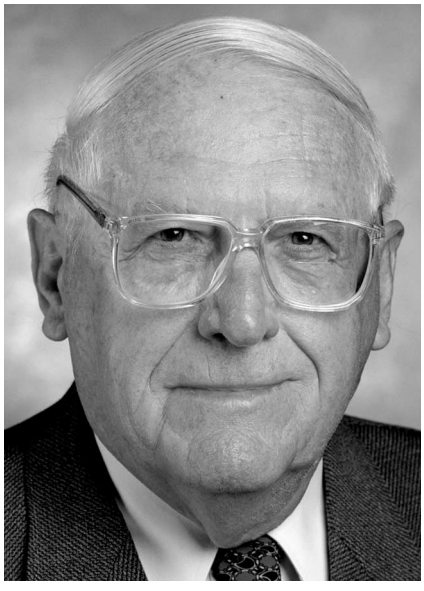
AAPG Honorees, 2004



LAWRENCE W. FUNKHOUSER
Sidney Powers Memorial Award

Citation—To Lawrence W. Funkhouser, world-class petroleum geologist, explorer and team leader, example and mentor, internationally recognized for his exploration successes during his thirty eight years with Socal/Chevron and for dedicated service to the AAPG, the AAPG Foundation, the profession, and industry.

In April 1953, when our honoree Lawrence W. "Larry" Funkhouser applied for AAPG membership he chose as one of his sponsors A. I. Levorsen, who was asked to submit his opinion about the applicant and his qualifications for membership. Lev Levorsen responded with just six words, describing Larry as follows: "He is OK, an excellent man."

Contrast that with what was written by one of Larry's colleagues 50 years later in support of his nomination for the Sidney Powers Medal: "In my opinion, not a single living petroleum geologist deserves the award more than Larry Funkhouser." That sentiment is echoed by hundreds, if not thousands, of petroleum geologists around the world today. So, Larry, in 50 years you've come a long way! You have risen from just "OK" to being awarded the Sidney Powers Medal, AAPG's most prestigious award.

Larry Funkhouser was born in Napoleon, Ohio, on June 9, 1921. His scientific curiosity was stimulated at an early age by his older brother, Harold, who regularly brought home rock specimens, fossils, and other geologic lore. Larry's interest in the earth continued through his teenage years so, in 1939, he entered Oberlin College, graduating in 1943 with an A.B. in geology. While at Oberlin, not only did he earn a Phi Beta Kappa Key and other scholastic honors, he met his future bride, Jean Cooper. However, their marriage had to wait until June 1, 1946, after Larry was discharged from the Air Force in which he served three years as a communications officer during World War II. His and Jean's next move was to Stanford University, where he was awarded an M.S. in geology in 1948 with the guidance of A. I. Levorsen who was then the dean of the School of Earth Sciences.

On August 2, 1948, Larry began his long and distinguished professional career with Standard Oil Company of California, later to become Chevron. His first assignment was geologic observer on a seismic crew, and for two years, Larry, Jean, and their newborn first son, Don, moved from place to place throughout Mississippi, Louisiana, Arkansas, North Dakota, and Oklahoma as he integrated geological and geophysical data in Socal's expanding postwar search for oil and gas. Little did Larry know then that his assignment would have lasting value. But obviously it did, for throughout his career at Socal/Chevron he was known for the emphasis he placed on full integration of all pertinent disciplines: geology, geophysics, geochemistry, and research; and for successfully leading and mentoring his staff in that fashion as they explored throughout the world.

After two years with the seismic crews, Larry advanced in responsibility for the next several years from supervisor to area geologist to superintendent for Socal's important Southeast Louisiana Division. In New Orleans he first caught the eye of corporate officers of Socal. There, he was directing an ever-larger number of geologists and geophysicists in a manner that demonstrated that he knew and practiced the importance of motivating people and enthusiastically showing a personal interest in them and their work. Later, in 1984, in his citation of Larry as an Honorary Member in AAPG, Ken Crandall, corporate vice president of Socal's worldwide exploration activities, described Larry's significant influence on the company's success in New Orleans: "This was an exciting period in the Louisiana Gulf Coast. New geologic concepts and geophysical tools led to many California Company discoveries. Ten in a row in the mid-1950s."

From New Orleans, Larry went on to still higher levels of responsibility and success, culminating in corporate head-office assignments in San Francisco, where in 1969 he succeeded Ken Crandall as corporate vice president for worldwide exploration activities. Given even more responsibilities, Larry was elected a director of the company in 1973, and in 1977, he was given the additional responsibility for Socal's worldwide production as well as all upstream research and development activities. From these corporate positions, Larry is rightly credited with playing a leading role in building and maintaining an organization with world-class upstream expertise and a track record of major field discoveries to prove it.

Throughout his entire career at Socal/Chevron, he never lost sight of the importance of people! He made every effort to know and mentor all of his explorationists, thus creating an atmosphere that was instrumental in the company's success in such geologically diverse and complex areas as central and offshore Louisiana, western Wyoming, central Alberta, offshore Newfoundland, the Sudan,

offshore California, the North Sea, and western Australia.

Like many in major companies, Larry had little time early in his career to participate in the activities of professional societies, but in 1970 he began his long, deep, and broad involvement with the AAPG and the AAPG Foundation in capacities too numerous to mention here. In recognition of this involvement, he was named an Honorary Member in 1984 and in 1986 was further honored when elected by his peers to be president of AAPG. In 1988 he became a trustee of the Foundation and was elected chairman of the Board of Trustees in 1991, a post he very actively held for 11 years.

In the same time frame, he extended his service beyond AAPG to other professional societies and organizations, academic institutions, and to industry organizations focusing on government affairs. In 1971, he became a valued member and chairman of the Stanford University School of Earth Sciences Advisory Board, serving there until 1986. At Oberlin, he stayed in close contact with the geology department and participated in surveys, which recommended future directions for the department to consider. Oberlin awarded Larry an honorary Doctor of Science degree in 1990.

He was actively involved with numerous other organizations at a senior level, including the American Petroleum Institute, Geological Society of America, Society of Exploration Geophysicists, National Academy of Sciences, National Petroleum Council, National Research Council, and the National Ocean Industries Association.

Larry's experience and intellect, coupled with his friendly, sincere manner and accessibility, made him a natural and favored spokesman for his company and industry. The media, financial institutions, government, and University panels and committees always found him to be a valuable resource of relevant information.

Larry retired from Chevron in 1986 as a director and head of their worldwide upstream operations and research. He remained very active, especially in the affairs of the AAPG and the AAPG Foundation. By 1989, he began to live out a dream—that of becoming an independent explorer in his retirement years, an activity he still pursues today with the same vigor, enthusiasm, and love of geology and exploration that characterized his entire 55-year career.

In closing, I am proud and privileged to leave you with these additional firsthand personal thoughts, gathered from knowing Larry the past 35 years. For the first 20 of those years, when he was head of exploration and production operations and research and I held somewhat similar positions in Shell Oil Company, competitive pressure and government regulations required Larry and me and our companies to remain at arms length. But even so, I learned to admire and respect him as "Mr. Chevron E&P," the consummate competitor. We knew that when we were up against Chevron in any exploration situation we had better work harder than ever to be competitive so long as Larry was in control at Chevron.

Our arms-length relationship changed in the mid-1980s when Larry and I retired from our respective companies. No longer fierce competitors, we could freely associate in any way we wished and do whatever we chose. I began to observe, personally and in-depth, Larry's traits and talents. Because I admired him so much, not only because of his superb talents as an oil finder and team leader but also his honesty and personal warmth, I was delighted to join him in 1989 to form a five-partner independent oil and gas exploration company called Energy Exploration Management Company (EEMC). Ray Burke, Paul Dudley, and Jim Wood joined Larry and me in founding EEMC. Larry and I, for the first time, became close partners and companions.

This same relationship has continued in subsequent years as I was privileged to serve on the Board of Trustees of the AAPG Foundation and also to co-invest with him from time to time in new exploration plays and prospects. It is this especially close association with Larry the past 15 years that allows me to confidently make the following observations:

- Larry is an impeccably honest, sincere, and caring person who was completely devoted to his wife, Jean, until her tragic death in an accident in Hawaii last year. Jean's death has deepened, even more, Larry's devotion to his children and family who continue to be a strong support group.
- Larry has a genuine zeal for geology and geologists and remains a tireless worker dedicated to seeing that the profession of petroleum geology is kept alive and well. His ongoing support of and contributions to the AAPG, the AAPG Foundation, Stanford, Oberlin, and other institutions attest to this.
- Larry has a razor-sharp mind which, coupled with his extensive experience and remarkable memory, allow him to grasp the essence of any exploration project, its strengths and weaknesses, both technically and economically, faster and more fully than anyone I've ever known. Undoubtedly, this same ability, combined with his eye for talent and his excellence in leadership, allowed him to direct Chevron's E&P activities for so many years with such great success.
- Larry, by virtue of these same skills and traits, became the equally successful and highly regarded chairman of the AAPG Foundation's Board of Trustees from 1991 to 2002, when he chose for personal reasons to step down. Under his strong leadership, the assets of the Foundation grew from $12.3 million to over $23 million. During that time, the Foundation supported many important and successful programs in Earth science in general and petroleum geology in particular that were of direct benefit to AAPG members and others. His chairmanship was a golden era for the Foundation. Never before nor since has the foundation accomplished so much. Even today, as a Trustee Emeritus, Larry continues to provide the Foundation with wise and much appreciated counsel. In recognition of his contribution of time, talent, and resources to both the Association and Foundation, the Trustees have selected him to receive the Foundation's Chairman's Award this year.
- Larry is at the pinnacle of international recognition in not one, but a dozen fields of expertise. And, for more

than 50 years has utilized and liberally shared his talents for the overall well being and advancement of our industry and profession.

We who know him well take him for granted, but we shouldn't, nor should anyone else. He is an extraordinarily talented man! His wonderful contributions to our profession, our science, academia, and industry speak for themselves and are legendary and remarkable. AAPG, in selecting Larry Funkhouser to receive the Association's highest honor, the Sidney Powers Memorial Medal, has made a wise choice.

Jack C. Threet

Response

It's hard to imagine a telephone call that can bring such a range of emotions—surprise, momentary disbelief, humility, pride, and a sense of deep gratitude. All of those feelings occurred during the call from Steve Sonnenberg, telling me that I had been chosen to receive the 2004 Sidney Powers Memorial Award.

This is a very unique honor—one that caps a career that extends back 55 years. I wish to thank the Advisory Committee for selecting me for the award and the Executive Committee for approving it. The friends and colleagues who nominated me and wrote letters supporting the nomination deserve special thanks. I particularly appreciate the kind and generous remarks from Jack Threet, who so graciously agreed to be my biographer for this presentation.

It is especially gratifying to me that a talented and worthy leader of Chevron's No. 1 competitor during my career—Shell Oil Company—would, after retirement, become a close friend and associate. I credit AAPG for providing the networking opportunities that bring about such a happy circumstance.

Joining the list of exceptional geologists who have been previously honored with this award is a special privilege. I am delighted to be counted among three former Sidney Powers medallists, in particular, who had such a profound influence on my career as a petroleum geologist: Hollis Hedberg, A. I. Levorsen, and Ken Crandall.

As I thought about the content of my remarks, the recurring theme always reverted to people and the meaningful interaction I have had with so many of them through the years. My first role model was my brother, Harold, who preceded me in college. As far as I know, he was the first geologist raised in Napoleon, Ohio, an area with lots of farmland, no outcrops, lots of glacial till, and no obvious oil and gas potential.

In his visits home, Harold would bring textbooks, minerals, fossils, and slides of microfossils—all new, strange, and fascinating to his young brother in high school. My brother joined Gulf Oil Company in 1938 and eventually became Gulf's exploration manager in the United States, leading to some very intense competition with his Chevron sibling!

I met Hollis Hedberg, the 1963 Sidney Powers medallist, while I was still in high school. Hollis was my brother's supervisor in Gulf's operations in eastern Venezuela. On his trips back to the United States, Hollis made a point of visiting the homes of some of his geologists to let the parents know that their son was an important member of his team.

I enrolled at Oberlin College in 1939 with the firm intention of following in my brother's footsteps and becoming a geologist. Many people who have heard of Oberlin think of it as a college with a great conservatory of music. Fortunately, it is also a liberal arts college with a broad expertise in the sciences. The geology department there was small, leading to a lot of individual faculty attention—sometimes more than a student might wish for! But it was a great learning environment and Oberlin is high on my list of experiences that helped shape my career.

Near the end of military service following graduation from Oberlin, I wrote Hollis and asked for his recommendation for graduate studies in geology. The answer came back loud and clear. I should apply to Stanford University because the dean of the Earth Science Department was A. I. Levorsen, someone Hollis considered to be the leading petroleum geologist in the world. I applied, was accepted, and thus met Lev, who was awarded the third Sidney Powers Medal in 1948.

Lev had a profound influence on all of us who were privileged to hear his lectures and to observe his enthusiasm for petroleum exploration. His passion for finding new reserves made us all realize that exploration was a fascinating treasure hunt, one that could lead to discovery of new energy supplies as well as to a rewarding and unusually interesting life's work. Lev stressed the importance of looking at the big picture; his seminar on Future Petroleum Provinces was an unforgettable classic.

When the time came to look for a job, I discussed my opportunities with Lev. He recommended that I join Standard of California and request assignment in their Gulf Coast operations. Lev said that the California Company, Socal's Gulf Coast subsidiary, was headed by an outstanding petroleum geologist named Ken Crandall. I took that advice and so came to know Ken, the 1978 Sidney Powers medallist. Ken was my mentor, leader, and friend for the many years we worked together at Chevron and for many more years after I succeeded him as vice president of exploration for Standard of California.

Those preeminent geologists and outstanding human beings have occupied much of my thoughts since Steve called me. I owe them so much and being included with them in the list of Sidney Powers awardees is something that I will always cherish.

Besides the Sidney Powers awardees that I have mentioned, I have had the privilege of knowing more than 20 of the medallists who have followed them. I am honored to be in their company as well.

Perhaps my biggest professional debt is to the hundreds of creative explorationists with whom I worked at Chevron. I look back with pride at their accomplishments—and particularly at the discoveries emanating from their ideas that helped me keep tenure at Chevron for so many years. I would like to accept this award on behalf of those Chevron geologists and geophysicists; they are responsible for my standing here today.

One of the high points at Chevron every year was the meeting of the exploration management team. What a privilege it was to join in a several-day session in which all of the significant exploration plays around the world were discussed—along with the latest technology being developed by

the Chevron research and seismic processing teams.

I have always been convinced that petroleum geology is as much an art as it is a science and a business. I am also convinced that explorationists are the keystone of the oil company hierarchy. Unless they develop the concepts that lead to discovery, the companies can only exist by buying production from someone else. That does not create wealth; it merely transfers money from one pocket to another.

I am not fond of the business unit approach to oil finding. The business units are so bottom-line oriented—if the unit is falling short of its profit target, the easiest thing to cut is the exploration program. Exploration cannot prosper in an environment that takes such a short-range view. I deplore what has happened to the research organizations in many of the large companies. New proprietary technology was a key factor that many companies enjoyed when company-owned research and development was an integral part of the exploration program.

While teamwork is essential in using all the modern tools applicable to an exploration program, it is the spark of the individual creative geoscientist that ignites the process. Many significant discoveries in the past have resulted from the insight and perseverance of that individual explorationist.

In the sand dunes of Saudi Arabia, Max Steineke, the 1951 Powers medallist, laid the groundwork for mapping major structures, such as Ghawar, the world's largest oilfield. Through extensive fieldwork under very difficult conditions and using the core drill to identify major structural trends, Max was able to confirm that Ghawar was a single anticline with very minor irregularities, stretching across the dunes for 140 miles. Can you imagine the diligence needed to find end closure on an anticline of that magnitude?

During the early days of exploration in Sumatra, a Caltex geologist mapped the multibillion-barrel Minas field by digging hand-powered core holes around the area and correlating the shallow subsurface beds. There was no evident expression of Minas in the Sumatran marshlands and little seismic data were available, but he found a novel way to produce a map that resulted in a huge discovery.

A Chevron geologist wondered where all the sediments eroded from the north Louisiana uplift in the Cretaceous had been deposited. He postulated that they would have been swept through breaks in the Lower Cretaceous reef that occupied central Louisiana at that time and had been deposited in deep water in front of the reef. When adequate seismic data became available ten years later, his idea led to the discovery of the major False River Deep Tuscaloosa gas trend.

In the mid-1970s, Chevron and a partner drilled ten exploratory wells on the Grand Banks, offshore Newfoundland. All were dismal dry holes, but a geologist noted that the final, most northerly test had drilled an excellent Jurassic source section, but no reservoirs. This observation eventually caused Chevron to take a farm-out, offshore Newfoundland, north of the earlier tests. After reprocessing the available seismic data, shot by the company who held the lease, the well was drilled that discovered the billion-barrel Hibernia field and opened a new petroleum province. The same geologist who recommended the ten dry holes was responsible for obtaining approval for the Hibernia farm-in—obviously a striking example of creativity joined by uncommon perseverance.

All of these examples of discovery are from my background at Chevron because I know the details of the individual efforts that brought them to fruition. I know that all of the other major companies—and many independents—have their own examples of similar creative work that resulted in major new reserves.

After my retirement from Chevron, I was fortunate to become involved more actively in AAPG affairs. Through the years, that gave me the opportunity to meet, work with, and enjoy many new friends whom I otherwise would have never known. The Association has been very important to me, and I have thoroughly enjoyed my participation in its proceedings the last 18 years. I encourage all AAPG members to serve the Association in an active role, not only for the new friends they will meet, but also for the satisfaction of serving our profession.

The Association and the AAPG Foundation have combined as a significant force for nurturing and enhancing the science of petroleum geology. I hope that the Association can remain the collegial organization that has made it so strong and that recent attempts to politicize AAPG will be reined in. I continue to regret that less than 20% of our membership supports the work of the Foundation through their contributions. I know we can do better.

I also want to recognize a group of very important people who have been my major support group—my family. They have endured many transfers, many different schools, and many new challenges. They deserve enormous credit for the role they played in the progression of my career. I wish that my wife, Jean, could have shared in this ultimate award. She was my best friend, my counselor, and my ambassador of good will wherever our journeys together took us.

I accept the Sidney Powers Memorial Award with deep gratitude and a deep bow to all the people in my life who made it possible. Thank you.

Lawrence Funkhouser

MARTHA LOU BROUSSARD

Honorary Member

Citation—To Martha Lou Broussard, in recognition of her years of devoted

service to many geological organizations in the form of officer, committee leadership, and managerial and editorial skills, all graciously given.

Martha Lou Broussard will always be remembered for the many hours of assistance she has given to many of us. Her thoughtful suggestions, when I may have been perplexed about directions to students or colleagues, were skillfully imparted. She always brought her knitting with her to the Rice assembly lectures, and the needles would fly faster as the speaker excited or dismayed her. She is a person who cannot sit idle for a minute. For this reason she has been a tremendous help in the many organizations in which she has been involved.

Martha Lou was born and raised in Tulsa, Oklahoma. She graduated from Rice University in 1957 and has the distinction of being the first woman to graduate from its Geology Department.

Martha Lou joined Shell Development Company after graduating from Rice. Her first position was under M. King Hubert. He hired her after she proved her mathematical abilities by working calculus and other mathematical problems on his office blackboard during her interview. When Hubert retired, Martha Lou transferred to Shell Canadian Exploration Company (the newly formed non-Hydrocarbon Group) where she worked for three years under the direction of Leo R. Newfarmer. Her assignment was to look for gold and platinum dry placer deposits in the western United States, a truly great job for any woman. Shell had recently acquired a Rube Goldberg processing machine that did not require water to separate the gold and platinum. All she had to do was find the deposits. This is where she met her future husband, Douglas E. Broussard, who was the Shell engineer assigned to the project.

Martha Lou returned to Shell Development to work in the geological training section with Rufus J. LeBlanc, Kaspar Arbenz, and James Lee Wilson, but only for a short time; she decided Rice was calling her back, and in 1966 she joined the Department of Geology at Rice as administrator. She was truly the "Head of the Department" as she directed students and faculty alike in her usual efficient style. She has stayed with Rice since then except for two breaks. She did consulting work from 1969 to 1972, and then accompanied her husband to England in 1976 for nearly seven years. Doug was a prominent pipeline engineer for Shell and managed construction of an important project in the North Sea.

Martha Lou was not happy about leaving Houston and her many friends. She is said to have cried when she left; however, she cried even more when she had to leave England and return to the States. She took full advantage of the many travel and cultural activities available, provided hospitality and entertainment for the many friends who came to visit, and, in addition, worked at ERICO with Paul McDaniel and John Shelton. Douglas often said he got more culture travelling with Martha Lou than most Aggies received in a lifetime.

Martha Lou was elected to the House of Delegates while living in England. A great contribution was her successful search for new members for AAPG. By the time she returned to Houston she had increased the Delegate representation from one to five members. After returning from London she was elected a Delegate from Houston. During her years as Delegate she has served on the Nominating Committee and as chairman of the Constitution and Bylaws Committee. She had the difficult task of changing these important documents to be gender neutral. She was also chairman of the ad hoc committee that recommended that the Junior Membership category be eliminated. In 1985 Martha Lou was elected vice chairman of the House of Delegates, and two years later, when she was elected chairman, she became the first woman to serve on the Executive Committee of AAPG.

Martha Lou also served the Houston Geological Society (HGS) as a chairperson of many committees and as an officer. A great contribution was her editing of a series of five volumes on deltas, which the HGS published. She has received the Distinguished Service Award and Honorary Membership from the HGS.

In summary, since 1963, Martha Lou has participated in organizational and committee work for both AAPG and HGS, work directed toward petroleum exploration. She was elected AAPG vice president in 1998. She received the Distinguished Service Award from AAPG in 1989, and was the second recipient of Honorary Membership of the House of Delegates in 2001. She continues to serve AAPG as an organizer of the AAPG/Society of Exploration Geophysicists Student Expo held each fall in Houston.

On a personal note, Martha Lou participated in many field trips with Rice students. She regularly drove one of the carryall vehicles. One night, after a long day in the field with about 20 students, all hungry and tired, we drove into a town with only one restaurant. We all piled into the place and sat and waited, and waited, and waited. Finally I got up and went to the kitchen only to find no waiters, only a lonely cook. He had somehow insulted the waitresses and they all left. He refused to cook. When the air cleared, Martha Lou marched into the kitchen and made sandwiches for all of us.

In addition to her contributions to technical petroleum geology organizations, she has also contributed to many service organizations, and to her church in Houston. The local Heritage Society has also been a favorite service project.

She still contributes many hours of work in the Rice Earth Science Department. She has been valuable both in organizing large international programs honoring the distinguished professors in the Department, and in more local on-campus seminars. She recently organized a symposium and celebration of the 50th Anniversary of the Department.

Thank you Martha Lou, for all you have accomplished for the many organizations you served. I personally thank you for being such a loyal friend.

James Lee Wilson

Response

One of my sponsors for AAPG Membership, E. H. "Rainey" Rainwater, insisted that if he were to sponsor me, I had to promise to volunteer in some capacity. His belief was that every member had to return something to the organization for the organization to prosper. I have tried to follow this

advice with every group that I have joined in the ensuing years, and I have been the one to prosper. Working on committees has given me the opportunity to meet, and become friends with, so many more people than if I had just attended meetings.

I have worked on many committees during my career as a geologist, from reviewing new geologic books for the *HGS Bulletin* to program chairman, but the ones I have enjoyed the most are the ones that have to do with students. I feel that working for and with students is working for the future of AAPG. AAPG has six standing committees that are directed toward students from kindergarten to graduate student: Academic Liaison, Grants-in-Aid, Mentoring, Student Chapters, Visiting Geologists, and Youth Educational Activities. I have served on each of these except Grants-in-Aid.

