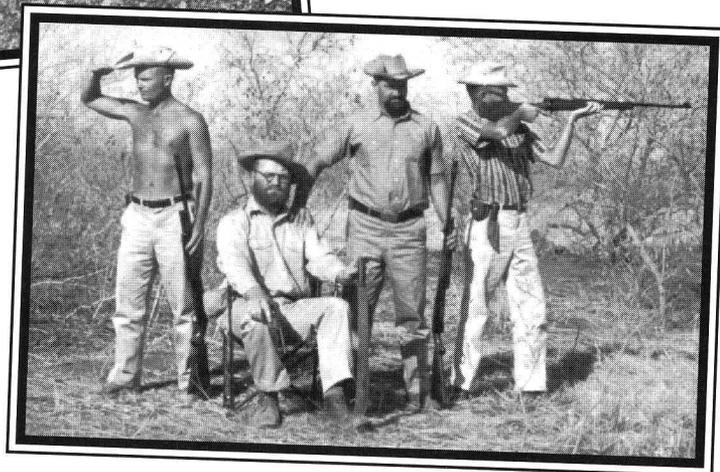
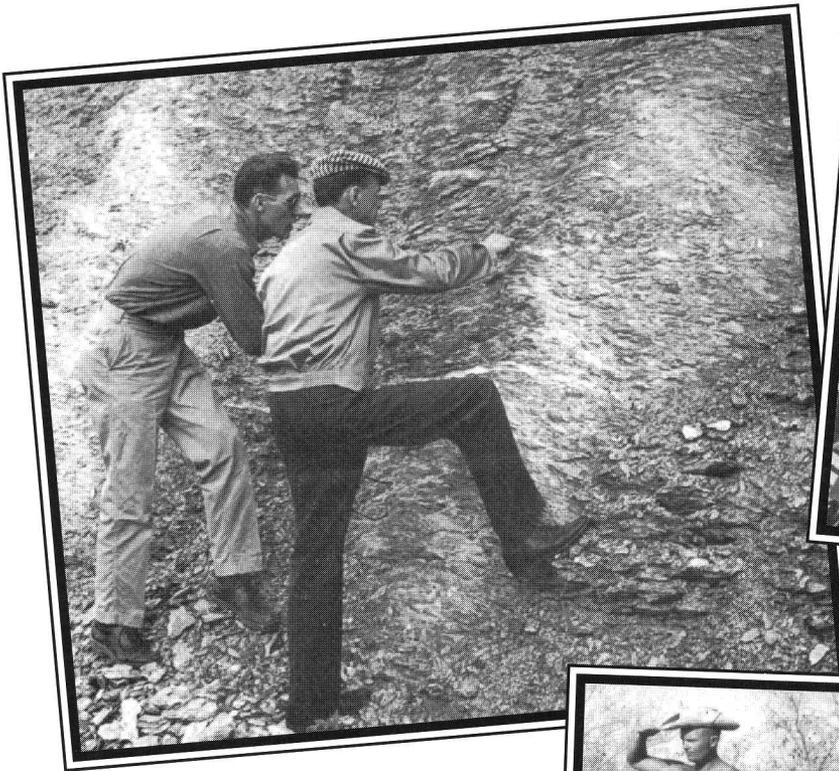


A History

The American Association of Petroleum Geologists 1965-1991

Edd R. Turner
Historian



**A HISTORY OF THE AMERICAN
ASSOCIATION OF PETROLEUM
GEOLOGISTS: 1965-1991**

Edd R. Turner
(1921-1995)
Historian

**Published by The American Association of Petroleum Geologists
Tulsa, Oklahoma, U.S.A., 1994
Printed in the U.S.A.**

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Published February, 1994
Reprinted, with revisions, August 1995

ISBN: 0-89181-817-0

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On the cover—Three AAPG *Bulletin* “Holo-Scenes” from the 1960s. Clockwise, starting in upper left: an AAPG-ASPG Trans-Canada field trip; reading vertical and horizontal angles via helicopter, Slate Pass, Washington; and the Rover Boys in Africa (from left) R.W. Murphy, D.R. Kingston, G. Voutopoulos, and S. Eddington.

Citation

**TO MR. JAMES A. GIBBS, PRESIDENT
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS
APRIL 5, 1991, DALLAS, TEXAS**

I am pleased to send greetings to all those gathered in Dallas for the annual convention of the American Association of Petroleum Geologists. Congratulations as you celebrate 75 years of service to your industry and to our nation.

As one who spent several years in the oil industry, I know firsthand of the indispensable contributions that are made to our economy and to our national security by petroleum geologists. Now, as we begin to implement an energy strategy that will reduce our vulnerability to foreign oil supply disruptions, your work will become increasingly important. In addition to encouraging conservation, the development of alternative fuels, and oil production in other countries outside the Persian Gulf region, we will also concentrate our energies on exploiting untapped oil reserves here in the United States. Members of the American Association of Petroleum Geologists will play a crucial role in discovering and developing these new domestic oil sources.

The United States has already benefited substantially from your ingenuity and your skill. I am pleased to know that we can continue to count on your contribution to meeting our need for steady, reliable, affordable energy.

Barbara joins me in wishing you every future success.

– George Bush

In Recognition

Although many have made outstanding contributions to the American Association of Petroleum Geologists over the past twenty-five years, no one individual has been more constant in attendance and dedication to the rigorous demands of the organization than its Executive Director, Fred A. Dix. Trained as a geologist at Rutgers University, Fred resigned his position with Mobil to fill the post vacated by Norman C. Smith. With his wife, Jean, and children, Steve, Cindy, and Jennifer, he moved from Houston to Tulsa in 1973, and has since devoted his career to the administration of Association affairs.

In his 18 years as Executive Director he has both scaled the heights in the exuberance of the petroleum industry's expansion during the Sixties and Seventies and plumbed the depths of its desolation following economic collapse in the middle Eighties. Where lesser men might have capitulated, he has persevered. Administrator, diplomat, mediator, supplicant, counselor, he has addressed the multifaceted roles of his office in good times and bad with concern and resolution.

His assistance in preparing this history is greatly appreciated.

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AAPG Founders



Bottom row, from left to right: Everett Carpenter, Lucian H. Walker, Sylvan S. Price, Walter R. Berger, Wallace E. Pratt, Fritz L. Aurin, Edward Bloesch, C. L. Severy, and Grady Kirby; top row, from left to right: A. E. Fath, J. M. Armstrong, Thomas J. Galbraith, Richard Hughes, William F. Absher, Albert S. Clinkscales, Walter M. Small, Everett C. Parker, Jerry B. Newby, Jesse V. Howell, Charles H. Row, Huntsman Haworth, and Raymond C. Moore.

Foreword

A rereading of Harold T. Morley's history of the Association's first fifty years, published in the April, 1966 AAPG Bulletin, Vol. 50, No. 4, evokes a nostalgia for a vanished past. His leisurely, intimate style mirrored an era in which there was still space and time to embellish details, polish anecdotes, and extol individuality, all with a generous sprinkling of quotes from diverse sources. Sadly, perhaps, this current account of AAPG's past twenty-five years, 1965 to 1991, makes concessions in both style and content to the realities of the present. Technological expansion and population growth seem to have operated exponentially since the Sixties both to compress time and space and depersonalize existence.

This somewhat terse history of the American Association of Petroleum Geologists' third quarter-century, devoid of a raconteur's charm, aspires rather to provide the reader with a concise summation of the Association's development in that period. Because most AAPG activities have been years in the planning, with many continuing past the temporal scope of even this current endeavor, inevitably this update overlaps some of the material introduced in Morley's 1966 history. Furthermore, because programs and plans feather in and out of AAPG's calendar years, fiscal terms, and administrative tenures, the concept of compiling a strictly chronological history of the Association has been abandoned for a more feasible approach that accommodates tracing specific topics from inception to implementation and beyond.

The text of the present history, which begins with the year 1965 and ends with 1991, is presented in four separate sections. The first chronicles the Association's organizational growth and development over the 25 years prior to 1991 and contains articles of particular relevance to its governing and administrative functions.

Accounts of meetings held and of special programs and projects completed or initiated by AAPG within the same 25-year span are relegated to Section II. Papers reflecting the views of several Association presidents on major issues confronting AAPG during that period comprise Section III. Section IV provides a history of the Sidney Powers Medalists from 1943 to 1991.

What is published here is the final version of manuscripts prepared by a number of AAPG members and staff whose efforts have greatly benefited the organization both in their contributions to the Association's development during the time addressed and in their willingness to write about those contributions.

Edd R. Turner, who had served the Association both as treasurer and president, was designated AAPG Historian in 1981 by then president Robey Clark and his executive committee. Turner, in cooperation with Executive Director Fred Dix and his staff, immediately began researching a projected update of the Association's history that would extend through its 75th anniversary in 1991. A preliminary review of AAPG files in Tulsa soon revealed that the records of many Association activities carried out by appointed committees were not available. A time-consuming search then began in an effort to acquire needed information or, failing that, to recruit members qualified to write accurate, first hand accounts of what had transpired within the American Association of Petroleum Geologists

since the 1966 publication. All such articles by the latter included in this current update carry an identifying byline. Articles without bylines were prepared by the historian using data provided him from various sources, with specific acknowledgments footnoted in each case.

In addition, AAPG Presidents from 1965 through 1991 were asked to submit a resume of their year in office, listing what they deemed their most important accomplishments. Summaries of these resumes provide the factual basis for the chapter in Section I entitled "Elected Officers of AAPG, 1965-1991," and are so credited in a group acknowledgment footnote.

Gratitude is expressed to all who participated in this project, especially to the past presidents of AAPG who sent me comments on their terms in office, particularly Sherman Wengerd, who contributed numerous items for possible inclusion; the various staff members of AAPG (and please forgive me if I have inadvertently omitted anyone), Sondra Biggs, Linda Farrar, Ken Frakes, Merle Luckhart, Sherry Hyer, Gary Howell, Donald O'Nesky, Donna Riggs, and Cathleen Williams, who searched the Headquarters records in the initial phases of the undertaking and supervised the final stages of publication; to Terry Zambon, who as editor, transcribed the various chapters into a coherent whole; Fred A. Dix, Jr., whose support of the project spanned ten arduous years; President Robert J. Weimer and his Executive Committee, whose generous approval has ensured publication of the manuscript; the entire membership of AAPG whose continued support and participation in Association affairs has created a history to be recorded; and, in conclusion, my wife Mary, who took on many of the typing, editing, and organizing chores, all the while providing the Historian loyalty and encouragement in his endeavors to provide a cogent, objective account of the Association's past twenty-five years.

*- Edd R. Turner, Historian
The American Association of
Petroleum Geologists
March 1, 1993*

SECTION I

The Association: Its Growth and Development, 1965-1991

The development of the American Association of Petroleum Geologists, from 1965 to 1991, can best be described as phenomenal. While its tripled increase in membership and corresponding expansion of infrastructure are due in part to the petroleum industry's economic eminence in the Sixties and Seventies, credit for the continuing proliferation of the Association's excellent professional services must be attributed to the acumen of its governing and advisory bodies and the brilliance of its administrative staff. The manner in which the Association weathered the industry's catastrophic collapse in the Eighties is testimony to the true merit of those who guide the organization's destiny.

Current operative forces in the Association include: (1) the administrative staff at headquarters in Tulsa; (2) the governing board comprised of an elected executive committee and an appointed advisory council; (3) the AAPG Foundation; and (4) the House of Delegates, representing numerous affiliates, such as, the regional sections and local societies, the Energy Minerals Division, the Division of Professional Affairs, and until recently the Society of Economic Paleontologists and Mineralogists. In addition, a number of standing and special committees control specific programs and functions under the supervision of the Executive Director. Liaison between AAPG and the American Association for the Advancement of Science, the Association of American State Geologists, the American Commission on Stratigraphic Nomenclature, the International Union of Geological Sciences, and the Offshore Technology conferences. The American Geological Institute is maintained through appointed delegations and representatives.

The articles comprising this section trace the Association's organizational growth and development over the 25 years prior to 1991.

Administration of AAPG Affairs

HEADQUARTERS OPERATIONS, 1965-1991

Fred A. Dix

At the time of the 50th Anniversary celebration in St. Louis in the spring of 1966, the Headquarters operation was divided into three departments – Office Services, headed by Uldene L. Parks; Convention, headed by Elmer W. “Lefty” Ellsworth; and Publications, headed by A. A. Meyerhoff. Norman C. Smith was Executive Director. He had come to AAPG in 1962 as assistant to his predecessor, Robert H. Dott, Sr. Norman Smith was promoted to fill the vacancy when Bob Dott retired in July 1963. Art Meyerhoff had come to the Association in 1965 as Managing Editor. He replaced J. P. D. Hull who retired that year having served as Business Manager and Managing Editor since 1926. Both Hull and Dott continued as editorial consultants, positions which they still held in 1966. Uldene Parks had accepted employment with the Association in 1963 and “Lefty” Ellsworth in 1946.

The 1966 staff of 27 served the needs of 15,346 AAPG members who were caught up in the first recession in exploration since World War II. Membership had stagnated at about 15,000 in 1959 and was not to increase until the rapid rise in the price of oil resulting from the 1973-74 embargo. Dues for Active members in 1966 were \$14, \$5 for students.

The 1991 staff of 56 served the needs of 33,427 AAPG members who were caught up in the second recession in exploration since World War II. Membership had peaked at about 44,000 in the middle 1980s and began a steady decline following the crash in oil prices in January of 1986. Over the 25-year span, dues for Active members had increased to \$58, \$10 for students.

Income in 1966 amounted to \$555,000, with expenses of \$614,000, for an operating deficit of \$59,000. The deficit was attributable in part, at least, to the added expenses incurred with the 50th Anniversary celebration. The Association and the embryonic Foundation had a bit less than one million dollars in liquid assets.

Income during the 1990-91 fiscal year amounted to \$8,555,000, with expenses of \$7,857,000 for an operating surplus of \$688,000. The Association had liquid assets of approximately \$4,000,000 and the Foundation about \$8,000,000.

The quarter-century between the St. Louis meeting of 1966 and the Dallas meeting of 1991 saw many

changes which, in historical perspective, appear revolutionary but which were, in fact, evolutionary in nature. Manual typewriters became word processors; hand-cranked calculators became computer terminals; and telegrams, cables, and telexes were largely displaced by faxes. The fax greatly enhanced the staff's ability to deal with members in far-flung parts of the world.

The Association's phenomenal growth between 1966 and 1991 was evident in all its various functions. A widely unread quarterly newsletter titled “The Executive Report” was supplanted by the *AAPG Explorer*. Special Publications blossomed with colorful and informative dust jackets and increased from a total of one book in 1966 to nineteen in 1991. The *Bulletin* continued its traditional role as the flagship product of the Association. Two thousand seven hundred and forty pages were published in 1966, and 1,984 in 1991 in a larger page size. Continuing Education expanded from a small beginning to a million dollar venture by the beginning of the 1980s. The Convention Department's traditional role of acting as coordinator for the annual meeting drastically changed as the volunteers with the host societies became less willing and able to cope with all the details of the contractual obligations which the Association had to assume in staging the constantly expanding meetings of the 70s and early 80s. As the Association became more effective in attracting exhibitors, expansion from the use of a headquarters hotel for the entire convention to the use of convention centers greatly complicated the meetings. AAPG's first meeting outside of North America – the Brighton meeting of 1969 – proved to be the predecessor of what was to become an annual schedule of international meetings, greatly increasing the administrative burden on the Convention Department.

The Association had only two Executive Directors during the course of its third quarter-century. Norman C. Smith left the employ of the Association in February 1972, after serving nine years. The search for a successor took the better part of a year and Fred A. Dix, Jr., a petroleum geologist with Mobil in Houston, assumed the Directorship in January of 1973.

At the time of Norman Smith's departure, President Sherman Wengerd appointed members of the Executive Committee to oversee various aspects of the headquarters staff functions. When Jim Wilson acceded to the presidency on July 1 of 1972, he continued this practice. Matters seemed to be progressing satisfactorily.

ly until the fall of the year when Betty Horn (now Gann), Chief Accountant, informed President-Elect Daniel Busch that she was being forced to make payments to her supervisor, Business Manager Delford N. Flanagan, that she felt were improper. Soon thereafter, Jim Wilson, Dan Busch, and Association Treasurer Fred Dix showed up at headquarters early one morning unannounced, accompanied by outside auditors. Miss Horn's charges were substantiated and after informing the Executive Committee of the results of the audit, President Wilson discharged Mr. Flanagan. Flanagan, it turned out, had been charging expenses on business trips to the Association's corporate American Express card, and then, after returning to Tulsa, turning in an expense account duplicating the same charges and directing the Accounting Department, which reported to him, to reimburse him. Other acts of petty embezzlement were also documented. Fortunately, the total amount of money embezzled amounted to only a few thousand dollars. Miss Horn's courageous intervention precluded it from becoming much worse.

Mr. Flanagan's actions proved to be the exception rather than the rule. The high standards of professionalism and conduct established by J. P. D. Hull in 1926, when the first headquarters was established, have continued with rare exceptions.

The Executive Committee, realizing from the Flanagan incident that absentee supervision of the day-to-day operations of the Headquarters staff did not suffice, retained Tulsa consultant Edmund Benson to serve as Acting Executive Director until someone could be found to fill the position on a permanent basis. The staff, upset over the cloud that the Business Manager's actions had cast over their dedication to the Association and their professionalism, rallied behind Ed Benson and operation stabilized quickly. Benson was charged with beginning a search for a new Business Manager, while the Executive Committee continued their search for a new Executive Director. The Executive Committee finally offered the Executive Director's job to Fred Dix in December of 1972. He accepted and began work in January of 1973. One of his first actions was to hire Wallace E. "Ole" Olsen as Business Manager. Olsen had been identified as a prime candidate by Ed Benson in the course of his search.

The Executive Committee's directions to Dix and Olsen were quite clear. "Run AAPG as much like a business as possible under the guidelines of a non-profit organization, and develop sources of income that will diminish the need to constantly increase dues." Few, if anyone on the Executive Committee realized that in less than a year, the rapid increases in the price of oil resulting from the 1973-74 embargo would foster an entrepreneurial fervor, not only on the part of the Headquarters staff, but also on future Executive Committees and among the membership. Members coming up with new and innovative ideas for Association products and programs found Executive Committees eager to hear about them and a Headquarters staff willing and able to implement them.

As Association activities multiplied at an unprecedented rate, the staff was increased to handle the

work. By the middle '70s, the existing Headquarters building was insufficient for the staff's needs. The Weeks Tower addition relieved that problem. It was widely perceived by the staff that the new Weeks Tower, augmented by the old Headquarters building, which had been remodeled, would provide all the space that would be needed far into the future. The explosion in membership and the associated increase in membership services and products, however, far exceeded all expectations. The Association became one of the world's largest geological publishing houses, processing sales of as many as 500 publications a day from its inadequate facilities. The construction of the Wallace Pratt Tower relieved that problem and provided the Foundation with rentable space to augment its income.

This rapid expansion of staff activities during the late '70s and early '80s created a situation in which the number of managers reporting to the Executive Director exceeded by a considerable margin the number recommended by principles of sound business practice. The Executive Committee approved a reorganization into three directorships. Art Meyerhoff had resigned as Managing Editor in 1974 to become a consultant, and Gary Howell, who had been serving as *Bulletin* Editor, replaced him. In 1979 Howell was promoted to Science Director. Scientifically oriented activities, such as the Distinguished Lecture Program and Continuing Education, which had been handled under Membership, were combined with scientific publications under this new directorship. Howell served as Science Director until 1980 when he resigned to enter industry. He was replaced by E. A. "Ted" Beaumont who held the position until 1985, at which time he resigned to become a consultant. He was succeeded by Ronald Hart who resigned in 1989 to go into consulting also. Gary Howell, who had returned to the Association as International Development Advisor, then assumed the additional duties of Science Director.

Uldene Park's Office Services Department developed eventually into the Business Directorship. Parks left AAPG in 1967 and was replaced by Skip Carey who served until 1970. His successor, Delford Flanagan, was discharged in 1972. Wallace E. "Ole" Olsen took over in early 1973 and served until his death in 1979. Donald O'Nesky was then appointed Business Director. By the time of the 1991 Dallas meeting, he had assumed the additional duties of Deputy Executive Director.

Elmer E. "Lefty" Ellsworth, Convention Manager until his retirement in 1972, was succeeded by Kathy Watson (now Wine). Elevated to Convention Director in 1979, Kathy left the Association in 1980 to remarry and move to San Antonio. A search for a new Convention Director resulted in the hiring of Harold Gant who, although he looked well qualified on paper, quickly demonstrated that his management style did not conform to AAPG's standards of quality. His contract was quickly terminated and Convention Manager Sondra Biggs became Convention Director in 1980.

In 1979, the Executive Committee approved the creation of a fourth directorship, with the primary charge

being to produce a new publication for the members to replace the rather unstimulating "Executive Report." Rex H. Blakey, whose experience had been primarily in public relations, was hired as the first Communications Director, and charged with starting the publication which was to become the *AAPG Explorer*. He patterned the *Explorer* after an alumni newspaper which he had produced at the University of Tulsa, and it quickly became popular with both the members and advertisers. Blakey resigned in 1983 to enter the private sector in public relations and was replaced by Larry Nation whose experience had been in journalism. Nation hired talented journalists to produce the *Explorer* and enhance its popularity.

So many highly competent employees have cycled through the Association during the quarter-century being addressed that it is not practical to mention them all. However, the stability of the work force in Tulsa is characterized by the fact that four employees who were with AAPG at the beginning of the quarter-century continued in its employ at the time of the 1991 Dallas meeting. Those individuals were as follows: Mary Jo Brown – Accounting; Betty Horn Gann – Accounting; Ruth Anne Payne – Data Processing; and Donna Riggs – Membership.

The Headquarters Operations Committee has played a varying role but always important in supporting the staff and the Executive Committee. During the early part of the period, money was always in short supply, and the Committee was frequently involved in tough decisions as to how the limited resources could be utilized to best serve the membership and maintain the viability of the Headquarters operations. This function diminished as the Association's reserve funds grew to a level at which the Executive Committee was able to make decisions on such things as capital budgets based primarily on need rather than the availability of funds. Projects carried out by the Committee over the years include such disparate things as serving as the Building Committee for the Pratt Tower, supporting the Executive Director in interviewing candidates for key positions, judging photographs for a Best Picture contest run by the *Explorer*, and studying and making recommendations to implement an employee service award program.

Members who visit the Headquarters, especially those who receive formal tours during AAPG Day, tend to be impressed with the dynamic professionalism that they sense in the staff. This can be attributed in large part to a long succession of Executive Committees who have been supportive of staff and dedicated to the concept that petroleum geologists by nature are entrepreneurial and that their Association should reflect this mind-set. As the Association moves toward the twenty-first century, major changes are already taking place. The volunteer leaders of the Association and the Headquarters staff are well positioned to adjust to these changes. The old Headquarters building, the Weeks Tower, and the Pratt Tower will provide suffi-

cient room for any expansion that might be required. There is no debt burden on either the Association or the Foundation. Reserve funds are substantial. Although the Tulsa location is no longer in the main stream of petroleum activities, the quality of life in the city is high and the quality of the work force is excellent. There is every reason to believe that the historian writing the 100-year anniversary report in 2016 will be able to chronicle that the fourth quarter-century was a vital and dynamic one.

THE LEWIS G. WEEKS ENERGY RESOURCES TOWER*

Nineteen seventy-three was a year for planning and reflection. AAPG membership had increased 60 percent in the previous 20 years. The original AAPG headquarters building, built in 1953 and consisting of one floor and a full basement, was showing its age and its inadequacy. The AAPG staff had expanded and in-house operations had increased to the point where it was necessary to use halls for storage, convert the library into offices, and stash the copy machine in the lunchroom.

Initially, the Headquarters Operations Committee determined that a 4,000 to 5,000 square foot expansion should solve the immediate space problem. However, times were changing and by 1973, international developments in the petroleum industry predicated a distinct acceleration in Association membership needs and demands. Clearly, more room was needed to accommodate AAPG's growth. As discussions continued, the Headquarters Operations Committee sought advice from the AAPG Foundation Trustees as to the availability of funding for a building program. The Trustees, Dean A. McGee, Morgan J. Davis, and W. Dow Hamm, proved integral to the planning because any tax deductible donations would, by necessity, be made to the Foundation. The name of Lewis G. Weeks emerged as a possible donor.

By the summer of 1974, an architect had completed tentative plans for a four-story, 16,000 square foot addition to the existing building at an estimated cost of \$750,000. On June 17, 1974, a group composed of Dean A. McGee, Chairman of the Board of Trustees, Merrill W. Haas, President of AAPG, and Fred A. Dix, Jr., Executive Director of the Association, visited with Mr. and Mrs. Weeks in their home in Connecticut to present a request that the Weeks give funds to the AAPG Foundation covering the construction costs of the headquarters addition.

Mr. and Mrs. Weeks promised to look into the proposal and in September 1974, they stopped in Tulsa on their way back from Honolulu to meet with the architect and discuss the project. In October, Mr. Weeks confirmed that they would give \$750,000 for construction of the building, and the first payment of \$300,000 arrived in December.

Deliberations continued for most of 1975 concern-

*Information for this account of the Lewis G. Weeks Energy Resources Tower based on data extracted from AAPG Headquarters files provided by Executive Director Fred A. Dix.

ing how the Foundation could jointly own a building with the Association, where the building might actually be located, and how large it should be. Finally, Dean McGee suggested constructing a separate tower joined to the existing building. Both the Foundation Trustees and the AAPG Executive Committee favored this suggestion and prepared the plans during the remaining months of 1975. In December of that year, Lewis Weeks made a second payment on his pledge in the amount of 250,000, for a total of \$550,000 received.

In the spring of 1976, at the annual convention in New Orleans, a scale model of the building and detailed drawings were shown to Mr. Weeks. When it was explained to him that for future operations there should be another floor added, he agreed to increase his pledge from \$750,000 to \$950,000. This increase was announced at the AAPG Awards Banquet that evening. At the ground-breaking ceremony on June 30, 1976, Mr. Weeks was the featured speaker. He reminisced on his life as a geologist and on the remarkably good luck he had enjoyed which made it possible for him to be there that day to bid Godspeed to the construction of the Lewis G. Weeks Energy Resources Tower. Mr. Week's speech was printed in the *AAPG Bulletin*, v. 61, No. 3, March 1977, pages 456-57.

Sharing the podium at the ground-breaking ceremony was James Hara, President of Skelly Oil Company. Skelly had donated a 125' x 125' lot behind the AAPG headquarters building for a parking lot to comply with a city ordinance that all newly constructed buildings provide adequate off-street parking.

A few months prior to the ground breaking, the Foundation Trustees decided that a Building Committee was necessary to oversee the many details involved in the tower's construction. Because none of the Foundation Trustees lived in Tulsa, a committee of local resident members was drafted consisting of William J. Sherry, Chairman, Daniel A. Busch, August Goldstein, Jr., Myron K. Horn, Judd H. Oualline, and Roscoe E. Shutt. At its early meetings in the summer of 1976, this committee agreed that there should be an electrohydraulic (water cooled heat pump) cooling/heating system installed as units so that only those parts of the building needing temperature regulation would consume energy. The possibility of installing a solar heating system was discussed but dismissed due to its cost and the lack of anticipated federal funding.

On January 24, 1977, plans were submitted to eight selected contractors and bidding was scheduled for one month later. The lowest bid for the total building contract was \$1,241,250 and included \$1,009,950 for the Weeks Tower and an additional \$231,300 to upgrade the existing AAPG building. This latter amount was assured from association reserve funds.

The signing of the building contract was held on March 4, 1977; the exact day that Lewis Weeks died. A balance of \$340,000 of the pledge remained unpaid. Of course, there was never any doubt in the minds of the Weeks' heirs that the pledge would be honored in full. However, since the estate went immediately into probate, it was necessary for the foundation to obtain

approval of its payment from the Connecticut courts and the IRS by establishing that the remaining \$340,000 pledge was a valid, payable, and tax deductible claim. In time, all these legal requirements were met.

Construction commenced in March, 1977 and was completed in early May, 1978. This magnificent new five-story tower and the remodeled original headquarters building assumed prominence as a show place in downtown Tulsa. In a dedication ceremony held on May 19, 1978, Mrs. Anne S. Weeks, widow of Mr. Weeks, his son, L. Austin Weeks, and James E. Wilson, Chairman of the AAPG Foundation Trustees, spoke.

The refurbished AAPG headquarters building was officially rededicated by Emeritus Foundation Trustee Morgan J. Davis, who had been president of the Association at the time of the original dedication in 1953, and Edd R. Turner, AAPG President in 1977. Other speakers included Foundation Trustees Kenneth Crandall and Merrill Haas, and SEPM President Doris Curtis.

THE WALLACE E. PRATT TOWER

Kenneth Frakes

The Wallace E. Pratt Tower addition to AAPG's Tulsa Headquarters complex was born of necessity and developed through the extraordinary foresight and dedication of the Association leadership. Also, through an enormous stroke of luck!

