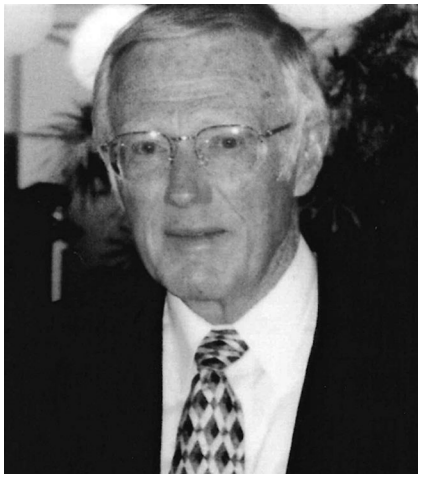


MICHAEL R. WALLER 1927–2014

By Sven Treitel
Tulsa, OK

Michael (Mike) R. Waller, the former vice president for research at Amoco Production Company's Tulsa Research Center, passed away in Chesterfield, Missouri, on Feb. 6, 2014. Mike was born in Australia as the older son of one of that country's most beloved World War II naval heroes. He received his bachelor's degree with top honors in geology from the University of Melbourne in 1948. In 1950 he was awarded a scholarship by the Tulsa Rotary Club to the University of Tulsa, where he earned his M.S. in geology in 1952. During his last weeks at TU, he met George Galloway, then president of what later became Amoco-Canada, and who offered Mike a position in the Canadian office. Before beginning this assignment, however, Mike briefly returned to Australia to marry his fiancée Diana; they had met earlier while both were geology majors at Melbourne University. Mike began his Amoco career as a junior geologist, but soon moved up the ranks, which eventually led to his involvement with Amoco's early exploration efforts in Alaska. In 1966 Mike was made exploration manager at Amoco's head office, and the whole family, which now included three sons, moved to Tulsa. Four years later he was appointed manager of the Amoco Research Center. In 1973 he became vice president, research, as well as a member of the Amoco Management Committee, a position he always considered a great honor. He held both appointments until his retirement in 1990.

When Mike arrived at the Tulsa Research Center, I had been working in its geophysical research division for some ten years. While top management realized the importance of a well thought out R&D program, little guidance was offered how these goals were to be achieved, nor just what kind of environment was required for new ideas to flourish, and for these to impact corporate exploration and production efforts. All this changed within a matter of months after Mike took over the helm. In short, Mike was not only a natural manager, he was a natural research manager. It is true that people attend business schools to acquire these skills—Mike had no need to do so, he knew by instinct what works, and what will not. He realized that a successful industrial R&D organization had to hire creative and productive scientists and engineers, but that these individuals could be retained only if they were encouraged to become known by their peers outside the laboratory, primarily through written publications and through attendance at professional meetings.

Of course it is true that many results of industrial research must remain confidential if the company is to obtain financial gain from them; Mike managed to strike the proper balance between these two apparently conflicting goals. By encouraging the staff to publish many of their findings, the Tulsa Amoco Research Center soon developed into one of the major R&D facilities in the oil industry worldwide. In turn, and as its reputation grew, it attracted additional talent, which by positive feedback further enhanced the lab's reputation.

Mike was a true "people" person: he knew most of the individuals working at the research center by name, and often knew about their hobbies and their families. Not being so blessed myself, I asked him one day for his secret: he replied that he didn't have a clue. He took a keen interest in each and every research project, frequently attended technical staff meetings, and was never reluctant to interrupt if somebody plunged into obscure jargon, or if clarification of a concept was in order.

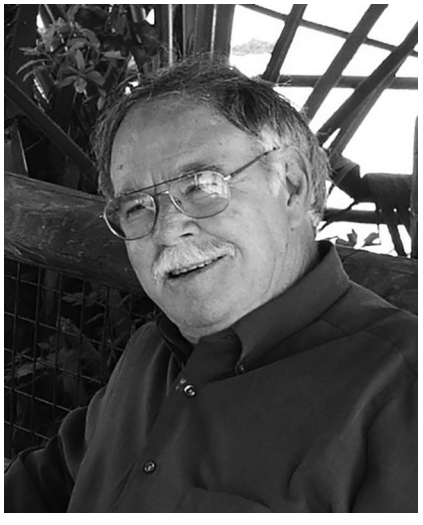
He motivated the staff by interacting with them in this way, and inspired the managers reporting to him to do likewise. Mike was by no means risk averse: he encouraged work in unorthodox fields.