For the past six years I have been a part of the Student Expo Ad Hoc Committee. Each fall AAPG/SEG (Society of Exploration Geophysicists) sponsors a job fair in Houston with much help from the Rice University AAPG Student Chapter. It has grown from 80 students attending in 1998 to more than 200 last October coming from all over the United States, Canada, and Mexico. The first year nine companies come to recruit, this past fall we had twenty. This gives students from small schools that do not have visits from recruiters the opportunity to meet with petroleum industry people and, perhaps, become a part of the industry. I hope this will be my legacy to AAPG.

My husband, Douglas, was always there cheering me on in whatever capacity I was trying to fulfill. He never complained when I was too tired to cook or my having to attend one more meeting. I wish he were able to know that I have achieved this high honor from AAPG. He did know that I received the Honorary Membership in the House of Delegates and spread the word whenever we were with industry people. He also believed in giving of himself to the organizations that he was a member of. He chaired two American Petroleum Institute committees, was on several Society of Petroleum Engineers committees, and was president of the Pipeliners Association.

This honor is the high point in my association with AAPG, and I am grateful to all the people of AAPG that have been my friends and mentors, both in the past and currently. Thanks especially to Jim Wilson who agreed to be my citationist and his wonderful wife Dell. Both have been friends from my early days at Shell. I am also glad that AAPG limited him to 1000 words as he had many other stories, which, thankfully, he could not include.

Martha Lou Broussard

STEWART CHUBER

Honorary Member

Citation—To Stewart Chuber, explorer, educator, administrator, and colleague to the membership, in recognition of dedicated service and successful contribution to the science of applied geology.

One often wonders who the true Titans are in our modern world. Such identity is all the more complex in the confusing era of social and political transformation, of rapid scientific accomplishment, and of diversity of specialty. But fortunately it is easy to recognize a true Prometheus in our geological midst, one who has literally and almost figuratively given the classical "fire" to the geological mind. It is Stewart Chuber.

It is easy to get ahead of the story in Stew's case. But he is truly a man of many places, a man of unselfish service, a man of many unique and original concepts . . . of dreams even. And best of all, he is every man's friend!

Very early on, Stewart somehow escaped from that glacial paradise called Long Island, New York. He found his way to Colorado, where he took up the collegiate study of geological engineering in the early days of western pioneering. How he made that enlightened decision is still obscure. He ran headlong into the Eisenhower jackets of the WWII vets in graduate school at the Colorado School of Mines. Upon completion, and along with the post WWII crowd, Stew was ready for gainful employment, but those of us old enough recall how the job market was in those days. Mobil Oil was an international giant, but not overly active domestically, so when Stewart came into their international operations he was shipped off to Libya to begin three years of surface mapping.

From the lofty rank of Libyan party chief, Stewart decided to return to academia at Stanford University, where he suffered through the dogma of pre-plate tectonics and the bewildering stratigraphy of a continental margin. Notwithstanding this radical exposure, Mobil continued its beneficence and kept him working in their Sacramento and Bakersfield offices. Truly courageous at this point, he had now spanned the continent from New York to California. Stewart produced a graduate thesis entitled, "Late Mesozoic Stratigraphy of the Elk Creek–Fruito Area, Glenn County, California" and in 1961 emerged with a doctoral degree in hand. He also had another "hand," that of a smart young lady named Anne Riggs, who has to this day been his lifelong love.

Stewart began his early creative professional era with five years of subsurface geology for Franco Western Oil Company, during which he made the big leap from Bakersfield to Midland, Texas and consulting. This independence gave Stewart an early taste of business opportunities and their perils. During this period he developed a lifelong friendship with his geologic soul mate and partner, Jack Elam. Together they provided early documentation of Pennsylvanian and Permian age cyclic sedimentation

in the Permian basin with two definitive papers. Later, Stewart extended these studies to include both reservoir characterization and petroleum composition, first with Walter Pusey and later with Elton Rodgers.

Flushed with literary if not monetary success, Stewart began to take on central and south Texas! He slipped on the corporate employee yoke for the last time, moving to Houston to become division geologist for Buttes Gas & Oil Company. Other intermediate interludes of note include a stint as vice president of exploration with Five Resources, Inc., and then more consulting. Finally, in 1978 we encounter for the first time the Stewart Chuber that many, perhaps most, of us have come to know and for each of us to trust, appreciate, and indeed relish.

He moved to Schulenburg, Texas. There he formed his two permanent companies, Fayette Exploration and Mascot Oil. In that capacity Stewart has zealously drilled for and produced oil and gas in south Texas. He composed most of his own, and co-authored other, formal papers on south Texas subsurface geology and petroleum reservoirs. Today, after some 30 professional papers, his creative outpourings continue unabated.

Stewart has tackled just about every avenue of professional, business, societal, literary, and public service that is possible for one to undertake. No further detailed chronologic record can be recorded here. It would be a monstrous task, and the list of co-workers, co-authors, clients, and lay admirers would fill a book! He also took time to become a stalwart of his chosen city through participation and leadership in the Boy Scouts, Lions Club, Episcopal Church, and political groups. Finally, he flies his own plane and carries his own tennis racket!

I have had my own memorable encounters through the years. That raconteur—the happy face and eager countenance—always optimistic, and always ready to serve and more importantly, to advise and lead. That intense technician of petroleum science, that effervescent person who invited me to meet with several "hoods" in the guise of petroleum geologists, who were cowering in the pitch black haze at a table behind a bar in a local hotel formulating the installation of the San Antonio Society of Independent Professional Earth Scientists (SIPES) chapter.

In the field of education Stewart shines with distinction. Here at last we get at the heart of Stewart Chuber. The list of service is awesome. It can only be characterized, not recounted. He has lectured across the country, developed short courses and seminars, headed up continuing education committees, and served as judge and chairman for awards. His formal service to the South Texas Geological Society (STGS) and the Gulf Coast Association of Geological Societies (GCAGS) continues to this day. The man just will not quit!

So this "kid" from New York, by way of California, has come to tease petroleum from the Wilcox and the Frio, cajole his friends in SIPES, STGS, AAPG, the West Texas Geological Society, and GCAGS. He has come to intimidate his peers and professional elites, and we will be the first to agree to help him.

It is time to pay allegiance. Additional accolades still will not suffice. He has already received the GCAGS Distinguished Service Award and honorary membership. It is with great personal satisfaction to recount Stewart Chuber's history, his contribution to the petroleum community, and to do so on behalf of the Association in recognition as an Honorary Member.

So, my good friend Stewart, my hat is off, our hats are off! You've earned it.

Perry Roehl

Response

I have had good fortune my entire life. In the beginning it was the healthy, inquisitive, and reasonably intelligent genes that I received from my first generation Czech-German parents, August and Florence. Their greatest desire was for me to obtain, through their sacrifices, the education that was never available to them. Our family life in Queens Village, Long Island, was most pleasant, and my older brother Bruce, sister Carol, and I grew up in the depression years never realizing how very moderate were our circumstances.

It was a stroke of good luck for me to be advised of and accepted in the Colorado School of Mines in 1948, to major in geology. This started my quest for knowledge about the Earth, and also initiated close and enduring schoolmate friendships. To this day I am awed by the beauty of the Earth, and the challenge to discover its hydrocarbon treasures.

My good luck continued when Stanford University granted me a fellowship in geology. Here, for the first time it seemed, I learned how to think. And at Stanford I met and married my now 50-year mate, Muffin, who joined me in a delightful and loving partnership.

After an enlightening three-year tour with Mobil in Libya, we returned to Stanford, where my most significant mentor, Hubert Schenck, started to mold my mind during doctoral studies resulting in a Ph.D. It took seven years of education to make me realize how little I really knew about geology. But I had the tools to begin a better understanding.

I joined AAPG in 1952 and have been rewarded with a mutually beneficial association ever since. In each resident city, Sacramento, Bakersfield, Midland, Houston, and San Antonio, I made great and lasting friends with those who belonged to or worked for the local societies. Field trips, conventions, short courses, and study groups all helped to extend my learning experience. At an evening meeting in Midland I met Jack Elam, the most creative geologist with whom I have ever worked, and my closest friend. He demonstrated how to ask the right questions, and seek the proper answers.

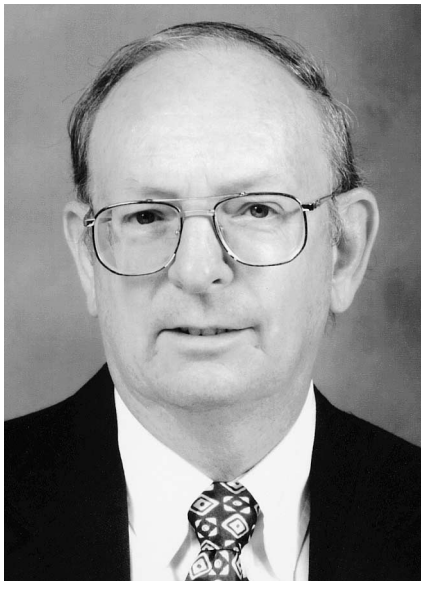
Muffin and I started our family of two, Jeffrey and Valerie, in Midland. We moved to Houston in 1968, but ten years later, having just become independent, I "restaked" our location and built a log cabin in the lovely countryside of Fayette County near Schulenburg. It was to be a guesthouse for a larger headquarters, but economic times in the oil business got tough and the kids grew up and left home, so Muff and I with our cats, dogs, and cows still live there. We added a geodesic dome as an office, and even before fax machines, our "team" formed my two companies and have operated here ever since.

More blessings came from the country. We are members of a small, very warm Episcopal church in LaGrange, St. James, and have made many great friends there. The country life is wonderful, and we appreciate the clean air, the

low stress environment, and the good health God has granted us. From the "hub" airport in LaGrange, where I keep my 210 Cessna, we can fly to our usual haunts from California to Colorado to Florida. Flying for me, during the past almost 50 years and 2100 hours, has been geologically enlightening and fascinating.

And finally to the AAPG, for rewarding me with this honorary membership, and to Perry Roehl, my good buddy and biographer, I am deeply grateful. AAPG has provided me an opportunity to make many friendships and to share my experiences in the almost magical search for oil and gas. I have heard the squeak of the drum while drilling, smelled the crude filled samples, and seen the fluorescent glow of oil and gas in cuttings. I know the enthusiasm of grade school kids with their rock collections. And I have talked with bright, excited, and energetic college students about their poster sessions. The future of our profession is guaranteed. It may be smaller, leaner, smarter, and different from the past, but it will continue to be rewarding and a fantastic lifetime experience.

Stewart Chuber



DOUGLAS G. PATCHEN

Honorary Member

Citation—To Douglas G. Patchen, for leadership and service to AAPG, contributions to Appalachian basin petroleum geology and the profession of geology, and dedication to the promotion of new technology.

Douglas G. Patchen was born in Wayne County, New York, July 11, 1942. He was raised in North Rose, New York, attended local schools, and took courses at Oswego State College during his senior year in high school. He enrolled in Harpur College (later State University of New York–Binghamton, and currently Binghamton University) in 1960, and received a B.S. in geology in 1964. Doug remained at Harpur and received his M.S. in geology in 1966. His thesis was a study of the petrology of the Oswego, Queenston, and Grimbsy formations. Doug joined the West Virginia Geological and Economic Survey in 1966 as a sedimentary petrographer in the Oil and Gas Section. The lure of additional education and a return to his native New York took Doug to Syracuse University in 1968 to work with Bryce Hand. Doug returned to work at the West Virginia Survey during the summers of 1969 and 1970. In 1971, Doug completed his dissertation on the stratigraphy and petrology of the Williamsport (Newburg) Sandstone, and returned fulltime to the West Virginia Survey. During his early years at the Survey, Doug wrote very timely publications summarizing activity in then currently developing gas plays in West Virginia (Huntersville/Oriskany, Newburg, and Keefer).

For many years, even before he became an AAPG member, Doug served as the coordinator of the *AAPG Bulletin* development paper for the mid-eastern states, which included five states. Doug served as the AAPG Committee on Statistics of Drilling chairman for West Virginia for several years. He was also the coordinator for the two Appalachian basin COSUNA (Correlation of Stratigraphic Units of North America) charts, and a member of the Stratigraphic Correlations Committee. Doug has been a member of the AAPG Committee on the Preservation of Cores and Samples since 1984, and served as the chairman of that committee from 1995 to 1999.

Doug's involvement with the Eastern Section of AAPG began at the first section meeting in 1972, when he gave a paper on the Newburg, as well as helping to organize the technical program. Doug has made many other presentations at section meetings over the last 31 years, as well as serving as a field trip leader in 1979 and 1982, a session presider, a judge, as the 1996 Charleston, West Virginia meeting general co-chairman, and most recently, as co-general chair of the 2003 Eastern Section Meeting. The 2003 meeting was a landmark one—the first joint meeting of the AAPG Eastern Section and the Eastern Region of the Society of Petroleum Engineers. Doug is the winner of two Eastern Section A. I. Levorsen awards, for papers he co-authored with Dick Smosna. Doug served as an Eastern Section officer from 1992 to 1996. During his tenure as president, Doug instituted a new mechanism for the election of section officers, which allows every active member who attends the annual meeting the opportunity to vote in the election. Doug represented the Eastern Section on the AAPG Advisory Council from 1996 to 2001.

Doug has served the Energy Minerals Division as Eastern Section councilor from 2000 to 2004. He is a member of the House of Delegates, representing the Pittsburgh Association of Petroleum Geologists. He participates in the Visiting Geologists Program, and in 2002–2003, he was a candidate for AAPG vice president.

Doug has further served the profession by being one of the coordinators for 25 years of the Appalachian Petroleum Geology Symposium. Since 1989, Doug's job responsibilities have expanded beyond the West Virginia Survey, as the program coordinator for the Appalachian Oil and Natural Gas Research Consortium (AOGNRC), at West Virginia University. In this capacity, Doug has assembled multistate research teams for U.S. Department of Energy–funded reservoir heterogeneity studies, and the compilation of the *Atlas of Major Appalachian Gas Plays* and TORIS (Total Oil Recovery Information System) oil field data for the Appalachian basin. Doug is the regional lead organization director for the Appalachian Region Petroleum Technology Transfer Council. With all of these efforts, Doug has been a leader

in furthering our understanding of petroleum geology in the Appalachian basin, and making new information, technology, and interpretations available to working geologists. He has also managed numerous research projects for the AOGNRC, including detailed oil reservoir characterization studies, coalbed methane and coal-mine methane projects, and a regional study of the Trenton–Black River. He has examined unconventional gas reservoirs such as Devonian shales and low permeability sandstones for the U.S. Department of Energy and the Gas Research Institute (now the Gas Technology Institute).

With everything he becomes involved in, Doug takes his commitments seriously, and dedicates his time and talents to the task at hand. An avid sports fan, Doug served for many years as a coach and an officer with the local Monongalia Youth Soccer Association, helping that organization to expand and acquire new playing fields. Doug is a loyal Syracuse sports follower, and anyone who has ever been around him during "March Madness" (the NCAA basketball tournament) can appreciate Doug's enthusiasm for and knowledge of the game of basketball.

Katharine Lee Avary

Response

When the phone call came, I expected Steve Sonnenberg to comment, hopefully positively, on the first-ever combined meeting of the Eastern Section of AAPG and the Eastern Region of the Society of Petroleum Engineers that had ended the day before in Pittsburgh. I was so sure that this was the reason for his call that when he informed me that I had been named an Honorary Member, the news did not register. I had to ask him to repeat it.

Steve finally got through to me and when I understood why he had called I was stunned, but very honored. It will be my pleasure to go to Dallas next April to attend the Opening Session and Awards Ceremony and spend a few minutes conversing with the other awardees. I sincerely thank all of the members of the Advisory Council and the Executive Committee for this great honor.

I also would like to thank Lee Avary, my friend of 25 years, for once again agreeing to serve as my citationist. Honorary membership is bestowed on individuals who have a record of service to the organization and contributions to the profession of geology. Nearly all of my contributions have been part of a team effort, and people like Lee and others at the West Virginia Geological Survey and West Virginia University have been with me all of the way.

I didn't realize—or perhaps I had just forgotten—that people who are named Honorary Members are asked to write a response. In doing so, it does offer one the opportunity to look back and reflect on just how you ended up where you are.

I took my first geology course at Oswego State Teachers College in upstate New York while still a senior in high school. It was the fall–early winter semester of 1959–1960, a long time ago, too long to remember much. The course obviously interested me enough to continue with geology when I enrolled in Harpur College the next fall, but what I remember the most was the snow. Class was held on Saturdays, and on one January morning the dark clouds rolled in from Canada across Lake Ontario, bringing with them more than 100 inches of snow that fell in two days.

I returned to Oswego several years later while doing field work on the Upper Ordovician Oswego Sandstone, and found the winters along the lake just as cold. The fieldwork was for my master's thesis at the State University of New York (SUNY) at Binghamton, which was Harpur College the year before when I received my Bachelor of Arts degree. My geology experience at Harpur and SUNY-Binghamton was exceptional. The relatively new Geology Department grew from four to eight professors during my tenure, and all of them were outstanding geologists and teachers. I try to return there each year as a Visiting Geologist for AAPG, and even though "my" faculty has long since retired, on occasion I can find my two thesis advisors, Jim Sorauf and Herm Roberson, lurking around the department.

I learned a lot of geology during my Binghamton career, but one of the most important things that I learned from the faculty was the importance of joining one or more of the professional geological societies, and being an active member. The department always provided funds, even to undergraduates, to attend regional and national meetings of the Geological Society of America and the New York State Geological Association field trips. And, my professors were the first to introduce me to AAPG.

The direction that my career, and my life, has taken was determined, to a large extent, at an AAPG meeting that I did not even attend. The year was 1966. I was finishing my master's degree at Binghamton and was ready to accept a job teaching high school earth science and coaching the Junior High basketball team. To be honest, the coaching job was what appealed to me. But the AAPG met in St. Louis that year, and during the meeting, two old WWII buddies ran into each other. One was Paul Price, state geologist of West Virginia, and the other was Glenn Bartle, president of SUNY-Binghamton, and a former geologist who got his start drilling gas wells in Oklahoma.

Price remarked that he was in St. Louis to hire someone to work in the oil and gas section of the West Virginia Geological Survey. Bartle said he knew of a person who was just finishing a master's degree at his university, so he would send him down to fill the job.

The next week a memo from the president's office was delivered to the chairman of the Geology Department instructing me to apply for a job in Morgantown. I didn't even know where Morgantown was, but I sent a letter applying for the job, and the offer came back by mail. Signed and sealed, now I had to deliver. But, I still didn't know where Morgantown was.

However, I did find it, and the rest, as they say, is history. With the exception of three quite rewarding years at Syracuse University, I have been at the Survey since 1966, moving up the ranks from a sedimentary petrographer to chief geologist, from a person involved in research to a person who constantly seeks research funds.

Actually, I now spend more of my time at West Virginia University than the survey, managing a multistate oil and gas research consortium whose most visible product is the *Atlas of Major Appalachian Gas Plays*.

Currently, we are in the process of setting up a Trenton–Black River Research Consortium, and initiating a multidisciplinary, multistate research program of the Trenton–Black River play.

Most of our consortium efforts have been in these more exciting research areas, but for the last seven or eight years I have been increasingly more involved in technology transfer through a contract with the Petroleum Technology Transfer Council. Although tech transfer may not be as exciting as research to some, because we work closely with domestic independents, I find it just as rewarding.

So, my career path, that started with a chance meeting in St. Louis, has been an intertwined mix of research, service, and technology transfer, all related to oil and gas, and usually involving company partners. This is not unlike AAPG, a society that promotes research projects leading to publications, and offers service to members, plus training and technology transfer, through the various AAPG programs.

My involvement with AAPG began when I first found Morgantown, nearly 38 years ago. I started by compiling annual drilling statistics for the Committee on Statistics of Drilling, which was a cooperative effort with the American Petroleum Institute, and used these statistics to write the annual West Virginia development paper for the *AAPG Bulletin* for 20 years.

During the last 10–12 years that the *Bulletin* published development papers, I coordinated the papers from four Appalachian basin states. I believe that this led to my participation on the COSUNA (Correlation of Stratigraphic Units for North America) project, so from 1976 to 1983 we coordinated the preparation of stratigraphic sections and a database by 13 geological surveys stretching from New York to Alabama. This, in turn, led to my participation on other AAPG committees that were technical in nature.

Eventually, I made the same transition in AAPG that I had made in my career—I shifted from these technically-oriented special projects and committees to more service-related efforts, beginning with a four-year commitment as an Eastern Section officer, followed by five more years on the Executive Committee as their representative to the Advisory Council, and eventually to more active roles in the Energy Minerals Division and the House of Delegates.

In looking back, I realize that not only did my career have a happen-stance beginning, but it also has had a number of unplanned turns along the way. In fact, I rarely, if ever, have planned a career move. Instead, it seems that there have been times I got involved in something that had to be done and no one stepped forward to do it. When this happened, I eventually stepped forward, or maybe the smarter ones were stepping back, so the proposal could be written, the contract managed, or the partnership formed.

More than 40 years ago I was working in a Treadway Inn in Rochester, New York. On my day off, I usually went to movies, and one of them was the *Guns of Navarone*. One scene in the movie more or less reflects my outlook on work and life that I have never forgotten. The team that had been sent in to blow up the guns had discovered that a young girl among them was a spy, and to insure their safety, it was determined that she must be eliminated. David Niven called on Gregory Peck to "be a buddy, be a pal, and do it for the good of the team." After all, David Niven said, "you're an officer. I wouldn't let them make me an officer."

Gregory Peck replied that he never wanted to be an officer either, and then he added," but someone has to take the responsibility if the job is going to get done."

And that is all I have ever tried to do—get the job done, even if more responsibility came with it.

Hopefully, there are more jobs out there, in AAPG and here in the office, waiting to be done that I will have time to do. Once again, I want to thank you for this great honor. I truly appreciate it.

Douglas G. Patchen

KOENRAAD J. WEBER

Honorary Member

Citation—To Koenraad J. Weber, dedicated giant in production geology, in recognition of outstanding achievements in search for the fundamental understanding of oil field behavior.

Koenraad Weber graduated with a master's degree in mining and petroleum engineering from the Delft University of Technology in 1960. He joined the Shell Exploration and Production Laboratories (KSEPL) in Rijswijk, Netherlands, and conducted research on geology and petrophysics. He worked for Shell for 33 years, followed by 14 years as professor of production geology at the Delft University of Technology. During this time he became the father of a discipline. He noted himself in his retirement lecture in Delft that "production geology is not a discipline in which Nobel Prizes are likely to be awarded. It is characterized by a continuous confrontation with new challenges and the gradual development of improved understanding and methods. As such it is a most interesting, satisfying, and adventurous lifetime occupation."

Koenraad has had an impressive career in petroleum geology, and many of us will know him as an inspiring personality with an encyclopedic memory and a lovely sense of humor. Much of Koenraad's early work was related to

the lithology, fracture patterns, and porosity variation of Middle East carbonate fields based on core and well data and comparison to outcrop analogs. Research into the application of steam drive to Venezuelan heavy oil fields with emphasis on the permeability characterization and reservoir continuity of channel-fill reservoirs led him to develop a portable mini-permeameter.

In the period 1968–1977, Koenraad moved two times to the Shell Petroleum Development Company (SPDC) of Nigeria as a reservoir geologist and later head of production geology. During the second period, he co-authored, among others, the well-known paper on the petroleum geology of the Niger Delta, which was presented at the 9th World Petroleum Congress. His long association with and contribution to Nigerian petroleum geology was recognized when he was named an Honorary Member of the NAPE (Nigerian Association of Petroleum Explorationists) in 1986 and received the NMGS/SPDC Award of the Nigerian Mining and Geosciences Society in 2003.

In 1977, he returned to KSEPL as head of production geology, which he expanded by including a geological core evaluation group, and also started reservoir geology courses in Shell Operating Companies. The role of seismic data in field development was emphasized in this period, with research under Koenraad leadership on the methodology to quantify seismic response and derive reservoir attributes such as thickness, porosity, and pore fill. Together with others he also published initial work on the sealing potential of faults based on clay smearing.