As the decade of the 1980s began, membership was growing by nearly 4,000 members a year. The oil boom during the 1970s increased this number from about 16,000 in 1973-74 to nearly 24,000 by 1980. By 1981, the membership stood at 31,945 and the headquarters building was running out of room despite completion of the Weeks Tower in 1978.

Thanks to the Weeks expansion, most staff facilities were up to the task of serving more than 40,000 Association members, but a crucial link in the service chain began to show fatigue cracks. Symptomatic of the problem was the fact that the existing structure was still thought of as "the mailroom" in those days.

By 1981, the Association was selling approximately 400 books, maps, and audio-visual materials every working day. Fulfilling this level of shipping was far beyond the scope of a simple "mailroom." Moving the mail was not the major issue. Added staff could handle increased sales activity, but there was no built-in relief for the real problem: a lack of space.

The five-story Weeks Tower addition to the original headquarters building had expanded the mailroom throughout most of the basement, but the original structure, hamstrung by its 1953 design, was stressed to serve 16,000 members. Room to process and handle 400 orders a day was only one part of the problem. Lack of space to store, organize, protect, and efficiently access several million dollars worth of publications and other materials was an altogether different and more intense impediment.

Executive Director Fred Dix and Business Director Don O'Nesky investigated existing buildings near

Headquarters for possible conversion to warehouse space and sales fulfillment, and perhaps even additional staff offices. It was soon apparent that such a strategy would not be cheap and would lead to an inconvenient arrangement of headquarters activities on a "campus" of several buildings. Trying to "make do" was already being done! Buying and converting vacant houses or churches was false economy.

Fred Dix presented the Executive Committee with an architectural rendering for a two-story parking and storage facility next to the existing building, on April 2, 1981. Wozencraft, Mowery & Hawkins, architects, planned the building as a two-phase project. The first, designed to allow for a second-phase expansion by six stories, would provide immediate relief for storage, shipping, and receiving, and other office services. In making the proposal, Dix cautioned against temerity, suggesting that, with reasonable business judgment holding sway, it would be wiser to overbuild than underbuild.

Buying and swapping surrounding lots was in progress with owners as far away as Dallas and as near as the next-door United Way. By October 1981, Dix was confident enough to assure the Executive Committee that the property immediately west and north of the existing Headquarters building would be procured for the new building.

Then, on Christmas Day, 1981, Wallace E. Pratt, an acknowledged giant among petroleum geologists, died at his home in Tucson, Arizona at the age of 96. A premiere petroleum geologist of his time, Pratt was a scholar, a businessman, a naturalist, a pilot, a widely published scientific author, a pragmatic philosopher, and a philanthropist. He contributed generously to various charities, educational institutions, and to the Association. He was the first to see, and to state, notwithstanding the 10-cents a barrel oil prices of the 1930s, that future demand for oil would grow faster than proved reserves. His insight and philosophy were perhaps best expressed in his often-quoted statement that "Where oil is first found, in the final analysis, is in the minds of men," which he wrote in a paper published in 1952 in the *AAPG Bulletin*.

By the following February, the Association and the AAPG Foundation determined that the sorely-needed Headquarters expansion in Tulsa would be dedicated as a working memorial to Pratt. Heeding Dix's admonishment against underbuilding, it was decided that the total structure of eight floors should be undertaken outright.

Meanwhile, the membership growth curve in 1982 was showing every indication of becoming exponential, at least in appearance if not in mathematical verity. Financing the Headquarters expansion project became a priority that left no reasonable avenue unexplored. Various charitable contributions to the AAPG Foundation were created, and plans were launched for a prestigious fund-raising conference honoring Pratt, to be held in Phoenix, Arizona in December 1984.

Establishing a limited partnership by the Association was the most feasible means of funding the construction, and in June 1982, Dix advised the Executive Committee and Trustees of the Foundation that this idea would be formally presented for approval at the annual

meeting in Calgary. Legal opinion directed that AAPG actually form the limited partnership, then at some future time make a charitable contribution of the building to the Foundation. The limited partners would earn from their shares of the gift. The strategy was ready.

A serious flaw was discovered in the limited partnership plan, however. As far as AAPG members were concerned, there was absolute faith that they would relinquish their shares as limited partners when the Association purchased them. But suppose heirs and assignees of deceased shareholders had no interest in petroleum geology, or were hostile? The Foundation was understandably wary of accepting a charitable gift from the Association with outstanding debt against it.

The original two-phase construction plan was dusted off and put before the Executive Committee for reconsideration on April 16, 1983 at the Annual Convention in Dallas. The committee authorized Dix to proceed with constructing a two-level storage area and separate parking structure at an approximate cost of \$1.4 million, provided by the AAPG Foundation. The Association would pay the Foundation \$100,000 a year, less charitable contributions, until half the cost of the project was retired. The Foundation liked the offer but deferred acceptance pending a final effort to raise the \$5 million needed for the entire tower project.

Dix pointed out that three years had already gone by; the overtaxed storage situation and the unresolved order processing problems had reached crisis status. In view of the time possibly required to obtain funds for the entire tower, he pressed for approval to initiate the first-phase two-story storage and adjoining parking structure. Meanwhile, he reasoned, if the remaining \$4 million could be raised, construction of the entire addition would simply continue. If not, at least the warehousing, office services space, and parking facilities would be available.

Financing remained a major topic of conversation in the executive offices at Headquarters. The fortunes of the oil industry had been showing a decided downward trend almost from the time the new building was proposed, and Dix was skating with a much lighter foot over what resembled "thin ice." Membership, however, was still growing at more than 3,000 a year, down from the peak of 5,373 new members added in 1982, and orders for AAPG publications remained overwhelming.

The architect estimated \$1.2 million would be needed for the first phase, of which AAPG would contribute \$800,000 and the Foundation would add \$400,000. Dix determined (1) that the space provided by completing the first phase would save the Association about \$60,000 on remote office and storage rental; (2) that there was income from the Offshore Technology Conferences from which as much as \$100,000 a year could be diverted; and (3) that Business Manager O'Nesky was authorized to arrange for converting part of the Association's investment portfolio into cash to handle construction bills.

Ground was broken in September 1983, and completion of the first phase was projected for July 1984. The Tulsa firm, FLINTCO, Inc., won the contract with

a bid of \$1.27 million. There was still a grace period that allowed until June 1, 1984 to proceed with the second phase without additional expense for topping the first phase. By the end of 1983 there was a major hole in the ground next to the Headquarters. Staff members, deprived of on-site parking, were treading through sleet and snow from a leased parking lot a block away.

The 1983 Annual Report by the AAPG Foundation Chairman reflected the generally bleak, yet obstinately optimistic, outlook for a twin high-rise building at that time:

Due to the general economic conditions, active pursuit of expansion plans for a companion to the Weeks Tower at Headquarters have been delayed, but a substructure of two basement levels and a parking garage were let for bid and construction began in September. Design will permit later erection of a tower when this is decided upon.

At about the same time, an unlikely knight on a charger was literally making a run to AAPG's rescue. An Australian investor named Robert Holmes A'Court was attempting to acquire control of Weeks Petroleum. O'Nesky, who became aware of this run on Weeks Petroleum stock while handling routine Association investment business, began to pay close attention. The AAPG Foundation owned 500,000 shares of Weeks Petroleum stock that had been a gift from Lewis Weeks. At the time Weeks donated the stock, it was valued at about 50 cents a share, but with A'Court's aggressive pursuit, the price was climbing fast. The strategy became one, as O'Nesky described it, of "going just fast enough to let A'Court catch us." He did catch up, and took 400,000 shares of Weeks Petroleum stock – at \$6.50 share.

This amazing turn of fortune, in June 1984, along with money already committed to the first phase,

allowed the Association to authorize completing the entire Wallace E. Pratt Tower, which ultimately cost \$4,146,873.

By April 1985, a staff parking area was in place next to the two towers, which now stood as monuments to their namesakes, Lewis G. Weeks and Wallace E. Pratt. The towers were joined by a connecting aerial walkway. Tulsa Properties, Inc. had been retained as leasing agents. Two upper floors were designated for AAPG office space in addition to the two underground floors. The AAPG Foundation Library, Education Department, Special Publications and *AAPG Bulletin* editorial offices were already moving in, as was the Secret Service, the first outside tenant to establish offices.

The Pratt Tower was dedicated on June 25, 1985, and within 18 months every floor had tenants. A major Tulsa law firm, Biram and Kaiser, took the top floor; three law-enforcement agencies – the U.S. Secret Service, the U.S. Bureau of Alcohol, Tobacco, and Firearms, and the Oklahoma State Bureau of Investigation – were on the ground level and the fourth and fifth floors; and a number of other organizations and individual enterprises leased additional office space.

The downward economic trend in the oil industry was obvious by this time, and AAPG's fortunes were in steep decline. However, as Executive Director Dix had promised, the Association's commitment to the future, represented by construction of the Pratt Tower, did not place it in financial jeopardy.

Today the Wallace E. Pratt Tower stands as an impressive memorial to a man for whom imagination and bold action were a way of life. He attributed much of his success to "being in the right place at the right time." The building named in his honor is solid testimony to the effectiveness of foresight, skill, and persistence – and a good dose of luck.

STANDING AND SPECIAL COMMITTEES, 1965-1991**Elected and Standing Committees, 1965-1991**

Committee	Dates of service
PERMANENT COMMITTEES	
Business Committee/House of Delegates	1921-
Executive Committee	1917-
Research Committee	1923-
STANDING COMMITTEES	
Astrogeology Committee	1984-
Ballot Committee	pre-1965-
Committee on Academic Liaison	1975-
Academic Advisory Committee	1966-1975
Committee on Computer Applications to Geology	1970-
Advisory Committee on Electronic Data Processing	1967-1970
Committee on Environmental Geology ²	1971-1992
Committee on Field-Trip Research and Coordination	1956-1973
Committee on Industry Liaison	1975-
Industrial Advisory Committee	1966-1975
Committee on Preservation of Samples and Cores	1932-
Committee on Statistics of Drilling	1945-1990
Convention Committee	1972-
Convention Coordinating Committee	-1972
Development Geology Committee	1984-
Distinguished Lecturer Committee	1942-
Education Committee	1980-
Continuing Education Committee	1965-1980
Geophysics Committee	1985-
Governmental Communications Committee ¹	1987-1990
Governmental Agencies Advisory Committee	1970-1971
Strategic Committee on Public Affairs	1974-1979
Committee on Governmental Affairs	1980-1987
Group Insurance Committee	1960-
Grants-in-aid Committee ³	1989-
Headquarters Operations Committee	pre-1955-
Hydrogeology and Waste Management Committee ²	1988-1992
International Liaison Committee	1988-
International Science Fair Awards Committee	1967-
Investment Committee	1984-
Finance Committee	1932-1984
Marine Geology Committee	1971-
Membership Committee	1967-
Membership Qualification Committee	1960-1967
Pension Plan Committee	1971-
Public Information Committee	1948-
Public Relations Committee	1932-1933
Committee on Applications of Geology	1933-1957
Publication Committee	1937-
Stratigraphic Correlation Committee	1932-1990
Geologic Names and Correlation Committee	1932-1974
Student Chapter Committee	1981-
Visiting Petroleum Geologists Committee	1974-
Youth Activities Committee	1983-
Committee on Boy Scout Literature	1945-1954
Boy Scout Committee	1955-1983

¹Now served by the Division of Professional Affairs²Now served by the Division of Environmental Geology³Subcommittee of the Research Committee, 1956-1989



**American Association of Petroleum Geologists Headquarters
Tulsa, Oklahoma**

Special Committees, 1965–1991

Committee	Year(s)
Board of Certification	1965–1968
Geological Highway Map	1966–1972
Geological Highway Map Promotion	1968–1970
Constitutional Review	1964–1967
Correlation of Stratigraphic Units of North America (COSUNA)	1973–1984
Medal Award	1944–1970
Mineral Economics Symposia	1970–1976
Offshore Technology Conferences	1969–Present
Semi-Centennial Celebration	1963–1966
Standard Stratigraphic Coding	1967–1970
Structural Nomenclature	1965–1966
Tectonic Map of North America-Revision	1981–1992
21st Century	1988–1991
Volunteer Research Fund-raising	1957–1967

Funding of AAPG Activities

THE HISTORY OF THE AAPG FOUNDATION FROM BIRTH TO 1991

James E. Wilson, Jr.

The Conception

AAPG celebrated its 50th anniversary within the vibrant nexus of the mid-'60s: Vietnam, race riots, space walks, and war in the Middle-East. The mood of the Association was upbeat for the future. President Michel T. Halbouty was concerned about the fiscal responsibilities of the Association and felt that something had to be done to prepare the Association for the ups and downs that were sure to occur. He decided on his own to submit to the Executive Committee a proposal he had formulated to establish a Foundation which would raise money to be an adjunct to the finances of the Association. Halbouty garnered his personal attorney, internationally renowned Leon Jaworski, to assist him in drafting the documents for the proposed Foundation. Once the documents were drafted to establish the Foundation, Halbouty submitted them to the Executive Committee and they were unanimously approved.

Formation

And so that is what it became: a Foundation. It was given legal structure as a foundation (an Oklahoma trust) and approved by the Executive Committee in February of 1967 with Dean A. McGee, Morgan J. Davis, and W. Dow Hamm as Trustees. Certain funds were transferred to the Foundation from the Association by a Declaration of Trust, but it took until January 11, 1968 for the IRS to finally approve the Foundation as a 501(c)(3) tax-exempt scientific and educational organization. Legally, for it to be a Foundation, it had to be autonomous and independent from Association control. However, Trustees were to be appointed by the Association's Executive Committee and would serve for life or until resignation. The Foundation could fund certain programs and projects of the Association but could not have direct financial assistance. The general purpose must be for the public good.

Early Youth

Michel T. Halbouty was the first contributor to the new Foundation, which he was so proud to have created. Within the next two years, substantial gifts came

from major oil companies, along with bequests and funding for Association awards. By 1972 the total funds had reached almost half a million dollars. In the spring of 1972, a Regional Council was organized, composed of George Grow (Eastern), Edd Turner (Gulf Coast), Warren Weeks (Mid-Continent), Ken Crandall (Pacific), Bill Hilsseweck (Southwest) and Bill Curry (Rocky Mountain). The immediate goal was \$5 million in five years.

Growth and Recognition

The functioning of the Council began to pay off; gifts arrived from more members, corporations, and member societies of the Association. The Foundation was able to commence doing some things for which it was created: Grants-in-Aid were made from the "Research Fund," support was given from the Pratt Bulletin Fund for publication of the AAPG Bulletin, and a special grant was made to the Geothermal Survey. The generous gift of 170,000 shares of Weeks Natural Resources from Lewis Weeks, and a bequest from Gordon Atwater later proved of major benefit.

Some Slight Shifts in Command

In 1975 the Foundation portfolio was moved from a New York bank to First City National Bank in Houston. As Morgan Davis was a Director of First City, he resigned as Trustee of the Foundation and was elected Trustee Emeritus. The Executive Committee appointed James E. Wilson to replace Davis. Dean McGee later asked to be relieved as Chairman of the Foundation, but remained as a Trustee. Dow Hamm replaced McGee as Chairman. Donations received in 1975 reached almost half a million dollars, bringing the balance to over a million dollars. Broad support of the Foundation was catching on; seventy-five percent of the dollar contributions came from members, twenty percent from corporations, and the remainder from other groups.

The Weeks Tower

The year 1975 also marked a major event. Dean McGee, Merrill Haas and Fred Dix went to Westport, Connecticut to ask Lewis Weeks if he would fund a much-needed building for Headquarters expansion. He and his wife Anne most graciously agreed to do so, and they participated in the ground-breaking for the Weeks Tower on June 30, 1976. The project was made feasible by a generous donation of property adjacent

to the building from Skelly Oil Company. Sadly, Lewis Weeks' "Love Affair with Life and Geology" came to an end before the building was completed, but with great courage and effort Anne Weeks participated in the dedication of the Weeks Tower on May 19, 1978.

The Trustee Associates

Present at the dedication ceremony were 31 Trustee Associates. The Trustee Associates were a concept of Dean McGee's to recognize those giving substantial support to the Foundation. The Trustee Associates and Trustees departed the dedication ceremony for Shangri La Resort on Grand Lake, northeast of Tulsa to attend its first meeting. Officers were elected with John A. Taylor, Chairman and Herbert C. Davis, Vice-Chairman. August Goldstein was appointed to head a committee to draft articles of governance. In subsequent years, the Trustee Associates have held meetings at various resorts and have grown to over 185 members. The Trustee Associates, representing a wide geographic distribution, have essentially replaced the Regional Council. They have been a powerful resource for the Foundation, funding the Tectonic Map of North America at over \$600,000 and providing start-up money for the Treatise on Petroleum Geology.

McGee Retires

Soon after the Shangri La meeting, Dean McGee retired as Trustee and was immediately elected Trustee Emeritus. The Executive Committee appointed Merrill Haas to replace Dean on July 1, 1976. The following year, Dow Haam, last of the three original trustees, retired and was replaced by Kenneth H. Crandall.

The Pratt Tower

From 1966 to 1981, AAPG membership had doubled. There were expanded programs in continuing education and increases in special publications and communications. Headquarters was also rendering services in connection with regional meetings and conferences. There was pressing need for additional space for offices, equipment, storage, and shipping. A study took place determining the feasibility and cost of adding a companion to the Weeks Tower, with any unneeded space to be leased to others. The stock and rights in Weeks Natural Resources (now Weeks Petroleum) had been sold for \$2.5 million when the company was taken over by Bell Resources of Australia. These funds financed the new building. Because of the soft economy in Tulsa, building plans were delayed until September 1983. However, the building was completed in the spring of 1985 and was dedicated in June. It was named the Pratt Tower in honor of one of AAPG's most venerable and respected members.

New Heights

Riding the precarious prosperity of ever-increasing oil prices, the Foundation received increased support and was able to increase its bequests in fiscal 1984-85. Grants-in-Aid grew from \$10,000 to \$60,000, assisting 67 graduate students. Professional Grants totaling \$23,300 went to 34 professors, allowing them to attend AAPG Continuing Education schools. The Pratt Bulletin

Fund provided a substantial increase of \$70,000 in support of the *AAPG Bulletin* and the Bennison Fund had its first foreign distinguished lecturer: Dr. Mutti from Italy. Total contributions were \$447,000, bringing the year-end balance of portfolio funds plus property and equipment to \$9,600,000. Steps were initiated to modify the original three-man public trust to a broader-based corporate type of Foundation.

The Oil Price Crisis

About this time, OPEC put the price of oil into a precipitous nose-dive, decreasing industry activities and jobs of many members. The Association, like other energy-related businesses, was hard hit and had to make adjustments. The Foundation could not give direct financial aid, but assisted in other areas. It funded a cassette tape program developed by AAPG's Education Committee for employment reorientation; granted \$250,000 to research and develop an Exploratory Well Data File that would assist individuals and small companies; and made a grant of \$30,000 to the Energy Minerals Division for publishing a uranium case study. In addition, support continued for the *AAPG Bulletin*, Grants-in-Aid, Professorial Grants, the Tectonic Map, and the Foreign Distinguished Lecturer Program. Altogether, the foundation made commitments of almost half a million dollars. A special appeal by the Foundation Chairman to the general membership over age 50 brought a heartwarming response of over \$50,000 from almost 400 members.

The New Foundation

The House of Delegates at the Annual Meeting in Atlanta approved reorganizing the Foundation in principle. The Articles of Incorporation and Bylaws for the new Foundation were approved in 1986 by the Secretary of the State of Oklahoma, the Federal Court, and the IRS. The Trustees of the original Foundation invited twelve Trustee Associates to become members of the Corporation. These were: John J. Amoroso, Ted L. Bear, Herbert G. Davis, Paul H. Dudley, Lewis G. Fearing, Norman H. Foster, Michel T. Halbouty, Bernold M. Hanson, Frank W. Harrison, Hugh M. Looney, E. F. Reid, and M. O. Turner with Kenneth H. Crandall, Merrill W. Haas, and James E. Wilson rounding out the fifteen as provided in the Bylaws. At the inaugurating meeting in Tulsa on September 4, 1986 the Corporation members elected the following as Trustees of the Foundation: Wilson, Haas, Amoroso, Davis, Bear, and Crandall. Wilson was elected Chairman and Haas Vice Chairman, with Amoroso, Secretary and Davis Treasurer. Regrettably, Ken Crandall passed away soon after this action and the Corporation elected John A. Taylor to replace him on the Board and Hugh Looney replaced him as Trustee.

Recent Times to '91

After placing the Foundation's portfolio with the First City Bank in Houston, the Trustees met with the Bank officials frequently for reports and discussions. Merrill Haas was authorized by the trustees to work closely with the fiduciary.

The market crash of October 19, 1988 was "Black Monday" for many institutions. As the market began its

strong rise before the crash, Haas said he could not see its continuing indefinitely and recommended that we sell at least half our stock holdings across the board. The appreciation was such that we could “cash in” for what we had paid for the stocks and hold the remainder to “wait and see.” The Trustees concurred in this proposed action, and after the crash, replaced the portfolio at greatly reduced prices.

The Trustee Associates continued to meet annually in different parts of the country. As part of the business meetings, a representative of the First City Bank gave a review of the economic situation as a companion to the report on the portfolio.

A substantial gift by Merrill Haas, in honor of Wallace Pratt, greatly augmented the Distinguished Lecturer program, underwriting a “Haas-Pratt Lecturer” to present scientific, educational programs for the benefit of Societies and University groups. Effective at the end of fiscal year 1989, Jim Wilson resigned from both the Corporation and Foundation, and Haas was elected President of the Corporation and Chairman of the Foundation. Norman Foster, who resigned from the Board when elected AAPG President, was replaced by Funkhouser. After finishing his term as President of AAPG, he was reinstated as a Member of the Corporation, and Larry Funkhouser was elected to replace Wilson as the sixth Trustee of the Foundation. Wilson was then appointed Trustee Emeritus. Shortly thereafter, Trustee Emeritus Dean McGee died.

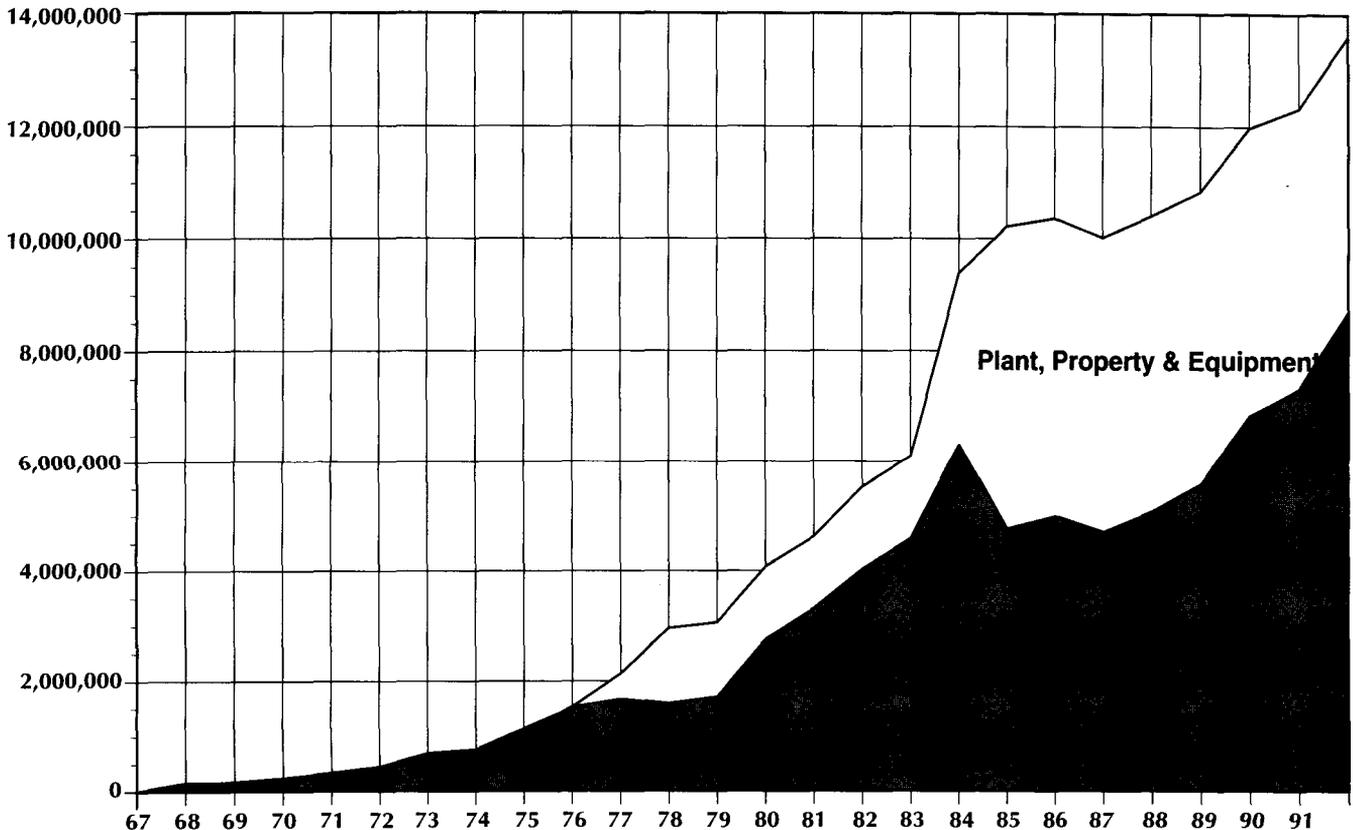
The Kerr McGee Corporation donated a fine memorial gift honoring Dean McGee, which was placed in the Distinguished Lecturer Fund to provide expenses for sending an International Distinguished Lecturer to foreign affiliated societies and academic centers. This complemented the program of foreign distinguished lecturers coming to this country, supported by the Haas-Pratt and Bennison Fund.

The changing role of the geologist in a maturing industry was recognized by creating the Archie Development Geology Fund, inaugurated by a substantial gift from Robert M. Sneider.

From its beginning, the Foundation has followed a policy of using only earnings and not invading the corpus of most of its funds. As Figure 1 shows, the growth of funds has tracked the growth of Association membership with some boosts by large gifts and bequests. The shape of the gifts curve is slightly inflated by the “flow through” nature of contributions to the Tectonic Map project and the Building Fund, but in this the Foundation is serving its stated purpose.

The Foundation has been the vehicle by which Association members and others have honored friends and associates by expressing their appreciation to their profession. The Foundation has helped the Association serve the public in many lasting ways. Thus, 1991 is not the stopping place of its history, only a semicolon on its way to the future.

**AAPG Foundation Total Assets:
Fiscal Year End 1967-1991**



Governance of the Association*†

A.A.P.G. REORGANIZATION: CONSTITUTIONAL CHANGES, 1965–1991

By the early 1960s a growing disenchantment with AAPG policies became more and more apparent as local societies within the Association structure voiced their dissatisfaction with the system. Anyone who served on the Business Committee in those days was well aware of the frustrations engendered by “no influence, no authority.” There was a definite need for creating a legislative branch which would allow affiliated societies a stronger voice in AAPG affairs, so this became the rallying point for reorganizing the constitution.

To remedy the situation, a committee formed in 1964 under chairman George V. Cohee and prepared a revised constitution. While well conceived, it fell short of the sweeping reforms necessary to correct old inequities and accommodate future expansion. A new committee, appointed a year later and headed by W. P. Moran, advanced a few steps further toward that goal. None of those involved in the task could have anticipated the Association’s evolution into the enormous operation it is today, or fashioned an acceptable instrument to govern it.

In the midst of all the fervor of reorganization, one change was imperative. From its beginning, AAPG’s budget or operating plan was based on a calendar year interval while its officers served from convention to convention. Thus, members of the executive committee who planned the forthcoming year’s activities were out of office within a few months, leaving their successors shackled by guidelines they had no part in devising.

This was somewhat akin to our Federal Government’s procedures – which everyone knows do not work! Nor did it work for AAPG, because deficit years became the rule rather than the exception. When put to a mail vote of AAPG members, the change to a fiscal year and office terms to coincide passed almost unanimously. A worrisome detail of the switch, but one accepted by the membership, entailed billing for one-half-year’s membership dues to align payment with the new fiscal schedule.

To expedite the change from calendar to fiscal year, the Executive Committee of 1966 to 1967, headed by President Michel T. Halbouty, served from the convention of 1966 until June 30, 1967, some three months

past the normal term.

President J. Ben Carsey and his Executive Committee were the first to serve a fiscal year tenure. W. P. Moran’s committee continued to struggle over a workable plan for reorganization until replaced in late 1968 by a “president’s committee” composed of Frank B. Conselman, Ben Carsey, and Michel T. Halbouty. They were charged with presenting a final draft for review by the Business Committee at its 1969 meeting. It was approved by a vote of 138 to 7. A later membership vote by mail passed without incident, and a time schedule was set up to implement all changes by July 1, 1970. Chaired by August Goldstein, Jr., a Constitution Revision Committee, comprising A. G. Alpha, F. J. Bell, M. E. Hriskevich, J. O. Lewis, J. W. Rold, D. A. Six, A. H. Talley, and Gordon Frey, studied the new constitution and presented final recommendations to the Business Committee at its last meeting in Calgary in June 1970. Having served on the AAPG Business Committee, the author can vouch that its finest service was probably that of voting itself out of existence.

