene

Geology of the Central Sierra Madre Mountains, Santa Barbara County, California" under Clarence A. Hall, Jr., who chaired the Geology Department at UCLA. At UCLA he worked as a teaching assistant and a summer field camp manager. He started work as an assistant professor of geology at CSUN in 1963 and became chair of the department in 1981. He retired from his chairmanship and became a professor emeritus in 2000.

Gene graduated from UCLA with honors and was a National Science Foundation Cooperative Graduate Fellow, University of California Fellow in Geology, and member of Phi Beta Kappa and Sigma Xi. He has published or co-published 30 articles and 48 abstracts, edited or coedited 9 books, and advised 30 master's theses and 34 senior theses. He has spent uncountable hours with his students. Over the years he has served his profession as secretary and then president of the Pacific Section, SEPM, and as vice chairman and then chairman of the Pacific Coast Section of the Paleontological Society. He served AAPG as a delegate from the Los Angeles Basin Geological Society and as a member of the Committee on Academic Liaison. He has served as Field Trips chairman or as a Field Trip leader for three national and three Pacific Section AAPG conventions and as a Field Trip leader on three Pacific Section, SEPM field trips.

I first met Gene Fritsche in 1971. I was an undisciplined student of the time. I really wanted to escape the system and enjoy life. That was not to be. I had to take 18 units and work 30 hours per week to pay for my college. I was no different from anyone else. He took us all on and demanded more of us than we were willing to give; at the same time, it was obvious to all that he still demanded more of himself than he did of us. What did we get out of the effort? We learned English, we learned how to write reports, and we learned to observe and how to interpret what we observed. We learned ethics and most of all we learned how to love the earth and the environment around us. I picked up the tools that I needed to become a successful geologist. I was one of hundreds of students that had a very special feeling that he was focusing especially on my needs. His former students have gone on to become professors at Caltech, Colorado School of Mines, Louisiana State University, Montana State, Nebraska, Acadia, San Diego State, California State University, Fresno, California Lutheran, and other universities and community colleges, and others are Earth science teachers in high schools and middle schools. Many work for oil companies throughout the world. Still others work for state, local, and federal governments. This is what makes Gene Fritsche special. He gives so much of himself to others. Many of his past students have emulated that philosophy by giving time to their communities and professional societies. His past students have served AAPG and the American Geological Institute at the highest levels.

Gene is a provincial southern Californian, but he worked as a visiting professor at the Louisiana State University Summer Field Camp for 10 years and at Shaanxi Teachers University in Xian, China for one semester. He has worked on Habitat for Humanity house-building projects in Los Angeles, South Korea, South Africa, Mongolia, Mexico, Nicaragua, and Hungary. Back home, he served the Boy Scouts as a Cubmaster and a Scoutmaster while his son Eric was in the scouts. Sue, Gene's wonderful wife of 48 years, was an active part of his adventures. It always seemed to me that she had to be if she wanted to see him. Gene wasn't always teaching or out in the field with his students, the Boy Scouts, or Habitat for Humanity. He also sang with a barbershop quartet or explored the world with Sue and his children Eric and Wendy. A few years ago he was invited to teach in China and also sponsor Chinese students at CSUN. His field studies, in conjunction with those of his students, have made him an expert on Miocene geology of southern California. He is still as active as ever. In the last few years Gene has led groups of people as they hiked the length of the Santa Monica Mountains (75 miles) and the San Gabriel Mountains (109 miles). These walks were very successful fundraisers for the CSUN Geology Department and Coast Geological Society geology scholarship funds.

Accomplished, dedicated, interesting, a wonderful teacher, and my inspiration, Gene Fritsche is deserving of this award. It is a small thank you for what he has given to us and our profession.

Donald D. Clarke

Response

I am greatly honored to be awarded a Distinguished Educator Award by an organization as prestigious and international as the AAPG. My selection as a Grover E. Murray Memorial Distinguished Educator acknowledges for me that my career as a geology professor was successful and that my students found what they learned from me in the classroom and field was valuable for their careers.

One does not receive such an award in a vacuum. Throughout my life there were those of my teachers who showed me through their diligence and example, and without my knowing it, how to be a good teacher. The first in this group to whom I am indebted are my parents, Harold and Norma, who were themselves teachers. They taught me by example the importance of organization, clear and concise directions, and completing a project to the best of my abilities. The phrase "neatness counts," heard commonly by my students, first came from my father who taught drafting and woodshop. Because my parents had the summers off, we spent long periods at a cabin in the Sierras or traveling and camping around the western United States and Canada where my love of the outdoors was nurtured.

Later on in Boy Scouts, I had many leaders who were dedicated to helping us as boys to learn skills and life styles that would make us better adults. Camping or hiking once a month and for extended periods during the summer peaked my desire to know more about the natural world around me. I observed as I watched my leaders how demonstrating a skill greatly speeded up the learning process. I watched as these leaders, including my parents, gave countless hours of their time to helping us become prepared for life. It was the norm for those intent on my upbringing to give themselves totally to the task, never relaxing until an objective was accomplished almost to perfection. When a task was successfully completed, congratulations were always forthcoming, thereby encouraging us to continue to do good work. During my

scouting education, my leaders were true leaders in the sense that they never asked us to do anything that they were not willing to do themselves. Never did I hear them complain about the time they were spending with us because, as I learned later in life, the reward they got from having us succeed more than made up for any pain they might experience while teaching us.

My exposure to dedicated teachers and observation of their styles continued in high school where my chemistry and physics teachers were always available during lunchtime to help us learn more and do better in our classes. When a problem needed solving, they guided me with questions toward the answer, but always left me to find the answer myself. Those teachers with great enthusiasm for their topic were those that inspired my best response. The geology faculty at University of California, Los Angeles, continued this tradition, especially in the field courses. Clarence Hall, Jr., John Crowell, Edward Winterer, and Clem Nelson were prominent in my field education. While mapping for my dissertation, I had the fortune of working on occasion with Jack Vedder, who taught me several tricks that I could pass on to future students. I found my true calling in field geology. To be able to go into the field and "read" the rocks like books, and like a detective determine the organization and history of those rocks, is truly a satisfying experience. Then to be able to help others learn to do the same thing and watch them move into successful careers using those skills is the culmination of everything one could ask for in life.

A successful professor must not only be enthusiastic about his or her topic and teach the skills necessary to pursue the topic as a career, but must also teach the students proper research techniques and develop their confidence in their abilities. When students can undertake projects, complete them, get them published and presented orally at a meeting of professionals, and be able to say at the end, "Yes! I can do this!" they are ready to become professionals themselves. To do this you need an exciting research program of your own. Thus began my lifetime of studying and trying to understand the stratigraphy, sedimentology, and paleogeography of the middle Tertiary of southern California. Over the years this work and that of my students has been presented at and published for meetings and field trips of the Pacific Sections of the SEPM and AAPG and the Cordilleran Section of the GSA. These societies, however, could not have functioned for the benefit of the profession, were it not for the volunteer officers who gave of their time to keep them viable and active. Good teachers and role models were always present in my life. I do not know if it was luck, fate, or divine intervention that made this so, but certainly, through no effort on my part, I have been blessed with more than the average amount of good fortune in this life. I believe that those who find themselves on the plus side of life should give some of themselves in service as a form of payment for their unearned good fortune. So, in addition to charitable service that my wife and I do at various places in the world, I have also given some of my time to the professional societies in return for what they have provided for my students and me. Thankfully, this attitude has rubbed off on some of my students as well.

Receiving this award is indeed a great honor, and I am grateful to the AAPG, its officers, and to all of my students who through their success in geology have made it possible for me to receive this recognition.

Eugene Fritsche

STEPHAN ALAN GRAHAM

Grover E. Murray Memorial Distinguished Educator Award

Citation—To Stephan A. Graham, in recognition of his truly inspiring teaching and mentoring of students and colleagues in the field, the classroom, and around the world.

By any measure applied, Steve Graham is an exceptional teacher and geologist. He is currently Welton Joseph and Maud L'Anphere Crook Professor in the Department of Geological and Environmental Sciences and associate dean of the School of Earth Sciences at Stanford University. Steve's passion and talent for reading the sedimentary record of earth history are matched by his special ability to describe this process in the most thought-provoking and infectious manner, hallmarks of a master teacher. His special brand of mentoring ensures that all of his students become colleagues and all of his professional colleagues become his students. We all recognize these unique gifts in Steve, and highlighting aspects of his life and career that define his path to the award he is receiving is a privilege.

Steve's enthusiasm for sedimentary geology emerged early in his life. By nine years old, he was collecting fossils from Carboniferous cyclothem deposits not far from his birthplace of Evansville, Indiana, with much encouragement from his parents. Steve declared a

geology major when he entered Indiana University (IU) and received an earth sciences freshman scholarship. His initial year at IU was unusual, with the faculty sending the freshman majors to summer field camp. Thus, Steve garnered an early geologic mapping experience in the Tobacco Root Mountains of Montana and later won the Best Student Paper Award of the Rocky Mountain Section of the Geological Society of America for his work in this area. He topped off his senior year by receiving the Senior Faculty Fellowship Award of IU and graduated with honors in 1972.