In 1979–1980, Koenraad was honored by the Society of Petroleum Engineers as a Distinguished Lecturer touring the Middle East and Europe, talking on reservoir characterization, including fault sealing and fractured reservoirs. As head of the African/Asian integrated petroleum engineering team in The Hague in 1981 the principal aim was to optimize oil-field developments and increase recovery efficiency. In 1983, he took a position as consultant production geologist for the Middle East and Africa, also in the Shell central office in The Hague, giving advice to Shell Operating Companies and helping screen new business opportunities. In 1985, he became a part-time professor of production geology at the Delft University of Technology, setting up geological characterization research projects for Ph.D. and M.Sc. students mainly involving detailed reservoir analysis and outcrop reservoir analog studies. Among students he is known as an enthusiastic and knowledgeable teacher but above all a person who seemingly knew something about most of the world's oil fields! He continued working for some two-thirds of his time with Shell as a consultant in reservoir geology until his retirement in 1993. For his former colleagues in Shell, Koenraad will be remembered as the "company's guru of production geology" who always questioned data acquisition and data quality.

Koenraad has several industry awards: Distinguished Lecturer of the Society of Petroleum Engineers, Distinguished Lecturer and Distinguished Service Award for the AAPG, and Distinguished Lecturer of the European Association of Geoscientists and Engineers from which, in 2001, he received the prestigious Alfred Wegener Award. At the end of 2003, he was awarded the van Waterschoot van der Gracht Medal from the Royal Dutch Geological and Mining Society.

Koenraad's work stands as an inspiration for students and practitioners worldwide. His teachings helped inspire the development of courses within the Technical University of Delft and the Ecole National de Petrole et des Moteurs in France. For many years he served as external examiner and advisor for the petroleum geology courses at the Imperial College of London and at the Institute of Petroleum Engineering at Heriot-Watt University in Edinburgh. Heriot-Watt University recognized Koenraad's many contributions to science, technology, and, last but not least, academic teaching by conferring an honorary degree of Doctor of Engineering on him in July 2002.

Koenraad studied mining engineering but worked as a geologist. He has published more than 60 technical papers and, despite his retirement as professor in Delft in 1999, he still prefers to solve scientific problems rather than gardening problems. At the age of 69, his continued enthusiasm for his subject is proof of his love for petroleum geology and engineering. Further, he has a broad interest in anthropology (e.g., by studying and drawing prehistoric skulls from Java and Australia to unravel the migration of prehistoric man in that area.) Also, his love for 19th century Dutch tall ships will soon culminate in a book to be published, written, and illustrated by Koenraad, starring his belated great uncle who left him his diary of his lifelong career as a sailor.

Koenraad has been happily married to Addy Weber since 1957, and they have two children and one grandchild. I have had the pleasure of knowing Koenraad for more than 20 years and working with him in a variety of capacities. Koenraad Weber has been instrumental in joining the disciplines of seismics, petrophysics, reservoir engineering, and geology together by being a multidisciplinary worker *avant la lettre*.

Lucia van Geuns

Response

When I received the letter informing me of being nominated as an Honorary Member, I was pleasantly surprised. I am thankful for the honor, which is something special for somebody who isn't even a real geologist. I was educated as a petroleum engineer, but the curriculum included much geology, which I am happy to say, is still the case in my alma mater, the Delft University of Technology.

During the early years of my career, I had the good fortune to receive frequent coaching from many excellent geologists who are now well known in the AAPG. I especially want to mention James Lee Wilson, Jerry Lucia, Ken Glennie, John Sangree, Rod Tillman, and Bob Sneider, who became a lifelong friend.

I started out as a research engineer at the Shell production laboratory in 1960, working on a team studying the production mechanism of the giant fields in Iran. I was given a beautiful microscope and was asked to make a geological model representing the fractured Asmari reservoir formation. Except for the inclusion of seismic

data, the approach to this study was about the same as what I would use today. Detailed core studies and petrophysical analysis, integration with wireline logs, measuring fracture density and orientation, unraveling the diagenetic history, log correlation, and last but not least outcrop observations. It was the extensive outcrop work in many locations that opened my eyes for the true nature of the various types of reservoir rock. At the same time, it showed me how similar rocks are that have the same sedimentary and burial history. This has always been my guideline in reservoir modeling.

Another very important factor is the access to literature. In the laboratory we had excellent library facilities, and moreover, I was surrounded by kindred spirits eager to show their latest discoveries. Later, this was augmented by attending conferences, workshops, and forums, where one would also meet geologists from other companies and universities. I received permission at a rather early stage to attend conferences and also to present and publish my own work. This frequently led to contacts with people doing similar studies, resulting in a mutually fruitful exchange of ideas. It is here, I think, that the role of the AAPG, the Society of Petroleum Engineers, and also the European Association of Geoscientists and Engineers are crucial. I have always been willing to help in organizing meetings and in lecturing because it is essential to spread the knowledge and to discuss ideas in a convivial atmosphere. In total, I attended some 80 conferences and forums of which 10 were AAPG conferences.

During the first 20 years of my career, I alternated between research work and operations. This is ideal for obtaining inspiration for new methodology, gathering relevant data, and testing one's ideas in practice. In this period, the multidisciplinary approach became increasingly important. This necessitated learning a great deal more of seismic and reservoir engineering. The present practice of production geology requires a considerable broadening beyond the geological education.

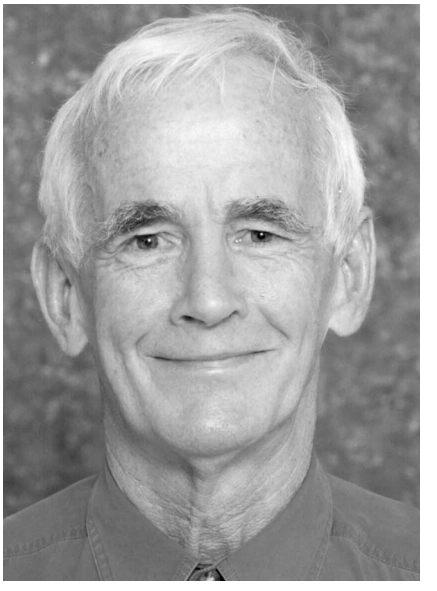
The integrated teamwork became my job in 1981 when I became head of the African-Asian study team. This consisted of several multidisciplinary sections carrying out advanced field studies for which large high-speed computers were needed. I had always done much traveling but now the real globetrotting started in earnest. These were interesting and sometimes exciting times. Staying in Baghdad during the war with Iran, my hotel room was damaged by a car bomb explosion. I also have to confess that one of the wells we proposed discovered a large oil accumulation, which was later christened the Saddam field.

My most busy but most rewarding time came in 1985 when I was asked to become professor in production geology at Delft University. In Shell, I changed jobs to become a geological consultant for the operating areas. In addition, I was supposed to monitor technical developments and research progress in the industry. Audits of field development plans and acquisition opportunities were also part of the job. Thus, it was normal practice to be collected late on Friday afternoon at the university by a company car. The students would express their envy, not realizing that I would have to sit in a plane throughout the night, followed by several busy days in a hot beer-free country, skipping the weekend!

In 1993, I retired from Shell after a few final years as senior consultant. At the university I now had ample time to expand our production geological research. Together with the geology professor Freek van Veen and the lecturers, a center for geological reservoir characterization was set up. Besides 10 Ph.D. projects, we also provided more than 80 M.Sc. students with interesting and useful research programs. We maintain relationships with several other universities, resulting in fruitful cooperation and joint projects usually involving outcrop studies. I retired in 1999 but this work continues on a large scale led by my successor, professor Stefan Luthi. Although it is regretted that oil companies are reducing their research efforts, this has resulted in the farming out of interesting projects to the universities.

Of course I keep in contact with the university and still have one Ph.D. candidate to coach. As an advisor to a small oil company I continue to do some interesting work. Recently, I wrote the chapter on production geology for a new geological encyclopedia together with Lucia van Geuns, with whom I have cooperated for many years. Thus I don't feel like retiring to gardening just yet and I hope to be of some use to the AAPG in the future.

Koenraad J. Weber



HUGH DAVIES

Michael T. Halbouty Human Needs Award

Citation—To Hugh Davies, for excellence in the application of geology to mitigate the human impact of natural disasters and for devotion to young geologists in Papua New Guinea.

Hugh Davies was born in 1935 in Perth, Western Australia, into a mining family that had recently moved from the Western Australia goldfields. He completed a first degree in geology at the University of Western Australia then joined the Australian government as a field geologist. He worked one season in northern Australia before transferring to the resident geological staff in Papua New Guinea (PNG), which was then still a dependency of Australia as the Territory of Papua and New Guinea. This proved to be a fateful move because he has never really left PNG in the succeeding years, and has never lost his fascination with the great mountains, the exciting geology, and his love of the people.

While working in PNG, he completed an M.S. degree from his alma mater by

part-time study, and later went on to complete a Ph.D. at Stanford University. His thesis reported the results of research into the great ophiolite of southeastern PNG and concluded that this was former oceanic crust and mantle—a novel idea at the time! Along with the degree, he also brought home from Stanford a beautiful American wife, Connie Lou, who continues as his companion and soul mate today.

In PNG, he was initially engaged in regional geological mapping, and his name is on one-half of all the 1:250,000 series geological maps of PNG, and on a vast number of published reports about PNG geology. Davies has plans to pull this accumulated knowledge into a comprehensive account of PNG geology. From the regional work, he developed an interest in the history of geology, mining, and petroleum exploration in PNG and produced a comprehensive account of the life and work of the pioneering government geologist (1911–1924), Evan R. Stanley.

He served as the first chief government geologist of the newly formed government of the Independent State of Papua New Guinea in 1973–1977. He was in charge of the fledgling Geological Survey, which comprised about 50 staff, and was involved in providing technical advice to the government with regard to petroleum and mineral exploration.

In 1977, he stood down as chief in order to take time to complete the geological maps of the western central ranges of PNG, and in 1981 the family moved from PNG to Australia. There he was reassigned to marine geological work, including a series of cruises in the chill waters of the southern ocean.

In 1989, after taking early retirement from the Australian government, he was appointed professor of geology in the University of Papua New Guinea (UPNG), where he continues teaching today. He says it was a dream come true, a chance to repay the people and the country, to mix with them and help to train very bright young people and, of course, to learn more about PNG geology.

The UPNG geology program was in a poor state when he arrived, and there had been some consideration of closing the program or of transferring it to another institution. Davies set about recruiting staff and redesigning the undergraduate curriculum, including the writing of an introductory textbook designed for PNG students. He pressed for new staff positions, including one in geophysics, which he saw as a priority area, and sought and received much support from industry. The rehabilitated geology program became recognized as one of the best in the University, and it became necessary to apply quotas, selecting students on the basis of academic performance.

Since that time more than 220 PNG geology students have graduated with bachelor degrees, and a further 20 with research degrees. These he regards as family. Some of the best of the graduates have been attracted into teaching with the result that the teaching staff is now entirely from within PNG, with the one obvious exception. Davies provides much help for the young graduates to find work, introducing them to the resident mining and petroleum companies and fostering them into their careers.

Papua New Guinea lies on a major plate boundary and as a result is prone to natural disasters of all kinds. In recent years, Davies has become increasingly involved in disaster reduction, an interest that began in 1984 when he was called from Australia to Rabaul, in east New Britain, at short notice at the time of a seismic crisis that was thought to be the prelude to an imminent eruption. He was called in again in 1994, when a massive eruption eventually took place that destroyed much of the town of Rabaul. Both times he served as a liaison and public relation's link between the volcanologists, the disaster managers, and the public, and both times he wrote a review of how events developed and how the disaster was managed.

Between 1998 and 2001, he undertook a similar role in the aftermath of the terrible Aitape tsunami (July 1998, more than 1600 killed), repeatedly visiting the disaster scene and the resettlement villages to provide information for the victims and to gather their stories. He subsequently organized a large conference where victims, scientists, and managers could meet and produced a 170-page report on the disaster that should stand the test of time as an historical record, and as a guide for planning for such future emergencies.

In 2002, he established a Center for Disaster Reduction within the University to encourage awareness, education, and research, and in 2003 introduced a University course in disaster reduction. He chairs an active technical subcommittee of the government's National Disaster Committee, and has been responsible, with the help of a small team, for a large volume of awareness materials relating to tsunamis—booklets and pamphlets that have been distributed in their thousands nationwide.

In 1980 he was awarded Life Membership of the PNG Swimming Union for services to competitive swimming. Now he relaxes with field trips, road running, chilling out with family, and singing in the local choir, as befits one of Welsh lineage. He plans to continue teaching and research and mentoring at the UPNG for many more years, God willing, and is concerned only to find the funding and time to do the job properly, to ensure that the young Papua New Guinea geologists are given the best possible preparation so that they can contribute to the building of their brave new nation.

Michael McWalter

Response

I am mindful of the honor you confer on me with this award and thank you with all my heart. I am especially pleased that the award gives me a link to Michael T. Halbouty, a legend in petroleum geology and the man who launched the Circum-Pacific Energy and Mineral Resources project, and to Hollis Hedberg, an early awardee, who became our friend in special circumstances in Kashmir.

To begin this response I would like to take you back to my childhood and Cottesloe primary school in Western Australia, at a time when Australia was under threat of invasion by Japan. Trains carrying American servicemen would pass our school from time to time, and we kids would rush out of class to greet the troops and to be showered with candies and gum by these friendly young men, dressed in strange uniforms and speaking with strange accents.

I see a parallel in today's proceedings where you, the members of the AAPG, reach out to honor a little-known professor from a small university in a distant land. It is the same American trademark openness and generosity that was displayed by those young men 60 years ago. God bless you all for that generous American spirit.

When I arrived in Papua New Guinea (PNG) in 1957, the economy was based on subsistence farming and some tree crops. Few people were educated and expatriates occupied all responsible positions, from administrator down to truck driver and foreman. In the succeeding years four world-class mines and an oilfield were discovered and developed, and the country moved to independence. Now much of the population is educated, and Papua New Guineans hold most responsible positions, from Prime Minister to airline pilot. This very rapid transition was achieved at some cost to the social fabric of the country, including some years of civil war on Bougainville Island, but has been generally peaceful, and democratic government has prevailed.

Papua New Guinea continues to be "the place we would rather be" for many of us foreigners, partly because of the challenges and partly because of the people. They are special. I invite you to come visit this beautiful land and see for yourselves.

Disasters are increasingly a part of our daily diet of news and information, and the geological community is increasingly called upon to assist. I came into disaster work by accident, rather than by plan. In fact I was not too keen about my first assignment, which was in Rabaul in 1984 when we thought that any moment the volcano would blow, and knew that the Observatory was in the direct path of the eruptive products. You have to be a real volcanologist to enjoy that! But when you are called to help, you do what you can. Since that uncertain start, disasters have become increasingly a part of my life, especially after the 1998 Aitape tsunami, which has occupied a lot of my time in the last few years. The experience has taught me that, along with teaching the young, there is nothing so satisfying and rewarding as being able to help others in their time of need. I thank the University of PNG for giving me the opportunity to do both—teaching and helping.

For a first course in disaster reduction presented at our university last year I developed a set of objectives, or code, for those concerned with disasters. To me, this is what it is all about. I would like to share the code with you.

> Let us aim to be able to say, at the end of the day, that there has been no unavoidable pain or anguish, no unavoidable loss or damage, and no unavoidable delay in response and recovery, that no effort has been spared to help those in need, and that we have prepared as well as we possibly can for whatever may happen next.

Each of us has known people through our lifetimes who have influenced us or who have especially earned our trust and affection. At the risk of omitting some, I would like to tell you about some of those in my past. At the University of Western Australia in the 1950s there was a remarkable trio: Rex Prider, Alan Wilson, and Rhodes Fairbridge. At Stanford University in the 1960s there were William Dickinson, George Thompson, Si Muller, Charles Park, and Konrad Krauskopf and three people who had especial influence on me: my supervisor Robert Compton, and, over at the Menlo Park office of the U.S. Geological Survey, Robert Coleman and the late Dale Jackson. In later years at MIT there were Stan Hart and Fred Frey, and on the Southern Ocean and at the Museum National d'Histoire Naturelle, Paris, the late Lucien Leclaire.

Working in PNG over the years one sees a passing parade of petroleum companies and people, and some of these became special friends, in particular Ruth and the late Don Leibbrandt (Don led the Phillips offshore drilling campaign in PNG); Jon Stoen, then with Amoco; Michael O'Day and Ted Gurney of Gulf, who brought in the Juha gas field discovery; the many fine young professionals that formed the Chevron Niugini team; good friends at our home-grown company, Oil Search; and of course the inimitable Michael McWalter in the PNG Department of Petroleum and Energy.

For field mapping in PNG, I remain indebted to the strong and willing men of Samberigi valley under Arogu Kendi—no task was too tough for them; to the helicopter pilots who assisted in later work, including my good friend the late Bruce Evans; to fellow geologists and friends at Bureau of Mineral Resources (BMR) and Geological Survey of PNG; to a sympathetic BMR management under Norman Henry Fisher; and to free-thinking geologist Jack Errol Thompson and the late Arthur Stephens, who were my guide and mentor, respectively, through those early years in PNG when the spirit and mind were most malleable. Back at the University of Papua New Guinea, I thank the Earth Sciences staff for their great work and for doing a lot with very little, the students for their vitality and enthusiasm, and the alumni for honoring me by establishing a foundation in my name. Finally, I thank Connie Lou and our family of four fine young people, for love and support through the years. As the song says, "You are the wind beneath my wings."

To all of you, members of the AAPG, thank you again for this very special award.

Hugh Davies

CLAYTON H. RIDDELL
Outstanding Explorer Award

Citation—To Clay Riddell, in recognition of his foresight in the

exploration and development of prolific low-pressure natural gas reserves in northeastern Alberta.

Clay Riddell has been involved actively in the oil and gas industry for 44 years. As a graduate of the University of Manitoba with a B.Sc. in geology, Clay began his career as an exploration geologist with the Standard Oil Company of California in 1959. These were early days for the oil and gas industry, and much of the Western Canada sedimentary basin was underexplored. Clay spent many summers mapping surface geology in the Northwest and Yukon Territories, gaining valuable field experience that is rarely acquired today. By 1969 the entrepreneurial spirit in Clay took over, and he left Chevron to start his own business, C. H. Riddell Geological Consultants Ltd.

In 1971 he incorporated Paramount Oil & Gas Ltd., a private oil and gas company. The company put together drilling prospects for others until 1975, when a busy period of expansion began with the use of drilling funds and joint venture capital. In December 1978 the assets accumulated by Paramount Oil & Gas were put into a new public company, Paramount Resources Ltd., which concurrently raised $5 million on the Alberta Stock Exchange. The same $5 million for those who have remained loyal shareholders, of whom there are several, is estimated to exceed half a billion dollars in value.

Clay's activity was centered in northeastern Alberta, an area previously known only for its heavy oil and tar sands potential. Clay had believed for a long time that there was economically recoverable natural gas in northeastern Alberta, although significant engineering challenges to get it out of the ground commercially posed a formidable obstruction. When Paramount drilled its first well in the region in 1976, there were no pipelines, and conventional drilling practices had proved inadequate to provide conclusive evidence of the gas potential in the area.

Clay recognized the hydrocarbon potential of the Devonian in northeastern Alberta and mapped the subcrop edges of at least five different internal reservoir members within the Grosmont Formation, as well as the Nisku Formation equivalent subcrop edge and the Leduc Formation. At this time, aside from the recognized heavy oil potential, the Grosmont Formation was regarded only as a problem during drilling. When drilling this zone, a conventional water-based mud system results in severe loss of circulation because of its extremely high reservoir permeability coupled with its underpressured nature. Consequently, gas reserves within the Grosmont Formation had been bypassed.

Recognizing this, Clay, in combination with the drilling staff at Paramount, fine-tuned the application of air-drilling technology in low-pressure gas reservoirs, a technology that is now used extensively throughout the industry in shallow gas drilling. With Paramount's specially developed drilling, the company made several large discoveries, with individual wells capable of producing up to 10 mmcf/day of natural gas deliverability at depths less than 600 feet and reservoir pressures just over 100 psi. Clay parlayed this proprietary application of the air-drilling technology into value for Paramount shareholders by acquiring large tracts of undeveloped lands in the area.

Not only did Clay take significant risk on the technical side to drill the discovery wells using unconventional drilling technology, he also took significant personal risk to bring these gas reserves on production. As the majority shareholder of Paramount Resources, he personally made the financial commitment to bringing this gas on stream. There was no long-term production analog for gas production from underpressured, heavy oil-saturated carbonates. Recoverable reserves were suspect at best and, in fact, conventional analysis by Paramount's independent engineering consultants assigned reserves that couldn't possibly justify the financial commitment required to bring this gas on production. Eventually Clay believed a critical mass of gas was proven and Paramount made commitments that allowed NOVA Pipeline Ventures Ltd. to extend its transportation system to the area in 1982. In the oil and gas towers of downtown Calgary, this major lateral extension, the Liege lateral, became known as "the line that Clay built."

Fortunately, independent engineers were proved wrong. Once production commenced along the trend, the independent engineers had to revise their reserve estimates annually, because total booked reserves for the field were produced annually with minimal production decline. This practice of annual upward revisions carried on for several years until finally there was no denying the presence of these significant gas reserves. The Alberta Energy and Utilities Board recognizes reserves of more than 1.1 tcf of gas in place for the Liege field alone. An additional 400 bcf of gas reserves are recognized as a result of this play concept along the Liege lateral. Since the NOVA lateral became operational in 1982, more than 1 tcf of natural gas has been produced. Paramount did not capture all of it, but now 20 years after production commenced, the company still records more than 100 bcf of net recoverable gas reserves and close to 50 mmcf/day of production from Liege, Legend, and other pools.

At the same time, Clay pioneered a second shallow gas play in northeastern Alberta. This involved the discovery of gas in the Cretaceous clastics of the McMurray and Wabiskaw formations along the Devonian salt collapse edge. Beginning with a farm-in on Chevron, Paramount drilled the first of a four-well commitment at Chard in 1976. Although the first well was a dry hole, Clay persevered and drilled three successful gas wells that formed the initial discovery of the Chard field. Extrapolating that play concept along trend, Paramount discovered significant gas reserves. After development of the Chard field, that initial dry hole proved to be the only dry hole in a four-township area. More than 250 bcf of gas has been produced from the Chard field since production commenced in 1982, and production rates are still on the order of 50 mmcf/day from this field.

Exploration success continued throughout the late 1980s and 1990s as Clay led Paramount to continue to exploit the Cretaceous clastic reservoirs back of the Devonian salt collapse edge employing seismic bright-spot technology to high-grade locations. Cretaceous gas was discovered by Paramount in the

Clearwater, Grand Rapids, Wabiskaw, and McMurray formations, from the Corner field south to Leismer. Mapping the plays is one thing, but translating the ideas into a billion-dollar enterprise is something very different. In 2003, after more than 20 years of successful exploration and development on the northeast Alberta shallow gas trends, Clay and Paramount Resources successfully created a new public entity, Paramount Energy Trust, by transferring the original northeast Alberta assets into an oil and gas royalty trust structure and thereby providing a tax-efficient income stream for shareholders from these prolific cash flow–generating mature properties. The Trust currently produces more than 90 mmcf/day net from northeast Alberta, with booked reserves of close to 200 bcf and a market capitalization approximating half a billion dollars. Clay has always had the business prowess to turn ideas into value, and that genuinely sets him apart.

The same vision and entrepreneurial drive that opened up the gas fields of northeastern Alberta is evident today with Paramount's current activities in northwestern Alberta and the Cameron Hills area and the Liard basin of the Northwest Territories. Most recently, Clay has led Paramount farther north to the Colville Lake area of the Northwest Territories, which is roughly 1000 miles north of Calgary at the Arctic Circle. With successful exploratory oil and gas discoveries made to date, these areas may well prove to be the backbone of the future oil and natural gas production infrastructure required to unlock the exploration and development potential of the Northwest Territories.