One example was a project to investigate cold fusion, which caused a brief flurry of interest before it was shown not to be the energy panacea it was claimed to be. On the other hand, under Mike's watch one of the industry's first computerized seismic signal processing systems came into being, whose direct "descendant" forms the basis of BP's current system.

During the late eighties the oil industry suffered a series of downturns, which led to a reduced R&D budget and personnel reductions. These Mike handled as gracefully as he could; the times were difficult for those who left and for those who stayed.

Mike took retirement in 1990; the lab continued to function until 1998; it was shut down by BP when it took over Amoco that year. In 2010, the Society of Exploration Geophysicists (SEG) honored the former Tulsa Amoco Research Center with its Distinguished Achievement Award. The person who should have accepted it was Mike Waller, yet he was, as usual, much too modest to receive it in person. With his passing, the industry has lost one of its keenest, most personable, and most influential supporters of research in our industry.

Acknowledgment: I would like to thank Diana Waller for her help with this obituary



RICHARD C. "DICK" DALTON
1942–2014

By Richard Dalton, Jr.
Frisco, Texas

My father, Richard C. "Dick" Dalton, was a highly respected geologist, a dedicated friend, and a loving husband, father, and grandfather. He died in Houston, Texas, on May 6, 2014, after a courageous battle with cancer. He was 71 years old.

Dad was a professional geoscientist who had worked for major oil companies, several independents, and as a consultant. His passion for petroleum geology was inspiring. While I did not follow his career footsteps in oil and gas exploration, I carry forward his passion in my own life's work and I share his enduring optimism and his desire to explore life.

After graduating from the University of Oklahoma with a Master of Science in 1966, Dad went to work for Sunray DX/Sun Oil Company where he spent two years in Sun's offshore division evaluating blocks for three federal sales. For 7 years, Dad worked as an onshore exploration geologist working primarily the Miocene trend. He was exposed to and worked in all of Louisiana's southern parishes and he developed many prospects in each of them. His efforts led to two field discoveries and a lifetime specialization in southern Louisiana.

He stayed with Sun until 1976 and then moved on to become a project geologist with Cities Service Company. As a geological supervisor with eight explorationists assigned to his responsibility, Dad began to establish himself as a leader among the organization as well as in the petroleum geology community.

In 1977, Dad moved to Transco Exploration Company where his primary responsibility included evaluating drilling ventures submitted to Transco. During his four years, Dad initiated approximately 20 trades resulting in discoveries on 4. During this same period he self-generated two prospects that he promoted to others, which resulted in discoveries. It was here that Dad realized the extent of his own abilities and next attempted to breakout on his own.

In 1981, Dad established Acadia Exploration Corporation, a Texas corporation, where he generated, assembled, promoted and drilled various south Louisiana prospects. He continued on in a consultative role well into the late 1990s and early 2000s under Acadia Exploration Corp.

In 1985, Dad went to work for Ultramar Oil and Gas as a senior geologist/exploration manager where he later admitted were some of his most prosperous years of his career. His responsibilities included screening industry prospects, as well as generating and selling drilling proposals to industry partners. His efforts led to two successful deeper pool discoveries, three successful field extensions, and one major new field discovery. He prepared annual forecasts and budgets, and supervised the work of half a dozen geologists and geophysicists—including one snotty-nosed summer intern (me). For the first time, I got to see my dad in action at work and I was so thankful for the opportunity to accompany him each day witness him in his element.

My dad was a devoted husband and father as well as a loving grandfather. It was at the birth of my oldest that I believe he started moving away from his work in order to devote more time to us. He loved being around family and planning vacations. My sister and I grew up vacationing with mom and dad in such places as the Grand Tetons, not Disney World. While we had difficulty seeing the benefit then, in hindsight I am now very thankful for our geology-inspired vacations.

Dad would want all his friends and family to remember the many good times that they shared and approach life's challenges with cheer and optimism.

My father believed that AAPG, an organization that he was an active member for 45 years, embodied the enduring spirit, optimism, and love of exploration that characterized his life. He was extremely proud to be a member. I thank you on his behalf. Memorials in Richard C. "Dick" Dalton's name can be sent to the AAPG Foundation.