The plate tectonic revolution was well under way when Steve graduated from Indiana University, and he was intrigued by the interplay between sedimentation and the dynamics of crustal plates. His Indiana University mentors pointed him toward Stanford University and professor William R. Dickinson as the leading scientist exploring the power of the sedimentary record to reveal plate history. Steve wrote to Dickinson, received a welcoming reply, and arrived at Stanford in autumn 1972 with a National Science Foundation Graduate Fellowship in hand. Steve's dissertation focused on the Cenozoic history of the Salinian block with special attention to basin development and evolution of the San Andreas fault system. He used every tool available for this work from detailed mapping to sedimentary petrology and micropaleontology, setting a research style carried on by his students today.

As Steve emerged from graduate school, he was presented with opportunities to enter the academic world and the petroleum industry. He chose industry, accepted a position as research geologist with Exxon Production Research Company, and later joined Chevron USA, Inc. as an exploration geologist. Steve relished all that industry provided in terms of exposure to the technologies and strategies of petroleum exploration and production. He was on an upward trajectory in industry when a new opportunity appeared in 1980. The faculty and dean of the School of Earth Sciences at Stanford University identified Steve as an ideal candidate for a faculty position in petroleum geology. Steve was approached and to everyone's joy, he accepted a joint appointment as associate professor in the departments of Applied Earth Sciences and Geology.

Steve immediately organized two new graduate courses integrating the fundamentals of depositional systems in the context of structural-tectonic controls on continental margin and hinterland dynamics. These two courses, GES 251-Sedimentary Basins and GES 253-Petroleum Geology and Exploration, remain at the core of Stanford's graduate program in sedimentary geology. Steve has gone on to teach a number of other undergraduate and graduate courses, all of which reflect his special ability to extract detailed records of earth history from sedimentary sequences in the field from drill holes and using seismic images. His talent for explaining the nature of sedimentary rocks also resulted in his appointment to professorships in the departments of Geophysics and Petroleum Engineering, with interdisciplinary courses taught in both departments.

In 1981, Steve initiated a research project focusing on the evolution of the San Joaquin Basin of California, with funding provided by industry. This was a pioneering effort to apply modern sedimentologic and tectonic concepts to this region and resulted in 29 M.S. and Ph.D. theses. In addition, Steve and his postdoctoral student Loretta Williams received the 1987 Sproule Memorial Award from AAPG for their paper on the tectonic, depositional, and diagenetic history of the Monterey Formation in the San Joaquin Basin. Subsequent, industry funded research projects include a nineteen-year-long field program in Mongolia and China initiated in 1987. In 1993, Steve and his faculty colleague Don Lowe organized the ongoing Stanford Program on Deep-Sea Depositional Systems (SPODDS) with field efforts taking place in Austria, China, Patagonia, Peru, and California. These research programs have so far yielded more than 100 publications in major scientific journals, a remarkable and lasting tribute to Steve's ability to guide his students to professional excellence. What are his secrets to leading more than 60 talented graduate students to so successfully tackle such a wide spectrum of geologically complex terranes? Steve combines rigor of preparation with inspirational description of fundamental questions yet to be addressed, allows his students the freedom to think for themselves, and continually expresses his personal excitement at their discoveries and insights—mentorship of the highest order.

Steve's influence and teaching now reach far beyond his classroom; they encompass students and colleagues around the world and include his continuing leadership of field trips, short courses, and national and international meetings sponsored by AAPG, SEPM, and the American Geophysical Union. His teaching was first recognized in 1987 when he received the Outstanding Teacher Award of the School of Earth Sciences at Stanford and again in 1995 when he received the Outstanding Educator Award from the Pacific Section of the Society for Sedimentary Geology (SEPM). It is most appropriate that he now receive the Grover E. Murray Memorial Distinguished Educator Award along with the honor and recognition inherent in this award. To Steve, reconstructing the geologic history of our planet is an unparalleled adventure that he is intent on sharing with all who enter his sphere of influence, from grammar school classes to his university students and his professional colleagues and friends. Here's to you Steve, for so effectively sharing your knowledge with so many, for your inspiration and fellowship, and simply for being so good at what you love to do.

Jim Ingle

Response

It is both an honor and humbling to be included with the many notable recipients of the Grover E. Murray Memorial Distinguished Educator Award, especially with the awareness that numerous wonderful educators are never so recognized.

An educator's philosophy and approach to teaching integrates formal education, past mentoring, and life experiences, with perceptions of what's appropriate for the time, as informed by experiences with students along the way.

Much like learning how to be a parent from watching one's own parents, an educator tends to adopt teaching approaches learned from past mentors. Fortunately, I have had many exceptional

mentors along the way. First among these, and the reason I am a geologist today, was my uncle, Arthur Fritz, a wildcatter in the Illinois Basin when I was a child and who is still developing prospects at age 90. Art hooked me on geology at an early age by taking me to his drilling wells, where I noticed the anticipation and excitement of log runs and testing. A few fossils and shiny crystals pressed into my hands, and by age 10 I knew I'd found my calling. Inspiration requires nurturing, and good fortune led me to an encouraging high school chemistry teacher, Gerald Kirkman, and subsequently to a group of wonderful mentors at Indiana University, including my academic advisor Judson Mead, my employer Carl Beck, and my research advisor Lee Suttner. Although I never took a class from Lee, his encouragement and the research opportunities he provided moved me toward sedimentary geology, and at the end of my undergraduate career, he gave me some of the best advice I ever received. He suggested that my interest in sedimentation set against the backdrop of the relatively new framework of plate tectonics might be best pursued in graduate school with William R. Dickinson at Stanford University. I followed that lead and was rewarded with an extraordinarily exciting graduate school experience. Bill Dickinson and co-advisor James C. Ingle Jr. treated me from the start as a colleague more than as a student, a lesson I've tried to pay forward in my own student advising. Both remain good friends and inspirations to this day. Graduate school also provided me with lifelong friends, chief among them being Raymond Ingersoll, now a professor at the University of California, Los Angeles, who was my officemate and since has been collaborator on many projects. Graduate school was followed by five years in the petroleum industry, first with Exxon Production Research and then with Chevron USA. Chevron gave me the equivalent of a second Ph.D. experience as I cycled through the exploration and development departments. Many more friends and mentors accrued during my tenure in the industry, but Chevron chief geologist Donald Zieglar was most instrumental in my career development, and ultimately, Lawrence Funkhouser (Stanford alum and at that time Chevron vice president) facilitated my transition to the Stanford faculty in 1980. That appointment was made possible by the interest and enthusiasm of the dean of the Stanford School of Earth Sciences, Allan Cox, who some years before had encouraged me while a graduate student to publish my first refereed journal article.

The time since joining the Stanford faculty has flown by thanks to the extraordinary students I've been blessed to know at Stanford University. There have been too many to name individually, but I have learned so much from all of them. Those experiences make one keenly aware of the responsibilities that come with taking on the role of mentor. At a recent Stanford reunion, a couple of students from 25 years ago related to me how what seem minor or routine experiences—in one case the choice of a lecture topic and in the other an unusual test format—had significant impact on their life choices. Educators carry great responsibility, sometimes even when least expected, but this shouldn't be viewed as a burden; on the contrary, when my students embark on careers in education I urge them to be interactive with their students and to project their enthusiasm for earth science. They will be paid back many times over. There's little more inspiring and contagious for a student than to work with a mentor who loves his or her work.

In closing, I return to the idea that an effective educator recognizes what's right for the time. Our field, in both its scientific and technological aspects, has changed immensely during my professional life and without doubt will continue to change. Methods of teaching have changed, too. Current students may never have seen a 35-mm slide presentation, a staple of earth sciences teaching only a decade ago. Educators must keep up not only with changing science, but also with delivery methods, or risk failing to engage students. At a higher level, educational institutions must change, too, particularly as we develop a greater appreciation of the complexity of earth systems and apply more diverse methods of investigation. If institutions fall short in making such changes, they leave their students poorly prepared for postgraduate professional life. Although my comments reflect the experiences of a professional educator, all of us in the earth sciences can and should play a role in education of the next generation. In an era when environmental issues are publicly debated every day, K–12 students need as much exposure to science, especially earth science, as possible. We earth scientists can all volunteer our expertise in this cause. As I noted above, even seemingly small gestures can catalyze young minds in ways that will bear fruit only many years later.

Finally, a successful career, especially that of an educator, is built on relationships, and there can be no relationships more important than family. I've been steadfastly supported by a wonderful family, including my wife, Sara Godwin, and my late parents Dorwin and Bettye Graham, as well as Nathan Graham, Shea Cardinale, Suzi Riley, and Pam Cardinale. My heartfelt thanks go to them, and to the AAPG for this great honor.

Stephan Graham

RICHARD D. FRITZ
Special Award

Citation—To Richard D. Fritz, for visionary leadership and stalwart management of AAPG's scientific and business activities.

A career in geology appealed to Rick Fritz, who grew up outdoors in northeastern Oklahoma and who considers himself a "country boy." He has demonstrated to me his natural, innate ability as a geologist, for he sees a prospect faster than anyone with whom I have worked.

Rick spent much of his childhood in the small town of Skiatook, Oklahoma, 20 miles north of Tulsa. Skiatook is small enough that most people know one another. Rick's parents, who were model citizens, taught Rick the value of honesty and integrity as well as the importance of hard work. Rick's dad, who was employed for a time as an oil field pumper, took Rick into the field as a helper to check the pumping oil wells. He helped his dad repair broken pump jacks. Rick is proud to tell industry people that he was born a pumper's son.