Under the new constitution a powerful House of Delegates was instituted, which has final authority on most major items of business except constitutional amendments. Delegates to this body are elected by AAPG members in local affiliated societies. The number of representatives permitted for each society is fixed by a prorated scale based on the total number of AAPG members within the society area. Delegates, or their alternates, must be present to vote at the annual House meeting during the AAPG convention. No proxy votes are allowed.

A new officer roster was also designed. The office of President-Elect was added to the list, and the Secretary-Treasurer position separated into two offices serving staggered two-year terms. The Chairman of the House of Delegates, elected by the delegates in open session, was allocated a seat on the Executive Committee as well.

It was also decided that the immediate past president should automatically become chairman of the newly authorized Advisory Council. This Council is composed of the president of each of the three divisions within AAPG, three members chosen by the Executive Committee from the Association membership at large, six section representatives, and the three most recent past presidents of the Association.

* This article updates one that was published in the Fall 1983 issue of the *Explorer*.

† The author is grateful for access to files provided him by Michel T. Halbouty and his Administrative Assistant, Mary Stewart, and to the late J. Ben Carsey, Sr., and August Goldstein, Jr., for additional information.

Chief among the duties of the Advisory Council are to select an officer candidate slate, determine honors and awards, and consider matters relating to constitutional review, long range planning, and ethics. All recommendations of the Council are submitted to the Executive Committee which may accept or reject proposals as it sees fit, or in some instances, may refer them to the House of Delegates for further action, in addition, all proposed constitutional changes must be submitted as a referendum to the entire membership in the form of a mail ballot.

So "its house in order," our Association was ready for the great expansion in membership. Within the twelve years that followed we doubled our size from about 15,000 in 1970 to over 30,000 in 1982.

With a strong Executive Committee, Advisory Council, and House of Delegates in place and working, it is difficult now to realize that such a few years ago important Association business would wind its way through the Executive Committee and Business Committee, to an Annual Business Meeting held the last day of the annual AAPG convention. There votes cast by the remaining AAPG conventioners determined the final decisions. This ridiculously outdated system plumbed its nadir at the San Francisco Convention in 1962 when only 12 members were on hand for the meeting. It was not long after, that studies were initiated that led to the corrective measures embodied in the new constitution.

CERTIFICATION OF GEOLOGISTS*

According to a 1966 account published in the AAPG Bulletin, Vol. 50, No. 4, pp. 805-806, certification of geologists was an issue as early as 1918. At that year's annual meeting, E. G. Woodruff made a proposal pertaining to the subject; it was promptly voted down. However, because some felt that a registration or certification of geologists similar to that of petroleum engineers might "raise the standard of performance of geology as a profession," the concept had its advocates.

By 1959, the agitation for licensing geologists was sufficient to initiate a survey by AAPG President Lewis G. Weeks of some 30 or more local societies and geological groups. On the basis of his inquiries, Weeks counseled extreme prudence in pursuing the matter, so it was not until the presidency of Mason L. Hill in 1961 that the Association acceded to the growing clamor. In response, a Professional Standards Committee chaired by past-president Ben H. Parker was formed. This committee recommended at the 1962 annual business meeting in San Francisco that the problem be studied jointly with the Professional Standards Committee of the American Geological Institute.

With Edward E. Rue as chairman and Frank B. Conselman, William W. Mallory, Ben H. Parker, and Horace D. Thomas as members, the committee reported the following year at Houston "its determination to work with the AGI committee as long as that committee demonstrated its effectiveness." In 1963 the AAPG Pro-

fessional Standards Committee increased to nine members with John A. Taylor assuming chairmanship and J. O. Colle, J. C. Dunlap, Neil R. Etson, B. M. Hanson, and Irving T. Schwade joining Parker and Thomas.

As an outcome of their labors, President J. C. Sproule announced at the 1964 annual meeting at Toronto, Canada, that the business committee had approved certification of AAPG members by an overwhelming majority. The final decision was then referred to the membership at large in a mail-ballot vote, resulting in victory for the proponents of certification. To expedite the procedures of certification, President Grover E. Murray appointed a Certification Board composed of G. Frederick Shepherd, chairman, William H. Curry, Samuel P. Ellison, Jr., W. Dow Hamm, Wilson M. Laird, A. I. Levorsen, and Frank A. Morgan.

And so it was, that AAPG certification of petroleum geologists commenced in 1965 and functioned rather smoothly into the early 1970s. At that time it became apparent in various quarters that certification was not being offered to all who wanted it. It should be noted here that certification was also offered by SIPES in the late 1960's, and earlier by some local societies in the mid and far west.

By 1973, discussions among AAPG, AIPG, and AGI representatives were aimed at bringing order to a confused situation, possibly by lodging the certification mechanism in AGI. In other action that year, the AAPG House of Delegates passed a resolution, with only four opposing votes, that the AAPG Executive Committee should find a means of unifying the professional interests and certification of all geologists. Active in these talks were Sam Allen (SEG), Daniel Busch (AAPG), Adolph Honkala (AIPG), and Sam Sargent (AEG). Also participating were Fred Dix and Ray Lewis from AAPG, Frank Conselman from AIPG, and Dan Skelton from SEG. Meetings began in early 1974 with an initial plan to form one unified professional organization to handle not only general and specialty certification of geologists, but to deal with public relations and the monitoring of state and federal legislative bodies on actions affecting geoscientists as well.

To devise such, the Committee for Planning a Unified Professional Organization (PUPO) was created. Though the original thought was to form an entirely new organization as part of AGI to achieve these goals, early in the process the AIPG board decided that their organization should be the chosen instrument and recommended using the current AIPG staff and constitution to implement these future regulatory functions. This did not set at all well with SEG representatives, and the use of the term "geological" in the AIPG and AGI titles led to SEG's gradual withdrawal, and eventual separation, from AGI in 1982.

Other differences of opinion quickly surfaced, particularly among members of AAPG's Division of Professional Affairs, who were confronted with opinions that the DPA should be dissolved and its members moved into either AIPG or a new umbrella organization that would include all members of AIPG and DPA.

*The author acknowledges with gratitude the use of AAPG files made available by Executive Director Fred Dix and the Headquarters staff, and thanks AAPG members Mr. O. Turner, Orlo Childs, Frank B. Conselman, Howard R. Gould, and former AGI Executive Director A. G. Unklesbay, for their input.

Unification was the prime objective, but it could not be accomplished by sowing adverse reactions within SEG, AAPG/DPA, and AIPG.

The first meetings of PUPO in early 1974 produced an understanding that the new organization would be the Professional Affairs Division of the American Geological Institute. Lip service was given to using the term "geological science" to keep SEG in the organization and guarantees were proffered that each AGI organization interested could give specialty certification to its members, provided the candidate was already a member of AGI's PAD.

Almost by return mail SEG's representative Dan Skelton, who was SEG president at the time, asserted that his group definitely could not accept an organizational name with "geological" in it because at least two-thirds of SEG's membership had degrees in fields other than geology. Moreover, a Memorandum of Understanding from PUPO, written March 19, 1974, contained recommendations that the AAPG Executive Committee could not approve.

However, harmony prevailed as conferences among the governing boards of AAPG, AIPG, SEG, and AGI continued once the negotiating groups were legally advised that AGI should not imperil its tax-free status by involving itself in additional activities of the kind intended.

In mid-1975, an agreement was signed by AIPG President Arthur O. Spaulding, Merrill W. Haas, AAPG president, and Donald E. Lawson, AAPG/DPA president, obligating AIPG to change its name to Association of Professional Geological Scientists and to conduct a general certification program as APGS. To ensure AGI involvement, both the AGI president and vice-president were added as members to the APGS board.

Late in 1975, AIPG members voted to approve the new APGS constitution and filed papers with the Secretary of the State of Colorado to make it all legal.

So AIPG, now APGS, proceeded to certify petroleum geologists from AAPG, but not in the numbers expected. It was also thought that with the change of name APGS would receive requests from SEG geophysicist members for certification. This was not the case. It became increasingly apparent that changing AIPG's name to APGS had not produced the anticipated results. In mid 1979, APGS members voted by a large margin to change the name back to AIPG as, according to its President Edward E. Rue, "the old name (APGS) did not properly describe our purposes or functions and seriously hampered our relations with the outside world that we expect to influence for the benefit of geologists and the profession."

Essentially AAPG affiliates seeking certification were back to square one. In January 1979 an agreement reached by the presidents of AAPG and AIPG recognized the change of name from APGS to AIPG and restated that those wishing certification as petroleum geologists must maintain membership in both AIPG and AAPG, thus highlighting the problem faced by many current and potential members of AAPG/DPA

who declined to join AIPG.

In February 1981 DPA formed an AAPG-AIPG Agreement Review Committee to study the dissatisfaction of current and future members of DPA who objected to mandatory membership in AIPG, to analyze additional dues costs on an individual basis, to consider potential loss of dues to DPA/AAPG, and to evaluate the effect of continued controversy over DPA and AIPG membership. This committee, composed of Frank Conzelman, chairman, Orlo Childs, Eugene Greenwood, Lee Meltzer, Charles Mankin, William A. Newton, and Robert Sutler returned its findings in May 1981. Pointing out that DPA membership totals were being adversely affected because of the burdensome requirement of additional dues payment to AIPG, the committee demanded that AIPG membership not be mandatory to the certification of AAPG member geologists.

The report of the AAPG-AIPG Agreement Review Committee was acted on formally by the AAPG Executive Committee. On July 15, 1981, AAPG President Frank W. Harrison, Jr., in a letter to AIPG President John W. Rold, gave official notice that AAPG was terminating the agreement on certification between AAPG and AIPG at the end of 1981.

This action had an immediate effect on AAPG/DPA membership. Although new member additions to DPA had declined drastically since 1977, the trend changed immediately. In 1982 there were well over 200 new members compared to less than 15 in all of 1981. Over the eight intervening years (1982-1989) there have been 1290 new members inducted into DPA, adequately demonstrating that dual AAPG-AIPG membership as a condition for certification had indeed posed a serious restriction.

With certification of AAPG member geologists restored to its own Division of Professional Affairs, the problem finally seemed to be resolved.

However, one last manifestation of PUPO's efforts was not remanded until 1985. When the new president of AGI assumed office in that year he was informed by AGI staff that he and his vice-president were, in addition to their regular duties, also members of the board of AIPG, a privilege not extended them by any of AGI's other sixteen society affiliates. Since none of the current AGI or AIPG board members seemed to know the reason for this inclusion, and because such an arrangement served no apparent purpose, the AGI Executive Committee informed AIPG that its president and vice-president would no longer attend AIPG board meetings; thus finally bringing to a peaceful conclusion one of the profession's longest, stormiest sagas.

ELECTED OFFICERS OF AAPG*

During this period of AAPG's history, a conscientious effort was exerted by the nominating committees to present a ballot each year that would equitably represent the geographical and professional distributions of the entire membership. High standards prevailed. Candidate selections were based on both commitment to professional integrity and service to the Association

* The author thanks past presidents of the Association from 1965 through 1991 for their cooperation in the preparation of this important segment of Association history.

at the local, regional, and national levels. Men of comparable qualifications from both academia and industry were paired as opponents for the various offices. All were imbued with vision, intelligence, and dedication. That the elected governed the American Association of Petroleum Geologists with vigor and diversity is evidenced in the following accounts of individual presidential terms.

Grover E. Murray, 1964–65

The administration of Grover E. Murray proved to be one of distinct changes during which the AAPG Group Insurance Program began and a Constitutional Review Committee presented its recommendations. The latter was not enacted until 1969, though parts were implemented prior to that date (see Chapter 3).

Murray brought both industry experience and an aura of academe to the presidency, wielding the administrative skills acquired in both fields to cope with the problems at hand. Serving with him during 1964-65 were William H. Curry, Jr., vice-president; George C. Hardin, Jr., secretary-treasurer; and John C. Hazzard, editor.

There was concern in 1965 about AAPG's financial condition, necessitating an increase in dues. Membership at that time hovered around 15,000, and Headquarters needed additional funds to offset the inflation of the period.

A change in convention management also occurred that year as a result of the Association's assuming financial responsibility and supervision of the annual AAPG conventions. This was a courageous step, for it could easily have led to economic disaster. But it did not. Under Convention Manager Elmer Ellsworth, a management service for planning and operating conventions was also established and offered to professionally related organizations for a modest fee. This service is still in operation; its largest assignment in recent years was the Twenty-Eighth International Geological Congress in Washington, D.C., in 1989.

Orlo E. Childs, 1965–66

An academician like his predecessor, Orlo E. Childs assumed the AAPG presidency in 1965 to address all the old problems carried over and new ones looming. Of his many contributions to the Association, Childs is perhaps best known for his work with COSUNA, which is reviewed in Chapter 7 of this history.

One of AAPG's finest hours occurred in 1966 at the Semicentennial Convention (AAPG's 51st annual meeting) in St. Louis, Missouri, April 25-28. Ceremonies honored the Association's founders, who had first convened in 1917 to form the American Association of Petroleum Geologists.

Wallace E. Pratt, responding to accolades bestowed upon the 22 founders present, talked about those who had organized AAPG. He stressed that though there were originally 122 founders, AAPG was, in reality, created by three men: E. L. DeGolyer, Jr., J. Elmer Thomas, and Charles H. Taylor.

"These three men," Pratt claimed, "were the true founders. I watched them in action at that time, and they are vivid in my mind's eye today. DeGolyer, par-

ticularly, and Thomas—they were youth with cause. Those three founders conceived into the arms of the rest of us, as a lusty infant, the American Association of Petroleum Geologists."

If the 1966 convention in St. Louis was a high point of harmony and accord, another event that year proved memorable for the absence of those laudable attributes. It is mentioned here only because good members of AAPG, at the cost of considerable time and personal expense, spent long hours trying to make sense of existing geologist certification procedures. In Chapter 3, the article "Certification of Geologists" recounts the steps toward the certification process we have today.

A meeting held in Tulsa on August 28, 1965 was a forum for often heated debates as those in attendance hammered out a method of certification through the American Institute of Professional Geologists (AIPG). The method did not work well and was eventually discarded in 1982. The 19 participants should, nevertheless, be commended for their efforts because certification, which was desired by a majority of AAPG members, serves a definite purpose in the profession. The participants included: Orlo E. Childs, Jack Parker, John Hazzard, George Hardin, Grover Murray, Cam Sproule, Bill Curry, Warren Beebe, Ben Parker, M. T. Halbouty, John Rouse, Bruno Hanson, Ben Carsey, Gordon Atwater, Charles Severy, Homer Woodbury, James Spillers, John Haun, and Norman Smith.

Amid all the melodramatic events of 1966, one carved an important niche that is still with us. The first map of the geologic highway map series arrived from the printer in time for the 1966 annual convention. This 12-map series is now complete and is ever-present in most geologists' automobiles.

The year 1966 also saw officers' terms realigning to coincide with the fiscal year, rather than running from convention to convention as had been the practice. Therefore, the executive committee taking office in the spring of 1966 served until June 30, 1967, for a term of 15 months. For the first time in AAPG history, budgets for executive committee approval matched the incumbents' year in office.

John M. Parker, vice-president, George C. Hardin, Jr., secretary-treasurer, and John C. Hazzard, editor, served with Childs on the 1965-66 executive board.

Michel T. Halbouty, 1966–67

The 1966-67 executive committee, composed of Michel T. Halbouty, president; Orlo E. Childs, past president (an office later abolished by constitutional change); Daniel A. Busch, vice-president; John D. Moody, secretary-treasurer; and John C. Hazzard, editor, accomplished much in its fifteen-month term. One outstanding feat was the creation of the American Association of Petroleum Geologists Foundation. (See the article written by James E. Wilson, Section I.)

Also under Halbouty's leadership, the Gulf Coast Association of Geological Societies elected to become a section of AAPG.

Halbouty infused the presidency with the same enthusiasm and vision that had elevated him in private life to the vanguard of independent oilmen. He con-

ceived of AAPG as the petroleum industry's representative at the international level and is credited for the initial agreements with the British Institute of Petroleum (London) which led to the Brighton Conference. This conference was the forebear of over a dozen special meetings on various themes in assorted locales that included Honolulu, Geneva, Nice, and Singapore. (See "Special Meetings", Section II, Chapter 6).

Halbouty later founded the Circum-Pacific Council for Energy and Mineral Resources, dedicated to assisting the nations of the Pacific Rim in developing their resources. Although the Council is independent of AAPG, the Association has played an active support role in the meeting and publishing efforts of the CPCEMR.

J. Ben Carsey, 1967–68

J. Ben Carsey succeeded Halbouty as president in July 1967. He carried on much of the work previously commenced despite preoccupation with heated deliberations in Washington, D. C. and at the United Nations in New York over ownership of mineral rights in oceanic areas. These disputes, primarily voiced by countries without seashores, proposed vesting with the United Nations ownership of all offshore lands beyond the 200-meter depth. It was a ridiculous controversy which eventually died a justly deserved death, but only after exacting vast time expenditures and travel from members of AAPG's executive committee, particularly Secretary-Treasurer John D. Moody, who was the Association's main representative at the hearings.

Chief geologist for a major oil company, Carsey proved a competent administrator in a difficult time that was further complicated by the fact that the Mexican geologist, Eduardo Guzman, who had been elected vice president for 1967-68, was permitted by his employer to attend only two executive committee meetings. Norman Smith, AAPG Executive Director, John Rouse, and Art Meyerhoff assumed Guzman's responsibilities in addition to their own.

The 1967-68 executive committee included, in addition to Carsey, Guzman, and Moody, John D. Haun, who replaced John C. Hazzard as editor.

Frank B. Conselman, 1968–69

Frank B. Conselman followed Ben Carsey as AAPG president from 1968 to 1969 and undertook securing the membership's approval of the proposed constitutional changes governing the Association. Committed to high standards of professional excellence and conscientiously devoted to serving AAPG, Conselman was an ideal choice for the task at hand. In order to successfully complete his mission, he fulfilled 33 speaking engagements before various geological bodies and participated in numerous additional meetings.

Following a precedent set by Michel T. Halbouty, Conselman also made a presidential lecture tour, appearing at no expense to AAPG, before affiliated societies and giving talks in London, Paris, Milan, Ankara, Tripoli, and Madrid as well.

A true knight of the realm, at an installation ceremony held during the Brighton Conference at the end of his term, Conselman passed the sword to the incoming AAPG President Kenneth H. Crandall.

During Conselman's term, John E. Kilkenny was vice-president; James M. Forgotson, Jr., secretary-treasurer, and John D. Haun, editor.

Kenneth H. Crandall, 1969–70

To Kenneth H. Crandall, AAPG president from 1969 to 1970, fell the chore of instituting the new constitution and bylaws that, through Frank Conselman's herculean efforts, had gained membership approval. For the first time, AAPG now had a president-elect as an executive committeeman, as well as an advisory council and a house of delegates, each endowed with powers and responsibilities. The experience of serving on the Executive Committee as president-elect for an entire year before taking office provided invaluable training for future presidents.

Crandall, a retired oil executive who held a chair in geology at a prestigious West Coast university, faced a crisis during his presidential term when a large deficit developed in AAPG's publishing budget. Delays in receiving papers, editorial complications, and an underestimated sale price plunged the two-volume *Natural Gas Memoir* venture into the red. As a result, he placed a freeze on all publications other than the *AAPG Bulletin*, and immediately initiated a policy ensuring that future publications' pricing would include all costs, including editing, and guarantee a reasonable surplus.

Successful publications that year which did do well financially included: (1) a two-volume *AAPG Memoir 15: Future Petroleum Provinces of the United States – Their Geology and Potential*, financed by the National Petroleum Council, (2) *AAPG Memoir 12: North Atlantic – Geology and Continental Drift*, edited by Marshall Day, and (3) *AAPG Memoir 14: Geology of Giant Petroleum Fields*, edited by Michel T. Halbouty.

Willis G. Meyer served under Crandall as vice-president; James M. Forgotson, Jr. continued as secretary-treasurer, and John D. Haun as editor.

William H. Curry, Jr., 1970–71

From July 1970 through June 1971, William H. Curry, after a successful career as an independent geologist, served as president of what has been called "the newly reconstituted AAPG." He presided over a considerably enlarged executive committee that included J. M. Browning, vice-president; Sherman A. Wengerd, president-elect; James R. Jackson, Jr., secretary; William B. Heroy, Jr., treasurer; John D. Haun, editor; and George R. Gibson, chairman of the House of Delegates.

During his tenure, in order to bolster gaps in the awards category, he established a Certificate of Merit, a Public Affairs Award, and a Journalistic Achievement Award. In addition, after three or four years of lengthy discussions about a membership newsletter, the 1970-71 Executive Committee finally approved one in principle.

Bill Curry brought to his presidency both acumen and conviction. At the behest of the Mississippi Geological Society, he took an affirmative position in Mississippi offshore lease hearings. This was the first time AAPG had spoken on record at such an event.

The need for positive contact with political forces in Washington was emphasized when then-Senator

Henry Bellman of Oklahoma wrote a letter stating that Congress had difficulty believing information received from oil industry groups because of their lobbying bias. Suggestions that AAPG might provide industry information to Congress followed. However, further discussion resulted in the formation within the American Petroleum Institute (API) of a Committee on Exploration Affairs. AAPG nominated Wilson M. Laird, then Director of Oil and Gas in the U. S. Department of Interior, to chair the committee.

Prior to his two-year appointment with the Department of Interior, Dr. Laird pursued an academic career and was, for 28 years, State Geologist for North Dakota. The rationale behind his nomination was that he could communicate better with Congress than someone with a position in industry. This assumption subsequently proved correct.

In the late spring of 1970, Curry's administration formulated plans for Association participation in the first of a series of international meetings in Honolulu, sponsored by Michel T. Halbouty's CPCEMR, encompassing countries ringing the Pacific Ocean. Scheduled on a four-year basis, there have now been five Circum-Pacific Conferences: four in Honolulu, and one in Singapore.

Sherman A. Wengerd, 1971–72

The first Association year of the new decade produced a realignment of official responsibilities resulting in the immediate improvement of AAPG's administration. The insight into AAPG affairs which Sherman A. Wengerd gained as president-elect enabled him, upon assuming the presidency in July 1971, to target and reduce excessive expenditures on public relations, outside legal services, and unwarranted travel and telephone costs. Furthermore, delegating the authority for drafting subsequent annual budgets to the president-elect, made that individual accountable for the financial planning which would cover his year in office.

Wengerd's continued analysis of Headquarters' operations revealed a definite need for both salary adjustments and a redefinition of personnel duties and responsibilities. The following reorganization of Headquarters' staff resulted in replacing Executive Director Norman Smith.

Wengerd faced his executive duties as AAPG president with the same clarity of purpose and determination he exhibited while chairman of a university geology department in New Mexico. He did an admirable job of reorganizing AAPG which was appreciated by both his executive committee and the one of 1972-73.

Officers serving with Wengerd were John A. Taylor, vice-president; James E. Wilson, Jr., president-elect; Ted L. Bear, secretary; William B. Heroy, Jr., treasurer; Frank E. Kottlowski, editor; and George C. Hardin, Jr., chairman of the House of Delegates.

An unpublished address given by Sherman Wengerd in May 1972 at the National Materials Policy Forum held in Austin, Texas, is included in Chapter 9 ("What Our International Petroleum Policy Should Be").

James E. Wilson, Jr., 1972–73

The term of James E. Wilson, Jr., president from 1972 to 1973, was beset with problems somewhat akin

to Wengerd's. The unfortunate death in a plane crash of the newly elected AAPG Treasurer H. B. Renfro, created a vacancy on the executive committee until a replacement, Fred A. Dix, Jr., was named. At the same time, a search was underway for a new Executive Director. In the course of interviewing applicants, all agreed that Dix was an outstanding candidate for that position even though his acceptance of the job necessitated his resignation as treasurer. Finally, with the approval of his executive committee, Wilson invited Edd R. Turner to serve out Dix's unexpired term.

The absence of an executive director from February 1972 until January 1973 caused affairs at Headquarters to deteriorate drastically. Rumors alleging irregular account entries and other questionable practices brought decisive action removing the business manager from office. Neither a geologist nor a member of AAPG, he allegedly lacked the ability to discharge Headquarters business efficiently or accurately. A threatened lawsuit following this termination never materialized and the dismissed business manager was not heard from again. Fred Dix assumed the directorship of AAPG on January 15, 1973; an office he continues to hold at this writing.

The 1972-73 executive committee was composed of James E. Wilson, Jr., president; Samuel P. Ellison, Jr., vice-president; Daniel A. Busch, president-elect; Ted Bear, secretary; Fred A. Dix, Jr./ Edd R. Turner, treasurer; Frank E. Kottlowski, editor; and Herbert G. Davis, chairman, House of Delegates.

Daniel A. Busch, 1973–74

During the presidential tenure of Daniel A. Busch, from 1973 to 1974, a major economic shock rocked the entire world when the Yom Kippur War between Israel and Egypt-Syria precipitated an Arab oil embargo, triggering a five-fold increase in the price of crude. This, in turn, produced a spiraling inflation rate in an already tight economy.

Despite an austere budget, President Busch, a scholarly, Tulsa-based geologist with university affiliations, concentrated his energies on a publication program that completed *AAPG Memoir 6: Trek of the Oil Finders: A History of Exploration for Petroleum* and *AAPG Memoir 20: The Black Sea: Geology, Chemistry and Biology*.

Also relating to the publication department was the decision that as of January 1, 1974, the color of the *AAPG Bulletin's* outside cover would be changed annually. This policy carried for the next seven years until the entire format of the *AAPG Bulletin* changed in January 1981.

At the annual convention in 1974, a special award of a Steuben Pyramidon was presented to Pierre Schlumberger by Morgan J. Davis on behalf of AAPG as a memorial to Marcel and Conrad Schlumberger, in recognition of their outstanding contributions to petroleum exploration through their perfection of electrical logging.

Serving with Busch during his term were August Goldstein, Jr., vice-president; Merrill W. Haas, president-elect; Bernold M. "Bruno" Hanson, secretary; Edd R. Turner, treasurer; Frank E. Kottlowski, editor; and Robert J. Gutru, chairman, House of Delegates.

Merrill W. Haas, 1974–75

One item of concern to Merrill W. Haas during his term in office, from 1974 to 1975, was completion of arrangements for the first Circum-Pacific Conference in Honolulu (see “Special Meetings”, Chapter 6). Another was overseeing details involving the construction of the Lewis G. Weeks Tower. (an account of this splendid addition to the Headquarters complex in Tulsa is given in Chapter 1).

Deeply immersed in AAPG matters, Haas, as vice-president of a major oil company, had extensive contacts in the industry and was ideally qualified to implement several innovative programs while president of the Association.

With aroused national interest in oil shortages, petroleum price increases, and attendant governmental actions, it was necessary to attempt to counter inaccurate media reports. The Strategic Committee on Public Affairs was established to carry out a program of professional involvement with elected representatives, the news media, and the public.

In addition, Merrill Haas, with the help of the Society of Exploration Geophysicists (SEG), the American Association of Petroleum Landmen (AAPL), and the Society of Petroleum Engineers (SPE), instituted a program to educate television and other media editors in the basics of finding and developing energy resources, through a series of regional seminars.

During his term, the Visiting Petroleum Geologists Program was introduced. (A full discussion of this comprehensive educational project is included in “Visiting Petroleum Geologists,” in Chapter 8).

Other executive members from 1974 to 1975 were Duncan A. McNaughton, vice-president; John E. Kilkenny, president-elect; Bernold M. Hanson, secretary; George C. Grow, Jr., treasurer; Frank E. Kottowski, editor; and Hugh N. Frenzel, chairman, House of Delegates.

John E. Kilkenny, 1975–76

John E. Kilkenny, an executive with a California-based oil company, assumed the presidency in July 1975. He proved an affable and competent helmsman. His term saw an expansion of the Strategic Committee on Public Affairs created in 1974. By 1975, a number of bills introduced in Congress were detrimental to the oil industry and its exploration efforts. Through this newly created committee, over 300 volunteer communicators kept their Congressmen updated on AAPG's position in regard to legislative proposals. It is generally conceded that this committee operated to improve the legislators' understanding of the petroleum industry, thereby preventing some of the punitive proposals directed against it from becoming law.

Also during Kilkenny's term, *AAPG Memoir 6: Trek of the Oil Finders: A History of Exploration for Petroleum*, a 1647-page tome on worldwide oil exploration, edited by Edgar W. Owen, was finally published, and a ground-breaking ceremony heralding the start of construction on the Lewis G. Weeks Energy Resources Tower was held.

Frank C. Crawford was vice-president; John D. Moody, president-elect; Robey H. Clark, secretary;

George C. Grow, Jr., treasurer; John W. Shelton, editor; and Robert N. Hacker, chairman of the House of Delegates, during the Kilkenny administration.