Clay, through Paramount, has managed to grow and compete successfully with the giants in the industry exploring, developing, and producing natural gas while still retaining a 50% controlling interest in Paramount Resources and Paramount Energy Trust. The original exploration and development company continues to operate with a relatively "flat" structure with Clay maintaining an active role in the decision making process, despite the fact the firm has grown from 6 to more than 300 employees. The energy trust is an exciting new opportunity to add value for its unit holders, many of whom are shareholders of Paramount, as a result of the unique spinout of the royalty trust as a dividend-in-kind to shareholders. Clay is extremely proud of the achievements of the team at Paramount over the first 25 years of its operations, developing a high level of pride, entrepreneurial spirit, and mutual respect among staff and management.

While successfully building essentially two intermediate-sized energy companies, Clay has also made time to be unselfishly involved in industry activities, serving as president of the Canadian Society of Petroleum Geologists (CSPG) in 1987, as a director of the Independent Petroleum Association of Canada (IPAC) from 1988 to 1992, and then as a governor of the Canadian Association of Petroleum Producers (CAPP) from 1992 to 1995 and from 1998 to 2001, including serving as chairman in 1993. He continues to be actively involved in CAPP and many other industry initiatives but never forgets his technical roots, as he frequently can be seen at the Paramount table at most CSPG technical luncheons.

Jim Riddell and Sue Riddell Rose

Response

While enjoying a quiet lunch at my desk a few weeks ago, my friend and colleague, George Eynon, called to inform me that the AAPG had recognized me with their Outstanding Explorer Award. My first reaction was surprise and astonishment, followed by sincere appreciation of my colleagues and peers who had made this possible, and finally some reflection on the past several decades that have seen both accomplishments and disappointments, success and failure. I was blessed with educators who not only transferred knowledge but demanded original thought; co-workers who shared ideas and with whom you could develop your ideas and theirs; and, most important, a family that encouraged and supported.

I can't imagine many careers more exciting than that of an explorationist, working with a myriad of data from diverse sources to unravel puzzles that could locate and exploit the energy resources of the earth to satisfy the needs of a society dependent on ever-increasing supplies of oil and gas. Many geologists have had the opportunity to work in all corners of the globe, but my career hasn't taken me outside North America; in fact, rarely outside Canada. I have found more than enough challenge in getting the Western Canada sedimentary basin to give up its secrets. My career has dealt almost entirely with finding, producing, and marketing natural gas, but I expect the challenge or excitement of finding oil or working in another basin would be much the same.

To credit any one individual for any exploration success is difficult. I have been involved with the drilling of probably more than 1000 wells during the last 40 years, all interesting, but a few highlights come to mind. Paramount's original discoveries were made possible by information from dry holes, my own and others, applying just a little different thinking and not just related to geology. In the early 1970s, I mapped the Grosmont subcrop in northeastern Alberta and highlighted several potential traps. I laid out a ten-well program to test the ideas and managed to fund the drilling through participation by many small investors. After drilling nine dry holes, I was feeling pretty glum, and the tenth looked about the same as the first nine. The wells had all lost circulation in the Grosmont zone so had cost much more than budgeted, and conventional thinking said if there was any natural gas, it would have blown out with no mud in the hole during lost circulation. Desperate to make something out of my ten-well program, I decided to complete the last well anyway.

On perforation and modest stimulation, the well gave up small gas flows along with lots of formation water and finally flowed at about 500 mcf/day, far from economic. With nine months to the next winter drilling season, we began to try to sort out our dilemma. The Devonian Grosmont biostrom is an incredibly good reservoir, but it is underpressured. Overlying the Grosmont are several very porous, very wet Cretaceous sands. When circulation was lost, these uphole sands kept supplying formation water in huge quantities to prevent the Grosmont from blowing out. We weren't sure this

was the answer but decided to try running an intermediate string of casing to put these sands behind pipe before drilling into the Grosmont—an intermediate string in wells just 700–1000 feet deep. Then we drilled into the Grosmont with air-drilling equipment, and the results were immediate and amazing. The first well we drilled using the program had an absolute open-flow potential of 30 mmcf/day with no formation water. Many of the nine dry holes I had drilled the season before had been drilled into gas accumulations that I had missed because of our drilling technique. Other operators who had drilled in the area had the same problem and the same result. Paramount parlayed this knowledge into a series of discoveries along 150 miles of the Grosmont subcrop. Ultimately, close to 2 tcf of natural gas in formations 600–1200 feet deep and at reservoir pressures hardly more than 100 psi was developed along the trend. Paramount by no means got all the resource but enough to launch a successful small independent.

Not all experiences are quite that positive. In the early 1980s, I decided to drill two multimillion-dollar exploratory wells in the southern part of the Northwest Territories on structures I was sure would be successful. I drilled two dry holes at a cost of more than $20 million, finding only a trace of natural gas in one well. About 20 years later, Chevron shot a 3-D seismic survey over the same structure, moved about half a mile from my dry hole, which I had located on the basis of surface geologic mapping, and drilled a huge discovery with several successful follow-ups. Although perhaps a little disappointed Paramount did not make the discovery, there was a lot of satisfaction in seeing someone else interpret things just a little differently and make a sizeable discovery on the play I had originally conceived.

North America consumes more than 25 tcf of natural gas annually, producing at average rates of 75± bcf each day. The task of replacing reserves and deliverability each year is enormous, but it is happening. The point of the previous two stories is that there are resources not only in new frontiers but also where others have already looked. The cost of finding new reserves is increasingly expensive, but aided by rapidly developing technology, adequate commodity prices, and earth scientists with inquisitive minds, the task can be done, and is being done, all over the continent. It's fun just to be a small part of this effort.

I have been extremely fortunate. I participated for ten summers in the mapping of the Canadian cordillera from the United States border to the Arctic Ocean using horses, helicopters, fixed-wing aircraft, canoes, and other sundry support equipment. I am participating in a vibrant, competitive industry in an economic and political (usually) environment that fosters entrepreneurial ventures. I am especially proud that family members have shown an interest in and capability of continuing to grow Paramount and Paramount Energy Trust.

Considering how many times I have been wrong in my exploration efforts, it is indeed an honor to be recognized by my peers for the Outstanding Explorer Award.

Clayton H. Riddell

KNUT O. BJØRLYKKE

Grover E. Murray Memorial Distinguished Educator Award

Citation—To Knut Bjørlykke, scientist, teacher, and mentor, the principal of the Norwegian school of diagenesis, who is a pioneer in petroleum geology teaching, by quantifying and modeling fluid flow and diagenesis.

Knut O. Bjørlykke was born on June 7, 1938, in Trondheim, Norway. He was exposed early to geologic reasoning and principles, as both his father and grandfather were prominent Norwegian geologists. However, his traditional breeding has not limited Knut's career, as he has always tried to confront conventional points of view and taken on new directions.

Knut graduated (cand. real) in geology from the University of Oslo in 1964 and received his Dr. Philos. degree ten years later. After graduating, Knut became a lecturer at the Department of Geology, University of Oslo, where with great enthusiasm he built the first regular sedimentology program in Norway. As a student in the department, I first met Knut then, and for me it was a refreshing experience to have a teacher close to my own age. Already, Knut questioned conventional geological wisdom and posed to us the need to quantify processes by the laws of physics. In his first Oslo period, Knut also taught at Makerere University in Kampala, Uganda (1969–1971).

Knut started out studying the sedimentology and structural evolution of the Late Precambrian sedimentary sequences in Norway. His publications from this period focus on late Precambrian stratigraphy and glaciation and on late Precambrian tillites—both from late Precambrian rift sediments in southern Norway, but also from northern Norway and Uganda. Knut then changed his field of research to the geochemistry and mineralogy of lower Paleozoic shales and limestones in the Oslo region and in Wales, interpreting the provenance of these fine-grained sediments in relation to the obduction of ophiolites in the Caledonides.

Knut was appointed professor of petroleum geology at the University of Bergen in 1976. The year before he had been on a study tour to universities and oil companies in the United States to discuss education and research needs in petroleum geology. It was great seeing him again in California when I was at Berkley. Knut was ready for a change and was very much looking forward to

the challenges waiting for him in Bergen. The University of Bergen had the first chair in petroleum geology in Norway, and Knut became responsible for the petroleum geology program during the initial period of petroleum activity in Norway. Many students, now employed by the petroleum industry, were then exposed to an up-to-date set of international teachers in this program. These students were ready for work from day one, as most of what they were taught at company training, they knew from the Bergen petroleum program. Knut started his research on clastic diagenesis and reservoir geology at the University of Bergen, and several of his students from this period have had distinguished academic and industrial carriers. Some of them (notably Per Arne Bjørkum and Olav Walderhaug) have made important contributions, particularly in the quantification and modeling of diagenetic processes such as quartz cementation in reservoir sandstones.

In 1984, Knut returned to the University of Oslo as professor of sedimentology and petroleum geology, and for the first time I got a chance to work closely with him. Knut continued and expanded his research on diagenesis and reservoir geology with several colleagues at the University of Oslo, and this became the most productive period of his career. In 1985 he organized the establishment of an organic petroleum laboratory led by Steve Larter, now at the University of Newcastle. This allowed our Research Group at the University of Oslo to conduct integrated research on generation, migration, and trapping of petroleum. This research was very much influenced by Knut's knowledge and critical questioning. Compaction and fluid flow in sedimentary basins and its consequences for heat and mass transport have been central elements in Knut's research. He has cooperated with Enok Palm on mathematical modeling of thermal convection, and with Kaare Høeg on experimental compaction of sands at high stresses.

Over the last 20 years, Knut has provided an integrated view of the sedimentologic, diagenetic, and quantitative geochemical processes controlling reservoir properties in sedimentary basins. Although mainly based on sandstone reservoirs on the Norwegian continental shelf, the results are relevant to modeling reservoir properties worldwide. Knut's emphasis on predominantly closed geochemical systems and the quantitative limitation of fluid-flow systems to increase subsurface porosity has resulted in critical reevaluations of secondary porosity models that dominated the literature in the early 1980s. This view, which is also based on extensive petrographic examinations of cores, has resulted in several numerical simulation models, which have demonstrated their utility in a wide variety of geologic basin types. In addition, it provides a valuable basis for interpreting measurements and observation from sedimentary basins whose burial history is either unknown or highly uncertain. Overall, his impact on basin studies, as well as the evaluation of geological controls on reservoir quality risks, has contributed significantly to our profession's capabilities in these demanding technical areas. Knut has written textbooks on *Sedimentology* and *Petroleum Geology*, received several prizes and awards, including Statoil's Research Prize, and has twice been appointed AAPG Distinguished Lecturer. He is Honorary Fellow of Geological Society of London.

Knut greatly cares about his students, and remembers them all well, but cannot be considered a soft teacher. Knut challenges the students and expects their contributions in discussions and projects in return. Good students with the necessary background in basic sciences find this form of communication quite inspiring, and the method has proven quite successful for the M.Sc. and Ph.D. projects Knut has supervised. The field class in Yorkshire is Knut's favorite. He still finds great pleasure in challenging the students physically up the slopes, and not the least in the pub in the evening.

Knut has now taught at universities for more than 40 years, but has by no means slowed down, either with research or teaching. His research is presently concerned with experimental compaction and compaction-driven fluid flow. Knut also contributes frequently with popular articles on petroleum geology and enjoys confronting the politicians in the public debate about science policies and environmental problems.

Per Aagaard

Response

I feel greatly honored receiving this award from the AAPG, which, also in Norway, ranks as a very important professional organization for both university and industry geoscientists. I would like to extend a warm thank you to those who have put me forward as a candidate for this award and to Per Aagaard who has kindly written my biography.

I started by having summer jobs working around mines and helping out with geological mapping from the age of 15 and found it interesting. Before I had finished high school I had taken part in mapping basement rocks and quaternary sediments and also prospecting for tungsten, uranium, and lead. I decided relatively quickly not to rebel against expectations that I would follow the family tradition and become a geologist, and the same was true of my brother Arne.

When I was a student at the University of Oslo, North Sea oil had not yet been discovered, and Norwegian geology was very much dominated by hard rock geology and geochemistry. I happened to be one of the first to take an interest in sedimentology in Norway, where I was able to study sequences of late Precambrian and lower Paleozoic rocks that were not strongly deformed or metamorphosed. At that time I was much involved with pre-Quaternary glaciations and also with the mineralogy and geochemistry of the Cambrian–Silurian sedimentary sequence in the Oslo region.

When oil exploration started in the North Sea in the late 1960s, Norway had little expertise in petroleum geology. In 1975 I had a travel stipend to undertake visits to prepare myself for teaching petroleum geology, and I traveled through the United States, making contact with numerous universities and oil companies. I met several colleagues who were very helpful and established contacts that have lasted since then. This was particularly true of colleagues from the University of Texas at Austin, Bureau

of Economic Geology and the University of California, Santa Barbara.

When I was appointed professor of petroleum geology in 1976 at the University of Bergen, it was a great challenge to establish a master's degree program in petroleum geology. To compensate for our own shortcomings in this field, we managed to invite some of the very best geologists and geophysicists from other universities and from industry to teach short courses to our students and also to participants from the Norwegian petroleum industry. That was a great way to get started.

We benefited also from very good cooperation with the international companies based in Norway and, in addition, I had the chance to visit the research laboratories of most of the major oil companies in the United States. In the late 1970s and early 1980s, these oil companies had research laboratories supported with very good funding and a high degree of freedom with respect to research. They were intellectually stimulating places to visit for an academic geologist.

As petroleum activities in the North Sea expanded, it was natural to direct my research from onshore to offshore. Predicting porosity distribution in North Sea reservoir rocks was my first challenge. I tried to build on the Norwegian traditions in mineralogy and geochemistry, and this led me into the field of clastic diagenesis. This field grew for the most part out of sedimentary petrology, which was mostly based on textural criteria for mineral dissolution (secondary porosity) and for growth (i.e., quartz cementation). It became necessary to quantify these processes based on geochemistry and fluid flow in sedimentary basins. At both Bergen and Oslo universities we had research projects funded by the Research Council of Norway and the oil industry to study clastic diagenesis and fluid flow. We had great cooperation with Enok Palm on mathematical modeling of convective flow, and Per Aagaard helped to keep us straight with respect to thermodynamics and kinetics. Some of my former students have taken this research further in terms of quantifications—notably Olav Walderhaug and Per Arne Bjørkum—and many are currently working in this field in oil companies.

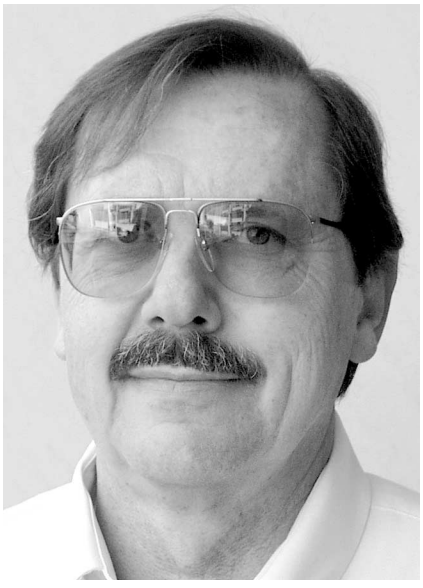
Through the help of Steve Larter and Detlev Leythauser, we established a petroleum geochemical laboratory and regular teaching of petroleum geochemistry at the University of Oslo. The development of methods to analyze hydrocarbon inclusions in quartz by our Ph.D. students (Dag Karlsen and Tor Nedkvitne) was a kind of synthesis of organic geochemistry and clastic diagenesis.

Geology is today torn between very descriptive traditions and a quantitative approach that often involves highly complex mathematical modeling. This presents a problem in our training of students. It is difficult to equip them with traditional geological skills including fieldwork and at the same time a sufficiently strong background in physical, chemical, and mathematical modeling. We think, however, that very often relatively simple calculations can be used to determine which processes are of some geological and practical significance.

There is still a considerable gap between geological disciplines and engineering. The fields of rock mechanics and petrophysics recruit for the most part from non-geologists. In cooperation with Kaare Høeg and the Norwegian Geotechnical Institute, we have tried to reduce this gap through combined research projects and teaching within these fields. We have conducted experimental compaction of sand of different grain size and composition relevant for mechanical compaction of reservoir sandstones. We are also trying to understand the factors that control the velocity of sediments as measured by well logs and seismic data.

Geology as a modern university subject is very different from what my generation was taught, and it has been very interesting to follow this development. Today there are many different disciplines competing for the best students at the universities, and it is important that a sufficient number of bright students choose geoscience and petroleum geology. I think that AAPG plays an important part in this effort but the petroleum industry also needs to do more.

Knut Bjørlykke



WILLIAM E. GALLOWAY

Grover E. Murray Memorial Distinguished Educator Award

Citation—To William E. Galloway, outstanding teacher and researcher, whose insights into both practical and fundamental stratigraphy and sedimentology have been an inspiration to legions of students and peers.

Bill Galloway is simply one of the foremost teachers in the nation of practical stratigraphy and sedimentology as utilized in the petroleum industry. The wisdom and training he has imparted to a legion of students entering the petroleum industry over the past 30 years, as well as to the many professional geologists who have attended his lectures at AAPG annual meetings and on his Distinguished Lecture tours, have been profound.

Galloway's research and publications on Gulf Coast geology, from his first paper on the Wilcox deltas of Louisiana (a product of his master's thesis at Texas that I was privileged to supervise) to his monumental, ongoing synthesis of the Gulf Basin in the Gulf of Mexico Depositional Synthesis Project, have made him the foremost scholar of the Basin of the past generation. No one has contributed more to our understanding of Gulf Coast Basin geology than Bill Galloway has. His work has won him three best-paper awards: two Levorsen Awards and the prestigious Pratt

Award from AAPG for his seminal paper on the Frio. His publications, including his widely used and referenced book with Dave Hobday on terrigenous clastic depositional systems, have made him one of the most cited geologists over the past three decades and the most cited geologist on Gulf Coast Basin geology. He will most likely hold that distinction for many years to come.

Bill Galloway is a native Texan, born in Waco 59 years ago. He earned a B.S. in geology from Texas A&M University and an M.A. and Ph.D. in geology from the University of Texas (UT) at Austin. He began his professional career with Conoco in their Exploration Research Division at Ponca City in 1970, where he started as a research scientist, later advancing to research group supervisor and finally director of the geology section of the division. But within five years he yearned again for university life, and we were able to persuade him to come back to UT Austin to join the Bureau of Economic Geology as research scientist.

Bill's research at the Bureau, except for his foray into the Paleozoic of the Eastern Shelf as part of his doctoral dissertation under Frank Brown, focused on the Texas Gulf Coast Basin, initially within the Catahoula and other south Texas formations hosting uranium deposits. He later directed a lot of his effort to the Frio Formation, where his 1983 paper won him the Pratt Award. Also in 1983 the Bureau published the first of their several atlases, *Atlas of Major Texas Oil Reservoirs*, which Bill headed up.

While engaged in a variety of research projects at the Bureau, Bill maintained a keen interest in teaching, both in the classroom and in external short courses. He served as the Bowling Professor in the Department of Geological Sciences, the Klabzuba Visiting Professor at the University of Oklahoma, the Nordic Visiting Professor in Petroleum Geology at the University of Bergen, and a visiting professor at the University of Adelaide. He joined the Department of Geological Sciences at UT Austin in 1985 as Elliot Professor and later held the Morgan J. Davis Centennial Chair in Petroleum Geology. Upon his retirement from teaching in 2003, Bill was elected Davis Chair Emeritus.

Bill's research while in the Department of Geological Sciences remained largely in the Gulf Coast Basin, where he worked with practically every Tertiary clastic unit in the Basin. Bill also found some time to address depositional systems in the North Sea and in Australia. Upon retiring from active classroom teaching, Bill now serves as a research professor at the Institute for Geophysics, where he is devoting his time and energy to completing his massive effort in defining the Cenozoic depositional evolution of the Gulf of Mexico Basin.

In 1989, at the peak of the Exxonian approach to sequence stratigraphy, Bill published two papers in the *AAPG Bulletin* outlining an alternative approach for sequence recognition and interpretation based on the conceptual paradigm of the depositional episode. Called by Bill the "genetic sequence," it was defined as a primary stratigraphic unit bounded by surfaces that reflected sediment starvation and associated transgressive flooding of basin margins. His approach greatly reduced operator variability and considered a full range of variables, including tectonism and sediment supply, as well as sea level, as potential controls on sequence development. Genetic stratigraphy has proved to be a durable and robust alternative to the much-published depositional sequence model, thanks to Bill's scientific courage to buck the bandwagon.

Bill Galloway is one of the best synthesizers of data I know, able to organize and put complex ideas into straightforward presentations. This rare gift serves him well in teaching and on the lecture circuit. It makes his substantial scientific publications easy to read and, thus, even more influential. He has supervised more than 40 graduate students at Texas, many of them among our very best products. In 1993 the Gulf Coast Association of Geological Societies named Bill Outstanding Educator. Bill Galloway is always in demand as a lecturer, having lectured literally throughout the world. He served as an AAPG Distinguished Lecturer in 1985–1986, and in the summer of 2002 he was an International Distinguished Lecturer for the Association, lecturing in southeast Asia. In 2001 Bill was named an Honorary Member in the Gulf Coast Section of SEPM (Society for Sedimentary Geology).

Bill Galloway is a first-class, well-respected scientist and teacher. His tracks in the Gulf Coast Basin and elsewhere in the fields of stratigraphy and sedimentology are deep and lasting, and, although retired from classroom teaching, he continues at full speed today.

Grover E. Murray, for whom this award is named, established his geological reputation in the Gulf of Mexico Basin a generation ago. The same can be said of Bill Galloway for this generation. Bill's receipt of the 2004 Grover E. Murray Memorial Distinguished Educator Award is not only thoroughly merited but also especially fitting. Grover would have approved.

William L. Fisher

Response

I am gratified by my selection for this reward. A career is filled with successes, joys, friends and colleagues, and memories. Such are more than sufficient. To be further recognized and honored by one's peers is a great gift. First, I thank my friends who nominated me for this Award. And I especially thank Bill Fisher for his generous, and perhaps a bit overstated, introduction.

I was blessed with the good fortune to have discovered a profession that has entertained, excited, and comfortably supported me for more than 35 years. Statistics have shown that geologists are a highly satisfied lot, and certainly I have had a succession of jobs that made me look forward just about every morning to getting in to the office. In other words, like many of my peers, I've been paid to do what I thoroughly enjoyed doing.

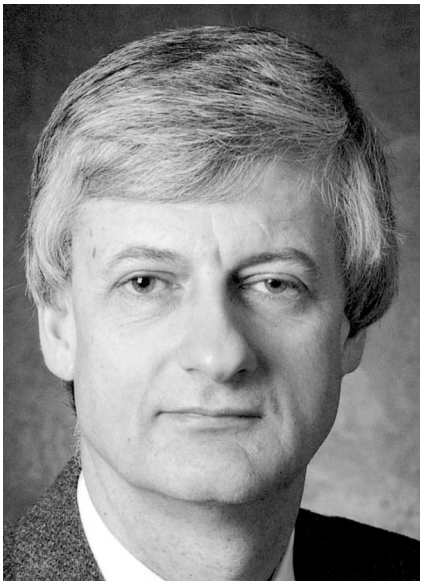
Arguably, I was predestined for geology. The first book that I read (which I still have) was not *Dick and Jane*, but *My First Book of Stones*. I collected minerals through most of my childhood, successfully trading misidentified minerals for a great variety of rocks and fossils from all over the United States. Upon concluding that I was not cut out to be a mechanical engineer early in my freshman year at

Texas A&M, I found geology conveniently located within the School of Engineering, so a change of majors was painless. In my first year at Conoco Exploration Research, I discovered that I greatly enjoyed talking about geology, first to fellow professionals, then, a few years later, when the first opportunity arose at the University of Texas, to students. So, the idea of teaching entered my plans.