While working with his dad as a roustabout in the oil fields, Rick decided as a teenager to become a geologist after meeting his first geologist in the field. Rick always says "tongue and cheek" that it was because he admired the geologist's car and how well dressed the geologist was. However, Rick did not begin college as a geology major; in 1970, his freshman advisor told him that he would not get a job in geology and he should go to his second option, so Rick began his college studies at Oklahoma State University in Stillwater, Oklahoma (OSU) thinking that he would be a civil engineer. After taking a beginning course in geology from John Naff though, Rick was absolutely hooked and decided that geology was going to be his life.

During his public-school years, a Skiatook girl, Mary Carl, caught Rick's attention. They dated in high school and fell in love. Rick and Mary were married at the beginning of Rick's junior year at Oklahoma State. As John Shelton, his thesis advisor, colleague, and friend, remembers, Rick's first attendance for the structural geology class was a week late due to the honeymoon, but he eventually compensated for the less-than-understanding instructor by working hard and demonstrating that he was very adept at making realistic structural maps and cross sections, tasks that many students master only with considerable experience. Rick also demonstrated his innate ability to correlate strata creatively, rather than the layer-cake method commonly employed in the mid-continent.

Rick and Mary both worked while they were students at OSU. Although life was not easy for them, they persevered and excelled as students. After his junior year, Rick was required to take field geology at the OSU field camp near Canon City, Colorado. Rick arrived late for field camp because of his employment obligations in Stillwater, and he had to make up for his tardiness by working on weekends when the other students were given breaks. Gary Stewart, another OSU professor and friend, remembers that Rick, again, compensated for his late arrival by working hard and performing the tasks in an outstanding manner.

Most people working on M.S. degrees in geology will study the geology of a county or the geology of several townships. Not Rick. Rick does things on a grand scale and his master's thesis was no exception. Rick's thesis was the Pennsylvanian subsurface structural geology of most of Oklahoma, with preparation of structural contour map, with thousands of control points, and cross sections.

One of Rick's hobbies is traveling, an added benefit of being a petroleum geologist. Before his OSU graduation, Rick had the opportunity to work on North Sea geology in London with ERICO. After graduation (1977), he took a job with Exxon in Kingsville, Texas. For the next two years, he worked Frio and Vicksburg oil and gas reservoirs, putting a prodigious number of prospects together in a very short time.

Rick missed those Oklahoma hills where he grew up, and in 1979, he convinced Exxon to move him to Oklahoma City to work the Morrow, Cherokee, and Granite Wash sandstones. His natural leadership abilities began to surface as he supervised and trained newly hired geologists for Exxon. He enjoyed teaching geologists to make maps and sell their ideas to management. Rick taught them to add geologic-innovative curvature to otherwise boring, straight contours to make them more accurate as well as visually appealing.

In late 1981, Rick began his work for Masera Corporation (formerly ERICO) in Tulsa, Oklahoma. His first assignment was as exploration consultant for that company's Morrow-Springer study of the Anadarko Basin. Later as a vice president of Masera and then president, Fritz was the project director for Masera's domestic studies. These non-proprietary studies included the Red Fork, Spiro, Jackfork, Misener, Hunton, and Arbuckle (all of the mid-continent); Trenton of the Michigan Basin; Knox and Carboniferous of the Black Warrior Basin; and Frio, Austin Chalk, and Cotton Valley of the Gulf Coast. The studies consisted of dozens of (1) structure, isopach, and net porosity maps; (2) stratigraphic and structural cross sections; (3) core descriptions; and (4) petrographic analyses; and (5) a detailed report describing the petroleum potential for the formations.

Building regional studies of Oklahoma with Masera Corporation that combined so much data gave Rick a unique perspective. By the time Rick left Masera, he was the unofficial authority on Oklahoma geology. To this day, few know more about the subsurface geology of Oklahoma than Rick.

Rick is loyal to his friends. He considers Oklahoma State University one of his friends. There, he received his B.S. and M.S. degrees. After being with his family or being on a field trip, Rick's next favorite pastime is attending OSU basketball games. Rick was a cowboy before attending OSU, but attending OSU made him a Cowboy with a capital "C".

Rick and Mary Fritz are proud parents of Ian, 15 years old, and Zoe, 7 years old. In addition, Rick and Mary have been proxy parents to nieces and nephews, and they have been unusually thoughtful and helpful children, themselves.

To the benefit of the AAPG membership, Rick once again asserted his leadership skills when he became executive director in August 1999. The petroleum industry then was suffering through a long period of depression, and AAPG desperately needed an executive director who could take control and point the headquarters staff in the right direction.

Luckily, they found the right man at the right time. During his tenure, a number of changes have been made for he betterment of the membership, including new financial controls; improvement of services from AAPG headquarters; development of new products, especially digital publications; and expansion of AAPG's efforts and activities worldwide.

Edward A. Beaumont

Response

While a student at Oklahoma State University, I was first introduced to the need for professional development through AAPG by John Shelton and Gary Stewart. I joined AAPG in 1975 and kept my membership from that time. I was further encouraged by managers at Exxon, especially Marcus Milling and Dwight Cassell plus many other geologists I met along my career path.

The relationship with AAPG has been very fulfilling and rewarding and has been a "key" in my development as a geologist. After attending my first AAPG annual meeting in Houston in 1979, I was so impressed that I vowed I would try to make every meeting possible. As a result, I have had the fortune to attend every annual meeting since that time. I say "fortune" because many of those years were during hard times as a consultant. Each year, I found the networking and education so valuable that I believed it was detrimental to my development to miss the opportunity. I also attended and began to participate in many section meetings and local geological societies.

In the 1990s, I became involved in the AAPG Division of Professional Affairs and was elected president-elect in 1999. DPA represents a powerful networking group, and it is a great group for mentoring.

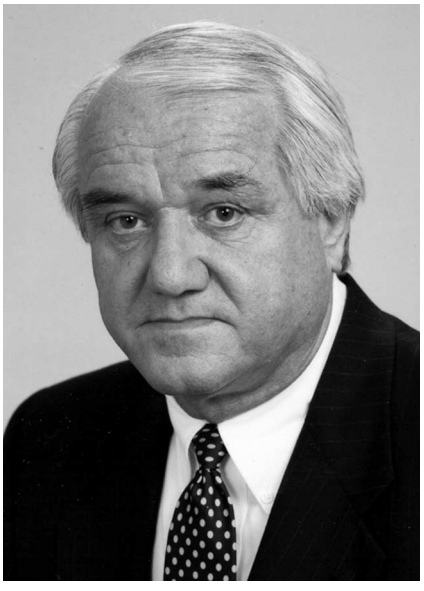
When the opportunity came to join AAPG as its executive director, I felt this was a way I could immerse myself in the profession and provide a little payback for the rewards of membership throughout my career. I hear the word "payback" from many AAPG volunteers so I know that many members feel the same.

A career in geology is unique, and I cannot imagine a more rewarding job. Like many professional athletes, it is an opportunity to get paid for doing something you love to do anyway.

I want to thank all of the members for your support and thank this year's Advisory Council and Executive Committee for recommending and approving this Special Award. I especially thank my wife of almost 35 years, Mary, and my friends and family for their support of my career in petroleum geology.

It is truly a special career.

Rick Fritz



MARCUS E. MILLING

Special Award (Posthumously)

Citation—To Marcus E. Milling, distinguished professional geoscientist and gifted and talented administrator, who led the American Geological Institute to national prominence in earth science education, public geoscience outreach, and government relations.

Marcus E. Milling Sr. was a native of Galveston Island, Texas. His interest in the geosciences was first sparked while he was working with the Galveston Beach Patrol summers as a teenager where he learned firsthand the effects of storm and coastal processes on sand beaches.

He stayed in Texas to continue his education after high school. He declared geology his major early as an undergraduate student at Lamar University in Beaumont. Among the professors that were important to his development as a geologist were William Mathews and Saul Aronow. He received his B.S degree in geology in 1961. During his senior year at Lamar, he accepted a graduate assistantship at the University of Iowa. He intended to only get his M.S. degree and then work for one of the major petroleum companies, but the influential direction of Sherwood Tuttle changed that. He decided to stay and complete his education at the University of Iowa and received his M.S. degree and Ph.D. in 1964 and 1968, respectively. His Ph.D. dissertation focused on the updip Pleistocene in Iowa.

In 1968, he began a 12-year stint with Exxon Company USA, in the Clastic Facies Group. His first operations assignment was as a production geology supervisor in Exxon's South Texas Division, Kingsville office. He moved through the ranks to become a district geologist before leaving and played a major role in several important Gulf Coast Basin discoveries. For example, he had the good fortune to participate in the discovery and development of the TCB East field.

In 1980, he got an offer he couldn't refuse—to join ARCO's Exploration and Production Research Division in Dallas to head their Geological Research Group as general manager. He remained at ARCO for several years, eventually becoming a manager of ARCO's geological exploration staff.

After working so many years in the exploration arena, he became involved with the public service side of the geosciences. In 1987, he accepted a position at the Texas Bureau of Economic Geology as an associate director. As associate director he was responsible for a broad scope of projects, ranging from environmental and water resources to oil and gas consortia programs. The environmental project activities provided him an opportunity to gain experience in new areas as well as requiring travel to Washington, D.C. and contacts with the Department of Energy, Environmental Protection Agency, and the Minerals Management Service. These contacts would serve him well later. He also established the

Geoscience Institute for Oil and Gas Recovery Research.