John D. Moody, 1976–77

From 1976 to 1977, AAPG experienced a number of new developments under the able leadership of Geologist John D. Moody, whose executive committee included Ralph L. Miller, vice-president; Edd R. Turner, president-elect; Robey H. Clark, secretary; George S. Galbraith, treasurer; John W. Shelton, editor; and John W. James, chairman, House of Delegates.

During Moody's term, AAPG welcomed its first transaction with the USSR. Russia had reprinted John Haun's *AAPG Studies in Geology 1: Methods of Estimating the Volume of Undiscovered Oil and Gas Resources*, and had agreed to pay a publication permit fee.

Other accomplishments during Moody's presidency included a distribution by the Public Information Committee of speaker kits to affiliated societies and other interested individuals, as well as approval by the AAPG Executive Committee and the House of Delegates sanctioning the conversion of the Energy Minerals Committee into the Energy Minerals Division (see Chapter 4).

Confronted in Washington by a hostile Carter Administration, AAPG's Executive Committee hired the public relations firm of Daniel J. Edelman, Inc. Their goal was to secure government contacts who could pass information to policy makers that the petroleum industry was, indeed, working for the people of America rather than against them.

And finally, as a happy note, AAPG published the best-seller *AAPG Memoir 26: Seismic Stratigraphy – Application to Hydrocarbon Exploration*.

Edd R. Turner, 1977–78

From 1977 to 1978, Moody's successor, Edd R. Turner, an executive with a Houston-based oil company, and his executive committee devoted most of their time to devising means of counteracting the factual misrepresentations originating in Washington. Through arrangements made by Edelman's, both Presidents Moody and Turner addressed countless governmental bodies, spoke at numerous seminars, and appeared on the NBC Today show in an effort to offset the anti-oil bias of the Carter administration.

Edelman's also issued press releases prepared by AAPG spokesmen, most of which were accepted for dissemination by the media. Distributing these releases produced a ripple effect, as evidenced by the clipping service Edelman's provided.

In October 1977, AAPG was asked to host the William T. Pecora Symposium on Remote Sensing conducted by then USGS Director Vincent E. McKelvey in Sioux Falls, South Dakota. This symposium, conducted under the Earth Resources Observation System Data Center umbrella, drew a record attendance so that a proffered government subsidy went unclaimed. Symposium Chairman Michel T. Halbouty was ably assisted by Program Chairman Jon W. Davidson.

Unquestionably the highlight of the annual AAPG convention in Oklahoma City in May 1978 was Ronald

Reagan's appearance as the keynote speaker. An estimated 3,000 people filled the convention hall and corridors. A change of administration in 1980 brought an end to the policies of the Carter Administration, whose legacy to America was the infamous windfall profits tax.

Other members of the executive committee during this term were Edwin P. Kerr, vice-president; Robert D. Gunn, president-elect; John J. Amoruso, secretary; George S. Galbraith, treasurer; John W. Shelton, editor; and Harry A. Miller, Jr., chairman, House of Delegates.

Robert D. Gunn, 1978–79

Robert D. Gunn, an independent oil producer from Wichita Falls, Texas, assumed the presidency of AAPG from 1978 to 1979 to address the problem of reserves accessibility. In October 1978 he issued an "AAPG Policy Statement on Energy Evaluation and Environment," recommending that "all processes be expedited whereby most public lands, offshore and onshore, [be] made available for judicious exploration for oil and natural gas."

Gunn also labored during his administration to mediate with political opponents of petroleum industry policies. He continued in cooperation with the Washington-based public relations firm of Daniel J. Edlman, Inc. to publicize the industry's stand on both political and economic issues, tirelessly participating nationwide in speaking tours and media interviews with press and television personnel.

Gunn considers one of the more notable accomplishments of his term to have been the adaptation of some of the recommendations made in a paper drafted by him and his executive committee for the "Blue Ribbon Panel" Jimmy Carter appointed to resolve the energy crisis. "It was interesting," Gunn says, "... to have had a small part in developing energy policy for our country." While he was AAPG president, Gunn was called to Washington to attend a White House meeting on the Three Mile Island nuclear accident, as well. His perceptive analysis of the energy fuels issue, entitled "Environmental Enigma," is included in Chapter 10.

The 1978-79 executive committee members, in addition to Gunn, were Thomas D. Barber, vice-president; John D. Haun, president-elect; John J. Amoruso, secretary; George B. Pichel, treasurer; John W. Shelton, editor; and J. Miller Goodger, chairman, House of Delegates.

John D. Haun, 1979–80

John D. Haun, a professor of geology at a western school of mines and an independent oilman, served as president of AAPG from 1979 to 1980. With the concurrence of his executive committee, he instituted some of the changes he had proposed several years earlier. One was redesigning the format of the *AAPG Bulletin* to reduce printing costs, increase advertising sales, and facilitate reproduction of larger scale maps and illustrations. The revised 8-1/2 by 11-inch *AAPG Bulletin* appeared the following year.

Publication of the *AAPG Explorer* also began during Haun's term and was an immediate success. Appearing in one of its earliest issues was an article authored by

Haun entitled "National Energy Policy," which is reprinted as part of this history (see Section III.).

Another excellent accomplishment of Haun's administration was their authorizing of a new "Tectonic Map of North America." Edward McFarlan, Jr.'s discussion of the map and its organization is included in Chapter 7.

During Haun's term, eight "spot" radio announcements were prepared and distributed to 100 market areas, discussing the role of geologists and the petroleum industry in providing energy to the nation.

The roster of officers from 1979-1980 included, in addition to President Haun, D. Keith Murray, vice-president; Robey H. Clark, president-elect; Donald R. Boyd, secretary; George B. Pichel, treasurer; Myron K. Horn, editor; and Louis C. Bortz, chairman, House of Delegates.

Robey H. Clark, 1980–81

The first few years of the 1980s were times of general optimism and overall prosperity. President Robey H. Clark, an independent geologist from Amarillo, Texas, served as president during 1980 to 1981. In summarizing his term, he wrote: "Times were very good, resulting in explosive growth of the Association, plentiful jobs for geologists, and good relations with the petroleum industry." The genial Louisianan observed further that the overall policy during his presidency was, "If it isn't broke, don't fix it."

The public image of AAPG was improved markedly through media seminars and a surging Visiting Petroleum Geologists program. Contact with the Reagan Administration was excellent throughout the entire year, with much help from Michel T. Halbouty and William Fisher. Fisher and his group did yeoman's duty toward developing recommendations on the sale of Outer Continental Shelf lands, and President Clark personally placed Fisher's recommendations in the hands of a very appreciative Secretary of Interior Watts.

About the only negative reactions registered during Clark's tour of duty were the grumblings occasioned by the appearance of the January 1981 *AAPG Bulletin* "because the new format does not fit the shelves like the old publications did!" But that, in time, abated.

Eugene F. Reid, vice-president; Frank W. Harrison, Jr., president-elect; Donald R. Boyd, secretary; John S. Runge, treasurer; Myron K. Horn, editor; and Chairman of the House of Delegates H. Victor Church served as executive board members with Clark.

Frank W. Harrison, Jr., 1981–82

AAPG enjoyed another good year under Louisiana oilman Frank W. Harrison, Jr., president from 1981 to 1982. An additional 5,000 members increased membership to more than 35,000, and the Association operated in the black with a record income of over \$7 million.

One of the most significant decisions Harrison and his executive committee made was canceling AAPG's certification agreement with AIPG. This action was taken on the recommendation of AAPG Division of Professional Affairs' executive committee and its advisory board. Both presented data indicating the agreement, which dated from 1975, was inhibiting member-

ship growth within the Division of Professional Affairs (DPA; see Section I., Chapter 4).

Executive committee members with Harrison were John L. Severson, vice-president; John M. Parker, president-elect; James A. Hartman, secretary; John S. Runge, treasurer; Myron K. Horn, editor; and David G. Campbell, House of Delegates chairman.

Also at this time, the AAPG Foundation approved construction of an addition to the Headquarters complex, to be named the Pratt Tower, honoring a recently deceased founding member, the distinguished Wallace E. Pratt. Financing for the tower was provided primarily through the sale of stock that had been donated by Lewis G. Weeks. (See Section I., Chapter 1)

A highly successful AAPG Day was held at Headquarters in Tulsa in January 1982. Society, section, and division presidents, as well as committee chairmen, were invited to tour the installation and exchange ideas with the AAPG Executive Committee. It remains a popular annual event.

As another sign of progress, the *AAPG Explorer* changed from a bimonthly to a monthly publication.

John M. Parker, 1982–83

John M. Parker, president, 1982-83, and his executive committee sensed that the oil boom was approaching its zenith. The committee reasoned that even though income was high and membership in AAPG continued to increase, they should also prepare for the possible reduction of both, due to economic events taking place worldwide. (Membership at 1983 fiscal year's end stood at 38,922. It reached its all-time high in May, 1986 at 44,757, then declined to 32,600 by 1992.)

It was still necessary, during Parker's term, to issue public statements on various governmental actions. Through the Governmental Affairs Committee, Parker and his committee prepared AAPG-released comments or position papers on the results of exploratory drilling, The Law of the Sea Treaty and its related Exclusive Economic Zone Act, and on natural gas decontrol legislation.

Also at this time, AAPG approved holding a conference in Geneva in July 1984 which was to be the forerunner for a second, very successful meeting in Nice in 1988. (See "Special Meetings," Section II.)

Officers elected for this term in addition to President Parker included John P. Lockridge, vice-president; John J. Amoruso, president-elect; James A. Hartman, secretary; Norman H. Foster, treasurer; Myron K. Horn, editor; and William H. Roberts III, chairman, House of Delegates.

John J. Amoruso, 1983–84

John J. Amoruso's presidential term in fiscal year 1983 to 1984 proved an exercise in contradictions. Despite an industry recession of major intensity, membership totals increased by 2300 within the twelve months of his tenure. Although action on an early discussion of a dues increase at the first part of the year was delayed until the following January, that increase, plus a very successful annual convention, allowed the Association to end the year in good financial condition.

Executive committee members serving with Amoruso were Robert D. Cowdery, vice-president; Ted L. Bear, president-elect; James A. Gibbs, secretary; Norman H. Foster, treasurer; Richard Steinmetz, editor; and Bruce O. Tohill, House of Delegates chairman.

Plans for adding another office tower to the Headquarters complex to alleviate overcrowding in the Weeks facility had been an agenda item since 1981. When 400,000 shares of Weeks Petroleum stock, given to the Foundation some years previously, sold for a good price, it provided the AAPG Foundation and the Association a method of financing for a new storage and parking facility. This permitted construction of the Pratt Tower, as originally planned. (See Section I, Chapter 1 for a more comprehensive account of the Weeks and Pratt Towers.)

Recognizing the expanding roles of our AAPG members in exploration and production processes, three committees were established during the year 1983-84. The Committee on Development Geology was designed to accommodate those engaged in maximizing oil and gas recovery from known fields. The Committee on Geophysics was established to assist the expanding role of geologists in interpreting geophysical data. The third, a Committee on Astrogeology, was formed to aid those involved in remote sensing exploration techniques. This committee was created to apply information gathered from studying the planets to the exploration process for hydrocarbons and minerals here on earth.

Editor Richard Steinmetz made important changes in publication procedures. These revisions resulted in a yearly savings of \$60,000 in production costs for the *AAPG Bulletin*, and garnered two publication awards from the Association of American Publishers.

Under Amoruso's genial presence at the Association's helm, some very practical and constructive changes in the future role of the organization were initiated.

Ted L. Bear, 1984–85

Association president Ted L. Bear summed up his term in office as "an exciting and active year for the Executive Committee of 1984 to 1985." It was a time when oil company budgets were being cut due to a slow decrease in the price of oil. Bear particularly lamented the big oil company mergers, or "buy outs," which caused a loss of capital in the billions and none of which found one new barrel of oil or cubic foot of gas. The price of crude oil, he felt, was unstable due to oil company funds being squeezed by both the megamergers and the Treasury tax reform bill.

During this year of explosive economics, membership in the Association increased to a record 43,803, as of December 1985. In spite of the general unrest within the petroleum industry, AAPG continued to prosper. Excellent financial returns were reported from the *AAPG Explorer*, the Bookstore, the Convention Department, and the Education Department.

Although the Executive Committee optimistically believed that the Association could continue to grow, committees and the House of Delegates expressed caution. And with good reason—six months after the

close of the 84-85 year, the price of crude decreased drastically. Active drilling rigs dropped from 4,000 to 700, and the total AAPG membership began a decline that resulted in the loss of 4,000 members by the end of 1990.

Throughout this year, construction continued on the beautiful Pratt Tower, and it was dedicated on June 25, 1985. At the dedication ceremony in Tulsa, attended by the entire Executive Committee and all Foundation Trustees, James E. Wilson, president of the AAPG Foundation, cut the ribbon. President Bear responded by expressing gratitude to the Foundation for its efforts in providing this addition to the American Association of Petroleum Geologists Headquarters.

Other members of the executive committee headed by Bear were Gerald M. Friedman, vice-president; William L. Fisher, president-elect; James A. Gibbs, secretary; John R. Kerns, treasurer; Richard Steinmetz, editor; and A. T. (Toby) Carleton, House of Delegates chairman.

William L. Fisher, 1985-86

The Association years from 1985 to 1988 were tests of perseverance, as the struggle continued to try to hold AAPG together during the worst financial crisis the industry had suffered since World War II. The first half of 1985-86, with William L. Fisher as Association president, was a period of harmony for AAPG and its members, even though anxiety sparked by oil prices abounded.

AAPG had grown with the boom. Membership was at a record level. Extensive short-courses and continuing education programs were in effect. Publications and sales soared. In contrast, the last half of that Association year, commencing in January 1986, was marked by shock, dismay, and, in many cases, financial ruin for some of its members.

When the collapse came, the first impact at AAPG was felt in the Science and Education Department as short-courses terminated and publication sales bottomed. The popular and profitable *AAPG Explorer* recorded heavy declines in advertising. The Executive Committee and staff, faced with substantial cutbacks to avoid budgeting disaster, strove to maintain quality service in the face of catastrophe.

Committed to an annual meeting in Atlanta – literally hundreds of miles from active oil country – the Association was challenged by the prospect of organizing a successful event considering the odds imposed by fixed costs and an expected low turnout. However, diligence and cutbacks kept the loss at less than \$25,000.

An even greater problem than budget balancing confronted the Association at this time: how to assist a membership threatened with a high unemployment rate in a constricted economy. Two committees were initiated to define methods by which members might transfer from petroleum geology to other areas where employment opportunities still existed. More effort was exerted in the following three years to address the problem. Fisher, drawing on academic and governmental experience, led the way.

Executive officers elected to serve with President Fisher from 1987 to 1988 were Clemont H. Bruce, vice-

president; Bernold M. Hanson, president-elect; Richard R. Bloomer, secretary; John R. Kerns, treasurer; James A. Helwig, editor; and Larry D. Woodfork, chairman, House of Delegates.

Bernold M. Hanson, 1986-87

The term 1986 to 1987 was an intense trial for the president, Midland oilman Bernold M. Hanson, and his Executive Committee. Addressing the dire unemployment problems imposed by prevailing economic conditions, Geological societies in Houston and Midland conducted meetings that melded with work done by the two AAPG committees begun the term before and carried on through Hanson's year in office.

Robert Jordan, State Geologist of Delaware, was named chairman of a committee on Opportunities in Water Resources and Waste Management, and William H. Matthews III chaired a committee entitled Opportunities in Secondary Education. Meetings of the water resources committee were held in Virginia and tabulated several thousand available career opportunities, including jobs in government, all with a lower salary scale than in the petroleum industry. By mid-year, Bill Matthew's committee on earth science teaching careers received 575 requests for information. Each inquiry was answered. Unfortunately, the actual results of both committees' efforts were difficult to evaluate.

The withdrawal of SEPM from AAPG, a long-anticipated event, also transpired in 1986. Because SEPM was nominally a Technical Division of AAPG, it was feared that AAPG might be held legally liable for SEPM's adverse financial and operational actions. During the previous year SEPM had approved a negative cash flow budget. The possibility of having to make good on any losses that might occur prompted the Executive Committee to demand that SEPM make numerous changes relative to its affiliation with AAPG. When SEPM decided it could not comply, a withdrawal was agreed upon. The new SEPM incorporation became final when the AAPG Delegates approved the withdrawal in June 1987.

Finances became a paramount concern for the Association with the disclosure of a \$563,000 loss from 1985 to 1986. So many items were operating in the red that it was immediately evident drastic measures were in order. Two cost-cutting measures resulted in the sale of Headquarters' staff cars and a 25% personnel reduction order. As the Visiting Petroleum Geologists program was losing company support, the education program was substantially curtailed and many special publications were delayed or canceled.

Quite obviously, it was a year deserving of President Hanson's succinct summation: "...in fact, it was the pits." Association members can regard it as a god-send that there were capable persons like Hanson willing to lead AAPG when it dearly needed leading.

In addition to Hanson, James M. Forgotson, Jr., vice-president; Lawrence W. Funkhouser, president-elect; Richard R. Bloomer, secretary; John R. Kerns, treasurer; James A. Helwig, editor; and John L. Stout, House of Delegates chairman, held seats on the executive committee.

L. W. Funkhouser, 1987–88

Certainly AAPG was fortunate to have as its president from 1987 to 1988 the knowledgeable, intelligent L. W. Funkhouser. As the result of strong efforts to further eliminate unnecessary expenditures—and the bonus of a well-attended national convention in Houston that contributed a surplus of over \$300,000 – Funkhouser's administration logged a positive cash flow of \$557,000.

Organizational changes effected by him and his Executive Committee included reactivation of the Committee on Governmental Affairs to communicate with Senators, Congressmen, and Governors, and a new Committee on International Liaison to strengthen ties with AAPG members outside the United States. Also, an Intersociety Coordinating Committee was created to review professional activities and explore areas of cooperation.

The Executive Committee of 1987 to 1988 was the first in AAPG history to include a female member: Martha Lou Broussard, Chairman of the House of Delegates. And for the first time since 1971, the Executive Committee had as an officer someone of another nationality: Secretary Michael D. Hriskevich from Canada. Jerome J. C. Ingels served as vice-president; Norman H. Foster was president-elect; Anthony Reso, treasurer; and James A. Helwig, editor.

An intensive review of AAPG insurance programs resulted in renewing the contract with Smith-Sternau after implementing major new financial and coverage benefits. Other Executive Committee actions included adopting a new campaign policy, discontinuing the Special Investments Committee, and transferring SEPM assets held by AAPG, thus completing its separation.

Another important policy revision was eliminating excessive travel by speakers in the Visiting Petroleum Geologists program to insure sending them to universities or colleges within a convenient travel distance. East Coast requests for West Coast lecturers were no longer granted. In the interest of further cost economics, the Executive Committee reduced the number of schools sponsored by the Association, scheduling none for the first half of 1987-88 and only a restructured list for the second half.

The Executive Committee strongly advocated the Association's affiliation with organizations of similar purpose and suggested that international meetings be held at least every other year, or more often, as in the case of Stavanger and London.

In planning AAPG's seventy-fifth anniversary in 1991, *The Treatise of Petroleum Geology* was endorsed as a fitting publication to commemorate the occasion. In addition, approval followed for creating a Twenty-first Century Committee to conduct an extended study of the Association in order to formulate specific short, intermediate, and long-term goals and to suggest ways to implement them.

Norman H. Foster, 1988 – 89

Norman H. Foster succeeded Lawrence Funkhouser as president of AAPG, heading an executive committee composed of John W. Shelton, vice-president; James O.

Lewis, Jr., president-elect; Michael E. Hriskevich, secretary; Paul M. Strunk, treasurer; James A. Helwig, editor; and George A. Hillis, House of Delegates chairman.

After the difficult years from 1985 through 1987, it was a relief for the incoming president and his executive committee to serve under the conditions that prevailed in their term. Funkhouser and Foster continued fiscal measures initiated by Fisher and Hanson, so that by the end of Foster's tenure a total of \$1,000,000 had been restored to AAPG's net worth.

Part of the increase in funds during Foster's term accrued from a very successful convention in San Antonio, which cleared \$368,321. This was somewhat offset by a steep, three-year membership decline culminating during 1987 to 1988, by which time members were dropped from the rolls for nonpayment of dues.

Several topics were addressed during Foster's presidency, including: exploring means to dispel the myth that no more oil remains to be found in the United States, expanding international membership and related programs, and emphasizing the importance of developing creative skills for successful petroleum and mineral exploration.

As part of the progressive change in AAPG organization, the Twenty-first Century Committee, chaired by John Amoroso, began actively to formulate short, intermediate, and long-term goals for the Association, along with suggestions for their implementation, in order to present the committee's findings at the Diamond Jubilee Meeting in Dallas in April 1991.

Instituted as a means of expanding AAPG's role in international geological affairs, the International Liaison Committee, chaired by Nahum Schneidermann, provides a forum for AAPG's international members, affiliated societies, and possibly, in the future, for international sections. The Association's decision to accelerate participation in foreign meetings met with spectacular success at the Mediterranean Basins Conference. Held in Nice, France in 1988, this conference attracted 1,100 delegates and operated well in the black. (For a fuller account of the Mediterranean Basins Conference and other foreign events, see the section entitled, "Special Meetings" in Section II of this history.)

The Treatise of Petroleum Geology, AAPG's most ambitious publishing effort to date, was a Diamond Jubilee project scheduled for completion early in 1991. With Ted Beaumont and Norman Foster as co-editors, the project consists of three major sections: *The Reprint Series*, *The Atlas of Oil and Gas Fields*, and *The Handbook of Petroleum Geology Series*.

James O. Lewis, 1989 – 90

Association membership totals continued to drop during James O. Lewis's term as president from 1989 to 1990. Although active membership was down only 1.5% from its zenith in 1986, drastic declines occurred in both Junior and Student Memberships within a five-year span. From an all-time high achieved by both classifications in 1985, Junior Membership dropped 45.9% and Student Membership dropped 89.6% by 1990. This loss of their young population was cause for acute regret within AAPG and the petroleum industry at large.

While a matter of concern to all, the decrease in membership had no detrimental effects on the Association's operations in relation to its activities or finances. Due to financial measures instituted over the previous several years, AAPG remained fiscally healthy, and during Lewis's term reflected a 4.7% surplus over and above a \$7.5 million operations expense. The largest fund producer was the advertising sales generated by a resurgent *AAPG Explorer*.

The AAPG Convention Department was extremely active during Lewis's tenure, staging the International Geological Congress in Washington, D.C. in July 1989, four sectional meetings, and an Annual AAPG Convention in San Francisco. Unfortunately, the "History of the Petroleum Industry" meeting scheduled for Titusville, Pennsylvania was canceled due to low registration.

As a result of a convention survey of all AAPG members, revision of convention programming began. For example, the opening session was moved back from Monday morning to Sunday afternoon to allow more time for technical sessions at the 1991 session in Dallas.

In 1990, the Circum-Pacific Council voted to disaffiliate as a section of AAPG (see Chapter 6, "Special Meetings" for a fuller account).

Jim Lewis, an independent Houston-based geologist, ably served the Association at a difficult time in its history. He and his Executive Committee were instrumental in setting new goals for the future and adjusting AAPG's scope to assume a greater role in international geological matters. Committee members included John W. Harbaugh, vice-president; James A. Gibbs, president-elect; Arthur M. Van Tyne, secretary; Paul M. Strunk, treasurer; Susan A. Longacre, editor; and Brenda K. Cunningham, House of Delegates chairman.

James A. Gibbs, 1990 – 1991

President James A. Gibbs's tenure from 1990 to 1991 was a globally eventful one. In August 1990, Iraq overran Kuwait. In the aftermath of the intervention by United States' and United Nations' military forces, the retreating Iraqi soldiers set fire to most of Kuwait's oil wells, using explosives to damage the wells' surface equipment and related production facilities. Well fires were finally extinguished in November 1991, but not before millions of barrels of oil had burned and unknown damage to productive reservoirs had occurred due to unrestrained flow rates.

Elsewhere, winds of democratic initiatives blew across the Soviet republics, initiating the disintegration of the Soviet Union. Major oil companies and independents alike began to look for emerging opportunities for exploration of contract work in eastern Europe and in individual provinces of the USSR.

Economically, oil prices ranged from \$40 per barrel soon after the invasion of Kuwait to a low of \$15 following Iraq's withdrawal. The market for domestic gas deteriorated generally during the year, with spot prices in June below \$1 in some areas.

Within the United States, major oil companies continued to consolidate and downsize, to sell off producing properties, and to concentrate their efforts overseas. Petroleum geologists felt the squeeze, and many sought opportunities with environmental companies or in entrepreneurial activities.

Influenced by both international and domestic conditions, the Association's membership continued its trend of the past several years, dropping during this term to 33,115, a loss of 923, or 2.7%. Since May 1986, when the peak of 44,757 was recorded, total membership had declined 26% by the end of the 1990 to 1991 term.

Among active members the losses were less severe. From 1990 to 1991, membership was down 126 to 23,342, or 0.5%. Since 1986, membership had declined by 475, or 1.9%. Losses among other classes were more acute. Junior membership declined from 17,017 in 1985 to 8,362, and student membership from 2,242 in 1983 to 292. However, on the bright side, student membership increased by 58 during the year, reflecting the concerted efforts of the Student Chapter Committee and other Association groups to bolster this area.

Organizational changes within the Association structure included acceptance of the Dhahran Geological Society as an affiliate, bringing the total number of AAPG-affiliated societies to 84. Two standing committees, Environmental Geology, and Hydrogeology and Waste Management, proposed that they join together and become a new body within AAPG, called the Division of Environmental Geosciences. This proposal will be presented to the House of Delegates for approval at the Association's Annual Meeting in Calgary in June of 1992.

AAPG's finances continued to reflect conservative business policies. On July 1, 1991, the General fund total surplus stood at \$688,233, a 9.2% margin on an operations budget of \$7.5 million. Greatest improvements for the year were in special publications and in educational courses, both benefiting from more efficient practices initiated in previous years.

An increasing concern of the Association was the plight of geologists who do not have sufficient savings to carry them through periods of unemployment. Responding to AAPG members' requests for the organization to sponsor individual investment or retirement programs, the 1990-91 Executive Committee considered ways in which AAPG could help. At its meeting in Dallas in April 1991, they referred the matter to the Advisory Council for further discussion and study.

At the request of the Insurance Committee, an audit of the administration of the AAPG group insurance plans was conducted and proved favorable. Prices charged for AAPG plans tallied out as competitive with those in other association plans, while the range of benefits appeared equivalent or superior.

At the same Executive session, in order to broaden the number of qualified members available for committee assignments, a new standing Committee on Committees was established to assist the president-elect in the process of selecting members for these various chaired groups.

In response to requests for more meetings conducted outside the United States, the Executive Committee approved AAPG's participation in one "international meeting" each year, alternating between sites in Europe and Asia. The 1991 meeting in London will be followed by annual meetings in Sydney, Australia; The Hague,

Netherlands; and Kuala Lumpur, Malaysia, respectively. The Association is currently evaluating proposals for future meetings in Central and South America.

An independent oilman based in Dallas, Texas, James A. Gibbs served the presidency of AAPG with competence and thoroughness, as evidenced in this review of his year in office published here as he wrote it, with only minor abridgment. Executive Committee persons serving with Gibbs include David G. Campbell, vice-president; Robert J. Weimer, president-elect; Arthur M. Van Tyne, secretary; Edward K. David, treasurer; Susan A. Longacre, editor; and John C. Osmond, chair of the House of Delegates. Their many commendable achievements were appropriately climaxed by a spectacular convention on the occasion of AAPG's seventy-fifth anniversary, celebrated at the Annual Meeting from April 7th through the 10th, 1991 in Dallas, Texas. Under the leadership of Charles Dodge, 6618 registrants enjoyed the Association's "Diamond Jubilee." Five successful section meetings were also conducted during 1990 to 1991.

Of his year in office, Gibbs says: "Perhaps the most significant event within AAPG from 1990 to 1991 was the completion of the 21st Century Committee Report." John Amoroso, chairman, presented the report, which represented two-and-a-half years of work by 19 committeemen, to the Executive Committee at the Annual Meeting in Dallas. The "Summary and Recommendations" section focuses on four broad areas for Association initiatives: international operations, environmental geology and hydrology, educational trends, and new and developing technologies. This valuable report will serve to set AAPG's course for many years.

"With the 21st Century Committee Report as a blueprint for future plans and activities, AAPG is now prepared to move ahead in developing and strengthening its programs. The Association's strength has always been the willingness of members to devote time and thought to its objectives. The 1990 to 1991 year provided evidence that AAPG is prepared to meet the challenges of the next decade and beyond."

Robert J. Weimer, 1991 – 1992

As this twenty-five year update of the Association's history covers only the years 1965 to 1991, a full account of the term in office of AAPG President Robert J. Weimer and his Executive Committee: Donald W. Axford, vice-president; Harrison L. Townes, president-elect; Richard S. Bishop, secretary; Edward K. David, treasurer; Susan A. Longacre, editor; and Willard R. Green, chairman, House of Delegates, must await the next compilation of AAPG activities.

However, since celebration of the Association's Diamond Jubilee was commemorated at the AAPG International Conference and Exhibition in London, England in September 1991, with Dr. Weimer and his Committee participating, his account of these ceremonies is included under Section II, Chapter 6, "Special Meetings, 1965-1991."