ENVIRONMENTAL GEOSCIENCES JOURNAL

Articles are available through AAPG Pay-Per-View at http://payperview.datapages.com, and to DEG members, and Environmental Geosciences subscribers. To subscribe or become a DEG member, contact Norma Briggs at nbriggs@aapg.org.

CONTENTS
Vol. 21, No. 2, June 2014

Relationship between mineralogy and porosity in seals relevant to geologic CO_2 sequestration
By Alexander M. Swift, Lawrence M. Anovitz, Julia M. Sheets, David R. Cole, Susan A. Welch, and Gernot Rother

Parametric analysis of CO_2 geologic sequestration in closed volumes
By Srikanta Mishra, Yagna Deepika Oruganti, and Joel Sminchak

BOOK REVIEW

Carbon in Earth: Reviews in Mineralogy & Chemistry, volume 75:
By Robert M. Hazen, Adrian P. Jones, and John A Baross (eds.) (2013). 698 p. Published by Mineralogical Society of America and Geochemical Society

Soft cover, $40 nonmember; Free Direct Access @ http://www.minsocam.org/msa/RIM/Rim75.html
ISBN 978-0-939950-90-4

Review by Raymond P. Sorenson
Tulsa, Oklahoma

Carbon in Earth is a product of coordinated international multidisciplinary research of the Deep Carbon Observatory. Twenty review papers cover all aspects of carbon occurrence in the Earth's crust, mantle and core and in extraterrestrial settings, beyond the easily accessible regions of the biosphere and sedimentary settings. Each of the review papers is accompanied by an extensive bibliography, facilitating access to published literature that generally cannot be located through AAPG Datapages or Search & Discovery.

For petroleum geologists working with source rock resource plays or conventional petroleum reservoirs sourced by sedimentary petroleum systems, there will be little in this book that is directly applicable. For those who deal with petroleum industry fringe activities, these review papers have the potential to be extremely valuable, addressing some of the following topics.

Petroleum system research has convincingly demonstrated that most commercial hydrocarbon deposits originated from microbial or thermal alteration of sedimentary organic matter, but there is also clear evidence that some types of hydrocarbons can be generated through abiotic processes. If you are interested in understanding the origin of abiotic hydrocarbons and their potential contribution to commercial accumulations, this book is an excellent starting point.

During deep burial, high pressure and temperature causes the destruction of liquid hydrocarbons but the carbon remains in the system in some form. The published reviews cover settings below the depth of modern petroleum wells, but the observed forms of carbon occurrence can be indicative of the chemical processes taking place at the outer limits of commercial petroleum activity. There are also chapters that discuss the stability of microbial life forms in the extreme environments of deep burial.

Attention is paid to the history of the Earth with evolution of the core, mantle, and crust. As tectonics and crustal composition changed over time along with the growing influence of the biosphere, the types of preserved carbon compounds and their style of origin have changed as well. Life forms have existed for more than 3.5 billion years and played a major environmental role for approximately half that time, while seawater chemistry and forms of sedimentary diagenesis have evolved significantly. An understanding of this topic can be extremely important for those who explore for petroleum in Precambrian basins.

In enhanced oil recovery, a major economic resource is carbon dioxide of igneous origin that has been injected and trapped in sedimentary reservoirs. Exploration for commercial CO_2 accumulations requires an understanding of the origin and movement of CO_2 in the subsurface, in a manner analogous to understanding source rocks and petroleum systems for conventional hydrocarbon exploration.

As the National Helium Reserve nears depletion, commercial helium supplies will come from previously noncommercial gas accumulations with elevated concentrations of helium and nitrogen, both of which are usually interpreted as originating within igneous basement. The nitrogen and helium are almost always associated with noncommercial concentrations of methane, raising the question of whether the hydrocarbons could have also originated in the basement through a method of abiotic generation. With the value of bulk helium now exceeding $250/MCF and worth more

than the associated methane, these neglected gas accumulations will certainly be an object of expanded study in the near future.

Although not directly focused on mainstream petroleum industry concerns, there are enough discussions of potential value to justify examination of the contents of this book, especially with the availability of free online Direct Access to these review papers.