In February 1992, he began a new stage in his career as executive director of the American Geological Institute (AGI). His able leadership at AGI revitalized the Institute and brought it much needed financial stability. During his tenure as executive director, the Institute grew from 19 member societies to 44.

Another key component of his leadership resulted in significant contributions to K–16 geoscience education in the United States. During Marcus' tenure, AGI received a series of major grants from the National Science Foundation (NSF), the AGI Foundation, and private and corporate foundations to develop and test geoscience curricula and teacher professional development programs for the K–12 audiences. The first of these NSF-supported curricula, *Earth System Science in the Community*, or EarthComm is being used in high school classrooms around the country, and has been adopted by such large school districts as the Los Angeles Unified School District, Chicago Public Schools, and Denver Public Schools. The second curriculum, *Investigating Earth Systems* (IES) for middle school, has also been adopted by Denver and Chicago (among other districts), and has recently passed approval by the California Commissioners for statewide adoption. In addition to the EarthComm and IES support, during Marcus' tenure, AGI received NSF grants to develop a second middle school curriculum for grade eight (*Constructing Understandings of Earth Systems*) and a high school environmental science textbook. Other educational projects Marcus spearheaded include an environmental science textbook in development for the college audience, and the recent launch of an online resource for elementary teachers entitled K–5 GeoSource.

Marcus' inspiration led to AGI's involvement in national geoscience outreach efforts. Earth Science Week, begun in 1998, sets aside the second week in October as an opportunity to showcase the work of geoscientists across the country with kits distributed to more than 15,000 teachers and informal science educators annually. Marcus' last year as executive director at AGI, 2006, marked a high point. Through a partnership with Scholastic, AGI was able to distribute information about Earth Science Week to 150,000 teachers nationwide.

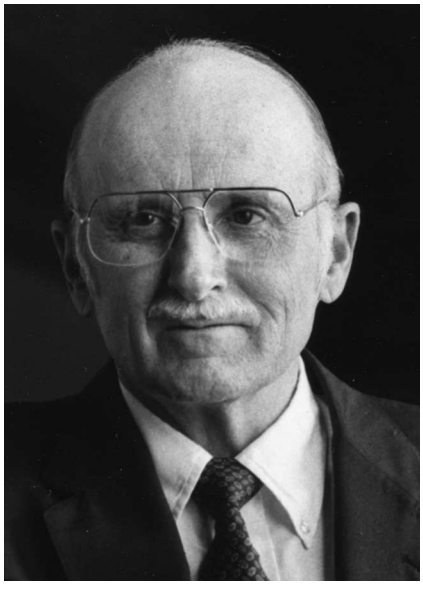
One of Marcus' biggest outreach efforts, however, is the *Faces of Earth* television series, scheduled to air on the Science Channel/Discovery Communications in 2007 and internationally after that. This four-part series educates the general public and the school audience about the Earth: the interaction of its systems, how it has changed over time, its resources, and its interplay with humans. The ancillary materials AGI is likely to develop from this series will complement AGI's K–16 curricula and other educational programs.

Marcus was also instrumental in the development of the Environmental Awareness Series, a series of booklets covering major topics of environmental and societal concern. The booklets are an effective educational tool that provides readable, well-illustrated topic introductions targeted to general readers, legislators, teachers, and students.

In June 2003, AGI began another service to the geoscience community with the launch of the Earth Science World Image Bank, a free geoscience image resource for educators and the public. The Image Bank has now provided more than 12 million images to users and been favorably reviewed in *Science and Space Daily. Scientific American* has listed it as one of the top 50 science Web sites of 2004. The overall AGI Web site is an information resource used by more than 100,000 visitors each month.

Marcus' 14 years as executive director moved AGI to the forefront of K–16 and public geoscience education in the United States.

G. Warfield "Skip" Hobbs



PETER T. FLAWN
Public Service Award

Citation—To Peter T. Flawn, for his significant contributions to the betterment of society—in understanding energy, mineral, and environmental resources, in leadership in higher education, and in counseling prudent and effective public policy.

The Public Service Award of AAPG recognizes individuals who have provided distinguished service in public affairs. Peter Flawn's professional career has been in higher education, one of the highest forms of public service. His contributions as a teacher, researcher, and administrative leader in the academy as well as his counsel to elected and appointed officials and corporate leaders are deep and lasting.

Peter Flawn is a native Floridian, educated at Oberlin and Yale, but his professional career has been in Texas. Peter joined the University of Texas Bureau of Economic Geology as a research scientist in 1949 and spent the following 11 years in basic and applied research, initially in the Precambrian of Trans-Pecos Texas. By the mid-1950s, he was immersed in the basement rocks of Texas, heading up the Association's Basement Rocks Project. This work that would lead him in the arena of structural geology, culminated with the publication of his seminal work on the Ouachita system. By the 1960s, Peter's research

extended to issues of resource policy and the new field of environmental geology, topics on which he wrote two well-known books.

Peter was appointed director of the Bureau of Economic Geology in 1960 and was to serve a decade, during which time his administrative and leadership skills were obvious. He created a remarkable environment for research, which several of us took full advantage, and he opened meaningful lines with faculty colleagues in the Department of Geological Sciences.

In 1970, Peter entered central administration of the University of Texas at Austin, first as vice president of Academic Affairs and later as executive vice president, roles that would launch a remarkable career in higher education. Peter served as president of the newly created University of Texas at San Antonio, bringing that institution standing and influence. In 1979, he was named president of the University of Texas at Austin, where for six years he substantially increased the faculty, massively enlarged the research standing of the university, and secured and developed one of the largest faculty and student endowments in the nation. In 1997–1998, he again served as president ad interim of the University.

Peter has long been active in professional affairs, including the affairs of AAPG, where he chaired the Basement Rocks Project and was elected treasurer. He served as president of the Geological Society of America, the Association of American State Geologists, and the American Geological Institute. He has served on a number of boards and committees for the National Research Council and was elected to the National Academy of Engineering in 1974. He has served on the National Petroleum Council and the National Coal Council. From 1980 to 1986, he was a member of the National Science Board.

In Texas, Peter's involvement in operational and advisory boards is extensive. He chaired the Texas National Research Laboratory Commission and was the driving force in locating the Superconductor Super Collider project in Texas. He was a member of several advisory boards, including the Texas Scientific Advisory Council, the State of Texas Interagency Council on Natural Resources and Environment, and the Governor's Energy Council. He was vice chairman of the Education Committee of the Texas Constitutional Revision Commission.

Peter's counsel has always been widely regarded and sought in public and private arenas. He has served and continues to serve as a trustee to a broad array of public and private institutions and has had extensive service as a member of corporate boards.

Peter has been honored by his profession and his educational institutions. He received the Cross Medal from Yale, the Parker Medal from the American Institute of Professional Geologists, the Campbell Medal from the American Geological Institute, the Lamar Medal from the Association of Texas Colleges and Universities, a Presidential Citation from the University of Texas at Austin, the Santa Rita Award from the University of Texas system. He is an Honorary Member of the AAPG and the Association of American State Geologists.

Peter chaired the Vision Committee for the new Jackson School of Geosciences at the University of Texas at Austin, recommending a basic framework for the school that was later adopted by the president and the Board of Regents of the University.

Since 1985, Peter has held the title of president emeritus, a title bestowed to very few past presidents. Such is the deep and universal respect for his guidance and advancement of the University of Texas at Austin. He continues to advise the leaders of the University both formally on numerous advisory councils and informally. In recent years, Peter has written several books, including his insights into higher education leadership in *A Primer for University Presidents: Managing the Modern University* (now a collector's item). He recounted the first two decades of his career in a book entitled *Texas Geologist and the Bureau of Economic Geology, 1949–1970*; his adventures in mineral exploration in northern Mexico in *Silver in the Sierra Madre: The Story of the Santa Cruz Mine and Philip W. Beckley*; and his experience in leading the *superconducting super collider* (SSC) effort in *The Story of the Texas National Research Laboratory Commission and the Superconducting Supercollider.*

I have had the pleasure and honor to know Peter for 47 years over which time he has been a great friend, a valued colleague, and a trusted counselor. I, and legions of others, owe him a massive debt.

Certainly, the public arena is better for the presence and the profound influence of Peter Flawn during his long and impressive career. Presenting the Public Service Award to a scientist and a leader of his caliber is most fitting and is a true credit to the Association.

William L. Fisher

LEE C. GERHARD
Public Service Award

Citation—To Lee C. Gerhard, scientist, educator, and concern citizen, for educating the profession and public on natural and manmade problems affecting the planet Earth and its inhabitants.

Lee C. Gerhard, raised on a farm in upstate New York, has always been close to nature and concerned with the environment and ramifications of change. Lee received his undergraduate education at Syracuse University, his graduate work was done at the University of Kansas, and prior to his entering the geological profession, he

served as an officer in the U.S. Army Signal Corp.