It should also be noted here that Dr. Weimer and his Executive Committee officially approved the publi-

cation of the current update of the Association's history, bringing to completion a project initiated by Robey Clark and his Executive Committee in 1980 to 1981.

AAPG ADVISORY COUNCILS, 1970-1991*

One of the measures adopted in the reorganization of the Association was the creation of an advisory council to assist the elected executive board in determining policy and to serve as a representative body of the divisions and regions in deliberations at the national level. Inclusion of the three immediate past presidents as members on this council ensured the necessary continuity in the annual transition from one board to the next. Advisory board meetings were generally attended by the current AAPG president, the executive director, and other staff and Association officers as needed for the transaction of proceedings.

Advisory councils from 1970 through 1991 are listed by year as follows:

1970 – 1971

Kenneth H. Crandall, chairman; Gordon I. Atwater, Thomas A. Baldwin, J. Ben Carsey, Sr., Herschel S. Carver, Frank B. Clark, Frank B. Conselman, Ira H. Cram, Edward C. Dapples, John T. Galey, Earl G. Griffith, William J. Hilseweck, James O. Lewis, and Frank W. Harrison, Jr.

1971 – 1972

William H. Curry, chairman; Thomas A. Baldwin, Orville L. Bandy, Hershel S. Carver, Frank R. Clark, Frank B. Conselman, Ira H. Cram, Kenneth H. Crandall, John T. Galey, Earl G. Griffith, Michel T. Halbouty, Frank W. Harrison, William J. Hilseweck, and James O. Lewis.

1972 – 1973

Sherman A. Wengerd, chairman; Thomas A. Baldwin, Ira H. Cram, Kenneth H. Crandall, William H. Curry, John T. Galey, Earl G. Griffith, Robert D. Gunn, Michel T. Halbouty, Frank W. Harrison, Ray C. Lewis, John T. Rouse, Robert F. Walters, and Robert J. Weimer.

1973 – 1974

James E. Wilson, chairman; John M. Browning, Charles Collinson, William H. Curry, John T. Galey, Robert D. Gunn, Michel T. Halbouty, Frank W. Harrison, Jr., John E. Kilkenny, Ray C. Lewis, M. Dane Picard, John T. Rouse, Robert F. Walters, and Sherman Wengerd.

1974 – 1975

Daniel A. Busch, chairman; Donald R. Boyd, John M. Browning, Gerald M. Friedman, Robert D. Gunn, Robert J. Gutru, Donald E. Lawson, Henry H. Neel, M. Dane Picard, John T. Rouse, Edd R. Turner, Sherman A. Wengerd, James E. Wilson, and Gordon H. Wood.

1975 – 1976

Merrill W. Haas, chairman; Donald R. Boyd, John M. Browning, Daniel A. Busch, Hugh N. Frenzel, Donald

*The author thanks Executive Secretary Merle Noel for the lists of Advisory Council members recorded here.

E. Lawson, Ronald G. Mercer, Henry H. Neel, M. Dane Picard, John A. Taylor, Edd R. Turner, James E. Wilson, James Lee Wilson, and Gordon H. Wood, Jr.

1976 – 1977

John E. Kilkenny, chairman; Ted L. Bear, Donald R. Boyd, Daniel A. Busch, Hugh N. Frenzel, George C. Grow, Jr., Merrill W. Haas, Lee H. Meltzer, Ronald H. Nanz, Billy Walter Roberts, Robert H. Shaver, John A. Taylor, and Gordon H. Wood, Jr.

1977 – 1978

John D. Moody, chairman; Ted L. Bear, Porter J. Brown, Loyd A. Carlson, Hugh N. Frenzel, Donn S. Gorsline, George C. Grow, Jr., Merrill W. Haas, John E. Kilkenny, Scott J. Lysinger, Lee H. Meltzer, Ronald G. Mercer, Robert H. Nanz, Billy Walter Roberts, and John A. Taylor.

1978 – 1979

Edd R. Turner, chairman; Donald W. Axford, Ted L. Bear, Porter J. Brown, Doris M. Curtis, Herbert G. Davis, August Goldstein, Jr., George C. Grow, Jr., John E. Kilkenny, Scott J. Lysinger, John D. Moody, Robert H. Nanz, Billy W. Roberts, William N. Tindell, and Warren H. Westphal.

1979 – 1980

Robert D. Gunn, chairman; Donald W. Axford, Porter J. Brown, Herbert G. Davis, August Goldstein, Jr., Howard R. Gould, Joseph P. D. Hull, Jr., Scott J. Lysinger, Earle F. McBride, John D. Moody, Robert H. Nanz, Frederick R. Scheerer, William N. Tindell, Edd R. Turner, and Donald L. Ziegler.

1980 – 1981

John D. Haun, chairman; Donald W. Axford, August Goldstein, Jr., Howard R. Gould, Robert D. Gunn, Joseph P. D. Hull, Jr., Jerome J. C. Ingels, James A. Noel, John A. Pederson, John H. Silcox, William N. Tindell, Edd R. Turner, M. O. Turner, John L. Wray, and Donald L. Ziegler.

1981 – 1982

Robey H. Clark, chairman; Clemont H. Bruce, Robert H. Dott, Jr., Robert L. Fuchs, Howard R. Gould, Robert D. Gunn, John D. Haun, Edward L. Hazelwood, Joseph P. D. Hull, Jr., Jerome J. C. Ingels, George W. Krumme, James A. Noel, John H. Silcox, M. O. Turner, and Donald L. Ziegler.

1982 – 1983

Frank W. Harrison, Jr., chairman; Clemont H. Bruce, Robey H. Clark, Michel T. Halbouty, John D. Haun, Edward L. Hazelwood, Michel E. Hriskevich, George W. Krumme, Daniel D. Miller, Harry A. Miller, Jr., Ruffin Rackley, John H. Silcox, M. O. Turner, Theodore R. Walker, Larry A. Woodfork, and Donald L. Ziegler.

1983 – 1984

John M. Parker, chairman; Charles W. Berge, Clemont H. Bruce, H. Victor Church, Robey H. Clark,

Michel T. Halbouty, Frank W. Harrison, Jr., Edward L. Hazelwood, Michael Hriskevich, George W. Krumme, Daniel D. Miller, Harry A. Miller, Jr., Paul Strunk, John E. Warne, Larry D. Woodfork, and Donald L. Ziegler.

1984 – 1985

John J. Amoruso, chairman; Richard R. Bloomer, David G. Campbell, H. Victor Church, Robert D. Cowdery, Norbert E. Cygan, Michel T. Halbouty, Frank W. Harrison, Jr., Michael E. Hriskevich, Daniel D. Miller, John M. Parker, M. Dane Picard, Paul M. Strunk, Dougald H. Thamer, Larry D. Woodfork, and Donald L. Ziegler.

1985 – 1986

Ted L. Bear, chairman; John J. Amoruso, George R. Bole, Wesley G. Bruer, David G. Campbell, Victor Church, Robert D. Cowdery, Norman H. Foster, James A. Gibbs, Phillip C. Goodell, J. Bill Hailey, Michel T. Halbouty, John M. Parker, Orrin H. Pilkey, Paul M. Strunk, and Arthur M. Van Tyne.

1986 – 1987

William L. Fisher, chairman; John J. Amoruso, Ted L. Bear, Robert E. Boyer, Wesley G. Bruer, David G. Campbell, H. Edward Clifton, Robert D. Cowdery, Norman H. Foster, Paul Fuenning, James A. Gibbs, Bill Hailey, Michel T. Halbouty, Scott J. Lysinger, D. Keith Murray, and Arthur M. Van Tyne.

1987 – 1988

Bernold M. "Bruno" Hanson, chairman; Ted L. Bear, Louis C. Bortz, Robert E. Boyer, Wesley G. Bruer, Alfred T. "Toby" Carleton, William L. Fisher, Paul Fuenning, James A. Gibbs, Michel T. Halbouty, Steven H. Harris, Williams H. Hay, Frank E. Kottlowski, Jack P. Martin, Ed Pittman, and Arthur M. Van Tyne.

1989 – 1990

Norman H. Foster, chairman; Louis C. Bortz, Toby Carleton, Paul A. Catacosinos, Larry Funkhouser, Patrick J. F. Gratton, Michel T. Halbouty, Bernold M. Hanson, Steven H. Harris, Robert G. Lindblom, Robert C. Mummery, Edward D. Pittman, Robert W. Sabate, Bernard P. Tissot, and Donald F. Towse.

1990 – 1991

James O. Lewis, Jr., chairman; Louis C. Bortz, Paul A. Catacosinos, Norman H. Foster, Samuel A. Friedman, Larry Funkhouser, Gary E. Henry, Terry L. Hollrah, Robert Lindblom, Robert C. Mummery, James P. Rogers, Robert W. Sabate, Bernard P. Tissot, and Roy A. Worrell.

1991 – 1992

James A. Gibbs, chairman; Paul A. Catacosinos, Robert D. Cowdery, Norman H. Foster, Gary E. Henry, Terry L. Hollrah, David A. Jenkins, Susan M. Landon, James O. Lewis, Jr., Robert C. Mummery, Douglas C. Peters, Robert W. Sabate, Jack West, and Roy A. Worrell.

Chapter 4

Affiliates and Divisions of the Association, 1965-1991

REGIONAL SECTIONS AND LOCAL SOCIETIES

Through 1991, AAPG has established affiliation worldwide with 81 societies. Affiliation with AAPG requires only that an organization have professional and scientific goals and objectives similar to those of AAPG and that its membership be open to all geoscientists without restriction to nationality, religion or sex. Affiliated societies of AAPG participate in the governance of the Association through the AAPG House of Delegates, which allows one representative per seventy active AAPG members within an affiliated society. Affiliated societies with less than seventy active AAPG members are accorded one representative in the House of Delegates.

The accompanying table is a list of the AAPG Affiliated Societies and the years in which they became affiliated with AAPG.

AAPG Affiliated Societies

Society Name	Year Affiliated
Appalachian Geological Society	1931
Fort Worth Geological Society	1931
Kansas Geological Society	1931
Oklahoma City Geological Society	1931
Tulsa Geological Society	1931
East Texas Geological Society	1932
Houston Geological Society	1932
Panhandle Geological Society	1932
Shreveport Geological Society	1932
Dallas Geological Society	1935
Ardmore Geological Society	1936
Michigan Basin Geological Society	1937
Indiana-Kentucky Geological Society	1938
North Texas Geological Society	1938
West Texas Geological Society	1938
Illinois Geological Society	1939
Mississippi Geological Society	1941
Corpus Christi Geological Society	1943
New Orleans Geological Society	1943
Southeastern Geological Society	1944

AAPG Affiliated Societies (continued)

Society Name	Year Affiliated
Wyoming Geological Association	1945
Abilene Geological Society	1947
South Texas Geological Society	1949
Montana Geological Society	1950
North Dakota Geological Society	1952
Four Corners Geological Society	1953
Lafayette Geological Society	1953
Rocky Mountain Association Geologists	1954
Roswell Geological Society	1954
San Angelo Geological Society	1954
Geological Society of Kentucky	1958
Sacramento Petroleum Association	1962
Turkish Association of Petroleum Geologists	1962
Georgia Geological Society	1963
Ohio Geological Society	1963
Albuquerque Geological Society	1965
Association Colombiana Geol y Geofis Petroleum Exploration & Production Group of the Institute of Petroleum	1965
Geological Society of Washington	1965
Pittsburgh Geological Society	1965
San Joaquin Geological Society	1965
Alabama Geological Society	1966
Alaska Geological Society	1966
Coast Geological Society	1966
Northern California Geological Society	1966
Los Angeles Basin Geological Society	1968
Austin Geological Society	1969
Nebraska Geological Society	1969
New Mexico Geological Society	1970
El Paso Geological Society	1971
Utah Geological Association	1971
Canadian Society of Petroleum Geologists	1973
Earth Science Society of Libya	1973
Ecuadorian Geological and Geoph. Society	1974

continued on p. 30

AAPG Affiliated Societies (continued)

Society Name	Year Affiliated
Geological Society of Malaysia	1974
New York State Geological Association	1974
Petroleum Exploration Society of Great Britain	1974
Royal Geological and Mineral Society of the Netherlands	1974
Southeast Asia Petroleum Exploration Society	1974
Colegio de Geólogos de Costa Rica	1975
Northern Ohio Geological Society	1977
Petroleum Exploration Society of Australia	1977
Saskatchewan Geological Society	1977
Geological Society of Trinidad & Tobago	1978
Arab Geological Association	1979
Baton Rouge Geological Society	1980
Grand Junction Geological Society	1980
Miami Geological Society	1980
Fort Smith Geological Society	1981
Association de Geological and Geof Espanoles Petroleum	1982
Idaho Association of Professional Geologists	1982
Egypt Petroleum Exploration Society	1984
Graham Geological Society	1984
Northwest Petroleum Association	1986
Geological Society of Iowa	1987
Nevada Petroleum Society	1987
Society of Exploration in the Emirates	1987
Bundesverband Deutscher Geologists e.v.	1988
Swiss Association of Petroleum Geologists	1988
Pittsburgh Association of Petroleum Geologists	1990
Dhahran Geological Society	1991

THE ENERGY MINERALS DIVISION*

At the 1968 AAPG Convention in Oklahoma City, part of the technical program was devoted to a "Fuels Symposium," which attracted crowds that filled the meeting room. This symposium included talks on coal, shale oil, tar sands, nuclear fuels, and geothermal energy and oil and gas. Those AAPG members directly responsible for the Oklahoma City program were Edwin P. Kerr, general convention chairman; Clifford Branan, program chairman; and T. P. Woodward, sessions organizer and chairman of the symposium.

Shortly thereafter, Thomas C. Hiestand visited AAPG Headquarters in Tulsa to discuss with Executive Direc-

tor Norman C. Smith the idea of establishing a "technical division of mineral economics" in the AAPG. It is assumed that Hiestand's motivation was the Oklahoma City session on fuels. William H. Curry was also an early advocate of broadening the Association base to include minerals other than oil and gas.

Early in 1969, Hiestand presented his ideas on mineral economics in a written proposal. Then, some weeks after the AAPG Executive Committee met in Dallas, President Frank B. Conselman appointed an ad hoc "Committee for Proposed Division of Mineral Economics" and named T. C. Hiestand as chairman. In September of the same year a new AAPG Executive Committee decided that such a division was not appropriate at that time. However, it did approve a special "Committee on Mineral Economics Symposium" in Calgary during 1970. President Kenneth H. Crandall appointed Tom Hiestand as its Chairman, and this group put together a program of eight speakers for the AAPG Annual Convention in Calgary in 1970. Among the speakers were Michel T. Halbouty and Assistant Secretary of Interior Hollis M. Dole. This session was attended by more than 300 convention registrants and the papers were published in the June, 1971 *AAPG Bulletin*.

The "special committee" was reappointed by the next AAPG president, William H. Curry, Jr., with the intention that it would sponsor a symposium at the Houston Convention in 1971. Because of a different program plan in Houston, only one paper was presented by request, but the committee, again reappointed and expanded to include representatives of fuel/energy disciplines, produced at the 1972 Convention in Denver a half-day symposium covering two themes: (1) National mining and minerals policy, and (2) Economic incentives and deterrents affecting exploration and development of fuels/energy group of mineral resources during 1970 to 1975.

A total of seven papers were presented and average attendance throughout the session was 475. The following year these papers were published by the Mineral Economics Institute at Colorado School of Mines, with John A. Pederson and Thomas C. Hiestand as editors, and editorial support from Harry L. Thomsen.

With a special committee to foster his concern for mineral economics successfully launched, Thomas C. Hiestand retired as its chairman. The Committee on Mineral Economics was reappointed for the 1972 to 1973 year. Siegfried Muessig was named chairman, and the group was given responsibility for an all-day symposium at the AAPG Convention at Anaheim in 1973. This symposium, entitled "Economics of Energy Minerals" and composed of thirteen speakers, included Senator C. P. Hanson (R, Wyoming) and Assistant Secretary of Interior S. A. Wakefield. Maximum attendance during the day was 1500.

Having coined the term "energy mineral," this Committee on Mineral Economics now recommended that

*Updated from an article that appeared in the March 1983 *AAPG Explorer*.

Gratitude is expressed to EMD Founders John A. Pederson and Loyd Carson for their assistance in documenting this account. Harry L. Thomson, Siegfried Muessig, Warren H. Westphal, and Donald W. Axford for careful appraisal of the manuscript; also to Hollis Dole, Robert L. Fuchs, Ruffin I. Rackley, William Curry, T. P. Woodward, and Edwin P. Kerr for their comments and suggestions; and to Merle Noel, Linda Farrar, Donna Riggs, and Donald A. O'Nesky of the AAPG Headquarters staff for providing further necessary data.

it be renamed the Committee on Energy Minerals, and it was reconstituted as such in the fall of 1973 under Chairman John A. Pederson. At this time the Committee evolved from a group of program participants to a body to plan future events; however, it still operated under the limitations of one-year appointments.

In 1974 the Committee on Energy Minerals was transferred from "special" to "standing" status – one step closer to becoming a division. Chairman Pederson supervised two well-attended symposia: (1) at the 1974 San Antonio Convention, "Energy Minerals – What Are The Producible Reserves?" and (2) at the 1975 Dallas Convention, "Energy Minerals: Status and Role." Attending observers reported that papers on geothermal energy and uranium generated the most interest at that time.

Pederson, in a renewed effort to achieve division status, asked R. C. Millspaugh to devise a questionnaire for polling all AAPG members as to the need for a "division." This questionnaire was completed and mailed in early 1976 when Loyd Carlson had assumed leadership of the Committee.

The questionnaire produced resounding support. Of the 3630 replies, 2928 (81%) held that AAPG should assume an active role in energy minerals, 2839 (78%) desired more papers on energy minerals in the *AAPG Bulletin* and at conventions, and about 50% asked for short courses and field trips. Eventual Executive Committee approval of the bylaws and division status cleared the way for introducing a resolution in 1977 before the House of Delegates that division status be approved by that body.

Named chairman on July 1, 1975, Loyd A. Carlson presided over a committee that conducted two successful symposia: (1) under program chairman Ruffin I. Rackley at the 1976 AAPG Convention in New Orleans; and (2) at the 1977 Convention in Washington, D. C., under program chairman Robert L. Fuchs.

During June 1977, in Washington, the House of Delegates gave its unanimous sanction; a fitting compliment to all of the committee chairman and members who had attended innumerable meetings, written countless letters, and staged seven very successful symposia at seven annual AAPG conventions.

Upon the recommendations of a nominating committee, Loyd A. Carlson became the first president of the new division, Warren H. Westphal was named vice president, and Ruffin Rackley became secretary-treasurer.

Thus, on June 12, 1977, the Committee on Energy Minerals became the Energy Minerals Division. About

four months later, at the first EMD council meeting, held in Austin, Texas, it was reported that the new Division's list of founding members (those joining before July 1, 1977) totaled 757. A year later EMD had grown to 1,088 members.

In the first year of its existence, the Division voted: (1) to establish best-paper awards based on a rating system patterned after the Matson Award of AAPG; (2) to be primary sponsor of a uranium symposium on the Grants, N. M., area in May 1979, with co-sponsors The New Mexico Bureau of Mines and Mineral Resources and the Central New Mexico Section of A.I.M.E.; and (3) to give consideration to sponsorship of other special meetings. Annual dues were fixed at \$10.

The former AAPG Committee on Energy Minerals had co-sponsored, with sections of A.I.M.E., a symposium on "In Situ Leaching of Uranium," held at Vail in August 1976. Central to its purpose as a division, its successor, the Energy Minerals Division, co-sponsored the "1980 Rocky Mountain Coal Symposium" in Denver and, in the same year, the "Symposium on the Geology of Uranium and Volcaniclastic Rocks" in El Paso. In the years since achieving division status, multiple sessions have been the rule at annual AAPG conventions and technical papers are sponsored at section meetings.

At the annual AAPG Convention in 1978, Thomas C. Hiestand was named "Distinguished Founder." This honor was extended to Hollis M. Dole and John A. Pederson in 1979, and in 1980 to Donald W. Axford, Loyd A. Carlson, William R. Moran, Siegfried J. Muesig, Harry L. Thomsen, and Warren H. Westphal. The names of these nine founders were placed on a permanent plaque that hangs in AAPG Headquarters in Tulsa, and each of the individual recipients was presented with a personalized memento.

After two years of operation under the original bylaws, the Division's need for a more functional organization was recognized. Commodity councilors did not give entry into the various sections of AAPG because most of them lived in the west. A new set of bylaws was prepared, giving the title of councilor to representatives from each AAPG Section, Canada, and Circum-Pacific. It is the intention of the Division to sponsor or promote energy minerals activities at all section meetings and to reach out to nonmember geologists as well as affiliates of AAPG.

The Division continues to elect active and responsible members to office, and the future promises it an even more auspicious role in AAPG affairs.

TABLE 1. Energy Minerals Division Officers

Term	President	Vice President	Secretary-Treasurer
1977-78	Loyd A. Carlson	Warren H. Westphal	Ruffin I. Rackley
1978-79	Warren H. Westphal	Frederick R. Scheerer	Ruffin I. Rackley
1979-80	Frederick R. Scheerer	John A. Pederson	Robert L. Fuchs
1980-81	John A. Pederson	Samuel A. Friedman	Robert L. Fuchs
1981-82	Robert L. Fuchs	Ruffin I. Rackley	Norbert E. Cygan
1982-83	Ruffin I. Rackley	Charles W. Berge	Norbert E. Cygan
1983-84	Charles W. Berge	Norbert E. Cygan	Edward C. Beaumont
1984-85	Norbert E. Cygan	Philip C. Goodell	Edward C. Beaumont
1985-86	Philip C. Goodell	Donald K. Murray	O. Jay Gatten
1986-87	Donald K. Murray	Frank E. Kottlowski	O. Jay Gatten
1987-88	Frank E. Kottlowski	Jeremy B. Platt	Sandra C. Feldman
1988-89	Jeremy B. Platt	Donald F. Towse	Sandra C. Feldman
1989-90	Donald F. Towse	Samuel A. Friedman	Sandra C. Feldman
1990-91	Samuel A. Friedman	Douglas C. Peters	Sandra C. Feldman

TABLE 2. Committee on Mineral Economics Symposium – Chairmen

Term	Name
1969-72	Thomas C. Hiestand
1972-73	Siegfried J. Muessig

TABLE 3. Committee on Energy Minerals – Chairmen

Term	Name
1973-75	John A. Pederson
1975-77	Loyd A. Carlson

TABLE 4. Energy Minerals Division Membership (As of June 30)

Year	Membership
1978	995
1979	1,227
1980	1,418
1981	1,585
1982	1,736
1983	1,759
1984	1,979
1985	1,785
1986	1,601
1987	1,763
1988	1,834
1989	1,789
1990	1,740
1991	1,842

TABLE 5. Energy Minerals Division Finances (As of June 30)

Year	Income	Expenditures	Surplus (Loss)	Fund Balance
1978	\$ 10,257	\$ 4,067	\$ 6,190	\$ 6,190
1979	23,975	10,078	13,897	20,087
1980	35,042	35,042	(316)	19,638
1981	17,969	24,085	(6,116)	13,522
1982	18,521	22,103	(3,582)	9,939
1983	20,284	20,903	(619)	9,320
1984	20,760	19,464	1,296	10,616
1985	23,344	20,938	2,406	13,022
1986	18,572	17,247	1,298	14,318
1987	28,362	19,533	8,829	23,148
1988	26,970	23,096	3,874	27,022
1989	20,864	19,024	1,840	28,861
1990	27,734	29,745	(2,011)	26,850
1991	21,592	23,990	(2,398)	24,453

THE DIVISION OF PROFESSIONAL AFFAIRS

George R. Bole

"Between the Amateur and Professional...there is difference not only in degree but in kind..."

– *Bernard DeVoto*

"All history is modern history."

– *Wallace Stevens*

Introduction

The Division of Professional Affairs, as a division of the American Association of Petroleum Geologists, is comprised of petroleum geologists who have met the DPA/AAPG requirements for certification. Its Division officers and the Executive Committee are the president, vice president, secretary, and treasurer. An Advisory Board, consisting of members elected from each AAPG geographic section, aids the Executive Committee in guiding the Division. Also, a network of local geological society representatives act as a liaison between DPA members and the advisory Board and Officers.

Officers serving the Division from 1968 through 1992 are listed in Table 6.

Purposes Of The Division And Requirements For Certification

The purposes of DPA are many:

1. To increase and strengthen the professional status of petroleum geologists.
2. To require high standards of competence and ethics among practicing petroleum geologists.
3. To communicate the affairs of the Division and the profession to petroleum geologists.
4. To encourage each professional geologist to recognize the need to continue to improve themselves.
5. To communicate to the general public and to government agencies the Association's concern to protect the public by restricting the practice of petroleum geology to those known to be qualified, and believed to be competent and reliable.
6. To communicate to the general public and to governmental agencies pertinent information relative to legislative and administrative decisions affecting the regulation of petroleum resource exploration and development.
7. To encourage high professional standards for training of geology majors in university departments.
8. To maintain and administer certification requirements through a Board of Certification.

TABLE 6. Executive Committees – Division of Professional Affairs

Term	President	Vice-President	Secretary-Treasurer
1968-69	W. Dow Hamm*	Frank B. Conselman*	Willis G. Meyer
1969-70	George R. Gibson	John T. Rouse*	Ted L. Bear
1970-71	James O. Lewis, Jr.	John D. Sistrunk, Jr.	Bernold M. Hanson
1971-72	James O. Lewis, jr.	John D. Sistrunk, Jr.	Bernold M. Hanson
1972-73	Ray C. Lewis	George C. Grow, Jr.	Karl E. Becker
1973-74	Ray C. Lewis	George C. Grow, Jr.	Karl E. Becker
1974-75	Don E. Lawson	Karl E. Becker	Frank C. Crawford
1975-76	Don E. Lawson	Karl E. Becker	Frank C. Crawford
1976-77	Lee H. Meltzer	Frank L. Constant	Arthur L. Trowbridge
1977-78	Lee H. Meltzer	Frank L. Constant	Arthur L. Trowbridge
1978-79	Herbert G. Davis	Richard D. House	Donald R. Hembre
1979-80	Herbert G. Davis	Richard D. House	Donald R. Hembre
1980-81	Jerome J. C. Ingels	Charles A. Brinkley	George R. Bole
1981-82	Jerome J. C. Ingels	Charles A. Brinkley	George R. Bole
1982-83	Harry A. Miller, Jr.	Dougald H. Thamer	J. Miller Goodger
1983-84	Harry A. Miller, Jr.	Dougald H. Thamer	J. Miller Goodger

Term	President	Vice-Pres.	Pres.-Elect	Secretary	Treasurer
1984-85	D. H. Thamer	S. J. Lysinger	G. R. Bole	H. Ptasynski	J. T. Isberg
1985-86	G. R. Bole	W. R. Speer	S. J. Lysinger	J. F. Partridge	J. T. Isberg
1986-87	S. J. Lysinger	J. P. Rogers	J. P. Martin	J. F. Partridge	J. E. Burke
1987-88	J. P. Martin	R. D. Cowdery	H. L. Townes	O. C. Brown	J. E. Burke
1988-89	H. L. Townes	H. W. Hanke	P. J. F. Gratton	O. C. Brown	C. R. Rives
1989-90	P. J. F. Gratton	J. R. Wynne	J. P. Rogers	W. P. Buckthal	C. R. Rives
1990-91	J. P. Rogers	S. A. Sonneberg	R. D. Cowdery	W. P. Buckthal	G. L. J. Richards
1991-92	R. D. Cowdery	H. G. Collier, Jr.	C. R. Noll, Jr.	R. P. Carr	G. L. J. Richards

*Deceased

As a preliminary requirement for certification, a geologist must have five to eight years of broad-based experience in one or more of the following specialties: surface geology, subsurface geology, production geology, reservoir geology, evaluation geology, stratigraphic geology, paleontology, photogeology, or geophysical interpretation. Except for special circumstances, the individual must have a degree in geology, or a degree related to the geological sciences, from an accredited college or university.

Experience may have been gained in full or in part as an employee of an oil and gas producing company, as an independent geologist, or as a geologic consultant.

The experience acceptable for certification as a petroleum geologist should involve: (1) the direct application of the scientific principles of geology to exploration for oil and natural gas reservoirs; (2) the exploitation and production of oil and natural gas reservoirs; (3) the estimation of oil and natural gas reserves; (4) the conversion of known oil and natural gas reservoirs to storage reservoirs and exploration for new storage reservoirs; and (5) the establishment of rules and regulations for the conservation of oil and natural gas reservoirs. Finally, experience acceptable for certification should produce direct remuneration to the applicant for his services as a petroleum geologist.

Excerpts From The Past To The Present

The concept was formally instituted in 1965 at the AAPG annual convention in New Orleans, Louisiana when a set of professional standards was adopted as guidelines for certification of petroleum geologists as approved by the AAPG Executive Committee. One year later in St. Louis, Missouri, these guidelines were amended to clarify "gray area" issues regarding criteria used for certification such as experience gained by professors and researchers; sponsors from only one company; the definition of an adequate geological education; borderline issues regarding geophysicists, geological engineers and other geoscientists; and temporary non-petroleum geology employment interspersed with petroleum geology employment.