The perspective of "maturity" has confirmed for me what I began to notice many years ago. My career path, although vaguely formed in my mind as I was finishing my Ph.D., was not so much planned as the almost accidental product of fortuitous confluences of people and opportunities. Throughout my career, one can clearly discern the influence of a great many people: friends, teachers, supervisors, and colleagues. Names that immediately come to mind include Rufus Leblanc, Jr., Bill Fisher, Frank Brown, Art Beall, Mitch Yancey, Bob Boyer, Dave Hobday, Halfdan Carstens, and Bill Stuart. Serendipity played a strong role. My choices, when consciously made, often proved good ones, but rarely for the reasons that seemed important at the time. The chance to earn some needed money by working as a research assistant at the Bureau of Economic Geology (BEG) as I was finishing up my dissertation introduced me to a bit of sedimentary metals geology. At Conoco, that experience led to the opportunity to participate in an in-house short course for the Uranium Exploration Department, which led, in turn, to a series of research projects with several minerals exploration groups. That expertise precipitated my return to the BEG to head up a funded but unstaffed study on the sandstone uranium deposits of the Texas coastal plain. Knowledge gained in the following succession of projects generated my first student supervision and graduate teaching in the Department of Geological Sciences and to the development of an industry short course. My uranium geology teaching, speaking, and research ultimately took me to the Colorado Plateau, Wyoming, upper Michigan, the Missouri MVT belt, and the Northern Territory of Australia. Uranium geology remains, for me, the most fun and exciting era of my career.

The nature of applied sedimentology, especially in the petroleum industry is changing. The concept-dominated era in which I was a participant is being replaced by a technology-dominated era. Much new and exciting work will continue to be done, aided by the new technologies. However, interpretation of sedimentary rocks has been and remains a highly experiential endeavor. A great deal of that personal experience accumulated in the past 40 years will be lost in the coming decade. To incorporate the new while retaining what was learned about sedimentary environments and facies may well be the greatest challenge for the new generation of applied sedimentologists. Best wishes!

W. E. Galloway



ANDREW D. MIALL

Grover E. Murray Memorial Distinguished Educator Award

Citation—To Andrew D. Miall, scientist, educator, and above all, geologist, whose efforts, in his research and in his teaching, have reflected a genuine passion for and commitment to the advancement of the discipline of geology.

Every week, each fall term, a small group of graduate students sweat it out in Andrew's office reporting on and discussing a dozen or more research papers in his long-established basin analysis seminar course. At first, many students spend all their waking hours wrestling with these papers but, as he always advises them, "Give it time. As you read more you will learn more about how to learn" and, sure enough, by the end of the term brows have lightened and ideas and opinions are flowing freely. Six of his doctoral students who completed this course are now faculty members in other universities, and several have sent their own students to take the course. In fact, last fall Andrew was teaching his first great-grand student.

Andrew bases this course on his best-selling textbook *Principles of Sedimentary Basin Analysis*, which is now in its third edition. New publications that are selected each year for the course are used in revisions for the next edition of the textbook, and Andrew claims that the whole process has also given him several good ideas for research projects. This book also forms the basis for Andrew's undergraduate courses in sedimentology, stratigraphy, and basin analysis, and is found on the shelves of many practicing geologists in the petroleum industry and elsewhere.

Andrew's experience in basin analysis was gained mainly during his seven-year service with the Arctic Islands group of the Geological Survey of Canada in Calgary, which he joined after three years in the oil business, following the completion of a Ph.D. at the University of Ottawa in 1969, and a B.Sc. in geology at the University of London in 1965. Andrew's doctoral research, much of his oil-company work, and all of his projects at the Geological Survey, involved regional stratigraphic-sedimentologic studies, requiring the integration of classic lithostratigraphic data with the new ideas about facies analysis that were becoming popular in the 1970s. His growing interest in nonmarine sedimentology was readily accepted and encouraged by the Survey, and made possible his leadership in organizing (with Norm Smith and Derald Smith) the first International Conference on Fluvial Sedimentology in Calgary in 1977, and special lectures to the Canadian Society of Petroleum Geologists and the Edmonton Geological Society, the first of a long

series of guest lectures and short courses that Andrew has now presented all over the world. His emerging specialization led to his invitation by Roger Walker to join the team writing the first edition of the famous *Facies Models* book (Geological Association of Canada, 1979). He also received his first international invitations to visit Poland as a guest of the Academy of Science in 1978, and South Africa in 1979 as a guest of the Geological Society of South Africa.

Andrew's interests in fluvial sedimentology resulted in a series of important papers on this subject, establishing him as a leading authority on fluvial facies and braided river systems. The success of the first fluvial symposium inspired the organization of five more at four-year intervals, held in Colorado, Keele (United Kingdom), Cape Town, Brisbane, and Lincoln, Nebraska. All have resulted in major proceedings publications. His ideas about two-and three-dimensional fluvial architecture were expressed in a series of papers dealing with the applications of these ideas to facies methods and to reservoir studies, and led to several more honors, including the Past President's Medal of the Geological Association of Canada in 1983, a tour of China as a guest of the Academy of Science in 1985, and an AAPG Distinguished Lectureship in 1986–1987.

In 1985 a Japanese student, Koji Yagishita, studying with Andrew, completed his Ph.D. and returned to Japan, and in 1987 a friend of his, Yasu Makino, arrived to spend part of his sabbatical leave with Andrew. This connection led to a Fellowship from the Japan Society for the Promotion of Science, which Andrew took up in 1990, and to a long and fruitful relationship with the Japan National Oil Company, to which he gave lectures during his first visit. The Corporation commissioned two major reports from Andrew, both to be accompanied, upon delivery, by a weeklong seminar for company staff. Both eventually led to full-length books. Once again, teaching led to books, and the writing of books informed subsequent teaching and research. The two products in question are his books *The Geology of Fluvial Deposits* (1996) and *The Geology of Stratigraphic Sequences* (1997), both of which have had major impacts on the development of their subject areas.

Andrew's interest in sequence stratigraphy began in the mid-1980s, when his experiences in practical Arctic basin studies led him to be skeptical of the model of global eustasy which, at the time, constituted an integral part of sequence concepts. Andrew's papers on this topic were designed to illustrate alternative interpretations of the origins of sequences, while not questioning the reality of the sequences themselves nor the fundamental importance of this new method of carrying out stratigraphic work. Once again, the work triggered international attention, and in 1992 he was the guest of Esso Australia and the Earth Resources Foundation of Australia, as that year's Distinguished Lecturer. One of his critical papers was awarded Outstanding Paper of the Year by SEPM in 1991. In 1995 Andrew was elected a Fellow of the Royal Society of Canada, Canada's leading scholarly organization.

Not only academic organizations have found Andrew's ideas and teaching methods useful. He has given five different short courses for AAPG since 1981, several to the Canadian Society of Petroleum Geologists, plus private industry courses at several United States locations, and in Caracas, Kuala Lumpur, Bangkok, Pretoria, and The Hague. Meanwhile, he did a seven-year stint as editor of Canada's national journal *Geoscience Canada*, and has served as co-chief editor of Elsevier's *Sedimentary Geology* (along with Keith Crook and Bruce Sellwood) since 1987.

A new challenge has been environmental geology. In 1999 the then chair of his department, Jeff Fawcett, asked Andrew to take over the teaching of a popular general-interest first-year course for non-scientists called "Geology in Public Issues." In preparing the course, Andrew became concerned about the very serious earth-science-related issues that we will be facing in the near future, including impending shortages of cheap conventional oil and gas, and clean water. Once again, this work triggered a logical response, in this case, the proposal for a major national symposium on the subject of "Energy, Environment and Society: Making Choices." The proposal was made to, and accepted by, the Royal Society of Canada, and was held under his leadership in Ottawa in November 2003 with the co-sponsorship of the National Research Council of Canada and the Canada Museum of Science and Technology. In 2000, Andrew was also asked to represent Canada on NATO's "Committee on the Challenges of Modern Society," a group of national representatives that meets twice a year under the chairmanship of NATO's assistant secretary general to formulate and discuss practical environmental problems. Last year Andrew was instrumental in bringing this committee to Canada for the first time in 30 years.

Andrew has now begun yet another career, together with his wife, Charlene Miall of McMaster University's Sociology Department. With their exploration of the methodological and sociological underpinnings of geological research in such areas as sequence stratigraphy and climate change, they are helping to remind us of the importance of good scientific practice in geology and the role of human factors in the production and legitimization of scientific research.

Steven D. Scott

Response

First, I am very honored to receive the Distinguished Educator Award, although if the truth be known, it is I who owe a great debt to those who taught me. I first discovered geology as a teenager, when my geography master, Arnold Berry, at Brighton Grammar School in southern England, decided to offer an optional one-period-a-week course in the subject, as an alternative to regional geography. Although I therefore, never did learn about the chief crops of South America, I did rapidly discover how little the geology teacher actually knew about the subject. Being somewhat rebellious at that age, I delighted in tormenting him with difficult questions culled from the textbook. To my utter amazement, I also discovered that geology engaged me beyond any other subject I had ever studied. In a way, then, despite my torment, Berry had the last laugh because my adventures with the

textbook propelled me into university to study for an honors degree in geology.

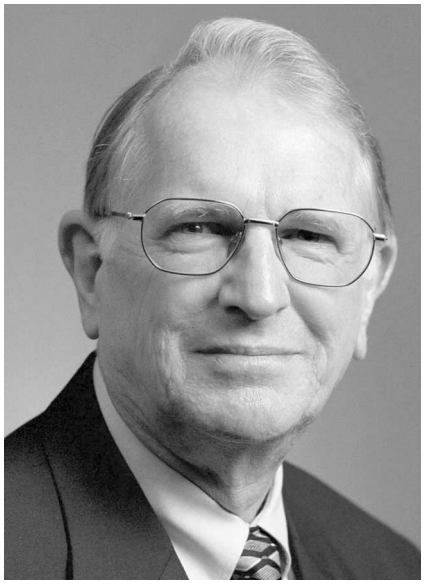
An undergraduate, carrying out a mapping project in the Scottish highlands, I also developed a love of wild places, and I began to formulate the idea of traveling to Canada to conduct graduate work. Canadian oil companies were sending recruiting teams around British universities. North Sea exploration had not yet begun at that time, and there were few jobs for geologists, so this seemed like a logical next step. Indeed, over the next decade, about a dozen of my fellow students took up positions with Canadian oil companies. I personally received much good advice from Canadian geologist Richard MacConnell, who had retired in my village of Streat in Sussex, and he, in turn, introduced me to Ward Neale, then serving a term as Commonwealth geological liaison officer in London. I learned about the Arctic research program of the University of Ottawa from the project leader, David Dineley, who visited London in 1964, and the next year I joined the team to carry out my doctoral research, a study of clastic-carbonate facies changes in a Devonian syntectonic unit in the central Arctic Islands. I was one of the first graduate students taken on by the late Brian Rust and benefited enormously from his infectious enthusiasm in the field and the laboratory. My Arctic experiences led to a position with a consulting firm, J. C. Sproule and Associates, of Calgary, which was undertaking a major Arctic stratigraphic mapping project as background to the new program of frontier drilling in the area. By then, I had completed my Ph.D. (1969), married Charlene, and moved to Calgary. We soon discovered the pleasures of hiking and cross-country skiing in Banff National Park, and of exploration of a different European country each summer in a small rental car.

After two years with Sproule and a short spell with Shell Canada, I moved to the Geological Survey of Canada (GSC) in Calgary in 1972, as a research scientist. I have always thought that it is here that my career really began. The survey office, initially under the directorship of Digby McLaren (followed by Don Stott), was a place full of experienced field geologists conducting mapping projects over huge areas of Canada's remoter regions. The survey was a place of real intellectual excitement, and ideas were freely exchanged and discussed over coffee every day in the cafeteria. Volunteer activity with the Canadian Society of Petroleum Geologists (CSPG) was another enjoyable aspect of professional life in Calgary, and one I still miss, 25 years later. My growing interest in nonmarine sedimentology met with encouragement and enthusiasm at the Survey, and a steady trickle of papers began to appear in non-GSC publications. I claim to have been the first scientist ever to use the word "paleocurrent" within the GSC, and can still remember the problems the official GSC editor, a traditional stratigrapher, had with topics such as facies interpretations and fining-upward cycles. In 1979, after the success of the fluvial symposium and the publication of the proceedings "green book" (CSPG Memoir 5) I was offered a position at the University of Toronto by the chair, David Strangway, supported in particular by Frank Beales and Geoff Norris, who were to become my closest colleagues.

I did not really become aware of the importance of sequence stratigraphy until I had left the oil industry behind with the move to Toronto. I credit Ash Embry with being the first to make me realize that "something important is going on." But my work with the GSC had involved making use of biostratigraphic and other data, in support of regional stratigraphic mapping and correlation projects, and in retrospect, it was difficulties in reconciling various types of data that made me skeptical of the Exxon global cycle model when it first appeared. I just found it hard to believe that correlations could be lined up so precisely. Addressing the science of correlation and attempting to reach a deeper understanding of the origins of sequences became a significant second research career.

Meanwhile, my wife Charlene was completing her own graduate education, having taken time to raise our two children, Christopher and Sarah. In 1985, after completing her Ph.D., she took a faculty post in the Department of Sociology at McMaster University. Charlene began to come in the field with me while I was at Sproule, and accompanied me on two Arctic field seasons and several in the southwestern United States, where I began to do field work after my arrival at Toronto. This was not only enjoyable field companionship for me, but formed the basis of a shared understanding of the nature of geological problems. We have now begun to co-author studies on methodological issues in geological research and in the human factors behind the success and popularity of scientific ideas. We are currently engaged in an examination of the interests and motivations of the scientists involved in the debate about climate change, and the way they shape data and concepts to further these interests. Charlene has accompanied me on virtually all of my foreign assignments, and we have used geology as the basis for fascinating experiences in some of the remoter corners of the world, from exploring a fort at the end of the Great Wall of China high up in the Gobi Desert to watching a horse prancing along a catwalk in a restaurant in Caracas in a display of traditional horsemanship. Although I gratefully accept this educator's award, I also remember all those along the way who taught and inspired me.

Andrew Miall



EDWARD C. ROY, JR.

Grover E. Murray Memorial Distinguished Educator Award

Citation—To Edward C. Roy, Jr., scientist, teacher, and mentor, for his gifted teaching and unwavering devotion to helping students of all ages achieve their successes in life.

I have had the pleasure and honor of working with Edward C. Roy, Jr. since August 1968 when I joined the Geology Department at Trinity University. Upon my arrival in San Antonio, Ed was teaching a summer-session physical geology class. The next thing I knew he had me in the field with his class examining Mesozoic, Paleozoic, and Precambrian units just north of San Antonio. That's Ed's way—he just sweeps you up with his excitement and love of geology. That joy of teaching and love of subject has never wavered. It is most fitting that the AAPG has chosen to honor Ed with the Grover E. Murray Memorial Distinguished Educator Award.

Ed received both his B.Sc. with high distinction in geology in 1961 and his Ph.D. in 1964 from Ohio State University. Upon graduation, he joined Shell Oil Company as a micropaleontologist, first in Corpus Christi and then in Houston. He accepted a position in the Department of Geology at Trinity University in 1966, and has served Trinity University from that time to the present. Ed has often noted to me that his direct experience in the petroleum industry has been extremely valuable to him in his roles as teacher, administrator, and student mentor.

Trinity University recognized Ed's teaching skills very early in his career when he received the Outstanding Professor Award during his first year of service. Ed rose through the teaching ranks and served as chair of the Department of Geology from 1978 to 1984. Shortly thereafter, Ed moved into higher administrative positions at the University, becoming dean of Sciences, Mathematics and Engineering in 1986 and then vice president for Academic Affairs from 1987 to 1999. Currently, Ed is the Gertrude and Walter Pyron Distinguished Professor of Geology. Throughout his administrative career he continued to teach classes in the Geology Department. I have to admit I was concerned when Ed took his initial position as dean, because I felt the department was losing its best teacher. But Ed quickly put that to rest by continuing his active involvement in lecture, laboratory, field activities, and departmental functions.

Ed's commitment to geological education has continued throughout his career and has extended to many groups of students of all ages. When I first came to Trinity, I found that Ed was involved in the regional Science Fair program for middle- and high-school students, giving talks to elementary schools, and spending Saturday mornings giving laboratory demonstrations for elementary schools and other organizations. He clearly understood that if you want students to choose geology as a career, you need to instill that interest within them as soon as possible. This involvement has been a constant for Ed and also includes interaction with Texas governmental organizations concerning the role of earth science in state-based curricula. In 2002, Ed was appointed by the head of the Texas Education Agency to chair the Earth Sciences Task Force, which is charged with establishing geology as a core-science course in high school.

Trinity prides itself in the success of its students, and Ed has always been and still remains a major factor in that success. He actively recruits students into the major, mentors and teaches them throughout their undergraduate years, and helps them make those decisions necessary for success after graduation. Ed has noted to me how nice it is to see the enthusiasm former students have for their geological careers. I believe his teaching, help, and guidance have made it possible for his students to find careers they really enjoy. Ed's own enthusiasm for geology and his joy in teaching students of all ages is truly infectious. He provides an excellent role model for all of us, both in and out of the classroom.

Ed has also recognized that education doesn't stop when formal education is completed. Professional societies play an important role in furthering geological education, and over the years Ed has made important contributions to local, regional, and national groups, serving on various committees and playing an important role in the governance activities for the following professional societies: American Association for the Advancement of Science, AAPG, Geological Society of America, Gulf Coast Association of Geological Societies, SEPM (Society for Sedimentary Geology), and South Texas Geological Society. He has served as president of both the South Texas Geological Society and the Gulf Coast Association of Geological Societies. He twice served, in 1984 and 1999, as general chairman for AAPG Annual Meeting and its divisions. He has served as secretary and president of the American Geological Institute and also as a member of two committees of the National Research Council.

Ed has been formally recognized by several organizations for his professional contributions. The Gulf Coast Association of Geological Societies has acknowledged him with Best Paper Award (1981), A. I. Levorsen Award (1981), Honorary Member (1983), and Outstanding Educator Award (1991). The AAPG has honored him with their Distinguished Service Award (1990), Honorary Member (1993), and now, the Grover E. Murray Memorial Distinguished Educator Award. The American Geological Institute has recognized Ed with the Ian Campbell Medal (2003) and the William B. Heroy Jr. Award for Distinguished Service (2003). Ed is a Fellow of both the Geological Society of America and the

American Association for the Advancement of Science. These accolades are well deserved, representing national recognition of Ed's distinguished career in geology and his outstanding service to the profession.

Congratulations, Ed, for this well-deserved recognition of your selfless service to education and geology. You have made a difference in the lives of all those you have touched.

Robert L. Freed

Response

I am grateful and deeply honored to receive the AAPG 2004 Grover E. Murray Memorial Distinguished Educator Award. I wish to thank the late Grover Murray and his wife Sally for the recognition that they have provided for geoscience educators. In March 2003, I invited Grover and Sally Murray to attend a meeting of the Texas Earth Science Task Force that was meeting on the campus of Texas Tech University in Lubbock. They both attended and testified eloquently about the need for earth science in the K-12 curriculum. Also, a special thank you goes to the South Texas Geological Society for nominating me for this high honor, and to Bob Freed for his very gracious citation.

I have been an educator for more than four decades. Throughout that period of time, I have received a great deal of satisfaction from every aspect of the profession. To be able to teach about the Earth is certainly a satisfying endeavor. I have been blessed by being able to teach and to learn from a wide group of people ranging from first graders to professional geoscientists and my own children and grandchildren.

How did my own education influence me as an educator? Profoundly, must be my response. The education that I received from my parents and the excellent elementary and secondary school experiences provided foundations upon which I was able to build. My first formal education in geology was as a senior student at Ohio State University, where I ultimately completed my Bachelor of Science degree and Ph.D. under the teaching and mentoring of a wonderful group of professors who cared deeply about their students. This had a great influence on my teaching and mentoring.

My first job as a professional geologist was with the Shell Oil Company on the Texas Gulf Coast. Although I only worked for Shell for a little more than two years, the experience gave me an important foundation in the application of geology that I use in my teaching. A teaching opportunity became available at Trinity University in San Antonio, Texas, in 1966, and I took the position. Thirty-seven years later, I am sitting at my desk at Trinity writing this biography. I have had the good fortune of being surrounded by excellent faculty colleagues and students throughout this time. I was challenged by the expectations of the University and hopefully, I met the challenges. My colleagues in the Department of Geosciences have been wonderful as we worked to provide an excellent education in geology for majors and non-majors alike.

In my 37 years at Trinity, I have taught bright undergraduate students about the Earth. Most of these students were taking geology to satisfy a science requirement and probably took no more than one or two courses. It was my opportunity to enlighten them about minerals, rocks, fossils, rivers, oceans, plate tectonics, and earth resources. Visits with former students, some from 30 or 35 years ago who remember their geology classes, and particularly, the field trip to Enchanted Rock, are a delight. Many of those who continued as geology majors currently hold prestigious positions as petroleum geologists, professors and teachers, environmental geologists, geologists working with state and federal governments, and more. I am proud of their accomplishments, and I am pleased to have played some part in their education and career development. To have former students recall pleasant experiences in the classroom, the laboratory, or on the outcrop is the great reward of teaching.

From 1986 to 1999 my role at the University changed. I served as the dean of the Division of Sciences, Mathematics, and Engineering; then, for 12 years I was the vice president for Academic Affairs. My duties as vice president ranged from recruiting faculty and students to developing curriculum, budgets, and services to meet the needs of the faculty and students as they teach and learn. It was an exciting position that allowed me to work with trustees, alumni, and people in the community as well as my fellow administrators, faculty, and students. Even though my administrative duties consumed most of my time, I still taught at least one course each year. I am now back in the classroom on a full-time basis teaching bright and enthusiastic undergraduate students.

Science education and particularly earth science education has been a long-time interest and passion for me. I have had the opportunity to work with fellow geoscientists on education related committees of the AAPG, American Geological Institute, and National Research Council. The challenge is to improve the science literacy and the understanding of the Earth, its processes, and its resources for all people, but particularly for students in the K–12 grades and undergraduates in college. At a time when America's children are falling behind the rest of the world in science education, we must reaffirm our commitment and resolve to improve science education in America. My work with K–12 earth science education in Texas is demonstrating the need for better curricula and teaching for our students.

I have been very fortunate to have received support from many people throughout my career. Most important, I wish to thank my wife, Carol, who has given unqualified support and encouragement during the 40 plus years that we have been married. Our children have always been supportive, even when the summer vacation turned into a field trip. Our grandchildren are continuing the tradition of learning about the Earth by the conversations that we have and the help they give me by promoting Earth Science Week at their schools. I wish to thank my colleagues at Trinity University and throughout the profession for their wise counsel and encouragement.

I thank the AAPG for honoring me with the Grover E. Murray Memorial Distinguished Educator Award. This recognition is very meaningful to me and to my family.

Edward C. Roy, Jr.

DIETRICH H. WELTE

Special Award

Citation—To Dietrich H. Welte, research scientist, educator, mentor, manager, elder statesman, and entrepreneur in the discipline of petroleum geochemistry and numerical modeling of petroleum systems.

Dietrich H. Welte is a world-class research scientist with experience in industry and academia. He is a skilled manager, innovator, entrepreneur, mentor, elder statesman of geology and geochemistry, and a wonderful human being. His impact on petroleum geology and geochemistry is global in scope and goes well beyond his native Germany. Over four decades he published, alone and with colleagues and co-workers, more than 130 papers and books, received seven awards and two doctorates, participated in numerous scientific committees, taught many courses, lectured, and started his own company. He is the veritable Renaissance man of petroleum geochemistry and numerical modeling and is widely acknowledged as a leader among his peers.