He started his career as an exploration geologist for Sinclair Oil and Gas Company and continued as a consultant while teaching at the University of Southern Colorado and the West Indies Laboratory at St. Croix in the U.S. Virgin Islands. He then turned his attention to North Dakota where he became the state geologist and director of the North Dakota Geological Survey and was on the faculty. After a short stint as exploration manager for the Rocky Mountain Division of Supron Energy Corp., he accepted a position at the Colorado School of Mines as Getty Distinguished Professor of Geological Engineering. From Colorado, he went on to be the director and state geologist of the Kansas Geological Survey and then principal geologist before retiring to consulting work as an associate with Thomasson Partner Associates in Denver.

He has been a prodigious author, publishing more than 200 scientific articles in books, professional journals, and guidebooks on a variety of subjects but most concerned with sedimentary carbonates and oil and gas exploration and exploitation, and in addition has made literally hundreds of presentations on various subjects of public interest. He has ventured into the evolution controversy, energy, future of the petroleum industry, the environment, resource and policy problems, politics, and his latest interest in global climate change and U.S. energy policies. His appraisals are honest and forthright, but sometimes controversial.

One of Lee's missions has been communicating science to nonscientists; he implemented an annual field trip for state legislators to introduce them to the geology of Kansas and inform them of impending resource and environmental problems and possible solutions.

He took part on several National Science Foundation field institutes and an oceanographic cruise on the *RV Eastward*. In addition, he organized geological expeditions down the San Juan River, through the Grand Canyon, and on the Yampa and Green rivers. He is an avid outdoorsman with interests in photography, fishing, hunting, golf, and watercolor painting.

He is a member of the AAPG (Honorary), AAPG Division of Professional Affairs (DPA), and the AAPG Division of Environmental Geosciences (DEG) (Honorary); American Institute of Professional Geologists; Association of American State Geologists (Honorary); Colorado Scientific Society; Rocky Mountain Association of Geologists; Kansas Geological Society (Honorary); and is a Fellow of the Geological Society of America. He is a member of Sigma Gamma Epsilon and Sigma Xi.

Lee is listed in *Who's Who in America and American Men and Women in Science*. The Department of Geology at the University of Kansas recognized him with a Haworth Graduate Award, and he was elected to the Kansas Oil and Gas Hall of Fame in 2002.

He has been involved deeply in AAPG activities, serving on many committees and as an officer serving as vice president of DPA and president of DEG; he was a candidate for AAPG treasurer (1985), vice president (1989), and president (1999). For his contributions, he has been awarded the AAPG Certificate of Merit four times, the Journalism Award, the Distinguished Service Award, Honorary Membership in AAPG and DEG, and has been active in the regional affiliates.

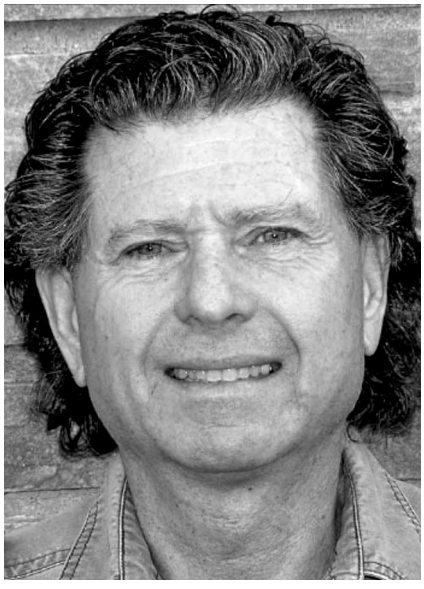
All of these professional obligations have been in addition to his service at the universities and geological surveys. He also has been deeply involved in community, state, and federal organizations and activities.

He has been a proponent of interpreting data correctly and arriving at sound decisions based on data. Through his professional career, he has taught and administered in the university environment, headed two state geological surveys, and worked in industry in a variety of capacities.

This unique background has given him insight into problems of both the scientific and political variety, and he has not shirked his duties as a scientist and as a human being to confront them. He has fostered understanding of both natural and manmade problems, their short- and long-term affect, and proposed possible solutions.

It is very appropriate that Lee's activities be recognized with the Public Service Award. No one has been more active and contributed to the Association, or communicated an understanding of science to the public than Lee Gerhard. He serves as a role model to us all.

Daniel F. Merriam



EDWARD M. WARNER

Public Service Award

Citation—To Edward M. Warner, in recognition of his passion for geology, his groundbreaking exploration efforts, and his incredible generosity in the giving of his time and resources to the advancement of geological education and numerous other philanthropic pursuits.

Ed Warner received his Bachelor of Science degree in geology, and an incredible sense of dedication to the institution, from Colorado State University (CSU) in 1968. He earned a Master of Science degree in geology in 1971 from the University of California, Los Angeles.

Ed's career in the oil and gas exploration industry began with Shell before he took a job with Amoco in Denver. In 1976, while working at Amoco, Ed developed a research project to test the feasibility of recovering commercial quantities of natural gas from coal seams in the Rocky Mountain region. One of the test wells drilled as part of this evaluation project was the

1 Cahn in Mt. Nebo field, which proved to be the coalbed methane discovery well for the San Juan Basin Blanco Fruitland coal play.

In 1982, Ed founded Expedition Oil Company to further pursue his love of exploration while being his own boss. During his tenure running Expedition, Ed had several significant discoveries, which resulted from his ability to view the geologic world from a perspective different from the conventional wisdom. The extension of Swan field in Sweetwater County, Wyoming is one of these. At the time, Swan field was producing from the Dakota "C" sandstone, which was thought to be coalesced barrier-bar sandstones with a northwest-southeast orientation. He postulated the existence of an east-west trending estuarine sand, based on the geology of the Senegal River on the west coast of Africa. This concept became the Swan Extension, covering more than 40 square miles.

In the early 1990s, Ed partnered with McMurry Oil Company to acquire the then noncommercial Jonah field in western Wyoming. This field was viewed at the time as a basin center tight-gas sand "sweet spot." The drilling of a dry hole during the summer of 1993 caused Ed to take a hard look at the area and challenge the conventional wisdom as to the nature of the field. Ed went back to the drawing board and developed the model of a fault-bounded compartmentalized structure as the true nature of Jonah field, a field now estimated to contain 8.5 tcf of recoverable gas.

In the late 1990s, Ed began the transition from a very successful explorer to his next career as a teacher, mentor, and philanthropist. Ed gives freely of his time to education both as a volunteer lecturer at Colorado State University and as a field lecturer at Philmont Scout Ranch, where he manages the volunteer program in geology. He also gives his time to numerous other endeavors, including the Denver Museum of Nature and Science; the Sand County Foundation, where he was instrumental in the creation of the "Endowment for EarthWork;" the Explorers Foundation for which he serves as a director; and both the American Geological Institute Foundation and the Geological Society of America Foundation for which he is a trustee. For the last two years, Ed has worked in Africa with the Southern Africa Rhino Specialist Group assisting in their efforts at preservation of the African rhinoceros.

To thank CSU for his undergraduate experience, and to help aspiring geologists, Ed has made a major financial commitment, funding the Ed Warner Endowed Chair in Geophysics and the Ed Warner Endowed Chair in Economic Geology in the Geosciences Department. His additional financial support funds geoscience research, a Spatial Analysis Laboratory, graduate teaching and research assistantships, and support for acquiring the necessary laboratory equipment for many of the department's teaching and research projects.

Proceeds from Ed's generosity allow for the development of an innovative community-based conservation institute, college-wide research grants, and further endowments to the Department of Geoscience and the College of Natural Resources. In September 2005, CSU named the College of Natural Resources after Ed.

Ed's passion for managing and sustaining natural resources, while enhancing global economic and social well-being, has evolved into his desire to create an innovative conservation institute, the Center for Collaborative Conservation, based in the Warner Colorado State College of Natural Resources, that will feature science-based education and research with hands-on experience through public and private partnerships. The proceeds of Ed's unprecedented $26 million financial commitment to the college will allow his vision to become a reality and enhance the college's current prominence and leadership role in natural resources education and research among major land-grant research universities.

Ed is recognized by Slate 60 as one of the top 60 philanthropists in the United States—not bad for a kid from Long Island who, according to his family, was supposed to be a doctor, lawyer, or god-forbid, an accountant.

Steven Kneller

W. HERBERT HUNT

Pioneer Award

Citation—To W. Herbert Hunt, recognizing unparalleled energy, boldness, and enthusiasm covering sixty-five years of exploration leadership.

Herbert Hunt was born into the energy business as one of the children of the legendary H. L. Hunt. Herbert was raised in Tyler, Texas, then one of the boomtowns around the East Texas field. At the age of 13 he was posting and making lease maps, and at 17 he was a roustabout on Hunt drilling rigs. He bought his first filling station when he was 19, and quickly learned the problems of downstream operations.

He recalls that his father was dismayed when Herbert announced that he wanted to be a geologist. "You'll cost us millions," his father said, "geologists always want to prove a point!"

Herbert attended his first AAPG conference as a student in 1950. In the same year, he participated in his first oil field discovery, West Oretta in Louisiana, and received his B.S. degree in geology in 1951 from Washington and Lee.