Over the next three years, the Division's membership grew to 1,047. In 1970, after processing the results of a questionnaire designed to gather input for directing the growth and functionality of the certification process, three items became evident from the membership's response. First, the Division should be concerned with a full range of professional interests in order to grant specialty certificates as desired. Second, the legislative responsibility for the Division should be vested with the Advisory Board rather than the direct membership itself. Third, members should financially support the publication of a photo directory.

For a while, things ran smoothly as the Division continued to grow in size and responsibility. However, in the early 1970s, argument about administrative responsibilities for the professional certification of geologists surfaced among special interest groups. Consequently, in 1973, with the DPA membership sitting at 1,477, a motion was made before the House of Delegates at the AAPG Annual Convention in Ana-

heim, California, to dissolve the Division and transfer the administration of its membership to the American Institute of Professional Geologists. The motion failed.

However, another first occurred at this convention: a technical session sponsored by DPA on "Registration: Past, Present, and Future." Encouraged by the House's favorable endorsement, the Division formed a Committee on Legislation. Its purpose was to monitor any activity in the various state legislatures on matters related to registering geologists. It consisted of 15 DPA members selected from a wide geographic distribution. Inside the year, the Committee on Legislation was functioning, and local meetings of DPA members were being held.

In 1977, membership had swelled to 1,662. The Committee on Legislation was now monitoring, on a state-by-state basis, legislation related to registering petroleum geologists. At the Annual Association Convention in Oklahoma City in 1978, the first photo directory of the Division's membership was issued. An election of Advisory Board members from the AAPG sections was completed. Consensus of DPA members at the annual meeting was that the Division should become more active in future regulatory and political matters as they pertained to the well-being of the professional geologist. Membership at this time had increased to 1,715.

In 1979, the Legislative Committee broadened its responsibilities by becoming more active in matters related to the Securities and Exchange Commission, to land use, to crude oil price decontrol, and to on-structure drilling statements. Also, three Division goals adopted as relating to the potential impact on the professional geologist were one, to become more visible; two, to become a working unit for the AAPG Executive Committee; and three, to serve the professional affairs of the petroleum geologist.

As part of an overall effort to attain these goals, the Division continued to sponsor technical sessions and open forum discussions that dealt with such diverse topics as registration, income tax laws, Securities and Exchange Commission regulations, and environmental concerns as they pertained to the roles and responsibilities of the petroleum geologist.

At the 1979 Annual AAPG Convention, the DPA went on record as desiring to continue to cooperate and communicate with other professional organizations like the American Institute of Professional Geologists (AIPG), the Society of Independent Professional Earth Scientists (SIPES), the American Association of Petroleum Landmen (AAPL), the Independent Petroleum Association of America (IPAA), and the American Petroleum Institute (API).

By 1980, with a membership of 1,793, the Division's bylaws had been revised and approved by the membership and the AAPG Executive Committee. The purpose of the revision was to make them consistent with the Association's constitution and bylaws. These revisions also granted authority to the DPA Executive Committee and established a chairman for the Advisory Board. As an ongoing effort to attain the goals established in 1979, the first position paper supporting

price decontrol and opposing the Windfall Profits Tax was sponsored by the Division.

Due to a noticeable decline in the membership growth of the Division over the last several years, three recommendations were submitted to and approved by the AAPG Executive Committee in 1981: (1) efforts to increase DPA membership should be continued; (2) activities in professional and industry affairs should be continued; and (3) requirements for membership and certification in another independent organization should be terminated immediately. These recommendations were acted upon in the following year.

With DPA's membership at 1,996, any formal agreements regarding certification of geologists with the AIPG were terminated in July of 1982. The House of Delegates passed a resolution that concurred with the termination of the agreement between the Division and AIPG, established AAPG as solely responsible for certification of its members, and assured AAPG's informal cooperation with other professional organizations through the Division.

Continuing to support the professional affairs of the petroleum geologist, "The Deregulation of Natural Gas," a position paper written by members of the Division's Legislative Committee, was released to governmental agencies and was published in the *Oil & Gas Journal* and the *AAPG Explorer* (1981). In 1983, to fulfill an obligation in support of professional ethical conduct, a paper on "Professionalism, Ethics and the Petroleum Geologist, Part I - Student Level Participation" was prepared and published.

By 1983, with a membership of 2,247, the Division's liaison representatives from each local society had been appointed. Their purpose was to serve as an information source on Division matters, to provide feedback from the local societies to the Division's Advisory Board, and to serve as the Division's Regional Meeting Coordinator when the local society is the host for any section meeting. New activities for DPA included sponsorship of luncheons at local section meetings.

Affairs continued well for the Division over the next year as its membership grew to 2,350. A motto was adopted: "Pride in Professionalism." New goals to enhance the stature of the petroleum geologist, and advance the professional well-being of the members were added to those established in 1979. A proposal was approved by the AAPG Executive that "...AAPG must recognize the need to monitor on a timely basis legislation and regulatory matters in Washington, D.C." The basis for this proposal was that 80% of lands available for exploration are owned by the federal government and that petroleum exploration provides a livelihood for the majority of Association members.

By 1985, AAPG representation was established in Washington, D.C., and the Division provided expert testimony for the House of Representatives Natural Resource and Mineral Committee. In a reciprocal manner, the D.C. liaison kept the Association apprised of pending legislation, hearings, and other trends that might have an impact on the profession's well being.

One year later, the Division had become large enough, with membership in excess of 2,700, to con-

duct a dual slate election of officers similar to that used by the AAPG. Also, in a continuing effort to promote DPA goals, definitions for geology, geologists, professional geologists, and guidelines for preparing reports and documents containing geologic information were approved by the AAPG Executive Committee and subsequently made available for incorporation into statutory legislation.

In 1987, membership crossed the 3,000 mark. The Division reconfirmed its responsibilities in the areas of legislative and governmental affairs. Regarding the latter, the administration of the AAPG's Committee on Governmental Affairs was transferred to the DPA. The Division continued to provide testimony and position papers on federal onshore leasing, and prepared position papers on the current energy crisis. It became the primary responsible operating group for initiating appropriate action on state and governmental issues related to the affairs of the Association and its petroleum geologists.

Governmental affairs activity in 1988 resulted in a subcommittee being formed to concentrate on recommendations that incentives be given to those companies engaged in exploration, development, and enhance oil recovery in the United States. A project was approved to develop an educational program that would alert Washington and the general public to the future consequences of low and erratic price structures for oil.

In 1989, membership stood at 3,284. A domestic oil resource study sponsored by the Division was endorsed by the AAPG Executive Committee and released. The Committee on Governmental Affairs prepared a report on the effects of federal tax policy on domestic exploration; another about concerns over the lack of geology students; and a third on exploration of the Offshore Continental Shelf. A Committee on Continuing Education was also established to evaluate non-AAPG courses for members and to work with the AAPG Education Department to assure strong programs for its members.

By 1990, membership had grown to 3,454. The Division developed a "fill-in-the-blank" model form professional agreement to address consulting arrangements, confidentiality terms, and override/working interest compensation. The Committee on Governmental Affairs, the Resource Committee, and the Tax Committee continued their efforts to maintain United States government contacts.

By April 1991, the Division's membership exceeded 3,500. Today, it is actively functioning thanks to its dedicated members and the support of its parent Association. The DPA has recently established forms of recognition for its members that include Distinguished Service and Honorary Membership. It continues to certify petroleum geologists, monitor governmental affairs, review and study oil and gas resource potential, and sponsor continuing education for all petroleum geologists. It will, in the future, continue to serve, support, facilitate, and care about the Association and the profession of petroleum geology.

Acknowledgment

This brief history is dedicated to those AAPG individuals who, nearly two score years ago, had the desire to change the following impression about the profession of geology: "...interest in this (certification) started back in southern Louisiana in the mid 1950s, but really came to the forefront in Illinois in 1957 when the boys up there were having a terrible time. Anyone who could even drive a car was hanging up a shingle calling themselves a geologist and these so-called geologists were being roundly criticized by

industry and the lay public..."¹ Since then, much has been done to change and improve those early impressions by people dedicated to serving the profession. Their vision has always been one of improvement and pride in professionalism.

The author gratefully acknowledges the use of AAPG files made available by Executive Director Fred Dix, the Headquarters staff, and past officers of the Division who wrote annual reports. Special thanks go to Jerome J. C. Ingels for additional documentation.

¹ John A. Taylor, personal communication.

SECTION II

The Association: Special Conferences, Projects, and Programs, 1965-1991

From its inception, the American Association of Petroleum Geologists has held as its primary mission the exchange of data and ideas – a goal promptly initiated with the publication of 13 papers in the first *AAPG Bulletin*, which was published in 1917. Since this modest beginning, the Association has vastly expanded its efforts both within the United States and internationally. In addition to the in-house journal, monograph, and map publications (the *AAPG Bulletin*, *Explorer*, and *Geobyte*, and the *Memoirs, Studies, and Methods* monograph series, etc.) the Association undertook numerous programs, conferences, and projects, all of which had as their purpose the collection and dissemination of scientific knowledge.

Presented here are accounts of some of the major enterprises that have materialized within the last 25 years under either AAPG's sole sponsorship or as a venture shared with other scientific organizations.

Chapter 5

AAPG Annual Conventions, 1965-1991

City	Year
New Orleans, Louisiana	1965
St. Louis, Missouri	1966
Los Angeles, California	1967
Oklahoma City, Oklahoma	1968
Dallas, Texas	1969
Calgary, Alberta	1970
Houston, Texas	1971
Denver, Colorado	1972
Anaheim, California	1973
San Antonio, Texas	1974
Dallas, Texas	1975
New Orleans, Louisiana	1976
Washington, D.C.	1977
Oklahoma City, Oklahoma	1978
Houston, Texas	1979
Denver, Colorado	1980
San Francisco, California	1981
Calgary, Alberta	1982
Dallas, Texas	1983
San Antonio, Texas	1984
New Orleans, Louisiana	1985
Atlanta, Georgia	1986
Los Angeles, California	1987
Houston, Texas	1988
San Antonio, Texas	1989
San Francisco, California	1990
Dallas, Texas	1991

Chapter 6

Special Meetings, 1965-1991

Special meetings – conferences sponsored by the AAPG in conjunction with other scientific organizations – have assumed a significant role in AAPG operations. Since the first special meeting, the Brighton Conference held jointly with the Institute of Petroleum (London) in Brighton, England in 1969, there have been an additional nine meetings or conferences held

in the United States and four in other countries. The Association's participation in conferences of this scope indicates its dedication to worldwide dissemination of scientific knowledge and its commitment to providing forums for the discussion of specific subjects.

Table 1 gives a chronological list of the special meetings held through 1991, and a report follows on each .

TABLE 1. American Association of Petroleum Geologists Special Meetings

Conference	Dates	Chairman	Location	Attendance
Brighton	Jun 29-Jul 2, 1969	Daniel C. Ion	Brighton (UK)	769*
Underground Waste Management I	Dec 6-9, 1971	W. C. Finch	Houston	622
Underground Waste Management II	Sep 26-29, 1973	Leslie Bowling	New Orleans	420
Circum-Pacific I	Aug 26-30, 1974	Michel T. Halbouty	Honolulu	1,240**
Pecora Conference	Oct 30-Nov 2, 1977	Michel T. Halbouty	Sioux Falls, SD	810***
Circum-Pacific II	Jul 30-Aug 4, 1978	Donald A. Henriksen	Honolulu	1,255.**
Grants Symposium	May 13-16, 1979	Frank E. Kottowski	Albuquerque	821
Circum-Pacific III	Aug 22-28, 1982	J. Erick Mack, Jr.	Honolulu	970**
Fossil Fuels of Europe	Jul 5-18, 1984	P. W. J. Wood	Geneva	742
Pratt Memorial Conference	Dec 2-5, 1984	Michel T. Halbouty	Phoenix	285
Circum-Pacific IV	Aug 17-22, 1986	Allen G. Hatley	Singapore	420
Mediterranean Basin Conference	Sep 25-28, 1988	James A. Helwig	Nice	1,099
Circum-Pacific V	July 29–Aug. 3, 1990	Timothy C. Laver	Honolulu	575
Giant Oil & Gas Fields, 1978–1988	Sep 9–12, 1990	Michel T. Halbouty	Stavanger	192
International Conference	Sep 29–Oct 2, 1991	John Martin	London	1,647

*Includes "guests"

**Includes students and spouses

***Includes students

THE BRIGHTON CONFERENCE¹

The Exploration for Petroleum in Europe and North Africa, June 29–July 2, 1969

While on a speaking tour as president of AAPG in the spring of 1967, Michel T. Halbouty discussed with Dan C. Ion of the Institute of Petroleum (London) the feasibility of a joint meeting in Europe. The meeting was intended as a means of presenting papers on the

subject of European and North African petroleum exploration, before a multinational audience. After a few months of discussion on both sides of the Atlantic, both organizations approved the idea for such a conference and booked hotel and meeting space in Brighton, Sussex, England.

Dan C. Ion, chairman of the British Organizing Committee, and Michel Halbouty, general chairman of its American counterpart, planned a two-and-a-half day

¹ The author is particularly grateful to Michel T. Halbouty and his Administrative Assistant, Mary Stewart, and to the late Ken Crandall for sharing their records and recollections of the Brighton Conference.

technical session. Seventeen papers were scheduled, with topics covering general exploration in Europe and North Africa, as well as specific field and basin sites in eastern and western Europe and the North Sea. Additionally, at the close of the technical session, the organizations offered six field trips: three on the Continent and three in England, Wales, and Scotland.

A number of problems confronted those responsible for staging the Brighton Conference. Any multinational conference poses such obstacles, but solutions are usually found and compromises worked out. For example, when political problems prevented presenting a paper on Poland, planners quickly provided a substitute topic for the time spot. All sessions were held in English because attendees were expected to be predominantly English-speaking scientists.

In all, 33 countries were represented by 540 delegates and 229 guests for a total of 769. Of these, 263 delegates and 152 guests, a total of 415 persons, or 54% of the registrants, were from the United States. Two iron curtain countries, Romania and Hungary, attended. Yugoslavia, which had emerged from behind the iron curtain some 11 years earlier, sent six delegates.

Planning the Brighton Conference encompassed several presidential terms. It was initiated in Michel T. Halbouty's term, approved in Ben Carsey's, and held at the close of Frank Conselman's and the beginning of Ken Crandall's. That the project survived the cross-Atlantic communication problems in the last few months of preparation is a tribute to British forbearance. In spite of financial difficulties, it did survive and was hailed a great success.

After investing \$3,106.31 in mailing and advertising costs, AAPG sent a request to London asking for reimbursement. They learned that the Institute of Petroleum had suffered a deficit of 424 pounds (\$1208.00 at \$2.85/pound) in the enterprise, so no funds were available from that source. However, income from the sale of proceedings from the meeting published by the Conference committee was applied toward reducing AAPG's debt.

During the conference, K. M. Horler of the Australian Petroleum Exploration Association and representatives of AAPG discussed the possibilities for a joint meeting with other organizations in the Pacific and East Indies. The end result was the first Circum-Pacific Conference in Honolulu five years later.

It is difficult to give credit to all who were involved in planning and executing the Brighton Conference, but those due special recognition include Daniel A. Busch, John A. Hazzard, John D. Moody, Hollis D. Hedberg, and Robert E. King.

UNDERGROUND WASTE MANAGEMENT I*

Underground Waste Management and Environmental Implications, December 6-9, 1971

In an effort to disseminate information to the public and industry on the subject of underground waste dis-

posal, the United States Geological Survey entered an agreement with AAPG to sponsor two or three symposia in the early 1970s. Government regulations prevented the USGS from convening such sessions, but it could contract with nonprofit organizations to handle the work involved. The initial contract with the AAPG was for two meetings with a \$55,000 grant to ensure the conferences would operate on a break-even basis.

The first of these meetings, held in 1971 in Houston, attracted registrants from 40 states, the District of Columbia, and eight foreign countries. Geologists comprised 19%, or 121 of the 622 persons attending. Twenty-five percent of the attendees were identified as managers and supervisors. About 93% of the 622 registrants were present at all times during the seminar, clearly indicating the delegates' serious concern over waste disposal.

Transactions of the conference, published as *AAPG Memoir 18* under a subsidy contract with the USGS, sold rather slowly at first. Fortunately, the supply on hand is considerably reduced.

This was a pioneer endeavor by the AAPG in a field somewhat removed from the traditional concerns of petroleum geologists. However, because waste management is a subject of paramount importance in operating oil fields, AAPG's participation was both justified and commendable. The success of the symposium can be attributed in part to the efforts of the then AAPG Research Committee Chairman Howard R. Gould and to the symposium general chairman, William C. Finch.

UNDERGROUND WASTE MANAGEMENT II

Underground Waste Management and Artificial Recharge, September 26-29, 1973

The second symposium concerning underground waste management was held in New Orleans in September, 1973, under the general chairmanship of the late Leslie Bowling. The program was larger than its 1971 predecessor in Houston, and had 46 speakers versus 35, but the attendance was smaller by 202 registrants.

A third sponsor, the International Association of Hydrological Sciences, joined AAPG and the USGS in this event. Their group of 90 registrants was the largest contingent among the 420 present. As in Houston, representatives from 40 states, the District of Columbia, and 15 foreign nations attended.

Preprints of many of the papers given were distributed as part of the registration packet, and Volume 2 of the transactions was mailed out some weeks later.

Both symposia, UWM I and II, operated within budget confines and, though the attendance was small compared with an AAPG annual convention, were considered very successful. However, the drop in attendance from the 1971 symposium discouraged the scheduling of any future meetings.

*Appreciation is expressed to William C. Finch and Howard Gould for their careful reading of the accounts of the two conferences on waste management, and for their helpful comments.

THE CIRCUM-PACIFIC ENERGY AND MINERAL RESOURCES CONFERENCES, 1974-1990*

Circum-Pacific Energy and Mineral Resources Conference I, August 26-30, 1974, Honolulu

In early 1972, at the invitation of Michel T. Halbouty, a group of geoscientists met in Menlo Park, California, to discuss the lack of geological information in the entire Pacific Basin. It was obvious that geological information on a large portion of this vast area was inadequately reported and that very little geological relationship existed between countries. Also, there were very few geological maps of the countries, especially bordering the western rim of the Pacific. Following several meetings of the group, the Circum-Pacific Council for Energy and Mineral Resources was established in October 1972, and Halbouty was named Chairman.

Halbouty appointed a steering committee to study the feasibility of holding a conference somewhere in the region and this committee recommended convening the conference in 1974 in Honolulu because of its geographic location to all countries bordering the Pacific Basin. The Council board approved the recommendation of the steering committee and the Council started contacting sponsors for the proposed conference. The meeting was named the Circum-Pacific Energy and Mineral Resources Conference and in order to get the first conference going in the right direction Michel T. Halbouty was named as General Chairman and John C. Maher was named Vice-Chairman.

Under the financial aegis of AAPG, the Conference had as co-sponsors the Committee for Coordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas and the Pacific Science Association. Although 44 other associations participated in the meeting by supplying information to their members, AAPG was the organization primarily responsible for supporting this Conference.

Circum-Pacific I convened in Honolulu on Monday, August 26, 1974. General sessions continued through Tuesday, with multiple sessions on Wednesday, Thursday, and Friday. Various authors presented a total of 125 papers during the five days, treating subjects related to geothermal exploration and development, petroleum exploration, mineral exploration, hydrogeology, and coal. The areas covered in these reports included most parts of the Pacific and its periphery – except the Peoples Republic of China, who declined invitations to participate because of the inclusion of Taiwan at the meeting (and at the 1978 Conference also).

Several field trips offered to delegates and guests were well attended.

The grand total of 1240 registrants at this first Circum-Pacific Conference included complimentary registrants, spouses, students, staff, and exhibitors. Of this total, 737 were full paying conference delegates. The

29 countries represented included five in Europe and almost all countries bordering the Pacific except those in Central America.

Papers presented at Circum-Pacific Energy and Mineral Resources Conference I were later published as *AAPG Memoir 25*. John C. Maher, Harold M. Lian, and Michel T. Halbouty were Special Editors of this 608-page monograph.

Circum-Pacific Energy and Mineral Resources Conference II, July 30-August 4, 1978, Honolulu

Following the First Circum-Pacific Conference, Council espoused three major projects: (1) expediting a massive Pacific area map project; (2) developing a geoscience training program for underdeveloped countries; and (3) continuing the Circum-Pacific Energy and Mineral Resources Conference on a four-year cycle.

In compliance with this master plan, the second Circum-Pacific Conference was set for mid-summer of 1978. Donald A. Hendriksen was named general chairman; Harold M. Lian, deputy general chairman; and John E. Kilkenny, technical program committee chairman. Profiting from experience gained during the first conference, those responsible for the second one approached the planning table with a wisdom that considerably eased the organizational processes.

Two more sponsors joined the three original sponsors of the first meeting: the American Mining Congress and the University of Hawaii. Cooperating societies increased from 44 in 1974 to 70 in 1978, but it must be stressed that AAPG assumed full financial responsibility for these Circum-Pacific Conferences.

This second conference, like the first, held general sessions on Monday and Tuesday, with multiple sessions on Wednesday, Thursday, and Friday. Appreciative audiences received 141 papers. Essentially, the meeting offered the same popular field trips as four years before, and again they were well attended by enthusiastic delegates and guests. The number of educational exhibits increased from six at the 1974 conference to 34 at the 1978 meeting.

Attendance at Circum-Pacific II practically duplicated its predecessor statistically. The total registration of 1255 included spouses, students, and complimentaries. There were 701 full paying delegates representing 36 countries, the United States, and one United States dependency. In both Circum-Pacific Conferences, United States delegates predominated in number, but Australia, Canada, Thailand, Japan, Indonesia, and the Philippines also sent large delegations.

Circum-Pacific Energy and Mineral Resources Conference III, August 22-28, 1982, Honolulu

Consistent with the format of the first two meetings, the third Circum-Pacific Energy and Mineral Resources Conference was also conducted in Honolulu. There were several sponsors, including AAPG. It should be

*Sincere gratitude is expressed to Michel T. Halbouty and his Administrative Assistant, Mary Stewart, for generously sharing their accumulated files on the five Circum-Pacific conferences, and to the AAPG Headquarters staff for supplying additional information on these events.

noted in passing, however, that the Conference governing body, the Circum-Pacific Council for Energy and Mineral Resources, had by then been awarded section status in AAPG. Co-sponsoring organizations of the 1982 Conference increased to six while cooperating associations and societies dropped to 32 from 70 in 1978.

Mr. J. Erick Mack of Union Oil Company in Los Angeles was general chairman, and his conference agenda followed the established schedule of five day sessions, two night lectures, and five field trips following the meeting.

Delegates from 28 states and the District of Columbia and 29 foreign countries were present at the 1982 Conference, which attracted registrants from as far away as Nigeria, Saudi Arabia, and Brazil.

The conference experienced its inevitable share of international political complications. The Peoples Republic of China for the first time sent a representation of seventeen members. No Taiwanese delegates were present. Papers were scheduled by four Russian scientists in attendance though the State Department refused permission for exhibiting a Russian scientific research ship in Honolulu Harbor. In contrast to the Japanese ship tour allowed at the 1974 Circum-Pacific Conference, the Russian ship remained anchored in open sea. It was rumored that convention registrants could visit the ship if they provided their own transportation and had a passport bearing a valid Russian visa.

Presentation of a Circum-Pacific Council Medal of Merit was initiated at this meeting. Recipients of the medal, awarded for distinguished and outstanding achievement, were Michel T. Halbouty, recognized for his efforts in the organization and direction of the Conference and the establishment of a permanent Council; and John A. Reinemund, cited for his dominant role as chairman of the highly successful Circum-Pacific Map Project.

Circum-Pacific Energy and Mineral Resources Conference IV, August 17–22, 1986, Singapore

After three Circum-Pacific Conferences had been held in Honolulu with varying success, it was decided that a change of locale was due, so the fourth meeting was held in Singapore.

Though Singapore is a fascinating place to visit, the logistics of having a meeting there were difficult and costs for delegates were generally higher than elsewhere; therefore, the Singapore meeting was not financially successful.

Under General Chairman Allen G. Hatley, and Technical Program Chairman Paul R. Ashton, the usual five-day technical program presented a varied group of scientific papers on drilling, marine frontiers, hydrocarbons, volcanology, geothermal energy, minerals, and research. Additionally, there were three data display sessions where 70 poster exhibits were presented, plus 136 scientific papers covering a great range of titles and locales.

Registration was disappointing – 611 total, with 420 paid delegates. Income of \$167,158.60, offset by ex-

penses of \$182,260.35, resulted in a loss of \$15,101.75. After settling accounts, the Circum-Pacific Council sent a check for \$5,000 to help cover the deficit.

Notwithstanding the low registration, there were 40 countries represented, some attending a Circum-Pacific Conference for the first time. Particularly interesting was the presence of delegates from Bangladesh, Burma, Finland, Hungary, Norway, Sweden, and Zaire. The greatest number of delegates was from the United States, but of note was the strong representation from Singapore, Australia, Indonesia, and the United Kingdom.

Circum-Pacific Energy and Mineral Resources Conference V, July 29–August 3, 1990, Honolulu, Hawaii, USA

Except for altering Circum-Pacific's affiliation with AAPG, the Fifth Circum-Pacific Conference proceeded under essentially the same format as had the previous four. In January 1990, the Circum-Pacific withdrew as a section of the Association. Nevertheless, AAPG's Convention Department, under contract, conducted the CPC meeting efficiently.

In announcing the decision to disaffiliate as a section, Circum-Pacific spokesman Michel T. Halbouty stated: "It has been evident during the past year that AAPG and CPC have divergent viewpoints on several matters of mutual interest."

The 1990 Circum-Pacific Conference presented more than 170 scientific papers and 67 poster presentations for the benefit of those attending. A total registration of 575 persons included 343 paid professionals. Of this latter number, 46% were AAPG members. Thirty-three states and the District of Columbia were represented, with the largest group being from California. International delegates totaled 125 from 33 countries; the largest groups (other than the USA) were from England, Australia, and Indonesia.

General Chairman Timothy C. Lauer performed admirably in presenting the technical program under a general title of "Circum-Pacific Region: Resources for an Expanding Economy." Four field trips were also offered for delegates, plus various social activities.

WILLIAM T. PECORA MEMORIAL SYMPOSIUM III*

"Application of Satellite Data to Petroleum and Mineral Exploration," October 30–November 2, 1977

In early 1975, Vincent E. McKelvey, Director of the United States Geological Survey, invited the AAPG to sponsor the third William T. Pecora Symposium on the application of remote sensing to petroleum and mineral exploration. These symposia, devised as a tribute to the late William T. Pecora, who had served as Director of the USGS for many years, promote exchanging information derived from using remote sensor data.

The Association and the USGS scheduled the meeting from October 30 to November 2, 1977, in Sioux Falls, South Dakota. Michel T. Halbouty accepted the

*The author thanks Michel T. Halbouty and Mary Stewart for information contributed to the preparation of this article.

general chairmanship in early 1977, and Jon W. Davidson agreed to be program chairman. These gentlemen organized a three-day technical session, including a day of "state-of-the-art" talks by staff members from the EROS Data Center in Sioux Falls and two days of papers presented by satellite data users.

The Earth Resources Observation Systems Data Center (EROS) uses digital and analog analysis to process pixel images received from the Landsat satellites into maps used for locating mineralized zones.

Attendance at Pecora III was most gratifying. A total of 810 registered for the symposium, and as a change in usual policy, all students were allowed complimentary registration and function tickets. Even with this change, the AAPG Convention Department realized a surplus of about \$14,000 in the operation, so the USGS offer of \$5,000 to defray costs went unclaimed.

The meeting place provided convenient access to the EROS Data Center, and daily tours proved a highlight. The tour offered participants the chance to view user services operations, application assistance and training facilities, high-volume photographic laboratories and equipment, and the central computing complex.

The concensus was that Pecora III offered valuable information to current and prospective Landsat data users.

SYMPOSIUM ON THE GRANTS URANIUM REGION*, MAY 13-16, 1979

As an initial venture into conducting a function separate from the usual convention umbrella, the AAPG Energy Minerals Division organized a Symposium on the Grants (New Mexico) Uranium Region. Held in Albuquerque in May 1979, its chief organizer and general chairman, Frank E. Kottlowski, was assisted by Christofer A. Rautman as technical program chairman and A. E. Saucier as field trip chairman.

The program for the first day was a field trip visiting the Poison Canyon and Jackpile mines in the Grants area. In the following two-and-a-half days, 47 industry and area oriented papers were presented in meeting rooms filled to capacity. These papers were later published as *Memoir 38* of the New Mexico Bureau of Mines and Mineral Resources, entitled "Geology and Mineral Technology of the Grants Uranium Region, 1979." This volume was compiled primarily by Cristofer A. Rautman, with considerable editorial assistance from the New Mexico Bureau staff and symposium participants.