In 1957, Dietrich, aged 22, received his master's degree (Diplom.) in geology from the University of Würzburg, Germany. During that same year he began his international experience by winning a Fulbright Scholarship to study at Pennsylvania State University in the United States. He broadened his academic interests to include geochemistry when he returned to the University of Würzburg to receive his Ph.D. in geology and geochemistry in 1959.

During the 1960s, Dietrich moved from research in industry to academia and back. He began his varied career as a research geochemist for Shell International Research Company at Rijswijk in The Hague, Netherlands, at a time when the petroleum industry was in the embryonic stage of applying organic geochemistry to exploration. In 1963, academia beckoned him to establish a research laboratory in organic geochemistry at his former alma mater in Germany. During this period, Dietrich wrote his groundbreaking paper titled "Relation between Petroleum and Source Rock" that was published in the *AAPG Bulletin* (v. 49, p. 2246–2268) in 1965. The following year, he received AAPG's President's Award for this contribution. In 1967, Dietrich returned to the petroleum industry as a research geochemist for Chevron at La Habra, California. He moved quickly into management to become research coordinator for exploration. Dietrich's inquisitive mind, superb management skills, and vision provided considerable insight into the future direction of research in organic geochemistry for Chevron. Despite this busy schedule, he was able to publish 20 papers in geochemistry, including one in 1966 on the pyrolysis of thermally immature source rocks, a technique later developed into Rock-Eval pyrolysis.

During the early 1970s, Dietrich returned to academia as a research professor in geochemistry at the University of Göttingen in Germany. In 1972, he became a full professor for geology, geochemistry of oil, and coal deposits at the Technical University in Aachen. While at Aachen, he coauthored with Bernard Tissot the widely acclaimed book *Petroleum Formation and Occurrence* that was published in 1978 and was revised and expanded as a second edition in 1984. In 1979, he was given the opportunity, as director, to establish an Institute for Petroleum and Organic Geochemistry at the Nuclear Research Center (Kernforschungsanlage) Jülich GmbH (KFA). During this 10-year period, Dietrich published 28 papers in addition to the above book. He also mentored and advised many students and lectured abroad. In 1979, he received the Clarence Karcher Medal from the University of Oklahoma in the United States in recognition of distinguished contributions as a lecturer in chemistry.

During the 1980s and 1990s Dietrich served as managing director of the Department of Chemistry at KFA and finally as chairman of the Scientific Technical Council of KFA, now called Forschungszentrum Jülich (FJZ). In the 1980s, he published more than 60 scientific papers on geochemistry and numerical modeling. In 1983, because of his outstanding contributions in organic geochemistry, he was awarded the fifth Alfred E. Treibs Award, the highest award in this field and a resounding indication that Dietrich's peers judge his research contributions to be highly significant. In the same year, he demonstrated his entrepreneurial prowess by launching the company, Integrated Exploration Systems (IES), based on his interest in numerical modeling of sedimentary basins. During the last half of this decade, Dietrich received two more important awards. In 1986, he received the Carl Engler Medal from the Deutsche Gesellschaft für Mineralölwissenschaft und Kohlechemie (German Association for Petroleum and Coal Sciences) for his scientific contributions to understand better the generation, migration, and accumulation of hydrocarbons and quantitative geology. In 1989, the Gustav-Steinmann Medal was bestowed on Dietrich by the Geologische Vereinigung (Geological Society) of Germany, their highest award. Certainly, the zenith of Dietrich's career, if measured by the number of publications and awards, occurred during the 1980s, but more achievements followed.

The decade of the 1990s was one of consolidation and scientific service, including publication of 19 papers. In 1995, he received an honorary doctorate from the Faculty of Geosciences of the Ruhr-Universität Bochum, Germany. He was senior editor of the book titled *Petroleum and Basin Evolution—Insights from Petroleum Geochemistry, Geology and Basin Modeling* that was published in 1997. This book incorporated much

of his previous work on numerical modeling to better understand exploration in sedimentary basins and petroleum systems. During the 1990s his company, IES, which provides the software to implement this numerical modeling, experienced the ups and downs of the industry. However, in the first decade of the new millennium, PetroMod, signature software of IES, is experiencing considerable success, due in large part to Dietrich's successful navigation through dangerous waters. Dietrich's most recent award was the Special Commendation Award from the AAPG in 2000 for "his outstanding scientific and technical contributions to earth science, and for his unifying influence on its various disciplines."

Dietrich's inquisitive mind and managerial skills were useful when he founded IES in 1983. His enthusiasm for applied research in organic geochemistry and his background in petroleum exploration from Shell, Chevron, and other oil companies led to interest in numerical modeling of sedimentary basins and petroleum systems to better identify and evaluate exploration risk. In the last few years, revolutions in computer and software development contributed to the exceptional success of IES's numerical modeling software. In retrospect, the recent success of numerical modeling was not apparent during the 1980s. The technology was expensive and poorly developed and was not as advanced as the concept of numerical modeling. Only Dietrich's passion and entrepreneurial determination kept his company alive during those development years. These qualities define Dietrich as a successful entrepreneur who had the vision to accurately predict the future potential of numerical modeling.

If education, research accomplishments, and business acumen were the only measure of Dietrich's impact, he would be considered a success, but these accomplishments are only a part of his contributions. Some say that the importance of a person can be gauged by his or her impact and influence on others. In this arena, Dietrich has few peers. In his long career, Dietrich mentored, advised, and carried out collaborative research with more than 80 master's students, about 50 Ph.D. candidates, and many postdocs and colleagues. Many of these students and colleagues have gone on to secure influential positions in the petroleum industry, academia, and governments. If the success of a professor's students is a measure of his impact, then Dietrich Welte surely deserves the 2004 AAPG Special Award.

Leslie B. Magoon

Response

As a graduate student at the University of Würzburg, Bavaria, Germany, I was undecided whether I should continue to major in geology, or whether I should turn to (organic) chemistry. A visit to the research laboratories of a big chemical company convinced me to stay with geology. The optimum solution, satisfying my interests in the geosciences and in chemistry, came about when I won a Fulbright Scholarship to Pennsylvania State University in the United States. To go to Penn State from post-war Germany in 1957 seemed to me like a fairytale. After World War II, I grew up as an orphan, and my time at the university was overshadowed not only by the general problems of post-war Germany, but also by my personal situation.

The Fulbright Scholarship and the time at Penn State had an important impact on my professional interests and on viewing the world. I experienced a different and much wider understanding of the geosciences, and I was exposed to a multicultural student environment not known to me before. In my academic studies a new field, later known as organic geochemistry, attracted me. Two different persons stimulated my interest and works: Frank Vastola, who introduced me to mass spectrometry of organic molecules (hydrocarbons), and Phil Abelson, at that time the director of the Geophysical Laboratory of the Carnegie Foundation in Washington, D.C. A short paper, published in 1959, described my first mass-spectrometric work, differentiating between odd and even numbered carbon chains from marine and freshwater Carboniferous shales. This paper attracted the interest of Shell International Research Company in Delft, respectively in Rijswijk, Netherlands, and resulted in my employment. In 1959, I married my student girl friend Hildegunde Husslein, and we moved to The Hague (Den Haag) in 1960. In the E&P Research Laboratories in Delft and Rijswijk and during an assignment in Nigeria, west Africa, a fascinating world of science, international people, and business started to unfold for me.

In 1963, Georg Knetsch, at the University of Würzburg offered me a position as research assistant, with the option to do a "habilitation," a kind of second Ph.D. thesis, to become eligible for a professorship at German universities. I accepted the offer. Knetsch gave me all the freedom to do my own research in organic and petroleum geochemistry, which at this time was a foreign topic in the geoscience community. Wolf von Engelhardt, the director of research and development of a small German oil company, Gewerkschaft Elwerath, was enthusiastic enough to sponsor my research plans and provided valuable analytical equipment. The analyses of crude oil samples from the Gifhorn trough in northwestern Germany and a reconstruction of the subsidence history of this small sedimentary basin gave rise to a concept of "petroleum evolution and corresponding source rock maturation stages." This work was published in a German journal *Erdöl und Kohle-Erdgas-Petrochemie* in 1964. Robert King read the article in German. He stimulated and pushed for an English translation for the *AAPG Bulletin* in 1965 with the title "Relation between Petroleum and Source Rock." Thanks to Bob King and his interest, I received the AAPG President's Award for this paper. I was very thankful and also proud of this honor, especially, what very few people know, because most of the laboratory work for this price-winning paper was performed under extremely unpleasant conditions, i.e., with wet feet and stiff fingers. A large part of our geochemical laboratory was located in the basement of our institute, which regularly flooded in springtime.

The President's Award of the AAPG opened the door for several career opportunities in the American petroleum industry. I chose Chevron, at La Habra, California. This was a most wonderful time for my wife Hildegunde and me.

We enjoyed California lifestyle and the comforts of a most relaxing climate. Alan Riley, Chevron's president of the Oil Field Research Company was a thoughtful mentor for me. It was my first experience in research management, and I was even given the opportunity to publish. Alan Riley was of the opinion that good scientific publications by Chevron employees are an excellent advertisement for the company. In an attempt to document the highs and lows of source rock formation through geologic time, it occurred to me that changes in the amount of organic carbon in sediments should also be reflected in the oxygen balance of the atmosphere via the equation of photosynthesis. The research connected to this problem resulted in a paper documenting a direct correlation between the amount of organic carbon and former free oxygen through geologic time. This was indirect proof for a phothosynthetic origin of an oxygenated atmosphere (*Naturwissenschaften*, v. 57, p. 17–23, 1970). Papers like this led to an offer to become a research professor in a Sonderforschungsbereich (special research program) of the German Science Foundation (DFG), at the University of Göttingen, Germany.

The time at the University of Göttingen was a turning point for my scientific professional career. Together with some talented young colleagues we were able to launch a wide range of research projects into molecular and isotopic organic geochemistry, and first attempts were made to understand geochemical processes in general. The move to the Technical University in Aachen (RWTH-Aachen) and later, in 1975, to the Research Center Jülich (formerly Kernforschungsanlage Jülich, KFA-Jülich) was a consequent continuation of our research ambitions to understand and quantify complex geological processes. A goal like this could only be reached with a multidisciplinary research team and a general spirit of scientific enthusiasm among all participants.

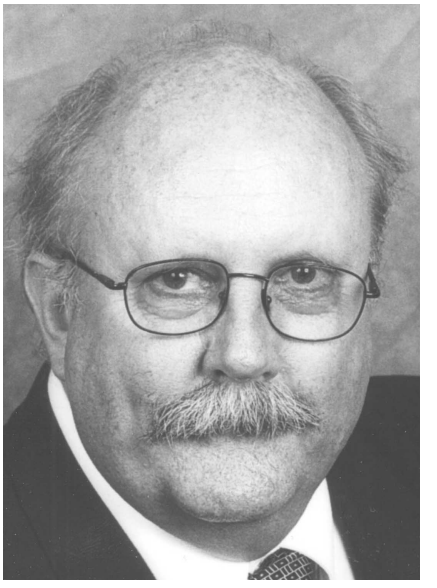
When I was a professor at the University of Göttingen, I took lessons again in mathematics. I wanted to improve my understanding of partial differential equations and math in general. I needed this improved knowledge to follow discussions around the development of numerical simulation programs.

In 1983 the time came when this knowledge was very useful in context with a new challenge, the foundation of IES (Integrated Exploration Systems GmbH), Jülich, Germany. It was a risky venture to found such a company, technically and financially. Again, as several times throughout my professional life, I could count on good, congenial friends and colleagues who were ready to support me and my ideas. John Masters, president of Canadian Hunter in Calgary, provided the seed money to start the company with two consecutive contracts. At a later stage, when the oil industry was in turbulence, my friend Klaus Hebben, Monaco, was ready to become a partner in IES and helped us survive during a difficult time period. An excellent and reliable staff did its best to finally make IES a success.

I am and I always was very grateful to be fortunate enough to have first-class colleagues and co-workers around me. This was true in the academic world and also in the scientific and technical business world.

I am overwhelmed to receive the 2004 Special Award of the AAPG. I will never forget the decisive periods of influence on my professional career, which came about from my stay as a Fulbright scholar in the United States, the AAPG President's Award in 1966, and a lifelong exposure to a stimulating intellectual environment provided by individuals and an organization like the AAPG. Finally, I want to thank my wife Hildegunde and all my friends and colleagues who have patiently tolerated my passion for science and technology.

Dietrich Welte



JOHN C. DOLSON
Public Service Award

Citation—To John C. Dolson, for his passion for geology and his boundless and contagious energy toward helping others understand the richness of our geologic heritage.

John developed an early interest in geology while scrambling around on Mississippian limestones hunting for fossils near St. Louis, Missouri, where he was born. His grandfather, a chemistry professor, turned John onto science, and his parents fed his interest with visits to museums and camping trips out west.

John's love for rocks, mountains, and camping drew him to the Rockies and Colorado College in Colorado Springs. There he immersed himself in geology and the great outdoors, earned All-Rocky Mountain Conference honors in lacrosse, played hockey, and developed his interest in the banjo. Most important, he met his "lifeline and best friend" as well as his future wife, Debbie. The love and respect they share for each other is obvious to everyone who knows them.

John worked after college as a seasonal ranger at the Black Canyon of the Gunnison National Monument, and in 1973 started teaching at Bill Reed Junior High School in Loveland, Colorado. John's passion for science and teaching flourished as he developed integrated energy and

environmental curricula that stressed hands-on problem solving and an outdoor education backpacking program. In 1978 John was recognized as Environmental Conservation Teacher-of-the-Year on both the state and national levels. As much as John loved teaching, he went back to graduate school at Colorado State University, and in 1980 joined Amoco Production Company, Denver. With Amoco, now BP, he worked the Greater Rocky Mountain region, the Hugoton and Anadarko basins, Cook Inlet, Alaska, the Precaspian and Caspian basins of Kazakhstan and Azerbaijan and the Gulf of Suez and Nile Delta regions of Egypt. Currently, John is an exploration advisor for BP working on global-scale geologic problems.

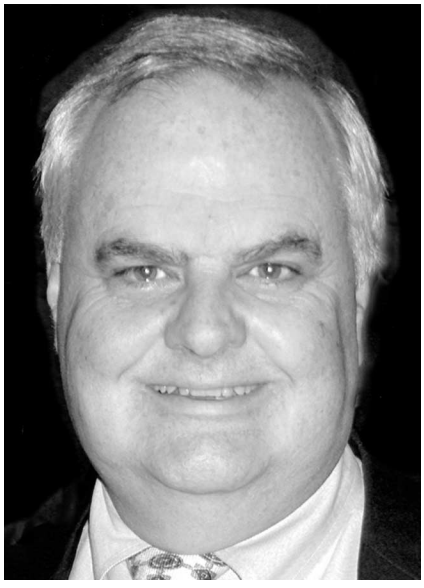
John is an extremely talented geoscientist and teacher whose contributions to his employer, petroleum geoscience, and the profession are outstanding. He has received six company awards in recognition of his outstanding performance. He is a prolific contributor to the geosciences, having published 2 books and more than 46 technical papers. He has given more than 40 professional presentations and workshops and received 7 best paper awards. He has chaired numerous technical sessions at professional meetings, was a prime organizer of the first AAPG chapter in the history of the Commonwealth of Independent States (in Baku, Azerbaijan), the 1998 Hedberg Conference in Egypt, and the 2002 AAPG/Egypt Petroleum Exploration Society/Society of Exploration Geophysicists/European Association of Geoscientists and Engineers/European Geophysical Society convention in Cairo. He is a founding member of (and lead banjo player for) the Oil Field Grass, a talented group of geo-musicians who have performed at several AAPG conferences and is an honored alumnus of and affiliate faculty member at Colorado State University.

John "thrives on volunteer work and work issues that involve formidable obstacles" and his goal is to "leave everyplace I've lived a little better than it was before I came." To this end, John initiated and helped nurture the Denver Earth Science Project, an international effort involving teachers and geoscientists in developing better science curriculums. He volunteered as a science advisor at the Denver Museum of Nature and Science and the Museum of the Rockies, where he helped write grants and provided insight into redesign and development of exhibits. He was on the board of directors and helped form the Friends of the Dinosaur Ridge, a nonprofit organization dedicated to preserving an important dinosaur track outcrop west of Denver. As a result of the "Friends…" efforts, the site was declared a National Historic Landmark, more than 100,000 people visit it annually, and construction of a museum is underway. In recognition of these contributions the Rocky Mountain Association of Geologists awarded John its Distinguished Public Service in Earth Science Award in 1990. Since moving to Egypt in 1994, John's efforts to better his community have not diminished. In 1996, he obtained a grant from Amoco for the Sinai Wildlife Project that protects migrating storks and educates children on environmental conservation. He is currently working with the Egyptian Environmental Affairs and Egyptian Antiquities agencies to preserve and protect a world-class vertebrate graveyard of upper Eocene whales and sea cows and spectacular Neolithic and Pharonic archeological sites.

On a more personal level, John, Debbie, and their children Josh and Kristin, opened their home to countless visitors so that others could enjoy Egypt's rich heritage and cultural diversity and in the process become better educated world citizens. Volunteerism is a Dolson family value, and John's greatest joy comes from having watched his children participate in activities that nurtured their belief that they too can make a difference.

It is remarkable that someone who contributes so much professionally is also able to contribute so much in public service, but John's talent, passion, and energy are remarkable, boundless, and contagious.

Randi Martinsen



ROYCE P. CARR
Distinguished Service Award

Citation—To Royce P. Carr, in recognition of his dedicated and continuing service to the AAPG through the House of Delegates and the Division of Professional Affairs.

Royce P. Carr has distinguished himself both as an exploration geologist and in his dedicated and continuing service to the AAPG. In his 28 years in the oil and gas industry, he has developed numerous industry relationships through exploration programs and management with an emphasis on frontier exploration. With the AAPG, Royce has worked tirelessly in the House of Delegates and the Division of Professional Affairs to advance the goals of the Association.

Royce has held technical, management, and executive leadership positions with Western Energy Company, Humble Resources Company, Superior Oil, Hinton Production Company, King Ranch Oil & Gas, Inc., and currently Pentad Oil & Gas, L.L.C. In 2000, Royce joined Pentad Oil & Gas, L.L.C. on a full-time basis as the company's president. Prior to 2000, he served as a part-time advisor and a member of the Board of Directors for the company. The company has participated in numerous prospects and has production in south Texas,

east Texas, north Louisiana, and the Permian basin of west Texas.

From 1989 to 2000, Royce worked as the senior exploration advisor for King Ranch. Royce was responsible for King Ranch's exploration and development of the Clarksville field in Red River County, Texas. This field has produced more than 5 million barrels of oil with an ultimate recovery of 8 million barrels. Additionally, Royce screened international oil and gas prospect submittals, and was credited with guiding King Ranch into the international exploration and co-generation business in Ecuador, South America.

From 1985 to 1989, he directed an exploration team of geologists, geophysicists, landmen, and engineers for Hinton Production Company. This team was responsible for the discovery of Signal Peak field in the Permian basin. Signal Peak field has more than 140 wells to date and reserves are expected to reach 200 bcf of gas and 20 million barrels of condensate.

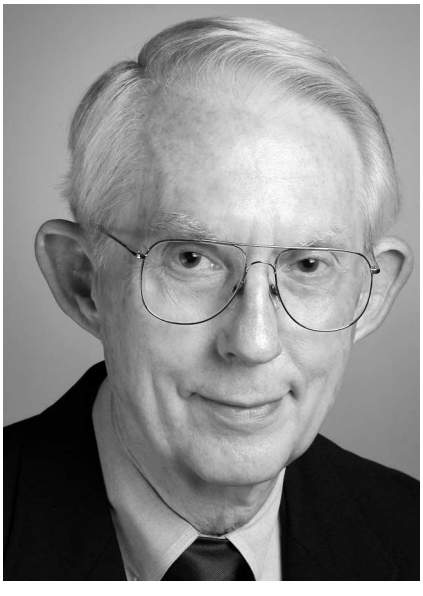
Royce is a proud graduate of the University of Texas at Austin, where he holds both B.A. and B.S. degrees in geology and geological sciences. He continues to be active in alumni events and scholarship committees with the university. Royce also serves as assistant secretary on the Board of Education for the Mount Pleasant Independent School District.

Royce has been a member of the AAPG since 1974. He is a member of all three AAPG divisions and is a charter member of both the Energy Minerals Division and the Division of Environmental Geosciences. He has represented the East Texas Geological Society continuously in the House of Delegates since 1987 and has served on the Nominating, Credentials, Resolutions, Honors and Awards, and the Constitution and Bylaws Committees. In recognition of his service to the House of Delegates, in 1999, Royce was awarded the House of Delegates Certificate of Merit. He will receive the Honorary House Member Award at the AAPG Annual Meeting in Dallas this year. Royce works hard to keep the East Texas Geological Society membership informed on important questions facing the House of Delegates and regularly consults with their officers.

He has been very active with the Division of Professional Affairs (DPA), holding key leadership positions for several years. He has served as secretary, vice president, president-elect, and the 2001–2002 DPA president. Additionally, he has served on the DPA Board of Certification, Model Registration Bill, and the State Registration and Licensing Committees. In 1998, the DPA awarded Royce their Distinguished Service Award. In 2001, Royce served as the DPA Advisory Council Representative.

Royce Carr is dedicated to advancing the science of petroleum geology and the goals of the AAPG. Through his long-term service in the House of Delegates and his leadership positions in the Division of Professional Affairs, Royce has made the AAPG a stronger organization. The word that best defines Royce Carr is "character." He is a true role model for all members of the AAPG. I have always appreciated his advice and the wisdom in his words. He is most deserving of the AAPG Distinguished Service Award.

Mark J. Gallagher



PETER G. GRAY

Distinguished Service Award

Citation—To Pete Gray, dedicated lifelong geologist, for exemplary contributions to the Division of Professional Affairs, House of Delegates, Advisory Council, and American Association of Petroleum Geologists.

Pete was born in Houston and moved to west Texas as a teenager. After graduation from Abilene High School in 1950, he served in the United States Navy for two years, including a year as a midshipman at the University of Idaho. Following his military service, he entered Texas Western College in El Paso, where he received a B.S. degree in geology in 1956.

He began his professional career as a petroleum geologist that same year with the Pure Oil Company in Houston. He continued working for Pure in New Orleans, Lafayette, and Midland. Pete returned to New Orleans in October 1964, where he worked for an independent and several companies, the last of which was the newly formed Stone Oil Corporation. Stone relocated Pete to Lafayette in 1977. During his eight years with Stone he served as both division exploration manager and chief geologist. In 1981, Pete resigned from Stone to open an office for Dallas-based Cornell Oil Company, and then one year later opened his own office and became an independent/consulting geologist—his current professional status. In his career, Pete has touched on numerous phases of the geological spectrum, including prospect generation and evaluation, field work, unitization and expert witness testimony, and the various administrative duties surrounding oil and gas activities.

Pete has been an active member and dedicated supporter of several professional organizations. He became a member of AAPG in 1956 and a Certified Petroleum Geologist (no. 811) in 1966. Through the years he has served AAPG on various committees, including the Committee on Committees, of which he became chairman in July 2001. During 1995–1998 Pete represented the Gulf Coast Association of Geological Societies (GCAGS) on the Advisory Council. He became a member of the House of Delegates in 1981 and is currently in his fifth term. He was vice chairman in 1982–1983 and has been a member of several House of Delegates committees. In 2003, the House of

Delegates awarded Pete its Long Service Award. Pete became a Trustee Associate in 1996 and during 1997–1998 he was a candidate for president-elect. His many activities for the Division of Professional Affairs (DPA) included serving on the Advisory Board (1990–1992), as president-elect (1992–1993), and as president (1993–1994). In addition, he worked on the Continuing Education Committee and contributed an article to the DPA publication *Guiding Your Career as a Professional Geologist*. As past president, he served on the Honors and Awards and Nominating committees, and later as a member of the Governmental Affairs (Instant Response), Headquarters, Honors and Awards, and Long Range Planning committees. While chairing the latter committee during 1994–1997, the first DPA Procedures Manual was created. He is currently serving on the Long Range Planning Committee. In 1996, Pete was given the DPA Distinguished Service Award, and in 2004 he received DPA Life Membership.