Herbert has led Hunt companies involved in exploration and production, hydrocarbon processing, pipelining, refining, and onshore and offshore drilling. He has also been responsible for Hunt's activities in mining uranium and precious metals. In 1970, Herbert guided the establishment of what is now Arch

Coal, the second largest coal producer in the United States. Herbert's current business activities are largely focused through his leadership of Petrohunt, LLC, a privately held company that has operations in most of the oil and gas producing states of the United States. In addition, the Hunt companies have been active in the Netherlands, United Kingdom, Greece, Russia, Libya, Chad, South Africa, Mozambique, Egypt, Pakistan, Yemen, Saudi Arabia, Turkey, Oman, New Zealand, Australia, Canada, Thailand, Argentina, Paraguay, and Brazil.

Companies led by Herbert have participated in many pioneering industry innovations:

- Discovery of the largest field on the African continent; Sarir, Libya
- Discovery of Fairway field in the late 1960s, one of the largest fields in Texas

They also hold several records:

- Deep-water drilling record in 1981, over 2000 ft of water, New Zealand, 1981
- Texas drilling depth record, 29,670 ft, Cerf Ranch, Pecos Co., 1980
- Two of the largest and most comprehensive field unitizations and enhanced recovery projects, Fairway field, and Black Lake field, and the first significant medium-radius double-horizontal well (1990) with horizontal drill holes of 2453 and 3259 ft (1 McDermand).

Herbert has introduced a formal system of cutting production costs that has been widely copied in the industry.

He has been actively associated with the AAPG for more than 50 years. He is a longtime member of the board of the American Petroleum Institute. He has served as president of the International Association of Drilling Contractors and chairman of the National Offshore Industries Association. Herbert received the Distinguished Service Award from the Texas Oil and Gas Association in 1999, and was honored by his peers with the Outstanding Wildcatter Award by the All American Wildcatters. He is a long-serving member of the board of the Institute for Study of Earth and Man at Southern Methodist University, and is the host and sponsor of the Industry Roundtable, which brings together industry leaders and innovative energy professionals.

Herbert has served on many industry committees, and for 50 years has been a powerful voice championing the use of free enterprise and private investment to assist in solving the world's energy problems.

Herbert's long-term support of education and the earth sciences has led him to take an active role as a spokesperson, arguing for greater inclusion of geology into the Texas high school curriculum.

Sixty-five years after his first paying job in the oil business, Herbert Hunt continues to display the boldness, energy, and enthusiasm that earn this legendary oilman the 2007 AAPG Pioneer Award.

Marlan W. Downey

SHANKAR MITRA

Wallace E. Pratt Memorial Award

The Wallace E. Pratt Memorial Award for the best paper published in the 2005 *AAPG Bulletin* goes to Shankar Mitra, Gerardo C. Figueroa, Jesus H. Garcia, and Antonio M. Alvarado for "Three-Dimensional Structural Model of the Cantarell and Sihil Structures, Campeche Bay, Mexico" (v. 89, no. 1, p. 1–26).

GERARDO C. FIGUEROA

Wallace E. Pratt Memorial Award

The Cantarell field, located in Sonda de Campeche, Mexico, was discovered by Petróleos Mexicanos (Pemex) in 1976. The field has produced approximately 7.86 billion bbl of oil, and contains remaining recoverable reserves of approximately 7 billion bbl of oil and approximately 5 tcf of gas. In 1999, Pemex successfully drilled through the Sihil thrust to discover an independent hydrocarbon accumulation in the subthrust Sihil structure. Because of the complexity of the structure, a study was conducted to understand the structural geometry and evolution of the structure. This paper documents the results of the structural analysis.

The paper uses three-dimensional (3-D) seismic interpretation, balanced cross sections, and data from more than 300 wells to develop a structural model for the Cantarell and Sihil structures. The structures are interpreted as a major duplex with the overlying Cantarell structure and related Sihil thrust folded by the subthrust Sihil structure. It documents the detailed structural geometry and variation in structural style across the structures, and explains the evolution of the structures during three main episodes of deformation. It also presents a three-dimensional depth model for the structure, which integrates seismic

JESUS H. GARCIA
Wallace E. Pratt Memorial Award

ANTONIO M. ALVARADO
Wallace E. Pratt Memorial Award

interpretation, well data, and balanced structural sections. The results of the study and ongoing structural studies are being used in the planning of future wells and for identifying secondary structural prospects on and adjacent to the producing fields.

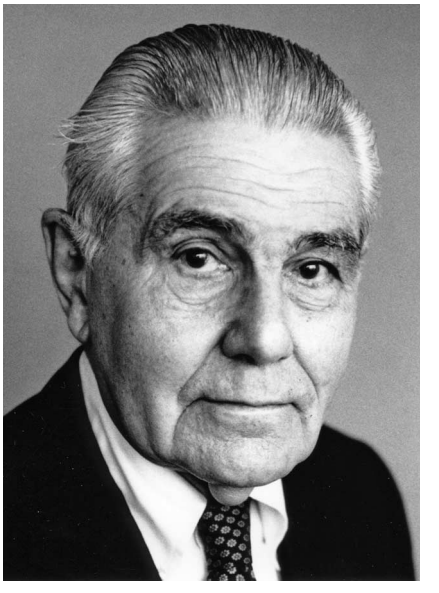
The publication benefited from the knowledge and insights of a number of Pemex personnel, who have worked on various aspects of the Cantarell-Sihil structure. The authors acknowledge the assistance of the Schlumberger staff in the seismic analysis, Centro Nacional de Processamiento Seismico for the seismic volume and velocity data, and Subhotosh Banerjee (OU) for assistance with the 3-D modeling. Finally, the authors thank Pemex management for providing the resources for the study and for approving the publication of the paper.

Shankar Mitra holds the Monnett Chair in Energy Resources and the Monnett Professorship in Earth Resources at the University of Oklahoma. He received his Ph.D. in geology from Johns Hopkins University in 1977. He subsequently held a number of research and management positions at Atlantic Richfield (ARCO), including director of structural analysis, manager of geological research, and senior research exploration advisor. He is a past recipient of the AAPG Cam Sproule and Wallace E. Pratt memorial awards (1988). He served as an associate editor of the *AAPG Bulletin* for nine years, and is a Fellow of the Geological Society of America. His primary interests are in structural interpretation and modeling and their application to hydrocarbon exploration and production.

Gerardo C. Figueroa is a geophysical interpreter in the Ku-Zaap-Maloob Asset Team within Pemex. He received his geophysics degree from the National University of Mexico in 1980. He started his career in mining and water exploration, and joined Pemex in 1996 as a geophysicist. He has worked extensively in geophysical operations and seismic interpretation of the Cantarell and adjacent structures. He is a member of the Asociación Mexicana de Geofisicos de Exploración, Asociación Mexicana Geológos Petroleros, and Asociación de Ingenieros Petroleros de México and teaches at the National Polytechnic Institute.

Jesus H. Garcia is asset submanager for Pemex in the Cantarell Asset. He received his degree in petroleum geology from the Instituto Tecnológico de Ciudad Madero and an M.B.A. from the Universidad Autónoma del Carmen-Tulane. He has extensive experience in prospect evaluation and production in the Cantarell Asset.

Antonio M. Alvarado is currently a seismic consultant for Pemex. He received his degree in petroleum geology from the Instituto Tecnológico de Ciudad Madero in 1982, and a master's degree from the National University of Mexico in 2001. He worked for Pemex during 1986–2004 in geological operations, and as a seismic-structural interpreter in the Campeche Bay area, including the Cantarell Asset. He is a member of the Asociación Mexicana de Geofisicos de Exploración, Asociación Mexicana Geológos Petroleros, and Asociación de Ingenieros Petroleros de México.



AMOS SALVADOR
Robert H. Dott, Sr., Memorial Award

The Robert H. Dott. Sr., Memorial Award for the best special publication in 2005 is presented to Amos Salvador for Studies in Geology 54, *Energy: A Historical Perspective and 21st Century Forecast*.

Salvador reports that he wrote this book because of his interest in energy after 35 years in the petroleum industry and 13 years as a professor of energy resources.

He thinks that the main contribution of his study is to have assembled in a single publication the much-needed detailed factual historical statistical data

needed to forecast the consumption and sources of supply of energy during the 21st century: past trends of human population growth and energy consumption, and current information about past, present, and possible future sources of energy. Historical trends are essential to predict the future! This information was previously scattered through countless publications, not all of them easy to access.

Exhaustive study of the historical use of energy is paramount in forecasting future use accurately. The much-needed detailed historical statistical data on human population, energy consumption, and current information about present and possible future sources of energy are assembled in this book.

The publication places particular emphasis on the kind of data that allows trends to be established that can be projected far into the future. It provides the foundation for readers to broaden their knowledge about past energy consumption and its sources of supply. It also furnishes a glimpse into the future of how, and how much, energy will be consumed in the 21st century and what sources will most likely supply it.

Amos Salvador was born in Madrid, Spain. He received a geology degree from the Universidad Central de Venezuela in 1945 and a Ph.D. from Stanford University in 1950. His professional experience includes Mene Grande Oil Co., Venezuela, 1945–1947; Gulf Oil Corp., New York, 1950–1955; Creole Petroleum Corp. (Exxon), Venezuela, 1955–1962; Jersey Production Research (Exxon), Tulsa, 1962–1963; Creole Petroleum Corp., Venezuela, 1963–1966; Humble Oil and Refining Co., Houston, 1966–1970; Esso Production Research Co., Houston, 1970–1971; and Humble Oil and Refining Co., Houston, 1971–1980. He was a professor in the Department of Geological Sciences at the University of Texas at Austin from 1980 to 1993 and is currently retired and professor emeritus.