A total registration of 821 at the Symposium exceeded expectations and resulted in a resounding financial success. The surplus of \$26,320.00 went into the treasury of AAPG, which had assumed financial responsibility. The AAPG Executive Committee later contributed \$10,000 of this surplus to the Energy Minerals Division.

Co-sponsors of the Symposium without financial responsibility were the Central New Mexico Section of

the American Institute of Mining, Metallurgical, and Petroleum Engineers and the New Mexico Bureau of Mines and Mineral Resources.

FOSSIL FUELS OF EUROPE, JULY 15-18, 1984, GENEVA, SWITZERLAND

AAPG's second adventure in European geological conference management was held in Geneva in July 1984. With the intention of establishing a system for such conferences in Europe, this gathering, though better organized and better attended than the Brighton Conference, also failed to break even. Nevertheless, it was generally considered to be very successful in establishing AAPG's presence as a conference and learning force in Europe.

P.W.J. Wood was general chairman. John Dewey, from Oxford University, was program chairman, and organized a program of 27 papers primarily by European speakers on worldwide subjects. Field trip chairmen were Marc Conrad and Michel Godel of Petroconsultants in Geneva. One hundred fifty-four delegates enrolled for 10 field trips, which included as much scenery as geology. Such is Switzerland!

A total conference registration of 1155 comprised 742 delegates, 29 students, and 384 spouses. The registration fee of \$350 might have been a deterrent to some Europeans. Total income from the meeting was \$303,639, for a loss of \$17,368, somewhat more than the Brighton deficit of \$4,314.

By far the largest group attending were the 465 delegates from the United States. Next highest was Great Britain with 104. Twenty-nine nations were represented, but of them only China was of communist inclination.

The thought of extending AAPG into European conference management continued, and the next such gathering was held four years later, in 1988, in Nice, France.

WALLACE E. PRATT MEMORIAL CONFERENCE ON FUTURE PETROLEUM PROVINCES OF THE WORLD, DECEMBER 2-5, 1984, PHOENIX, ARIZONA

In memory of Wallace E. Pratt, General Chairman Michel T. Halbouty and Technical Program Chairman Bill St. John presented a conference in 1984 with a distinct change in format. The program included 34 papers prepared by 56 authors on their perceptions of the future petroleum provinces of the world - those richly promising regions that could contain the oil and gas accumulations required for future global energy security. Thought-provoking papers were given on almost all parts of our earth that have produced petroleum, and many that have not.

The conference was essentially all work and little entertainment. Other than golf and an "icebreaker" on the first day and a steak fry on the third evening, there

*The author thanks Frank E. Kottlowski for his careful review of this article, and AAPG staff members Kathy Watson and Sondra Biggs for their assistance in documenting this event.

were no plans for spouse or delegate socializing. The rather high registration fee of \$1250 was dictated by the nature of the conference. Each delegate received a complimentary copy of the conference transactions later printed as AAPG Memoir 40. Any surplus remaining after all conference expenses were paid went to support construction of the Wallace E. Pratt Memorial Tower at AAPG's Tulsa headquarters. A total intake of \$320,876.20 less expenses of \$102,424.85 netted a contribution of \$218,451.85 to the Pratt Tower fund.

For such a limited meeting, attendance was remarkable, with 254 paid, 31 complimentary, and 81 spouses – a total of 366. Of the 285 paid and complimentary delegates, the United States had the largest representation, with 223 registrants. The remaining 62 came from 16 other countries. Of these, the United Kingdom ranked second to the United States with 16 delegates; Canada third with 13; and Norway fourth with 9.

MEDITERRANEAN BASIN CONFERENCE*, SEPTEMBER 25–28, 1988, NICE, FRANCE

AAPG's third venture into European geological conferences was definitely a winner. Joint sponsorship by the Institut Francais du Petrole and the Society of Economic Paleontologists and Mineralogists was a definite asset.

The percentage of attendees who were Americans was lower than at the Geneva conference, but that was expected since it was hoped that the European geological community would support such educational gatherings. Though registration totals were slightly less than at Geneva four years earlier, the Nice conference was a resounding financial success, with an income of \$578,043.36 and expenditures of \$493,872.23. The \$84,171.13 netted wiped out the deficits experienced at the Brighton and Geneva meetings.

General Chairman at Nice was James A. Helwig of Ridgefield, Connecticut. Dr. Helwig, along with Technical Program Coordinator Lucian Montadert from the Institut Francais du Petrole, and the Technical Program Committee composed of Robert J. Bourrouilh, Luigi Mattavelli, David G. Roberts, and Bernard P. Tissot, organized a program with sweeping coverage of petroleum basins and plays from Spain and Morocco eastward to Turkey. Papers on source rocks, sedimentology, and structure were of Mediterranean alignment.

The meeting resembled a miniature AAPG annual meeting, as it consisted of short courses all day Sunday, a Sunday evening "ice breaker," and sessions Monday morning through Wednesday afternoon. Ever-popular poster sessions were scheduled, with 27 exhibits on Monday, 25 on Tuesday, and 23 on Wednesday. General sessions of AAPG and SEPM papers totaled 161, and extended from Monday morning through Wednesday afternoon.

A delegate registration total of 1099, almost the same as the 1155 in Geneva, probably indicates what one

can expect for such meetings in Europe. Scientists attended from 47 countries, which was higher than that at Geneva by 18. Four communist countries sent delegates. In all, the Nice conference was a grand success.

GIANT OIL AND GAS FIELDS OF THE DECADE 1978–1988, STAVANGER, NORWAY, SEPTEMBER 9–12, 1990**

The Stavanger Conference, entitled "Giant Oil and Gas Fields of the Decade 1978-88," was organized in an effort to realize the new goal set by the AAPG to assume a more prominent international profile.

The organizers defined a giant oil and gas accumulation (field) in Asiatic Russia and the Middle East as one having at least 500 million barrels of oil or three trillion cubic feet of gas reserves. In other parts of the world, a field qualified as a giant with 100 million barrels of oil or one trillion cubic feet of gas. In the conference chairman's welcoming comments, printed in the program booklet, Michel T. Halbouty told those in attendance that there were some 182 giant fields that qualified for inclusion in the conference. He further added that the Stavanger Conference was "one of great importance to the global petroleum industry because giant oil and gas accumulations will provide the major portion of the world's further petroleum reserves."

In actuality, however, only a total of 51 fields were discussed in the 34 papers presented. Considering the partial coverage of the topic and the meager attendance, it would appear that the conference was a good idea; however, it did not quite meet its intent.

Under Chairman Halbouty's direction, the Stavanger Conference attracted 192 professionals from 20 countries. The largest representation was from Norway, with the United States second, and Great Britain third. On the bright side, the conference closed out "in the black" by a little over \$1,000, thanks to generous support from Statoil (the Norwegian State Oil Company) and Mobil.

OFFSHORE TECHNOLOGY CONFERENCES, 1969–1990***

Although the Offshore Technology Conference (OTC) was parented by the Society of Petroleum Engineers (SPE), a division of the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME), AAPG has continued to be a sponsor of these annual meetings since the first one held in 1969. For this reason an account of the endeavor is included here.

One of the most successful conferences on petroleum technology since World War II occurred in January 1968 when the Society of Petroleum Engineers proposed the Offshore Technology Conference. This conference derived its primary impetus from assessments of offshore activity in an article by Lewis G. Weeks in the June 20, 1967 issue of *Offshore* magazine. Weeks

* The report on Mediterranean Basin Conference in Nice is based on information in AAPG files provided to the author by Executive Secretary Merle Noel and the Headquarters staff.

** The author thanks Executive Secretary Merle Noel and Convention Manager Sondra Briggs for information supplied him relative to the Stavanger Conference.

*** The author thanks AAPG Convention Manager Sondra Biggs for her diligent research of Association files used in the preparation of this account.

pointed out that 20 countries were producing oil and gas from their continental shelves and other offshore areas, and that total areas considered favorable for petroleum production comprised some 6,170,000 square miles of the earth's surface. He also stated that favorable offshore areas contained a potential of 700 billion barrels of petroleum liquids.

The Society of Petroleum Engineers of AIME took the lead in a fast track organization of OTC, presenting a full meeting at Houston within a little more than a year, in 1969. The conference format included a three-day meeting in May each year featuring at least 60 high-quality papers presented by eight participating scientific organizations. Each organization was obligated to hold a half-day session of papers pertaining to its disciplines as they related to offshore activities. In addition to field trips and luncheons, the conference hosted technical and educational exhibits on all phases of offshore operation.

This first OTC was a great success, attracting 4200 registrants. One of the chief advantages to participating speakers was the opportunity to distribute their scientific papers as preprints, affording them immediate publication without the traditional delay associated with most conferences.

Based on a projected low attendance by AAPG members, a possible conflict with its own annual spring convention, and a question of copyright ownership of papers presented, AAPG's management first voiced reluctance in joining OTC. Once these problems were resolved, however, AAPG did become one of the initial sponsors and has enjoyed a rewarding relationship with SPE and OTC ever since.

When OTC was established in 1968 by the sponsor societies, its original calendar scheduled subsequent conferences to be held in New Orleans. As matters developed, the first OTC at the Albert Thomas Center in Houston so exceeded the organizers' expectations that it quickly became obvious neither Houston's nor New Orleans' downtown facilities were adequate. In 1970, the OTC Executive Committee decided to move the conference to the Astrodome complex in Houston, where it is currently scheduled through the year 2000.

From its very successful beginning in 1969, OTC showed a growth pattern uncharacteristic of most national and international conferences. The unanticipated attendance of 4200 at the first conference increased steadily through 1982, when a record 108,161 delegates registered. Due to reverses in the oil industry, registration in 1983 dropped by about one-half to 58,775, prompting the OTC Executive Committee to schedule a conference-only event without technical exhibitions in 1984. Attendance dropped that year to 2773. Encouraged by a stabilizing industry, technical exhibitors were invited back in 1985. Attendance returned to approximately that of 1983. Since that year, OTC registration averages from 25,000 to 27,000; a considerable figure for a conference and exhibit of its kind.

During the years 1969 through 1989, AAPG received a portion of the OTC surplus based on the number of AAPG members attending (except for the year 1984, when there was no exhibit income). Total revenue received by AAPG from OTC over the past 20 years amounts to \$840,453.15. Table 2 includes annual meeting statistics, showing the industry strength of OTC.

TABLE 2. OTC Facts and Figures

Year	Meeting Registration	Numbers of Papers Presented	Exhibit Space (Net Sq. Ft.)	Number of Exhibiting Companies*
1969	4,200	125	38,500	200
1970	11,600	145	50,000	269
1971	10,800	155	56,000	380
1972	15,500	175	93,500	540
1973	22,097	175	150,600	820
1974	32,636	182	201,700	1,200
1975	51,212	245	280,000	1,200
1976	61,784	250	375,000	1,500
1977	65,511	275	393,000	1,600
1978	79,850	284	438,000	1,800
1979	78,686	271	450,000	2,000
1980	86,965	229	483,000	2,200
1981	100,329	184	519,000	2,300
1982	108,161	244	631,000	2,500
1983	58,775	190	433,000	2,500
1984	2,773	177	(no exhibition)	
1985	56,438	230	431,000	1,725
1986	27,681	243	251,896	1,231
1987	25,628	238	175,000	1,050
1988	26,136	238	176,870	1,165
1989	26,450	260	185,000	1,200

*Contract companies.

NOTE: Authors, registrants, and exhibitors have represented more than 100 countries at the Offshore Technology Conference. The author expresses appreciation to AAPG member J. R. Jackson, and to Merle Noel, AAPG Executive Secretary for assistance in preparing this report, and especially to OTC Executive Manager Dan K. Adamson for his generosity making OTC records available for inclusion.

**AAPG INTERNATIONAL CONFERENCE
AND EXHIBITION, LONDON, ENGLAND,
SEPTEMBER 29–OCTOBER 2, 1991**

Robert J. Weimer, President, 1991-92

England, the birthplace of stratigraphy, was a fitting locale for the final event of the Association's Diamond Jubilee Celebration. More than 200 years ago, John Strachey and William Smith laid the foundations for stratigraphic geology in the Somerset area, 50 miles west of London. Their work in the coal fields during the industrial revolution staked the claim that the origin of stratigraphy had an industrial basis. The importance of their work spawned The Geological Society of London in 1807, to which a Royal charter was granted in 1825.

The American Association of Petroleum geologists' industrial origin was in the oil fields of Oklahoma in 1917. Since then, AAPG, with its Headquarters in Tulsa, has played an indispensable role in advancing the use of science and technology in exploration and development by the giant international petroleum industry.

London was thus a logical choice for this First AAPG International Conference and Exhibition, which was held in the Queen Elizabeth II Conference Center in Westminster. With the tremendous expansion of worldwide exploration, London has grown to be a leading center for international activities and will remain so in the future. The host society for the meeting was an AAPG Affiliated Society, the Petroleum Exploration Society of Great Britain; the co-sponsor was The Geological Society.

One of the main reasons for initiating annual international conferences is to serve international members by bringing AAPG's expertise and activities to locations more convenient than the annual meetings on the North American continent. This objective was fully achieved at London with a total registration of 1647; of which only 20% was from 21 states in the United States, and 80% was from 51 other countries.

The scientific, technical, and social programs at the London meeting covered the full spectrum of annual AAPG conventions. As general chairman, John Martin was the overseer of all events. David Jenkins, with a committee of 10 members, assembled an excellent technical program with emphasis on eastern Europe, the Soviet Union, and the Middle East.

Technology transfer and the products of the service industry were displayed in more than 100 exhibits. Poster sessions (46 posters), science theater (12 films), short courses, and field trips were diverse and well attended. A broad array of optional tours was available to registrants and guests.

The best oral presentation was awarded to Frank J. Picha of Chevron Overseas from San Ramon, California for his paper "Hydrocarbon Potential of the West Carpathian Thrust Belt and the Underlying European Platform, Czechoslovakia." Co-authors were Eduard Mencik, Pavel Muller, Michael Potoj, Zdenek Stranik, and Crestmire Tomek. The best poster award went to A. Ewan Campbell for the poster "Seismic Modeling of

a Drowned Platform: Early Jurassic, Morocco." His co-author was Jan Staffen. Both are with the Vrije Universiteit, Amsterdam, The Netherlands. The World Bank-sponsored Red Sea/Aden displays (13 posters) were "highly commended."

Several commemorative events highlighted the meeting. At the "icebreaker" reception Sunday evening, Schlumberger offered a champagne toast to the 75th Anniversary of AAPG. John Martin hosted a reception in Burlington House, at which Tony Harris, who is president of the oldest geological society in the world, presented a scroll to Robert Weimer, president of the Association. The scroll (reproduced at the end of this summary) recognized AAPG's contributions to petroleum geology in this, the petroleum age. AAPG responded by presenting to The Geological Society a delicately preserved Stingray fossil from the Eocene Green River Formation of western Wyoming. The inscription on an accompanying plaque is as follows:

Fossil Stingray

Presented to

The Geological Society

by

The American Association of
Petroleum Geologists

in recognition of the Society's contributions to
the founding and advancement
of the science of geology
and for its cosponsorship of AAPG's
First Annual International Conference
and Exhibition
September 29–October 2, 1991

London, England

Following the reception, a formal dinner, hosted by The Geological Society, was held in Burlington House for officers of both societies. The evening was truly a memorable occasion that strengthened the bonds of friendship in this new era of international cooperation in science and technology.

The AAPG President's Reception was held Tuesday night in the St. James Court, the Headquarters hotel. The reception, to honor and thank the tireless workers and supporters of AAPG, was attended by more than 100 people. John Martin and David Jenkins were presented with petrified wood *bookends* to recognize their crucial role in the success of the London meeting.

In recognition of the AAPG's Diamond Jubilee, the Geological Society's president, Tony Harris, presented a parchment with the following inscription:

"Presented to the American Association of Petroleum Geologists on the occasion of its Diamond Jubilee in recognition of its contribution to the study of Petroleum Geology in all its aspects with fraternal greetings and congratulations from the Geological Society of London."

Besides the commemorative events, a number of elements combined to make the conference an unusual meeting:

- The location of the convention center in the heart of London beneath the shadows of Westminster Abbey and Parliament Buildings, and within easy walking distance of Buckingham Palace and other historical sites;
- The underground system (the tube) that provided rapid transportation to the convention center for registrants staying at widely spread hotels;
- The diverse non-scheduled activities, ranging from theater and concerts to sightseeing either in London or nearby coastal areas;
- The changing world petroleum scene illustrated by

the opening of eastern Europe and the old Soviet Union to exploration and development, as reported by speakers and other registrants.

Focus on the Soviet Union was highlighted by a special paper by M. Churkin, Jr. on "Perestroika, Soviet Oil and Joint Ventures," and informal comments at the House of Delegates Luncheon by M. K. Kalinko, first president of the newly formed All-Union Association of Petroleum Geologists, Moscow.

London, structured to recognize AAPG's Diamond Jubilee, was an exceptional one that points to "The Way Ahead – Hydrocarbons for the 1990s," the title of the next international conference scheduled for Australia in August 1992.

Special Projects, 1965-1991

In the past 25 years, the Association has emerged as a major collaborator in the publication of highly technical geological information. Prepared, in part by AAPG members who have distinguished themselves in a field related to the research, and often partially funded by the Association, these projects constitute yet another example of AAPG's invaluable role in advancing scientific knowledge.

CORRELATION OF STRATIGRAPHIC UNITS OF NORTH AMERICA (COSUNA)*

Orlo E. Childs

History of the Project

For several years prior to 1976, discussions concerning the need for updated correlation charts of the United States and neighboring countries took place in the Research Committee of the American Association of Petroleum Geologists (AAPG). The last complete lexicon published by the United States Geological Survey was in 1938 by Wilmarth, and during subsequent years individual bulletins recorded additions to the lexicon of geological names. The United States Geological Survey had apparently decided not to attempt an entirely new lexicon, but rather update and change the existing listings on a state-by-state basis, placing all new revisions in retrievable computer storage.

Still recognizing the basic value of the existing GSA correlation charts, the AAPG goal was updating the charts and adding the large amount of subsurface information accumulated over the past 20 years. One of the limitations generally recognized in existing charts is the fact that the emphasis upon individual geologic systems has dictated the format. The principal rock outcrops of the systems became the sites to be represented on the GSA charts, making it essentially impossible to assemble total geologic columns in any given region using the charts. For example, the selected locations of Jurassic and Permian rocks were not the same. In striving for greater utility, a new format was necessary.

Stemming from the discussions within the AAPG Research Committee, the interest of other geologic societies was solicited. A group of scientists representing those societies gathered under the chairmanship of Grant Steele, chairman of both the Research Commit-

tee and the Stratigraphic Correlation Committee for the AAPG. These representatives, forming the Steering Committee for the COSUNA project, included Grant Steele, chairman, Gulf Oil and Mineral Co., representing AAPG; Frank Kottlowski, New Mexico Bureau of Mines, representing the Association of American State Geologists; Joseph E. Hazel, Branch of Paleontology and Stratigraphy, representing the United States Geological Survey; F. X. Miller, Amoco Production Co., representing the American Association of Stratigraphic Palynologists; Norman F. Sohl, U.S. Geological Survey, representing the North American Commission on Stratigraphic Nomenclature; William W. Hay, University of Miami, representing the JOIDES Planning Committee; Robert Jordan, Delaware Geological Survey, representing the GSA; and Thomas Charles Buschback, Illinois Geological Society, representing the Society of Economic Paleontologists and Mineralogists (SEPM).

A proposal for supporting the AAPG project was made to the United States Geological Survey, and a formal research contract was granted in March 1977.

Fortuitously, three important publications were available at the beginning of the project. They were:

1. After many years of work, the AAPG Committee on Statistics of Drilling (CSD) published a code map of geologic provinces in the conterminous United States, under the editorship of Richard F. Meyer (1968, revised 1974). This map showed the outlines of geologic provinces following county lines throughout the United States. A subsequent map of Alaska (AAPG Committee on Statistics of Drilling and United States Geological Survey, 1978), where there are no counties, showed provinces following township grids. Because the provinces are named and coded by number, these maps became a useful base for accumulating and storing drilling information, seismic information, land ownership, and many other items pertinent to geologic data. The AAPG-CSD map provided a very useful base for COSUNA work. From the beginning, there had been plans for storing stratigraphic information in a carefully coded computer access program. This map became the basic planning code for constructing the correlation charts of COSUNA.
2. The International Subcommittee on Stratigraphic Classification of the IUGS (International Union of

* This article on COSUNA is an abridgement of an earlier paper by Orlo Childs which appeared in the *AAPG Bulletin* Vol. 69, No. 2, February 1985. Appreciation is expressed to Dr. Childs for permission to reprint it in part and to Grant Steele, Amos Salvador, and Dr. Thomas C. Buschback for information on the creation of the Energy Minerals Division initially supplied to Historian Edd R. Turner.

Geological Sciences) Commission on Stratigraphy published a book entitled *International Stratigraphic Guide*, edited by Hollis D. Hedberg (1976). This modern, useful reference book provides a guide to stratigraphic classification and terminology. It is up-to-date and covers many items that did not appear in the Code of Stratigraphic Nomenclature (American Commission on Stratigraphic Nomenclature, 1970). It formed a useful reference document for all the COSUNA workers. Subsequently, a revised North American Stratigraphic Code (North American Commission on Stratigraphic Nomenclature, 1983) was published during the last year of the project. Unfortunately too late for inclusion, some details concerning the complex aspects of the modern code, particularly in Pleistocene rocks, would have been quite useful to project workers.

3. After eight years of preparation, the Geological Survey of Canada published the *Economic Geology Series 1*, fifth edition (Douglas, 1967). This publication was in three parts; part C presented four geotectonic correlation charts covering all of Canada. These charts represented a new approach to displaying correlation. The entire geologic column from the Precambrian through the Pleistocene showed selected geographic sites throughout Canada. The formations of the geologic column were colored to depict dominant lithologic character, while numbers showed the thickness of the stratigraphic units. Time lines extended across the charts from chronostratigraphic charts along the lateral margins. Hence, the correlation of the exhibited units was clearly displayed. This manner of correlation presentation is in strong contrast to earlier correlation charts drawn on the format of individual geological systems. From the beginning of the COSUNA project, this new format was most appealing, and the Canadian charts became working models.

In addition, the United States Geological Survey, Division of Geologic Nomenclature, made and distributed state-by-state computer-printed runs. These lists showed the revisions of lexicon information in the data bank. Preliminary lists and revisions of the approved lithologic units names were sent to COSUNA workers. Thus, COSUNA had available the worksheets of the long-term project of the United States Geological Survey. The finished work was published as *Geologic Names of the United States through 1975* by Roger W. Swanson et al. (1981). Distributing background materials widely throughout the COSUNA project achieved a commonality of approach.

The first three COSUNA correlation charts were printed and available from AAPG in October 1983 (AAPG, 1983 a,b,c). Three more were added in 1984 (AAPG, 1984 a,b,c), and others will be added to the set as final drafting and printing allow.

COSUNA – Correlation of Stratigraphic Units of North America Project

Northern Rockies/Williston Basin Region (NRW)

Coordinators William Ballard, John Bluemie, and Lee

Gerhard (1983) organized the regional working group to correlate parts of Idaho, Montana, North Dakota, and South Dakota. The COSUNA region includes CSD districts 395 (Williston Basin), 500 (Sweetgrass Arch), 505 (Montana Folded Belt Province), 510 (Central Montana Uplift), and 610 (Idaho Mountains Province). Size: 41 x 48 inches. Single sheet.

Southwest/Southwest Mid-Continent Region (SSMC)

Coordinators John Hills and Frank Kottowski (1983) and the regional working group correlated parts of southern Arizona, southern New Mexico, western Texas, southwestern Kansas, southeastern Colorado, and western Oklahoma. The COSUNA region includes CSD districts 360 (Anadarko Basin), 430 (Permian Basin), 435 (Palo Duro Basin), 440 (Amarillo Arch), 450 (Las Animas Arch), 465 (Orogrande Basin), 470 (Perdogosa Basin), and 475 (Basin and Range). Size: 40x56 inches. Single Sheet.

Atlantic Coastal Plain (AC)

Coordinators Robert Jordan and Richard Smith (1983) and the regional working group correlated parts of southern New Jersey, Delaware, eastern Maryland, eastern Virginia, eastern North Carolina, and eastern South Carolina. The COSUNA region includes CSD district 120 (Atlantic Coastal Basin). Size: 37 x 43 inches. Single sheet.

Northern California Region (NCA)

Coordinators Charles C. Bishop and James F. Davis (1984) and a regional working group correlated northern parts of California contained in CSD districts 720 (Eel River Basin), 715 (Klamath Mountains Province), 730 (Sacramento Basin), and 650 (Sierra Nevada Province). Size: 42 x 48 inches. Single sheet.

Central California Region (CCA)

Coordinators Charles C. Bishop and James F. Davis (1984) and a regional working group correlated central parts of California contained in CSD districts 735 (Santa Cruz Basin), 725 (Northern Coast Range Province), 740 (Coastal Basins), and 745 (San Joaquin Basin). Size: 42 x 48 inches. Single sheet.

Southern California Region (SCA)

Coordinators Charles C. Bishop and James F. Davis and a regional working group correlated southern parts of California contained in CSD districts 750 (Santa Maria Basin), 755 (Ventura Basin), 760 (Los Angeles Basin), 640 (Mojave Basin), 645 (Salton Basin), 765 (Capistrano Basin), and 857 (Offshore). Size: 42 x 50 inches. Single sheet.

Northern Mid-Continent Region (NMC)

Coordinators D. J. Bergstrom and G. B. Morey (1985) and a regional working group correlated parts of southern and eastern South Dakota, Minnesota, Wisconsin, and westernmost Michigan. The COSUNA region includes CSD districts 310 (Wisconsin Arch), 320 (Sioux Uplift), and 325 (Iowa Shelf). Size: 41 x 40 inches. Single sheet.

Southern Appalachian Region (SAP)

Coordinators Douglas G. Patchen, Katharine Lee Avary, and Robert B. Erwin (1985) and a regional

working group correlated parts of northeastern Alabama, northwest Georgia, eastern Tennessee, eastern Kentucky, southern Ohio, and southwestern Virginia. The COSUNA region includes CSD district 160 (Appalachian Basin). Size: 41 x 51 inches. Single sheet.

Northern Appalachian Region (NAP)

Coordinators Douglas G. Patchen, Katharine Lee Avary, and Robert B. Erwin (1985) and a regional working group correlated parts of eastern Virginia, West Virginia, western Maryland, eastern Ohio, Pennsylvania, New York, and westernmost New Jersey. The COSUNA region includes CSD district 160 (Appalachian Basin). Size: 41 x 51 inches. Single sheet.

Midwestern Basin and Arches Region (MBA)

Coordinator Robert H. Shaver and a regional working group correlated parts of easternmost Wisconsin, Illinois, Michigan, Indiana, western Ohio, eastern Kentucky, central Tennessee, and northernmost Alabama. The COSUNA region includes CSD districts 300 (Cincinnati Arch), 305 (Michigan Basin), 310 (Wisconsin Arch), and 315 (Illinois Basin). Size: 41 x 50 inches. Single sheet.

Great Basin Region (GB)

Coordinator Lehi F. Hintze (1985) organized and prepared this correlation of parts of Nevada, western Utah, southern Idaho, and a small portion of extreme eastern California. The COSUNA region includes CSD districts 570 (Uinta Uplift), 615 (Snake River Basin), 620 (Southern Oregon Basin), 625 (Great Basin Province), and 630 (Wasatch Uplift). Size: 41 x 49 inches. Single sheet.

New England Region (NE)

Coordinator James W. Skehan, S. J. (1985) and the regional working group correlated stratigraphic columns through the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and eastern New York. The COSUNA region includes CSD districts 100 (New England) and 110 (Adirondack Uplift). Size: 41 x 49 inches. Single sheet.

Mid-Continent (MC)

Coordinator Frank J. Adler (1987) and a regional working group correlated the Mid-Continent region including Missouri, central and eastern Kansas, Nebraska, Iowa, extreme southern Minnesota, and southwest corner of South Dakota. The COSUNA region includes CSD districts 325 (*Iowa Shelf*), 330 (*Lincoln Anticline*), 335 (*Forest City Basin*), 340 (*Ozark Uplift*), 365 (*Cherokee Basin*), 370 (*Nemaha Anticline*), 375 (*Sedgwick Basin*), 380 (*Salina Basin*), 385 (*Central Kansas Uplift*), and 390 (*Chadron Arch*). Size: 42 x 52 inches. Single sheet.

Texas-Oklahoma Tectonic Belt (TOT)

Coordinator Charles J. Mankin (1987) and a regional working group correlated parts of Texas, Oklahoma, Arkansas, Mississippi, Alabama, Missouri, and Tennessee in compiling this chart. The COSUNA region includes CSD districts 200 (*Warrior Basin*), 240 (*Desha Basin*), 250 (*Upper Mississippi Embayment*), 345 (*Arkoma Basin*), 350 (*S. Oklahoma Folded Belt Province*), 355 (*Chataqua Platform*), 400 (*Ouachita Tectonic Belt*

Province), 405 (*Kerr Basin*), 410 (*Llano Uplift*), 415 (*Strawn basin*), 420 (*Fort Worth Syncline*), and 425 (*Bend Arch*). Size: 42 x 41 inches. Single sheet.