He has also been active in the GCAGS, serving as treasurer (1970–1971), vice president twice (1976–1977 and 1988–1989), and president (1989–1990). Pete has received both the GCAGS Distinguished Service and Honorary Membership awards, and at the 1999 annual meeting in Lafayette, volume 49 of *Transactions* was dedicated to him. Pete is a member of the Houston, Lafayette (LGS) and New Orleans (NOGS) Geological Societies. He has had the unique honor of serving as president of both NOGS (1975–1976) and LGS (1985–1986), and has been awarded Honorary Life Membership by each group. He has been a member of the Society of Independent Professional Earth Scientists (SIPES) since 1982 and represented the Lafayette chapter on the National Board of Directors as well as on the SIPES Foundation Board from 1996 to 2002. At the local level, Pete spent three years on the board of the Lafayette Petroleum Club (1991–1994), and was president during his second year.

Pete solidified his ties to Louisiana early on when he met, courted, and married Julaine Roy, a native of Parks, Louisiana. The couple has two grown sons. Despite the demands of a career and participation in various professional organizations, Pete has also found time to devote considerable effort to his church, the Episcopal Church of the Ascension in Lafayette, serving on the Vestry Committee and numerous lay committees, including the Finance Committee. In addition, he was treasurer from 1987 to 1992 and is presently taking care of that job again. For 21 years he and Julaine have been active supporters of the Ulster Project, opening their home on numerous occasions for this international program, which attempts to promote peace and understanding between Catholics and Protestants in Northern Ireland.

Among Pete's greatest characteristics are his integrity, his faithfulness to his family, and his dedication to his friends and colleagues. It is a credit to AAPG to have Pete among its distinguished members.

Tim L. Rynott

JEANNE HARRIS
Distinguished Service Award

Citation—To Jeanne Harris, whose commitment to the profession of geology is exemplified by her enthusiasm, generosity, eternal optimism, high standards, and distinguished service.

Jeanne Harris has distinguished herself through singular and beneficial long-term service to many organizations and communities, among them AAPG. She is known for her enthusiasm, generosity, and eternally optimistic nature, making her a remarkable person to have along for any endeavor, whether professional or personal. Her high standards and her service to AAPG exemplify her commitment to the profession of geology.

Independence is also in Jeanne's nature, perhaps because she was born on the Fourth of July. Growing up in a small town in Michigan, she was inspired to study science and math by the strong, independent role models of her mother and aunts, all prominent leaders in their own professional fields. Being the only daughter in a family of six helped prepare her for life in the petroleum business. After receiving her B.S. and M.S. degrees in geology from the University of Michigan, she headed west to Denver, joining Mobil Oil Corporation as an exploration geologist and geophysicist in 1975. She soon joined the Denver Geophysical Society and the Rocky Mountain Association of Geologists (RMAG), and in 1979 she began her lifelong association with AAPG.

As might be expected for an individual with her dynamic energy and personality, Jeanne's professional activity includes many positions of leadership. During the exciting times in Denver in the 1980s, Jeanne served as area geologist and team leader for the Natural Gas Corporation of California and assistant exploration manager of Equity Oil Company. Her career path contains many wildcat drilling experiences and true multidisciplinary exploration of underexplored areas. Jeanne's long list of discoveries, along with her optimism and love of geology led her to co-found G & H Production Company, LLC, in 1986 with her husband and partner, Robert Groth, who is also an active AAPG delegate. Although she has experience in basins all over the world, her recent emphasis is in the Rocky Mountains. Throughout this exciting career, and still today, she proudly calls herself a prospector.

Like many young professionals, Jeanne recognized the value of association with AAPG early on. She became an alternate to the House of Delegates in 1983, and a delegate in

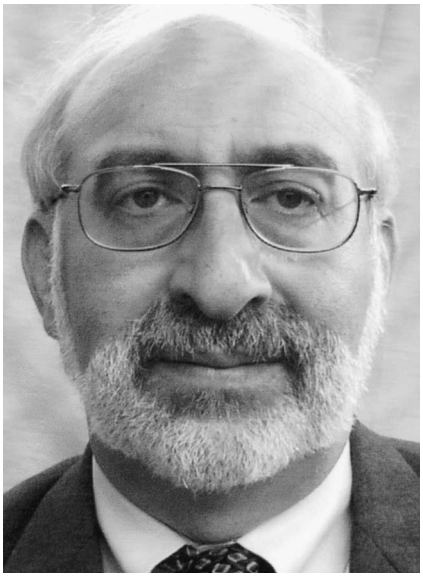
1987, service that she continues to this day. She has served on all but one of the House of Delegate's committees during this time, and chaired the Nominations and Elections Committee (1988–1989).

A distinctive aspect of Jeanne's service within the House of Delegates is her characteristic willingness to take new paths. In 1996–1997 Jeanne served as recording secretary of the House of Delegates. In her speech, she firmly stated that she would support the chairman in whatever he wanted to accomplish. The chairman (current president-elect Pat Gratton) asked her to create a newsletter for the Delegates. Jeanne created, edited, and produced four editions of the *Delegates' Newsletter* (now *The Delegates' Voice*) that year from her offices at G & H in Denver. The *Newsletter* became a vehicle for the important discussion and passionate debate around significant changes occurring within the AAPG at the time, such as creating and integrating the international regions into AAPG. It continues in this important role today.

Looking for oil, looking for money—this is everyday work in the life of a prospector. When Denver hosted the AAPG Annual Convention in 2000, Jeanne co-chaired (along with G & H partner and husband Robert Groth) Social Events. They raised and made money for the "Tastes of Colorado." Jeanne also recently chaired the Rocky Mountain Section (RMS)–AAPG fundraising effort for the 2002 meeting in Laramie. She is currently chairing the fundraising for the RMS-AAPG for its "Rocky Mountain Natural Gas 2004, Sound Science–Smart Business Energy Summit," a meeting to be co-hosted with the Colorado Oil & Gas Association.

Jeanne's service and leadership were recognized by the AAPG when she received the House Recognition of Service in 1996–1997. Many others have also recognized her leadership and rely on her willingness to help them chart their course in unfamiliar territories. Jeanne received the 1996 Distinguished Service Award from RMAG, the 1988 Distinguished Service Award from the Association for Women Geoscientists (AWG), the 1985 Community Service Award from Pacific Gas and Electric, parent company of Natural Gas Corporation of California, and the 1984 AWG Denver Woman of the Year Award. This new recognition from AAPG is a fitting addition to mark the value of Jeanne's service to AAPG and all of her communities. True to Jeanne's generous nature, she says that she "could not serve as effectively without the love and support of [her] husband Robert, son, David Groth, and her many wonderful friends."

Vicki Cowart



BARRY JAY KATZ
Distinguished Service Award

Citation—To Barry Jay Katz, for his outstanding leadership and dedication to AAPG's research and publication programs and for his significant contributions to the science of petroleum geochemistry.

Barry Jay Katz began his studies at Brooklyn College, where he graduated cum laude with a B.S. degree in geology in 1974. He received the Robert Perlmutter Award for environmental geology from Brooklyn College in 1974 for his first geochemistry project dealing with heavy metal contamination of coastal sediments. Barry earned his Ph.D. in 1979 in marine geology and geophysics at the Rosenstiel School of Marine and Atmospheric Sciences at the University of Miami, Florida, where he received the F. G. Walton Smith Award for the outstanding dissertation in marine sciences for his work on amino acid racemization and its application to the determination of paleoheat flow. During his Ph.D. research, Barry began his long association with scientific ocean drilling.

Barry joined AAPG in 1975. He has served the Association with distinction. He became an associate editor of the *Bulletin* in 1987 and a member of the Research Committee in 1982. As part of his activities on the Research Committee, Barry has conducted ten surveys of academic geoscience departments. He has served as an editor or co-editor for AAPG special publications, including AAPG Memoir 50, *Lacustrine Basin Exploration—Case Studies and Modern Analogs* (1990), AAPG Studies in Geology 37, *Source Rocks in Sequence Stratigraphic Framework* (1993), and AAPG Memoir 73, *Petroleum Systems of South Atlantic Margins* (2000). Barry served for a decade as chair of the Research Committee (1991–2001). He continues to serve on the Research Committee (some 22 years). In addition to this dedication to the publications and research initiatives of the Association, Barry has served as a member of the Marine Geology Committee (1986–1992), member of the Publications Committee (1991–present), member of the Convention Committee (2001–present), vice chair of the Standing Technical Program Committee (1998–2001), and chair of the Standing Technical Program Subcommittee (2002–present). He also served as a co-chair of the Technical Program Committee for the 2000 AAPG International Conference and Exhibition in Bali. Barry has also been a co-convenor of five Hedberg Research Conferences and has chaired more than a dozen technical sessions at AAPG annual meetings and international conferences.

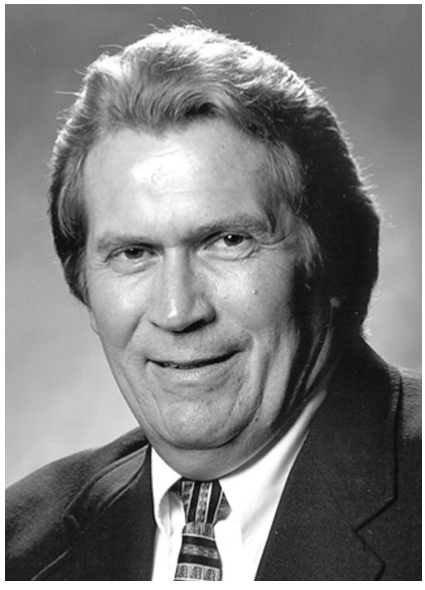
Barry has had a distinguished career as an outstanding contributor to the petroleum industry. He joined Texaco Inc. in 1979 and has worked for Texaco Inc. and ChevronTexaco for some 25 years. His focus with the company continues to be the applications of geochemistry to petroleum exploration

and development. His work includes the assessment of the risks associated with hydrocarbon charge and the improvement of development and production through the establishment of a better understanding of hydrocarbon migration and reservoir continuity. His studies have included the deposition of sedimentary organic matter and characterization of organic facies, with emphasis on sedimentary processes and the hydrocarbon potential of lacustrine systems and rift basins. He has studied petroleum systems and sedimentary basins globally, including Alaska, the Andean fold and thrust belt, the Australian Northwest Shelf, China, the Circum-South Atlantic margins, Italy, the Polish Carpathians, the South Caspian basin, Turkey, Russia, Southeast Asia, as well as California, the Permian basin, and Gulf of Mexico. Barry was named a Texaco Fellow in 1998 for contributions to Texaco and to the science of geochemistry. He was appointed a ChevronTexaco Fellow for contributions in petroleum geochemistry in 2001.

Barry has an outstanding publication and presentation record. He has made some 100 technical presentations at professional meetings throughout the world. He has received numerous awards for his research contributions and achievements. These include the Steve Champlin Memorial Award for outstanding poster presentation from the Rocky Mountain Section of AAPG in 1989 (co-recipient), First Runner-Up Outstanding Presentation at the 2000 Annual Meeting of the Nigerian Petroleum Exploration Association, Robert H. Dott, Sr., Memorial Award for outstanding special publication of AAPG in 2000 (co-recipient), and Best Paper Presentation at the 2001 Annual Meeting of the Nigerian Petroleum Exploration Association. Much of his work has been documented in more the than 50 reviewed journal papers. He has also contributed to the Initial Reports of the Deep Sea Drilling Project, a number of AAPG Memoirs, AAPG Studies in Geology, and in books. His research and publications have furthered our understanding of petroleum geochemistry and its applications.

Barry's outstanding leadership and dedication to AAPG and our profession have earned him this honor.

Ernest A. Mancini



LOWELL K. LISCHER
Distinguished Service Award

Citation—To Lowell K. Lischer, dedicated member and true leader, for service and leadership in the House of Delegates, on numerous AAPG committees, and in the Division of Professional Affairs.

Lowell K. Lischer has been an active, participating member of AAPG since 1974. He is a charter member of the Division of Environmental Geosciences, a member of the Energy Minerals Division, and a member of the Division of Professional Affairs. He is a Certified Petroleum Geologist.

Lowell has contributed to the AAPG in numerous ways. He served on the Committee on Committees from 1997 to 2000 (as vice chairman from 1998 to 2000), the Budget Review Committee from 1999 to 2000, and is currently a member of the Public Outreach Committee. He served on the Executive Committee from 2000 to 2001 and the Advisory Council the following year.

The House of Delegates has benefited from Lowell's contributions as alternate delegate (1990–1993), delegate (1993–1999), and member of the following committees: Ad Hoc Committee on International Member Participation (1994–1995), Nomination and Election Committee (1995–1997), Credentials Committee (1998–1999), Newsletter Committee (1999–2000), and Rules and Procedures Committee (1997–1999, chairman 1998–1999). He served as House of Delegates chairman-elect (1999–2000) and as chairman of the House of Delegates (2000–2001).

Lowell has also been very active in the AAPG's Division of Professional Affairs (DPA). He served on the DPA Advisory Board from 1988 to 1991 and was vice president/Advisory Board chairman (1992–1993). His participation on the Governmental Affairs Committee, spanning eight years, included terms as co-chairman (1991–1992 and 1995–1996), chairman (1992–1995), and vice chairman (1996–1999). Lowell was chairman of the Headquarters Committee from 1996 to 1999, and served on the DPA Wellsite Environmental Conference Subcommittee (1990–1991) and on the Membership Committee (1994–1997). He received the DPA Distinguished Service Award in 1996.

As a young child playing in his back yard (the first ridge of the Rockies in western Boulder, Colorado), Lowell found many interesting and unusual rocks, his introduction to the science he would eventually choose as his career. Three specimens Lowell found as a child are in the Denver Museum of Nature and Science rock and mineral collection. One specimen was ruby silver; another molybdenum.

Following graduation from high school, Lowell served in the Army for three years. Upon his return from military service, he enrolled at the University of Missouri, where he earned a B.S. degree in agronomy in 1972. He received the Outstanding Teaching Assistant award for his work with the Mizzou undergraduate geology program in 1974, along with an M.A. degree in geology.

Lowell's career began with the position of development geologist for Chevron Oil in Lafayette, Louisiana in 1974. He worked for Marathon Oil,

also in Lafayette, from 1975 to 1979 as exploitation geologist, and was promoted by Marathon to senior exploration geologist and team leader in their Casper, Wyoming office in 1979. From 1981 to 1982 Lowell was manager of Geological Services for Moxa Energy Corp. in Casper. He was chief geologist for True Oil, also in Casper, from 1982 to 1997, and vice president, Exploration, for Abraxas Petroleum Corp. in San Antonio, Texas from 1997 to 1998. Since 1998 Lowell has been a consulting geologist.

During his 18 years in Casper, Lowell became an outstanding and successful explorationist practicing in the Rocky Mountain region. He has a thorough understanding of regional structure and stratigraphy. His knowledge includes understanding depositional systems and their relation to reservoir development and associated trap type. He has worked a wide range of both clastic and carbonate reservoirs. Throughout his career, Lowell has contributed both as a geologist developing prospects and as a supervisor of other staff members. During the past few years, he has been performing expert witness work for clients throughout the country, using his broad geological background to study individual geological situations, write reports, and testify before various state boards or in courtrooms. He has written numerous professional papers over the years, and served as a panelist and presented written and oral reports and legislative and regulatory updates for the AAPG, its divisions, and its affiliated societies.

Lowell has been active in local geological organizations wherever he has resided. He is a past member of the Lafayette, Dallas and South Texas geological societies. While a member of the Wyoming Geological Association, he co-authored the bill that became the Wyoming Geologists' Practices Act of 1991. Currently, Lowell is a member of both the Houston Geological Society and the Rocky Mountain Association of Geologists.

Lowell and his wife Jan, a seventh grade English teacher, were married in 1971. They are the parents of a daughter, Jenny, whom Lowell describes as a "sometime-student and bartender." Lowell enjoys outdoor activities, specifically mountain biking, hiking, snow skiing, canoeing, and swimming. His hobbies include carpentry, computers, and reading. He is a big Tom Clancy fan and a self-described inherent tinkerer, believing we never do anything so well that it cannot be done better or more efficiently.

Edward D. Dolly

DEBORAH KING SACREY

Distinguished Service Award

Citation—To Deborah King Sacrey, an energetic and tireless dynamo, who as a discoverer, organizer, mentor, pioneering leader, and role model among women geoscientists epitomizes the spirit of distinguished service to the profession of petroleum geology.

Deborah King Sacrey is a dynamic leader in our profession. Her contributions to AAPG, the Houston and Oklahoma City Geological Societies, the Gulf Coast Association of Geological Societies, the Society of Independent Professional Earth Scientists, and her alma mater, the University of Oklahoma, are extensive and near legendary.

She seamlessly weaves her consulting business in with her volunteer activities and is widely acknowledged as an effective oil and gas discoverer with numerous wildcat successes in the Texas and Louisiana Gulf Coast as well as international exploration areas.

Deborah's career began at Gulf Oil after graduation from the University of Oklahoma. She continued her oil company staff career at ANR, Old Dominion, Weeks Exploration, and Paramount Energy before founding Auburn Energy, her consultancy in which she focuses on interpretation of 3-D seismic data for an extensive clientele.

AAPG has benefited in many ways from her active participation and leadership. She has represented both the Oklahoma City and Houston societies in the House of Delegates and has served the House of Delegates as an officer candidate, being elected secretary/editor. She has chaired both the Nominations and Elections and Rules and Procedures committees.

She has served in several offices in AAPG's Division of Professional Affairs (DPA), including vice president and secretary.

The 2002 AAPG Annual Meeting benefited from Deborah's energy and administrative skills when she served as my general vice co-chair—an enormous task that contributed greatly to the meeting's success. Her and Charles Steinbach's vision of a special DPA luncheon event resulted in the "Legends Luncheon," with Mike Halbouty as keynote speaker and a large attendance of "legendary geologists" sharing their stories and wisdom with the contingent of student and young petroleum geologists who were invited. This unique event was memorialized in a special volume entitled *Heritage of the Petroleum Geologist*, and resulted in a publication printed by the DPA and given to its members.

Her insight and creativity helped AAPG realize the concept of AAPEX, the successful Prospect and Property Expo, now in its fourth year. Deborah has served on the APPEX Steering Committee since its inception, and she co-chaired the 2003 event.

The Houston Geological Society (HGS) is the recipient of much of Deborah's attention both behind the scenes in the Society office and in many of the HGS's regular and

special activities and events. She played a key role in moving the office twice when leases expired over the past decade and in recruiting, training, and supporting HGS's office staff. HGS members have elected her treasurer, and she has chaired the Public Relations and Political Affairs committees. She has been honored with Distinguished Service and President's awards by the HGS.

The Gulf Coast Section tapped her to play a key role as treasurer in 2000 when GCAGS's 50th Anniversary was celebrated at the Houston Annual Convention. Deborah conceived of and conducted a highly successful wine auction to raise funds for scholarships.

SIPES (Society of Independent Professional Earth Scientists) voted Deborah to be their first woman national president in 2001–2002. That honor culminated a long history of service in the Oklahoma and Houston chapters, including terms as vice president and president of the SIPES Foundation and general chairman of the SIPES National Convention in 2000 in Galveston.

Never forgetting her alma mater, she has actively contributed to the University of Oklahoma School of Geology and Geophysics. She has been chairman of the Alumni Advisory Council for the school and helped plan the 100th anniversary event several years ago.

Perhaps most symbolic of Deborah's contribution to our profession is her unselfish record of voluntarily teaching courses and seminars in the use of Kingdom Geophysical Interpretation software at numerous industry events and conventions. Hundreds of mid-career geoscientists have benefited enormously from this opportunity. Her students and colleagues have dubbed Deborah the "Queen of Kingdom" in recognition.

In summary, Deborah King Sacrey is not only a successful energy explorer, she is a veritable energy source in her untiring creative contributions to so many major professional geoscience organizations. The extent and reliance of petroleum geology on the voluntarism of its members is unusual, and in this Deborah stands out as extraordinary. Truly, the AAPG Distinguished Service Award is an appropriate acknowledgement of her work.

Jeff Lund

DONALD S. STONE

Wallace E. Pratt Memorial Award

The Wallace E. Pratt Memorial Award for the best paper published in the 2002 *AAPG Bulletin* goes to Donald S. Stone for "Morphology of the Casper Uplift and Related, Subsidiary Structures, Central Wyoming: Implications for Laramide Kinematics, Dynamics, and Crustal Inheritance."

Stone has always had an interest in the Casper Mountain uplift because of its unusual east-west trend. A renewed interest began with a trip to the University of Texas at Arlington as an AAPG Visiting Geologist in 1995. A graduate student that he met there had selected the Casper Mountain uplift as the subject of his master's thesis. Stone offered to help the student conduct a data search and then convinced Texaco to contribute copies of proprietary seismic profiles across the eastern part of the Casper Mountain uplift.

Upon completion of his thesis, the student sent Stone copies of his illustrations and a summary of his conclusions. Stone could not agree with the student's proposed large left-lateral slip component on the Casper Mountain fault zone so he began to formulate the concept of constructing one or more structural contour maps of the entire Casper Mountain complex and surrounding area, including extrapolation of contour horizons above topography so that the overall geometry of the uplift and related fault zone could be viewed and studied. He became engrossed in soliciting more seismic data, checking field relationships, reviewing the well data, and analyzing the geometry of the entire Casper Mountain fault-related uplift and its probable Precambrian ancestry. The 2002 AAPG paper was the eventual result of this fascinating investigation.

Donald Stone was born in Mineaola, New York. He received a B.A. degree from Hamilton College in Clinton, New York, in 1950 and an M.A. degree from Cornell University in Ithica, New York, in 1951 (under a graduate scholarship in structural geology). He went to work for Standard Oil Company of California (or Socal, now ChevronTexaco) in San Francisco immediately after graduation as a well-site geologist, doing field geology or subsurface geologic interpretation out of Rio Vista, Salinas, Point Reyes, Sacramento, or Bakersfield, California. He then was assigned as party geologist on an advanced seismic crew out of Richfield, Utah. In 1953 he was transferred to the new offshore group in Los Angeles, then La Habra, California, to team with a seismologist in preparing a geological interpretation of the Santa Barbara channel area in preparation for the 1958 bidding on offshore state lands. After Socal won several leases in the bidding on which new oil fields were discovered, he was assigned as a consultant to the producing department to assist in the field development programs. In 1961 he left Socal to join Franco-Western Oil Company as division geologist in Denver, working in the Rocky Mountain basins. When Franco-Western was acquired by Mobil in 1965, he resigned to accept a position with Chevron in Denver, working in Utah and northwest Colorado, but left again to become geological manager for Baumgartner Oil Company in 1968, developing exploration prospects in the Rocky Mountain basins.

In 1971 he left Baumgartner to become an independent, forming his own company, Sherwood Exploration, to develop exploration plays in the Rocky Mountain states, operating as a Colorado corporation until 1986. He has been an independent/consulting geologist since then.

With a passionate interest in the structural geology of the Rocky Mountain foreland, he has authored many papers emphasizing the subsurface details of oil- and gas-bearing structures within this province. He has served as president of the Rocky Mountain Association of Geologists (RMAG) (1987) and managing editor and special editor for the structural series of *The Mountain Geologist*. He was awarded Scientist of the Year in 1985 and RMAG Honorary Member in 1988. Within AAPG, he has served on several committees and as an associate editor of the *AAPG Bulletin* (1997–2000). He was named an AAPG Honorary Member in 1994.