STEVEN H. BRACHMAN

George C. Matson Memorial Award

The George C. Matson Memorial Award for the best paper presented during an AAPG oral technical session at the 2006 AAPG Annual Convention is presented to Steven H. Brachman for "Integration of 3-D Seismic with Geological Knowledge Can Detect Non-Amplitude Combination Traps and Discover New Pay Zones in a 600 BCF Mature Play, Northern Lafourche Parish, Louisiana."

The purpose of this paper was to show how knowledge gained from thorough subsurface geologic work was the key to drilling a significant discovery in a mature area by Pogo Producing Company and its partners. The choice of topic was based on the author's observation that many geologists seemed to rely exclusively on seismic data, and especially seismic attributes, to generate prospects in mature areas, while neglecting the available subsurface geology. By performing the painstaking and laborious subsurface work, Pogo was able to correctly decipher otherwise ambiguous seismic data and drill a significant discovery on a combination trap that had formed beneath an erosional unconformity.

Another purpose of this paper was to demonstrate the type of practical, multidisciplinary, exploration and production–related application that is required of many professional geologists.

Mike Ledet, Linda Sternbach, and Janet Combes all share the credit for coaxing the author into preparing this paper for the AAPG convention.

Steve Brachman has 25 years of experience in the oil and gas industry. He began in 1981 with Gulf Oil Company in Oklahoma City, and was transferred to Kilgore, Texas in 1983. He returned to Oklahoma City in 1984 with Sohio Petroleum, but was subsequently transferred to Houston in 1985 when Sohio's Oklahoma City office closed. Steve continued to work for Sohio and then BP Exploration after the two companies merged. In 1986, Steve began exploring for oil and gas in southern Louisiana. Prior to that, most of his experience had been in the mid-continent, as well as a brief stint working offshore California. After BP spun-off their onshore properties as Tex-Con, Steve left the company so he could continue exploring in southern Louisiana, this time for Wintershall Energy. Wintershall's 1991 sale to Eland Energy prompted Steve to go independent. Steve worked on retainer for Araxas Exploration and as an independent geologist until 1995, when he accepted a position with Southwestern Energy. In 1997, Steve moved on to Pogo Producing Company, where he is Onshore Division geologist responsible for the company's southern Louisiana activities. Steve has a B.S. degree in geology from Eastern Illinois University and an M.S. degree in geology from Pennsylvania State University. He currently is president of the Houston Geological Society. Steve originally is from Chicago, Illinois.

GEORGE W. SHURR
Jules Braunstein Memorial Award

TOM HAGGAR
Jules Braunstein Memorial Award

SARAH A. CHADIMA
Jules Braunstein Memorial Award

The Jules Braunstein Memorial Award for the best AAPG poster presentation at the 2006 AAPG Annual Convention is presented to George W. Shurr, Tom Haggar, and Sarah A. Chadima for "Exploration Strategies for Ultra-Shallow Microbial Methane on the Eastern Margin of the Williston Basin."

This poster is a progress report of ongoing work conducted by GeoShurr Resources, LLC, in cooperation with staff of the South Dakota Geological Survey. The research is aimed at describing ultra-shallow accumulations of late generation biogenic gas in the eastern part of the state.

Microbial methane (or late-generation biogenic gas) forms in the relatively recent geologic past and may even continue to be generated today. Although this is an untested resource on the eastern margin of the Williston Basin, important reserves have been demonstrated in the Devonian Antrim Shale on the northern margin of the Michigan Basin. The Michigan production provides exploration strategies that can be applied to ultra-shallow Cretaceous rocks and glacial sediments in eastern South Dakota.

Exploration strategies for microbial methane include four main components: (1) "pastures" of organic carbon for microbes to "graze," (2) plumbing systems of fractured rock, (3) water chemistry that will support the microbes, and (4) multiple microbe consortia. Although some of these components are not routinely used by the oil and gas industry, tools and ideas from environmental monitoring have direct application. For example, gas detectors are used to measure methane levels in observation wells, and biotech experiments subsequently demonstrate that there are living methanogens in water from those wells.

Ultra-shallow microbial methane is more similar to methane produced from landfills than to early generation biogenic gas commonly targeted for exploration. It is a relatively untested and under-assessed resource, not only in the Williston basin but also at many other locations in the United States and around the world.

George W. Shurr received his B.A. degree (1965) from the University of South Dakota, his M.S. degree (1967) from Northwestern University, and his Ph.D. (1975) from the University of Montana.

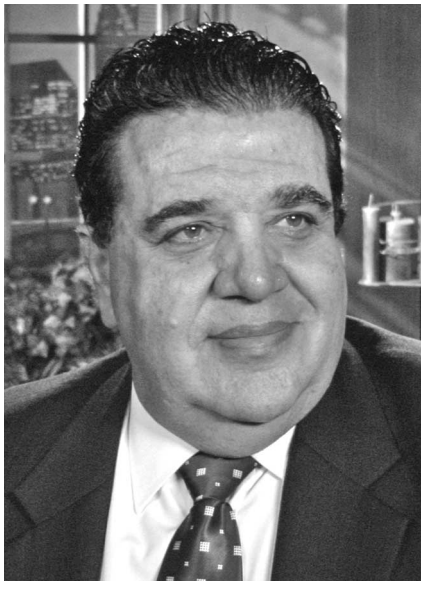
Shurr taught geology at St. Cloud State University in Minnesota for 30 years. During this time he also worked part-time with the U.S. Geological Survey and the South Dakota Geological Survey, and did consulting. In 1998, Shurr took early retirement from teaching and formed GeoShurr Resources, LLC. The company focuses on exploration and development of shallow gas resources, especially in the northern Great Plains of the United States.

While employed by state and federal surveys, Shurr conducted research on Cretaceous stratigraphy and reservoirs in the Western Interior seaway, regional tectonic patterns on the North American craton, and resource assessment of shallow early generation biogenic gas. His current emphasis is on characterization of late generation biogenic gas systems that have accumulated in the relatively recent geologic past. Shurr is a member of the AAPG, Geological Society of America, and Rocky Mountain Association of Geologists. He is certified as a professional geologist in Wyoming and Minnesota. In the course of his career, he has published more than 50 technical papers and

given approximately 100 presentations at professional meetings.

Tom Haggar received a B.S. degree in earth science (2001) from the University of South Dakota. He has worked for the South Dakota Geological Survey since 1997: as a roughneck/drillers assistant (1997–1998), as an intern studying post-Cretaceous sand and gravel units in southeastern South Dakota (2001), and as a staff geologist (since 2004) to analyze and compile oil and gas related data. In 2002–2003, he did graduate coursework in Geographic Information Systems (GIS) at South Dakota State University.

Sarah Chadima has 23 years experience as a geologist with the South Dakota Geological Survey. She received both her B.S. (1979) and M.S. (1982) degrees in geology from Iowa State University. Most of her professional work experience has been related to aquifer and water quality investigations in South Dakota. She has taught part-time as an adjunct instructor at Augustana College and at the University of South Dakota (1986–2000).



MICHAEL J. ECONOMIDES

Geosciences in the Media Award

The Geosciences in the Media Award (formerly Journalism Award) is given in recognition of notable journalistic achievement in any medium that contributes to public understanding of geology, energy resource, or the technology of oil and gas exploration.

Michael J. Economides has authored or coauthored 11 professional textbooks and books, including the recent best seller *The Color of Oil*, which demonstrates that being read by many promotes improvement in public understanding. He has written extensively in wide-circulation media in a broad range of issues associated with energy, energy economics, and geopolitical issues. He also appears regularly as a guest and expert commentator on national and international television programs.

Economides received his B.S. and M.S. degrees in chemical engineering from the University of Kansas and his Ph.D. in petroleum engineering (1984) from Stanford University.

He is a professor at the Cullen College of Engineering, University of Houston, and editor-in-chief of the *Energy Tribune*. He is also managing partner of Dr. Michael J. Economides Consultants, Inc., a Houston-based petroleum engineering and petroleum strategy consulting firm. His interests include petroleum production and petroleum management, a particular emphasis on natural gas, natural gas transportation, LNG, CNG and processing, advances in process design of very complex operations, economics, and geopolitics. He has had professional activities in more than 70 countries with multiple activities in Abu Dhabi, Algeria, Argentina, Austria, Bahrain, Bolivia, Brazil, Canada, China, Colombia, Denmark, Dubai, Egypt, France, Germany, Great Britain, Greece, Holland, Hungary, Italy, Libya, Norway, Poland, Russia, Spain, Venezuela, and Yugoslavia. He has also provided expert advice and witness for a number of legal cases.

Previously, he was the Samuel R. Noble Professor of Petroleum Engineering at Texas A&M University and served as chief scientist of the Global Petroleum Research Institute (GPRI). Prior to joining the faculty at Texas A&M University, Economides was the director of the Institute of Drilling and Production at the Leoben Mining University in Austria. Before that, he worked in a variety of senior technical and managerial positions with Dowell Schlumberger.

Economides has taught more than 300 short courses throughout the world attended by more than 6000 engineers and technologists. The subjects of his short courses include petroleum production engineering, reservoir stimulation including hydraulic fracturing and matrix stimulation, advanced fracture mechanics, horizontal well performance and completion, and introduction to petroleum engineering (for non-petroleum engineers).

RYAN HENRY

Teacher of the Year

Ryan Henry, currently a seventh grade earth sciences teacher at Graland Country Day School in Denver, Colorado has been named AAPG's National Earth Science Teacher of the Year.

Henry is receiving the honor for his efforts while teaching at Street School in Tulsa, where he taught all science classes offered, including physical science, biology, earth science, and geology. He was nominated by the Tulsa Geological Society.

The award of $5000, funded by the AAPG Foundation, will be split, with $2500 designated for educational use at Street School under Henry's

supervision, and the other half for his personal use.

He also received an all-expense-paid trip to the AAPG Annual Convention in Long Beach, California, April 1–4, where he was presented with his award at the all-convention luncheon.

Henry, who received both his bachelor's degree in earth science and master's degree in secondary science from the University of Arkansas (UA), said he believes "true knowledge is attained by scientific inquiry and first-hand experience."

An interview with Henry by Susie Moore, *Explorer* staff writer, is featured in the March *Explorer*. Excerpts of that article follow:

Tulsa native Ryan Henry made history in two ways when he was recently named the 2007 AAPG Teacher of the Year (TOTY).

The first way is biographical: At 27, Henry is the youngest person ever to receive the TOTY award, which is sponsored annually by the AAPG Foundation to promote earth sciences education.

The second way, however, is perhaps even more unusual: Henry is being honored for his efforts while teaching at Street School in Tulsa—not a typical setting when one thinks of earth sciences.

"Holy cow! I'd like to thank you guys for recognizing teachers," he said. "I mean, this is the kind of thing that keeps people fired up!"

Born and raised in Tulsa, Henry grew up backpacking, canoeing, swimming in creeks, and going on family ski trips in Colorado. And, like a lot of teenagers, his outlook on school, higher education, and life was an aimless trajectory—he was going somewhere, he just didn't know where.

"What got me through high school was basically sports and art," he said. "It was the active things."

That all changed when he began taking geology classes at UA in Fayetteville, and he recalled geology professor Ronald Konig connecting to him with the words, "The earth is one big dude." "From then on," Henry said, "I was hooked on geology."

Henry eventually received both his bachelor's degree in earth science (2003) and master's degree in secondary science (2004) from UA, and he credits geology with being the inspiration for his entire education.

"Every class had a field trip," Henry said, "and we would actually study the things outside that you talked about in the classroom. That was really kind of the point where I was like, 'Wow, this is what learning is like!' And, learning can be so much fun!"

Still, Henry didn't put much thought into teaching earth science until he was invited to help teach a fourth grade class about minerals and volcanoes during AGI's Earth Science Week. "I had a great time!" he said.

During his master's program, Henry taught at the Lake Fayetteville Environmental Study Center, as well as at the Springdale Public School District in Arkansas.

With the guidance of his advisers, Henry came out of the UA MAT program "like a veteran teacher," he said. And when he landed the science teaching position at Street School back in his hometown, he "was on fire for teaching!"

Street School is an alternative school of choice program for Tulsa youth ages 14–19, providing "at risk" students an opportunity to receive a high school diploma.

Henry, who uses expressive words such as "cool," "neat," "amazing," and "awesome," said he kept his students motivated by teaching them things that were relevant.

"I tried to make a connection to their life," he said. "I probably spent 40–50 percent of class, especially my geology classes, in the field studying the things we had talked about in class. I spent a lot of time focusing on natural resources."

Always the grateful student, Henry implemented into his classroom teaching the theory from his former UA professor, Walter Manger: "Geology is learned by the soles of your shoes, not by the seat of your pants."

"Street School was a perfect place for blending my love of hands-on inquiry-based science," he said, "and my love for experiential outdoor learning."

While at Street School, Henry started and wrote a grant for a program he named "Wilderness Adventures." This program provided all Street School students the chance to enjoy climbing, canoeing, camping, and mountain biking over one- to four-day expeditions.

The day after he married his wife, Katie, they led a group of students they had been working with all year on a three-day canoe trip on the Buffalo River in Arkansas.

Is there hope for the future of education? Henry thinks so—and he's committed to the cause. "I knew I wanted to make a positive difference in the world," Henry said. "We (teachers) are more than just purveyors of knowledge," he added. "We as a country need to reprioritize our commitment to education. Education is the only way to get better and it's sad there's not more emphasis."

DALE A. LECKIE

Gabriel Dengo Memorial Award

The Gabriel Dengo Memorial Award, given to recognize the best AAPG paper presented at the previous year's international conference, is presented to Dale Leckie for his paper, "Sequence Stratigraphic Controls of Reservoir "Sweet Spots" in Coastal and Shelf Deposits—Cretaceous Guadalupe Formation, Colombia." The paper was coauthored by Elvira Gomez and Miguel Jose de Armas, both with Nexen Colombia, Bogota, Colombia.

This paper was an integration of sedimentology, sequence stratigraphy,

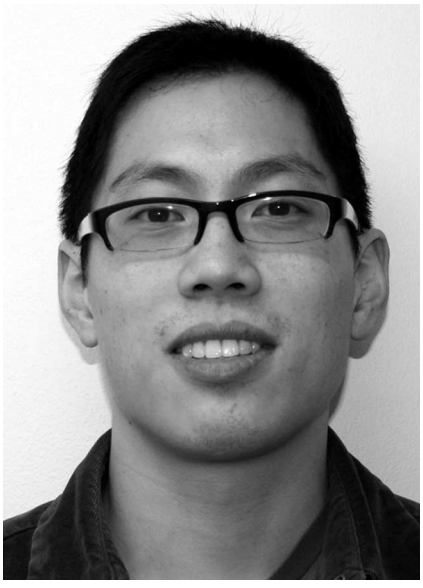
and primary reservoir properties from the Guando oil field in Colombia. It demonstrated the value of understanding and relating these components of a reservoir to better understand its production characteristics.

Dale Leckie received his B.Sc. degree from the University of Alberta, (1977), his M.Sc. degree from McMaster University (1979), and his Ph.D. from McMaster University (1983).

Dale worked at Petro-Canada as an exploration geologist and then went to the Geological Survey of Canada as a research scientist. He has been chief geologist at Nexen Inc. since 1998. He specializes in petroleum systems focusing on sedimentology, marine and nonmarine sequence stratigraphy, basin analysis, and unconventional hydrocarbons. He has worked on Canada, Australia, Colombia, Yemen, North Sea, and New Zealand basins.

Dale has received numerous awards from AAPG, SEPM and the Canadian Society of Petroleum Geologists. He co-edited SEPM Special Publication 85, *Incised Valleys in Time and Space*; AAPG Memoir 55, *Foreland Basins and Fold Belts*; and the Canadian Society of Petroleum Geologists Memoir 15, *Sequence Stratigraphy: Surface, Subsurface and Sedimentology*.

Dale is president-elect of SEPM, an associate editor of the *AAPG Bulletin*, and a co-organizer of the 2007 AAPG Hedberg Conference on "Heavy Oil and Bitumen in Foreland Basins."



JONNY WU

Ziad Beydoun Memorial Award

The Ziad Beydoun Memorial Award for best poster presentation at the 2006 AAPG International Conference and Exhibition is awarded to Jonny Wu for "4-D Analog Modeling of Transtensional Pull-apart Basins."

Jonny Wu has a B.Eng. degree (1998) from the University of Waterloo, Canada. From 1998 to 2004, he worked for Shell Canada in Calgary on exploration of the Scotian Basin and the Beaufort Sea–Mackenzie Delta. Subsequently, he received an M.Sc. degree in basin evolution and dynamics (2005) from Royal Holloway, University of London. He is currently working toward a Ph.D. on "4-D Evolution of Deepwater Fold and Thrust Belts" with Ken McClay at Royal Holloway.

Scaled sandbox models were used to investigate the four-dimensional evolution of pull-apart basins formed above underlapping releasing stepovers in both pure strike slip and in transtensional basement fault systems. The model results show that very different pull-apart basins are developed in transtension compared to those formed by pure strike slip. Both types of models produced elongate sigmoidal to rhomboidal pull-apart systems above the basement stepover. However, pull-apart basins developed in transtension are wider and more complex than the pure strike-slip pull-aparts. The pull-apart basins are bounded by a series of en echelon faults that coalesced and linked as displacement on the principal displacement system increased. Subsidence was focused into discrete depocenters within the transtensional pull-apart basin, whereas in the pure strike-slip pull-apart basin, subsidence was confined to the center of the basin. In transtension, the cover fault zones above the principal displacement zones (PDZ) formed distinct narrow graben systems due to the extensional component of transtension. Serial sectioning and three-dimensional (3-D) volume reconstruction permitted analysis of the full 3-D fault geometries.

Sequential model runs to higher displacements on the PDZs allowed the progressive evolution of these fault systems to be evaluated. In cross section, transtensional pull-aparts are characterized by downward-narrowing, asymmetric V-shaped grabens that progressively widen with increased PDZ displacement. Cross-basin fault systems that kink the offset PDZs form much earlier in the transtensional basin evolution as compared to pure strike-slip pull-apart basins. The transtensional pull-apart models compare closely to natural examples such as the Vienna Basin and the Sea of Marmara pull-apart system, Turkey.