ALAN R. HUFFMAN
Robert H. Dott, Sr., Memorial Award

GLENN L. BOWERS
Robert H. Dott, Sr., Memorial Award

The Robert H. Dott, Sr., Memorial Award for the best special publication in 2002 is presented to Alan R. Huffman and Glenn L. Bowers for AAPG Memoir 76, *Pressure Regimes in Sedimentary Basins and their Prediction*. The book is an outgrowth of a conference held in 1998 by the American Association of Drilling Engineers Committee on Abnormal Pressure Drilling Technology. Conference presenters and other experts in the field of pore pressure were asked to contribute chapters on a book summarizing current state of the art.

Alan Huffman is a recognized technical and business leader in the petroleum industry with more than 20 years of experience in geosciences. His expertise includes direct detection of hydrocarbons, geopressure prediction, advanced imaging methods, physical properties analysis, rock physics, geological hazard analysis, the mechanics of high-strain-rate deformation of geologic materials, technology strategy, the management of intellectual property, and the licensing and commercialization of new technologies in the petroleum industry.

As the president and CEO of Fusion Petroleum Technologies Inc. (FPTI), he is responsible for the daily operations and all service projects performed by the company. Huffman is also the vice president of operations of Fusion Geophysical LLC, the parent of FPTI and is the Lissa and Cy Wagner Professor of Geology and Geophysics in the School of Geology and Geophysics at the University of Oklahoma in Norman.

Before joining Fusion in 2002, Huffman held the title of manager of the Seismic Imaging Technology Center (SITC) with Conoco from 1997 to 2002, and was responsible for worldwide technology development, technical service, and marketing and commercialization of geophysical technology, including seismic acquisition, seismic data processing, seismic analysis, gravity and magnetics, seismic data management, geological hazard surveys, ocean acoustic surveys, and geodetics. Huffman managed the development of advanced geophysical software and integration of software and hardware specialty solutions for the energy business. He was responsible for the development, implementation, and integration of Conoco's leading-edge seismic data processing system and the design and implementation of Conoco's 2.2 Teraflop Intel/LINUX "Fast Cat" supercomputer and its associated systems and infrastructure.

From January 2002 to September 2002, Huffman was assigned to the merger integration team for the ConocoPhillips merger. He worked closely with other senior leaders from Conoco and Phillips to design a new technology organization, business plan, business processes, and strategy for the new company. From 1990 to 1997, Huffman was employed by Exxon Corporation.

Huffman received a bachelor's degree in geology from Franklin and Marshall College in 1983 and a Ph.D. in geophysics from Texas A&M University in 1990. He was privileged to perform the seismic hazard analysis for the successful proposal for the Superconducting Supercollider in Waxahachie, Texas, and also served as the executive secretary to the DOE Office of Basic Energy Sciences Geoscience Research Council in the late 1980s. In 1989, he was appointed Science Manager of DOSECC, the U.S. Continental Drilling Program.

Huffman is active in industry and professional affairs, having chaired numerous technical conferences and having served on organizing committees for the Society of Exploration Geophysicists (SEG), American Association of Drilling Engineers, AAPG, and Society of Petroleum Engineers. He is a member of the SEG, AAPG, Association of Engineering Geologists, Geological Society of America, and American Geophysical Union. He is also a member of the Board of Visitors for the College of Geosciences at the University of Oklahoma, and the interim Industry Liaison Panel, and the GeoSCAN panel for the International Ocean Drilling Program. He has published numerous papers in refereed journals, articles in international publications, and 26 abstracts. He has six patents and one patent pending in the field of geophysics.

Glenn Bowers is president of Applied Mechanics Technologies (AMT) in Houston, which provides consulting services in abnormal pore pressure, wellbore stability, wellbore fracturing, and general rock mechanics. Prior to starting AMT in 1994, he spent 12 years at Exxon Production Research Co., where he performed research in these same areas.

He holds B.S. and M.S. degrees in mechanical engineering from the University of Akron and a Ph.D. in theoretical and applied mechanics from the University of Illinois. He is a member of the Society of Petroleum Engineers (SPE) and American Association of Drilling Engineers (AADE) and was founder and chairman of the AADE's committee on abnormal pressure drilling technology. He was a member of the organizing committee for the 1993 SPE forum series in the North America workshop on "Pore Pressure Estimation and Detection," served as co-organizer for the AADE's 1998 international conference on "Pore Pressures in Sedimentary Basins and their Prediction," and was co-organizer of the special session on "Geophysical Methods in Pore Pressure Estimation" that was held at the 2001 OTC.

TOBIAS H. D. PAYENBERG

J. C. "Cam" Sproule Memorial Award

The J. C. "Cam" Sproule Memorial Award is given to the AAPG member 35 years old or younger (at the time of submittal) who authors the best paper published during the year by the Association or any affiliated society. This year's award recipient is Tobias H. D. Payenberg, for his paper titled "Paleocurrents from FMS and Scribe-Oriented Core—A Comparison" (AAPG Methods in Exploration 13, p. 185–198).

Tobi Payenberg is a lecturer in sedimentology, stratigraphy, and basin analysis at the Australian School of Petroleum (ASP), University of Adelaide, Australia. He joined the ASP (formerly NCPGG) after completing his undergraduate degree at the University of Technology, Aachen, Germany in 1996, receiving a Master of Science degree at the Queensland University of Technology, Brisbane, Australia in 1998, and his doctorate at the University of Toronto, Canada, in 2002. Tobi's research has focused around the sedimentology and stratigraphy of shallow to nonmarine clastic successions in Australia, Indonesia, Canada, and the United States.

Before joining the ASP, Tobi worked as an exploration geologist for Nexen Oil and Gas Inc. in Calgary, Canada. Tobi's current research encompasses reservoir and regional sequence stratigraphy as well as modern and ancient analog studies in fluvial, shallow-marine, and deep-water clastics. In addition, he teaches courses, consults, and runs field trips on these topics for various petroleum companies.

FRANK J. PEEL

George C. Matson Award

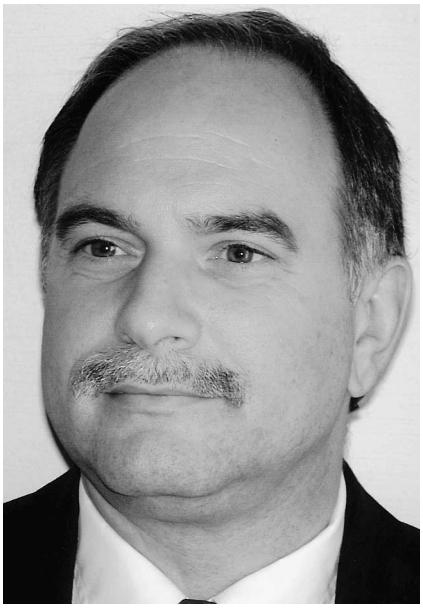
The George C. Matson Memorial Award for the best paper presented during an AAPG oral technical session at the 2003 AAPG Annual Meeting in Salt Lake City, Utah, is presented to Frank J. Peel for "Styles, Mechanisms, and Hydrocarbon Implications of Syndepositional Folds in Deepwater Fold Belts: Examples from Angola and the Gulf of Mexico." This paper is the summation of ten years of exploration work in deep-water fold belts and builds upon extensive seismic interpretation efforts carried out by BHP explorers in different offices, whose efforts are gratefully recognized.

Over the course of this time we have learned a great deal about how deep-water fold belts work and that they are not simply "wet" equivalents of the onshore thrust belts, which the industry has been exploring for centuries, and which we understand much better. Considering the essential differences between onshore fold belts and those found in deep water on passive margins has led us to

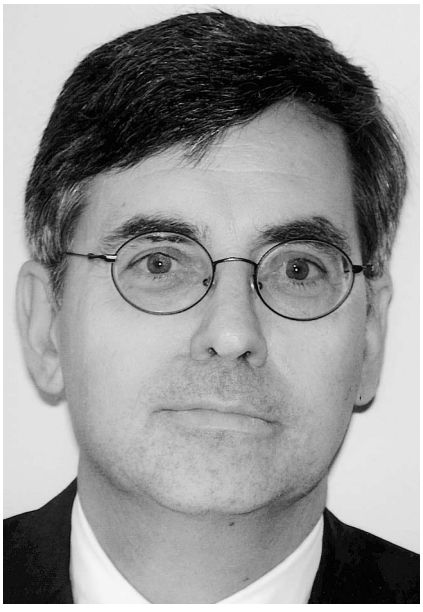
important insights that help us to better predict reservoir distribution, faulting patterns, and other vital issues.

The paper was prepared in BHP Billiton's Houston office. The work was carried out with the aim of helping active exploration efforts in the Gulf of Mexico and elsewhere; however, it was decided that the general principles were important to share with the wider community.

Frank Peel was born in Redditch, United Kingdom, in 1958. He graduated in 1981 from Cambridge University, United Kingdom, with a B.A. (first-class honors) degree in natural sciences (geology); earned an M.Sc. degree in structural geology at Imperial College, London, in 1982; and in 1985 completed his graduate studies at the university of Oxford, United Kingdom with a doctorate (D.Phil.) in structural geology. In 1985 he joined BP and worked as an exploration geologist and structural geology specialist in Aberdeen, London, Houston, Mexico City, and Beijing. During this time he was responsible for developing new models for the structural evolution of the Gulf of Mexico Basin, which have had considerable impact on the exploration of the deep-water fold belts. In 1996 he joined BHP Petroleum as principal structural geologist, working in Australia and Houston. He is married and has two children.

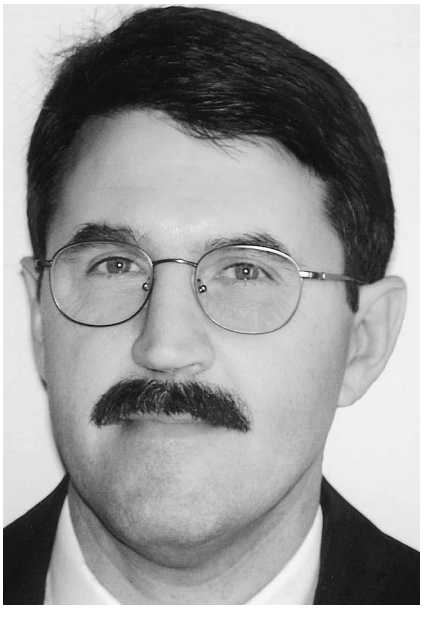


ALAN P. BYRNES
Jules Braunstein Memorial Award



W. LYNN WATNEY
Jules Braunstein Memorial Award

EVAN K. FRANSEEN
Jules Braunstein Memorial Award



MARTIN K. DUBOIS
Jules Braunstein Memorial Award

The Jules Braunstein Memorial Award for the best AAPG poster presentation at the 2003 Annual Convention in Salt Lake City, Utah, is presented to Alan P. Byrnes, Evan K. Franseen, W. Lynn Watney, and Martin K. Dubois for "The Role of Moldic Porosity in Paleozoic Kansas Reservoirs and the Association of Original Depositional Facies and Early Diagenesis with Reservoir Properties."

Paleozoic shallow-shelf carbonate systems with moldic porosity have produced more than four billion barrels of oil in Kansas. The investigators' ongoing research indicates that, despite having undergone significant transformation and even reversal of

solid and pore space in some instances, the nature of the post-diagenetic fabric and petrophysical-lithofacies trends still reflect original rock textures in these systems. The resultant models that relate pore architecture to petrophysical properties are forming the basis for improved reservoir property models to be used in the evaluation, characterization, and simulation of these and similar carbonate systems in the rock record. The authors acknowledge that this work used, in part, information obtained by projects supported by the U.S. Department of Energy.

Alan Byrnes holds a B.S. degree from the University of Illinois at Chicago and an M.S. degree from the University of Chicago. He joined the Kansas Geological Survey in 1997 as a research geologist-petrophysicist and is project manager of a DOE CO_2 flood demonstration project and investigator on reservoir characterization/simulation projects that integrate lithofacies and rock petrophysics. Prior to joining the Kansas Geological Survey he owned a special core analysis laboratory in Colorado for more than a decade and worked at Marathon Oil Research Center, Xytel Corp., and the Institute of Gas Technology.

Evan Franseen holds B.S. and M.S. degrees and a Ph.D. in geology from the University of Wisconsin-Madison. In 1989 he joined the Kansas Geological Survey, where currently he is a senior scientist within the Petroleum Research Section. He is also a courtesy professor in the Geology Department at the University of Kansas. His research involves carbonate sedimentology, diagenesis, sequence stratigraphy, and integration of geophysical, geochemical, and modeling techniques to understand controls on sedimentary systems and reservoir character.

Lynn Watney holds B.S and M.S. degrees from Iowa State University and a Ph.D. from the University of Kansas. He is a senior scientist for the Kansas Geological Survey, having served 25 years with the organization. He is also the executive director of the University of Kansas Energy Research Center. Prior to going to Lawrence, he was employed with Chevron in New Orleans between 1972 and 1976.

Martin Dubois holds a B.S. degree in geophysics from Kansas State University and an M.S. degree in geology from the University of Kansas. He joined the Petroleum Research Section at the Kansas Geological Survey in 1999 after more than 20 years in the industry, first with Cities Service, then as a consultant, and later as exploration manager for John O. Farmer, Inc., a Kansas independent oil company.

HALFDAN CARSTENS
Journalism Award

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

Halfdan Carstens received his Master of Science degree in geology from the University of Oslo in 1976. He has worked as a petroleum geologist for 20 years, starting with Saga Petroleum in 1977. In 1983, he moved to Nopec and then to Petroleum Geo-Services from 1991 to 1997.

He has always been interested in making geological knowledge available to the public domain. When he could not find a journal suited for this purpose, he established GeoPublishing AS, which distributes his publication, *GEO*. He writes most of the articles himself and serves as the photographer as well. The news and features in *GEO* are based on Norwegian onshore mining and construction and offshore petroleum and marine geology, including research and education. He travels to the mining and construction sites to research the articles himself.

HALKA CHRONIC
Journalism Award

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

Halka Chronic was born in Tucson and brought up in southern Arizona, spending summers on the California coast and Cape Cod. She attended the University of Arizona in Tucson, receiving her bachelor's degree in 1944. Though majoring in zoology, she also took courses in geology and paleontology. The geology professor later offered her a summer job at the Museum of Northern Arizona, where

he was assistant director and head of the Geology Department. She continued as his assistant for three summers, 1945–1947, while working toward a master's degree in biology (emphasis: paleontology) at Stanford University.

Halka received her Ph.D. in geology from Columbia University in 1949, married a fellow student, John Chronic, and moved west again, in stages, to Boulder, Colorado. There they brought up their four daughters, two of whom also studied geology. During her 34 years in Boulder (except for one year each in Scotland, Ethiopia, and Australia) she worked part-time organizing a petroleum geology "punchcard" library and completed occasional jobs for the U.S. Park Service, in particular identifying geologic landmarks for the southern Rockies.

In Ethiopia, she taught geology at Haile Sallassie University and wrote a simple textbook on Ethiopian geology. While in Australia, Halka and her husband wrote *Prairie Peak and Plateau*, the first popular guide to geology of Colorado for the Colorado Geological Survey. For eight years after their return from Africa, she was editor/writer for the National Center for Atmospheric Research (NCAR) in Boulder, where she edited scientific papers and wrote and edited the *NCAR Quarterly*. She later began to write on her own, putting together four Roadside Geology guidebooks (Colorado, Arizona, New Mexico, and Utah, published by Mountain Press) as well as four books on western national parks—the Pages of Stone series published by The Mountaineers—and a geology guidebook to Rocky Mountain Park.

Halka moved to Sedona, Arizona in 1985, finishing the Arizona and Utah roadside books and the last two Pages of Stone volumes. Since then, she has volunteered in a public school taking children on field trips and has also described the geology on several river trips (San Juan, Green, and Colorado rivers) and lectured on the geology of the Sedona area. She served on the Alumni Committee of the Museum of Northern Arizona for a time. With two of her daughters, she has recently revised and updated her *Roadside Geology of Colorado* and the Pages of Stone volume on the Plateau County.

MICHAEL P. FILLIPOW

Teacher of the Year

It was not Mike Fillipow's original intent to become a teacher. He graduated from the University of California, Los Angeles, in June of 1984 with a B.S. degree in engineering geology and immediately enrolled in the master's program at Long Beach State in the fall of that same year. He took a full load of advanced geology classes with intentions of receiving his master's in two years. That very first semester, the geology department assigned Mike to a teaching assistant position, and he had two classes of freshmen geology lab. He absolutely loved it! Mike taught other geology-related classes over the next two years and easily decided that teaching was his calling. He diverted into the teaching credential program, and the rest was history.

Mike's first teaching assignment in the fall of 1989 was at Long Beach Polytechnic High School, where he still teaches today. He has taught a wide variety of sciences over the years and has also coached athletics. He is currently Poly's head swimming and cross country coach. He was the first teacher to pilot and implement integrated science at his school. Integrated science was intended to eliminate tracking and address the poor passing rate by engaging students in a hands-on approach to science. Mike was the site coordinator for integrated science for the next five years and helped the program grow from one teacher with four pilot sections to nearly ten teaches with over forty total classes. He was also the math-science academy lead teacher for five years as the school attempted to build subgroups of students with like-academic-interest "academies" to help overcome the pitfall of a very large campus (Poly has more than 4500 students). As a mentor-teacher in the district from 1995 to 1999, he assisted other science teachers to help them be more successful and have a better teaching experiences.

Mike has spent two weeks each summer for the last ten years teaching teachers of all grade levels how to teach science. In 2002, he passed rigorous portfolio work and testing to receive the very prestigious National Board for Professional Teaching Standards Certification.

Mike always wanted to teach a true geology class. The problem was that it is often considered the forgotten high school science. The Long Beach Unified School District, along with most other districts, does not offer geology. If he wanted to teach it, he would have to develop it, get it accepted by the school and the school board, and then try to get students to take it. Four years ago, he received the green light and piloted one geology class with 25 students. It was a great teaching experience for him, and it must have been positive for his students because the next year the interest in the class grew and he had two sections of 25. Long Beach Polytechnic High School is now in its fourth year of geology and has a steady geology enrollment of two full sections.

The class was intentionally designed by Mike to be very hands-on with geology-oriented lab work almost daily. He did not have great geology lab material or money to purchase any lab supplies so Mike developed many of his own labs and built much of the equipment. Technology is always incorporated into the class in a variety of modes. The class usually does three

field trips per year to allow the students to see real geology, and Mike gets a lot of positive feedback from his students, past and present. His course goal is to keep increasing enrollment in geology and ultimately expose as many students as possible to the wonders of the earth.

Mike loves teaching geology and coaching, but the highlight of his long day is coming home. He has a very supportive and wonderful family. They have to be supportive because he teaches and coaches two sports! Mike says that his wife, Amelia, and their two daughters, Lauren (5) and Jacqueline (3) make all the hard work and time worthwhile.

Mike has two ultimate goals for his students. One is to develop a true appreciation for the earth and all of its resources so that as the students mature into productive members of society they can make intelligent, conscientious decisions to help improve the earth. His second goal is to get as many students as possible so interested in geology that they take it in college and come back to him and say, "That was the easiest class that I have ever taken because you already taught it to me!"

ROY C. DAVIES
Gabriel Dengo Memorial Award

The Gabriel Dengo Memorial Award is given each year at the annual convention in recognition of the best AAPG paper presented at the previous year's international conference. This year the award was presented to Roy C. Davies for "Ultra High Resolution Correlation Using Coal Seam Microstratigraphy." His coauthors are John Howell, University of Bergen, Bergen, Norway: Stephen Flint, University of Liverpool, Liverpool, United Kingdom; and Claus Diessel and Ron Boyd, University of Newcastle, Callaghan, New South Wales, Australia.

This study represents part of ongoing efforts by the authors to improve the integration of coal petrography, sedimentology, and sequence stratigraphy. This paper is based on the first two years of Roy's Ph.D. work, focusing on the application of coal seam microstratigraphy to high-resolution correlation and nonmarine sequence stratigraphy. The primary study area for this project is located in the Book Cliffs of eastern Utah, United States.

Roy received a B.Sc. in geology from the University of Liverpool, United Kingdom, in 2000. Following a year spent working as a systems analyst for Ford Motor Company he returned to Liverpool in 2001 to commence a Ph.D. in coal geology and sequence stratigraphy.

TORE M. LOSETH
Ziad Beydoun Memorial Award

JOHN B. THURMOND
Ziad Beydoun Memorial Award

KRISTIAN SOEGAARD (deceased)
Ziad Beydoun Memorial Award

The Ziad Beydoun Memorial Award for the best poster presentation at the 2003 AAPG International Conference and Exhibition in Barcelona, Spain, is presented to Tore M. Loseth, Norsk Hydro, Bergen, Norway; John B. Thurmond, University of Texas at Dallas, Richardson, Texas;

JAN C. RIVENÆS
Ziad Beydoun Memorial Award

OLE J. MARTINSEN
Ziad Beydoun Memorial Award

and Kristian Soegaard (posthumously), Jan C. Rivenaes, and Ole J. Martinsen, Norsk Hydro, Bergen, Norway, for "Visualization and Utilization of 3D Outcrop Data."

The paper describes a novel technique to collect and display photorealistic, spatially accurate, three-dimensional outcrop data in a virtual reality environment. With this technique, reservoir models can be built directly from centimeter-scale outcrop and behind-the-outcrop data. The technique solves hitherto unsolvable problems with outcrop geology such as parallax errors and allows detailed virtual inspection of inaccessible areas. The technique allows for highly effective multidisciplinary teamwork through synchronous visualization of ground-truth geology and reservoir models.

Tore Loseth received a M.Sc., degree in 1998 and a Dr.Sc. in 2001 from the University of Bergen, Norway. Since 2001 he has been a geologist at the Norsk Hydro Research Center in Bergen, Norway. He specializes in sedimentology and reservoir modeling. He has experience in shallow and deep-marine siliciclastic systems in passive and tectonically active settings, and has field experience from work in the Eocene Central basin of Spitsbergen (Norway), the Cretaceous Western Interior foreland basin and the Eocene Ainsa basin (Spain). His current main interest is in creating sophisticated reservoir models from 3-D outcrop data in virtual environments, and applying these models to subsurface settings.

John Thurmond received his B.S. degree in geology summa cum laude in 1997, and is in the final stages of his Ph.D. at the University of Texas at Dallas. He has worked as a consultant for Schlumberger Doll Research, Norsk Hydro Research Centre, and Pioneer Natural Resources. His current research involves the collection, interpretation, and visualization of three-dimensional outcrop data.

Kristian Søegaard grew up in Kenya, Denmark, and South Africa before he moved to the United States and got his Ph.D. at Virginia Tech. Thereafter, he was a professor of geology at the University of Texas at Dallas. In 1998, he moved to Bergen, Norway, where he was a senior geologist at the Norsk Hydro Research Center working with exploration and reservoir issues until his accidental death in August 2002. He specialized in reservoir modeling, particularly taking part in creating new virtual reality based technology for building better and more realistic reservoir models.

Jan C. Rivenæs received his M.Sc. in petroleum geology, 1987, and his Ph.D. in stratigraphic computer modeling, 1993, from the University of Trondheim, Norway. He worked for Statoil in 1987–1988 in geology and geophysics. Since 1991 he has worked for Norsk Hydro, first as reservoir engineer in asset teams, later in geological modeling and research at the Norsk Hydro Research Center. He is now advisor in reservoir modeling, and his current specialties are 3-D modeling, upscaling, computer programming, and advanced visualization.

Ole Martinsen received a M.Sc. degree, 1987, and a Dr.Sc. degree, 1990, from the University of Bergen, Norway. He is currently head geologist and manager of geological research at the Norsk Hydro Research Center in Bergen, Norway. He specializes in clastic sedimentology and stratigraphy and has worked over the last few years to build realistic geological models in virtual reality environments. His main interest is in deep-water sedimentology and stratigraphy both in subsurface, modern, and outcrop settings and has a particular interest in source-to-sink studies. Martinsen has a wide publication record and currently serves as SEPM's International Councilor and is also an associate editor of *Sedimentology*.