Northern Alaska (NAL)

Coordinators Ross G. Schaff and Wyatt G. Gilbert (1987) and a regional working group correlated the northern part of Alaska. The COSUNA region includes CSD districts 830 (*Yukon Porcupine Province*), 840 (*Brooks Range Province*), 885 (*Southern Foothills Province*), 886 (*Northern Foothills Province*), and 890 (*Arctic Coastal Plains Province*). Size: 41 x 55 inches. Single sheet.

Southern Alaska (SAL)

Coordinators Ross G. Schaff and Wyatt G. Gilbert (1987) and a regional working group also correlated the southern part of Alaska. The COSUNA region includes CSD districts 800 (*Southeastern Alaska Provinces*), 810 (*Gulf of Alaska Basin*), 815 (*Copper River Basin*), 820 (*Cook Inlet Basin*), 825 (*Alaska Peninsula Province*), 840 (*Yukon-Koyukuck Province*), 845 (*Bristol Bay Basin*), 880 (*Interior Lowlands Basin*), 973 (*Norton State*), 974 (*Norton Federal*), 975 (*St. Matthew State*), 976 (*St. Matthew Hall*), 978 (*Zemchug-St. George State*), 979 (*Zemchug-St. George Federal*), 981 (*Bristol Bay Federal*), 982 (*Shumagin Shelf State*), 983 (*Shumagin Shelf Federal*), 984 (*Kodiak State*), 985 (*Kodiak Federal*), 986 (*Eastern Gulf of Alaska State*), and 987 (*Eastern Gulf of Alaska Federal*). Size: 42 x 60 inches. Single sheet.

Piedmont/Blue Ridge (PBR)

Coordinator Michael Higgins (1987) and a regional working group correlated a region stretching from easternmost Alabama through Georgia, South Carolina, North Carolina, Virginia, Maryland, and Pennsylvania. This COSUNA region covers CSD district 150 (*Piedmont Blue Ridge Province*). Size: 42 x 41 inches. Single sheet.

Central/Southern Rockies (CSR)

Coordinators Harry Kent, Elton Couch, and Rex Knepp (1988) and regional working group correlated a region stretching from northern Arizona and New Mexico through Colorado, eastern Utah, and Wyoming. This COSUNA region covers CSD districts 445 (*Sierra Grande Uplift*), 455 (*Las Vegas/Raton Basin*), 460 (*Estancia Basin*), 515 (*Powder River Basin*), 520 (*Big Horn Basin*), 525 (*Yellowstone Province*), 530 (*Wind River Basin*), 535 (*Green River Basin*), 540 (*Denver Basin*), 545 (*North Park Basin*), 550 (*South Park Basin*), 560 (*San Luis Basin*), 565 (*San Juan Mtn. Province*), 575 (*Uinta Basin*), 580 (*San Juan Basin*), 585 (*Paradox Basin*), 590 (*Black Mesa Basin*), 595 (*Piceance Basin*), and 635 (*Plateau Sedimentary Province*). Size: 41 x 55 inches. Single sheet.

Northwestern Region (NW)

Coordinators Donald Hull, John Armentrout, Lehi Hintze, John Beaulieu, and Weldon Rau (1988) and a regional working group correlated the states of Oregon and Washington. This COSUNA region covers CSD districts 600 (*No. Cascade Range/Okanagan Province*), 605 (*Eastern Columbia Basin*), 615 (*Snake River Basin*), 620 (*Southern Oregon Basin*), 700 (*Bellingham Basin*),

705 (Puget Sound Province), 710 (Western Columbia Basin), 715 (Klamath Mountains Province). Size: 41 x 55 inches. Single sheet.

Gulf Coast Region (GC)

Coordinators Jules Braunstien, Paul Heddlestun, and Ralph Biel (1988) and a regional working group correlated Louisiana, Florida, the southern and eastern parts of Texas, and southern Mississippi, Alabama, and Georgia. This COSUNA region covers CSD districts 130 (South Georgia/North Florida Sedimentary Province), 140 (South Florida Province), 210 (Mid-Gulf Coast Basin), 220 (Gulf Coast Basin), 230 (Arkla Basin), and 260 (East Texas Basin). Size: 41 x 58 inches. Single sheet.

COSUNA Committee Report (Text) (1984)

Two short explanations written by Orlo E. Childs and Amos Salvador are reprinted from the February 1985 *AAPG Bulletin*. Discussed is the history of the COSUNA project, its objectives, chart formatting, chronostratigraphic and geochronometric scales, and chart coverage.

Price: one price, \$1. Catalog: 419.

Acknowledgments

Basic to the success of COSUNA activities has been the annual financial support from the United States Geological Survey over 6 1/2 years. From the beginning, coordinators (Table 1) have sought contributors from various geologic disciplines. With over 450 volunteer contributors, it is appropriate to acknowledge

and appreciate this extensive involvement. Unfortunately, it is not possible to list all those who participated in constructing the COSUNA correlation charts. The contribution of COSUNA to the science of geology is attributable to the dedicated work of the coordinators. All well-known geologic provinces were grouped into operating regions and the coordinators enlisted the aid of other local experts acquainted with the stratigraphy of each province within the region. Volunteer workers who contributed invaluable data included university professors, geologists from state geological surveys, geologists from major and small independent oil companies, and scientists from the United States Geological Survey. Eleven of the coordinators are state geologists or directors of state geological surveys. In fact, over half of the activity was coordinated by state geological survey individuals.

Graduate student research assistants have made important contributions by preparing charts and data sheets for each lithologic unit. Coordinators have received valuable assistance from 40 graduate students over the six-year period of the project. Many have been supported by universities and state geological surveys. The AAPG Foundation, through the Michel T. Halbouty Fund, has supported graduate students as assistants to the coordinators.

From industrial sources, a fund was established to meet unexpected costs. Of particular importance was the 1982 grant from Exxon Corporation to help meet the additional needs for computer data entry. The

TABLE 1. COSUNA Coordinators

Name and Affiliation	Regional Responsibility
Frank J. Adler, <i>Phillips Petroleum Company</i>	Central Mid-Continent
William W. Ballard, <i>Belcron Oil Company</i>	Northern Rocky Mountains
Charles Bishop and James F. Davis, <i>California Division of Mines and Geology</i>	California
Jules Braunstein, <i>University of New Orleans</i>	Gulf Coast
Elton Couch and Rex A. Knepp, <i>Gulf Oil Company</i>	Central Rocky Mountains
Lee C. Gerhard and John P. Blumle, <i>North Dakota Geological Survey</i>	Williston Basin
Wyatt G. Gilbert and Ross B. Schaff, <i>Alaska Division of Geology and Geophysical Survey</i>	Alaska
Michael Higgins, <i>U.S. Geological Survey</i>	Piedmont-Blue Ridge
John Hills, <i>University of Texas-El Paso</i>	Southwest Mid-Continent
Lehi F. Hintze, <i>Brigham Young University</i>	Great Basin-Columbia Plateau
Donald A. Hull, <i>Oregon Dept. of Geology and Mineral Industries</i>	Northwest
John M. Armentrout, <i>Mobil Oil Company</i>	Atlantic Coast
Robert J. Jordan and Richard V. Smith, <i>Delaware Geological Survey</i>	Southern Rocky Mountains and Colorado Plateau
Harry C. Kent, <i>Colorado School of Mines</i>	Southern Basin and Range
Frank E. Kottlowski, <i>New Mexico Bureau of Mines</i>	Texas-Oklahoma Tectonic
Charles J. Mankin, <i>Oklahoma Geological Survey</i>	South Georgia-Florida
William McLemore and Paul Huddleston, <i>Georgia Geologic and Water Resource Division, Department of Natural Resources</i>	Appalachians
Douglas G. Patchen, Katherine L. Avery, and Robert B. Erwin, <i>West Virginia Geologic and Economic Survey</i>	Midwestern Basin and Arch
Robert H. Shaver, <i>Indiana Geological Survey</i>	New England
James W. Skehan, <i>S. J. Weston Observatory, Boston College</i>	Northern Mid-Continent
Matt Walton and Douglas Bergstrom, <i>Minnesota Geological Survey</i>	

financial need surpassed the expectations proposed in the original project plans. A major commitment to COSUNA has been made by Gulf Oil Company in assuming the cost and work of drafting printer-ready copy of the charts. The cost of equipment, materials, and professional time surpasses the dollar contribution to the project from any other source. This has insured a minimum price for the published charts.

Throughout the planning and project work, Grant Steele (Gulf Oil), Amos Salvador (formerly with Exxon, now professor at University of Texas at Austin), and Orlo E. Childs (University of Arizona) have worked together with responsibilities for related aspects of the project, and are listed as project directors on each chart. F. Alan Lindberg (Gulf Oil) has been deeply involved in the project through the final three years of the work. As map editor, he was responsible for Geological Survey map editor, served as an advisor throughout the entire project, giving valuable guidance for chart layout and printing.

The AAPG headquarters staff has been responsible for selecting the printer and marketing the finished charts through the AAPG Bookstore.

In addition to chart construction, a data sheet has been prepared for each of the lithologic units displayed. The total includes approximately 18,000 entries. These data have been coded and entered in to a computer retrieval program (COSU) of the Information System of the Energy Resources Center, University of Oklahoma. The University of Oklahoma has generously contributed part of the cost of data input, and this cooperative attitude has greatly aided the project workers during the long process of data sheet preparation and storage.

TECTONIC MAP OF NORTH AMERICA

Edward McFarlan, Jr.

Houston, Texas

Recent advances in structural geology are highlighted by plate tectonics, intensive petroleum exploration of the continental margins, revealing surveys of oceanographic institutions, and by deep onshore seismic penetrations with new structural interpretations of the COCORP program. These advances call for a completely new Tectonic Map of North America to replace the old 1969 "monument to science" by the United States Geological Survey and Philip B. King.

Project Initiation

To this end, on October 24, 1979, the Research Activities Subcommittee (E. McFarlan, Jr., chairman) met in Houston to consider initiating or sponsoring a special non-proprietary investigation of high interest to geoscientists. Such deliberations were in keeping with one of the important charges assigned to the Committee on Research. Accordingly, Messrs. J. R. Castano, J. C. Davis, M. Downey, M. T. Halbouty, E. McFarlan, Jr., and D. A. White, in the Board Room of the Whitehall Hotel, agreed that the 1969 Tectonic Map of North America prepared by the United States Geological Survey and compiled by Philip B. King needed major

revision. The new tectonic map would portray the wealth of new data obtained by industry, government, and academic geologists in a plate tectonic framework. McFarlan agreed to make a feasibility survey and report back to the subcommittee early in 1980.

The feasibility survey proceeded with telephone calls and follow-up letters to the organizations that should support the proposed project if it were to be successful. Dallas Peck, Director of the United States Geological Survey, reacted favorably to our proposal, recognizing the need for a new map and pledging support. According to Digby J. McLaren, Director of the Geologic Survey of Canada, they had recently initiated a tectonic map project of their own and were pleased to coordinate with the proposed AAPG project. L. L. Sloss, President of GSA, and Leon Silver, Coordinator of GSA's Decade of North American Geology program, agreed to withdraw their own plans for a tectonic map and support AAPG's proposal. John A. Maxwell pledged the support of the United States Geodynamics program. Exploration managers in 11 oil companies recognized the need for a new map and supported the proposal.

Selecting the Project Director

A survey of leading structural geologists across the nation were in unanimous agreement that William R. Muehlberger, who now holds the Peter T. Flawn Centennial Chair in Geological Science in the Department of Geological Sciences at the University of Texas at Austin, was the best scientist for the position of project director. After receiving his Ph.D. in structural geology from California Institute of Technology in 1954, he joined the Department of Geological Sciences at the University of Texas to teach and carry on research in structural geology, and supervise graduate students. His work along these lines led to investigations in New Mexico, Central America, and Turkey. He served as co-compiler of the "Basement Rock Map of the United States" published by the United States Geological Survey, and as principal investigator of the Field Geology Team for NASA's Apollo 16 and 17 Missions. His group designed the astronaut traverses, their geological training, and real-time advising during the Moon landing operation. These and other accomplishments were excellent credentials for the position of project director for our proposed project.

The United States Geological Survey, the Geological Survey of Canada, the Geological Society of America, and oil company exploration managers all joined in approving and supporting the Muehlberger appointment.

The Proposal

Enthusiastic response from all sources in the feasibility survey led to drafting a six-page proposal to present to the AAPG Committee on Research and, if approved, to the AAPG Executive Committee. The proposal summarized the objectives and magnitude of the project. Muehlberger and others prepared a brief paper on project organization, time schedule, and a preliminary seven-year budget. Based on supportive remarks from many, they included some encouraging words on funding.

Circulating this proposal to the members of the Subcommittee on Research Activities and the Committee on Research produced a great deal of support and encouragement to present the proposal to the Executive Committee at the first opportunity.

Approval by AAPG Executive Committee

Accordingly, C. H. Bruce, Chairman of the Committee on Research, arranged with F. A. Dix, Jr., AAPG Executive Director, to place our proposal on the agenda of the Executive Committee meeting February 24, 1980, in El Paso. After a short, illustrated presentation by E. McFarlan, Jr., and many hours of discussion, J. D. Haun, president; D. K. Murray, vice president; R. H. Clark, president-elect; D. R. Boyd, secretary; G. B. Pichel, treasurer; M. K. Horn, editor; and L. C. Bortz, chairman of the House of Delegates, voted to approve the project. By this action, the Executive Committee appointed W. R. Muehlberger as project director and approved funding a six-year project from private industry sources. They allocated \$10,000 per year from Association funds, if needed.

At the June 1980 Executive Committee meeting, the new project director presented an outline of his plan for constructing the new tectonic map, along with a revised six-year budget of \$633,000, including publication costs. He showed the members a copy of the new USGS computer-based, geographic base map of North America (scale: 1 to 5,000,000) to be used for the project. The Committee accepted the new plans and budget, encouraging a timely execution of the program.

Early Planning

In the early stages of planning, Muehlberger arranged a three-day workshop to discuss the "philosophy" of mapping tectonic features. Fifty-two leading structural geologists from the United States, Canada, Mexico, and other foreign countries attended the workshop. Many of the attendees became coordinators for preparing segments of the final map. They decided that the map scale and projection would be the same as those used for the three GSA Centennial Maps on geology, magnetism, and gravity.

Project Director Muehlberger organized the project with regional coordinators across the nation. Each coordinator arranged for regional specialists to provide the structural mapping for their area of knowledge. In general, the coordinators were the compilers and editors of the many volumes planned as part of the GSA's Decade of North American Geology. It was important that the illustrations in these volumes remain consistent with the new tectonic map.

Special coordinators were established for Canada, Mexico, Central America, and the Caribbean area. Plans called for asking selected scientists to make contributions in their areas of research.

Major Features

Major features of the new Tectonic Map of North America included dividing rock units into tectonic subdivisions, magnetic age stripes in the oceanic areas, offshore structural information, major subdivisions, of the

buried basement rocks that will continue the subdivisions of the Canadian Shield, and numerous refinements delineating the Appalachian and Rocky Mountains.

Funding

As these steps were gradually completed, funding for the project continued to keep pace with expenses. The financial support was broadly based in the petroleum industry, as follows:

- 120 Trustee Associates
- 343 AAPG Members
- 12 Corporations
- 7 AAPG Sections
- 3 Geological Societies
- Many Memorial Gifts

A large donation by Austin and Marta Weeks to the AAPG Foundation completed the funding for the project's account.

Computer Mapping

Early in the investigation, project managers decided to use computer technology to handle the cartography. Computer-driven plotters are now capable of producing a suitable base map with accompanying tectonic data; all with predetermined colors to depict the ages of tectonic events. Selecting suitable names and colors for the geologic time units for major tectonic events took much time and effort.

Preliminary drafts suitable for computer inputting for the southeastern quadrant were completed in 1985, the southwestern quadrant in early 1986, and part of the northeastern quadrant in late 1986. Successive drafts of the southern sheets were displayed at the AAPG annual conventions. A second draft of the Mexico segment was displayed with the southern half at the 1986 Geological Society of Mexico meeting in Mexico City. Final draft for the southeastern sheet was completed by December 1989.

The southern two sheets covering the U.S.A., Mexico, and Central America were completed in 1992 and the published maps have been offered by AAPG since February, 1993.

GEOTHERMAL SURVEY OF NORTH AMERICA*

Though preceded by earlier Research Committee studies, the Geothermal Survey of North America, begun in 1968 and completed in 1974, was the first organized project of national scope instigated with a full complement of chairman, project director, district chairmen, and a battery of *volunteers* and student assistants.

The project's mission was accumulating records of subsurface temperatures from oil, gas, and deep water wells, and then processing this data through computer programming to produce a geothermal gradient map and a depth-to-isotherm map. Both maps were superimposed on the old Tectonic Map of North America base.

The Geothermal Survey originated in November 1966 when the Projects Subcommittee, chaired by Howard R. Gould of the AAPG Research Subcommit-

tee, appointed a task force comprised of Robert H. Nanz, G. Moses Knebel, and Leo R. Newfarmer to evaluate possible projects on the subject of temperature and pressure. They recommended in mid 1967 that a Geothermal Survey of North America be approved for AAPG funding and that Roger J. Schoepel be the project director.

Two years previously, Roger J. Schoepel and a coauthor had presented a paper on "Use of Well Log Temperatures to Evaluate Geothermal Gradients" at a Society of Petroleum Engineers meeting in Denver. This paper was later published in the *Journal of Petroleum Technology*.

A research fund grant of \$20,000 was approved by the Trustees of the AAPG Foundation. The project was formally begun by AAPG President J. Ben Carsey, who appointed Ronald K. Deford as chairman on February 6, 1968.

Deford accomplished much of the original organization of the project, but resigned in mid-1969 due to the press of duties at the University of Texas. Ralph O. Kehle of the University of Texas, who had been assistant chairman, accepted the chairmanship, completed the organizational phase, and pushed the entire project to completion in 1974. In 1970, Myron K. Horn became the assistant chairman of the project and filled a vital role by processing data through the computers.

Funds for the Geothermal Survey covering such expenditures as salaries, key punching, computer processing, travel and supplies, were provided initially by the AAPG Foundation and the AAPG itself. Later, additional help arrived from a number of petroleum companies and individuals. A list of these contributors is included at the end of this article.

Preparing maps with accurate well locations by converting metes and bounds to latitude and longitude, calculating the thermal gradient for each of the 75,000 data points in the United States and Mexico, and the laborious job of correcting locational errors, demanded untold hours of personnel time. Much was donated either by the individual scientist or his employer. John W. Shelton of Oklahoma State University assumed the task of map compiler. He and Richard Lassley of Cities Service accomplished the complicated job of map point error detection and correction.

While accumulating data was progressing in the United States and Mexico, the Canadian Well Log Society, under Chairman E. T. Connolly, prepared maps on western Canada. This chore was finally completed in 1973.

Final publication of the maps was a joint effort of AAPG and the United States Geological Survey. USGS Map Editor Douglas M. Kinney acted in that capacity for the project, and the maps came off USGS presses in early 1974.

Today there are 39 geothermal gradient maps covering districts in Mexico, the United States, and western Canada available by special order from AAPG. Also, a Basin Data File of approximately 35,000 data records of oil well, water well, and heat flow information can

be special ordered from AAPG. Two maps, entitled "Geothermal Maps of North America," can be ordered through USGS offices. Both maps are on the Tectonic Map of the United States base; one shows the geothermal gradient, the other the "depth-to-isobath."

The Geothermal Survey of North America cost in excess of \$180,000, but it would have been far more expensive had the 100 or so volunteers not given freely of their time. Those to be particularly praised for their part in the project are: Ralph O. Kehle, chairman; Myron K. Horn, vice chairman; Roger J. Schoepel, project director, who accumulated and processed all the data at project headquarters; and John W. Shelton and Richard Lassley who corrected, revised, and coordinated the results.

Contributors

- American Association of Petroleum Geologists
- American Association of Petroleum Geologists Foundation
- Mr. G. J. Blunden
- Mr. G. Moses Knebel
- Atlantic Richfield Company
- Chevron Oil Field Research Company
- Cities Service Oil Company
- Conoco, Inc.
- Exxon Company, USA
- Gulf Research and Development Company
- Kerr-McGee Oil Company
- Mobil Corporation
- Pan American Petroleum Corporation
- Shell Development Company
- Superior Oil Company
- Tenneco Oil Company
- Union Oil Company of California
- United States Geological Survey

HISTORY OF THE CIRCUM-PACIFIC MAP PROJECT

George Gryc

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Introduction

The Circum-Pacific Map Project (CPMP) was conceived in 1973 and the first planning session was held in 1974 at the first Circum-Pacific Conference in Honolulu, Hawaii. CPMP is an activity of the Circum-Pacific Council for Energy and Mineral Resources (CPCEMR), that is operated in collaboration with the United States Geological Survey (USGS), with cooperation from many Pacific region countries. The Council, a tax-exempt foundation, was organized in 1972 to promote and encourage the study of energy and mineral resources in the Pacific region. To achieve this objective the Council supports and organizes scientific panels, workshops, symposiums, a major quadrennial conference, and supports and operates projects of international dimensions, such as the CPMP. Earth scientists representing 200

*For assistance in collecting the data included in this account, the author is indebted to AAPG members Ralph O. Kehle, William Curry, Dick Lassley, E. T. Connolly, Howard R. Gould, Roger J. Schoepel, John Shelton and Earl McBride, and to AAPG Administrative Assistant Linda Farrar.

organizations from more than 50 Pacific Rim countries are participating in these activities.

Until 1989, the Council was identified as a Section of the American Association of Petroleum Geologists (AAPG), and the Circum-Pacific maps and books were published and distributed by the AAPG. This relationship was terminated in late 1989 and the USGS took over publication of the map series in 1990. Maps and books published before this time are still distributed by the AAPG.

Circum-Pacific Map Project

The Project area includes more than half of the world, extending from the eastern part of the Indian Ocean across the Pacific to the Americas. It includes large sections of the People's Republic of China, the Soviet Union, all of the island nations on the western Pacific Rim, and most of North and South America. The continent of Antarctica was added early in the program, and the Arctic Basin and surrounding land areas were added in 1989.

Objectives of the CPMP are to:

1. identify, compile, and interpret the geological and geophysical framework, the mineral and energy resources of the Pacific basin region;
2. relate oceanic to continental geology;
3. show distribution and relationship of resources to geologic and tectonic data and processes;
4. aid in the exploration for new resources;
5. compile new basin-wide geologic and resource data sets;
6. depict and interpret geohazard and environmental phenomena that impact resource exploration and development;
7. focus on gaps in knowledge and encourage research to complete them; and
8. promote scientific cooperation among Pacific nations.

The maps are also intended to serve as a framework for international resources assessment programs.

The Circum-Pacific Map Project is organized under six regional panels of experts on the geology and resources of the four quadrants of the Pacific and the two polar regions. Each panel consists of as many as 20 members. Basic map compilation, especially of land areas, is coordinated by the six panel chairmen. Basic data responsibility, however, is assumed by individual members who are most knowledgeable about the geology and resources for their counties or regions. Most of the sea floor data sets are compiled by oceanographic institutions or consultants cooperating in this work.

Map Series

Each individual series consists of six 1:10,000,000-scale regional maps and one map of the entire project area at 1:17,000,000-scale. The maps are on a Lambert Azimuthal Equal-Area Projection to minimize distortion and there is considerable overlap between adjacent sheets to provide continuity. The two-color base map series is designed for plotting and compilation of data. The Geographic Map series includes both topography and bathymetry in several tints, as well as other major geographic features. The first of these maps were

printed during 1977 and 1978. Those for the Arctic region were printed in 1990.

There are six thematic maps for each region: Plate-Tectonic, Geologic, Geodynamic, Tectonic, Mineral-Resources, and Energy-Resources. Each map is accompanied by explanatory notes. Publication of the thematic maps began in 1981 with the Plate-Tectonic Maps. The seven-map sheets in this series, including the yet to be published Arctic Sheet, depict: (1) active plate boundaries, (2) motion vectors showing absolute and relative motion of the continental and oceanic plates, (3) active and Holocene volcanic centers, (4) major faults and fracture zones, (5) magnetic lineations keyed to a geomagnetic polarity time scale, (6) selected hot spot traces, and (7) earthquake epicenters color-coded to indicate focal depth in seven intervals. These are the first comprehensive maps of the dynamic elements and processes of the Pacific basin relevant to resource exploration and development. The Plate-Tectonic Map series has been of unusual interest to teachers and the scientific community. All of the sheets have been revised and reprinted two or more times.

Publication of the Geologic Map series was published in 1984 and depicts information on the present-day movements of the Earth's crust, as well as stress and density imbalances that could lead to additional movement. The maps include free-air gravity as the principal component and, in oceanic areas, the gravity contours are derived from satellite data. Also depicted on the maps are earthquake first-motion solutions, state of lithospheric stress, crustal thickness, and fault displacements during historic time with dates of rupture. Seismic epicenters and Holocene volcanic centers, also appearing on the Plate-Tectonic Map series, complete the mapped parameters.

The first of the Tectonic Map series was published in 1990 and depicts continental and oceanic crustal domains, as well as active plate margins representing the transition between these two domains. Owing to interest in hydrocarbon exploration, there is a further subdivision into basement complexes, which are judged to be too deformed to contain hydrocarbons, and into cover sequences. The cover sequences include transitional and reactivational tectonic sequences, basins at active plate margins, passive continental margin sequences, and platform basins. The Tectonic Map series is the most complicated theme, and the last compiled, because they rely on other map series for some basic information.

The Mineral-Resources Map series is designed as a factual presentation of mineral-deposit information both on land and the sea floor, on a *simplified* geologic/tectonic background developed from the Geologic Map Series. The maps show the relationship of mineral deposits to tectonic features such as active plate boundaries, accreted terrane, and hot spots. The information presented is useful in assessing the role of geologic processes in ore genesis. The Mineral-Resources Maps also aid in identifying broad areas favorable for mineral occurrence and, thereby, assist in exploration planning. The first map in this series, the Northeast Quadrant sheet, was published in 1984.

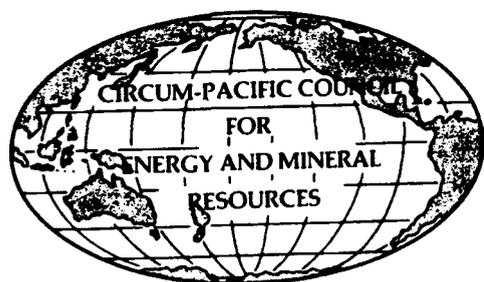
Sea floor deposits are included in the Mineral-Resources Map series, but have not been evaluated for economic potential. Offshore deposits depicted include manganese-iron oxide nodules, sulfide deposits, and phosphatic deposits. Manganese nodule distribution and abundance data are shown by square symbols depicting areas of sea floor coverage determined from bottom photography. Core data were also used in contouring this information. Chemical data determined from dredge or core samples of nodules or crusts are indicated by symbols. Also shown on the sea floor are poly metallic sulfide occurrences along spreading ridges, submarine hot springs, phosphorite occurrences, and sea floor sediment. Newly available data on cobalt crusts will be shown on the later maps in this series, including the summary 1:17,000,000-scale Pacific Basin Map.

The Northeast Quadrant Map, the first in the Energy-Resources Map series, was published in 1986. The maps are designed to illustrate the character, distribution, and geologic environment of energy resources of the Pacific region. They show oil and gas fields, oil shale, tar sand, coal, sediment isopachs, sedimentary basins, representative stratigraphic columns, and geothermal systems. This information is depicted on a simplified geologic background derived from the Geologic Map series. In addition to depicting the occurrence of energy resources and their relation to the geologic

environment, these maps are useful in identifying potential areas for exploration. The Energy-Resources Maps are supplemented by separate explanatory texts, including information on the sedimentary basins and their productivity. Productive basins are indicated in terms of so-called giant fields which have recoverable reserves of more than 500 million barrels of oil or three-trillion cubic feet of gas. Detailed information on these giant fields is tabulated in the explanatory notes, together with information on age, rank, number of beds, percent sulfur, and percent ash.

Summary

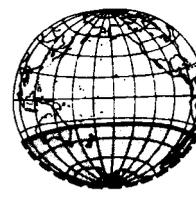
The 17-year-old Circum-Pacific Map Project has several unique and innovative aspects. The maps are ocean-centers and, unlike most previous major compilations, include geologic and resource data for both land and ocean areas. A new series of equal-area base maps at scales of 1:10,000,000 and 1:17,000,000 were developed to depict these data with minimal distortion. Several new data sets have been specially prepared for the map series. Among these data sets are sea floor sediment, manganese nodule distribution, sedimentation rates, earthquake first-motion solutions, plate-motion vectors, Deep Sea Drilling Project borehole columns, and oceanic crustal ages. Finally, a network of international scientific cooperation among Pacific nations, all voluntary and non-reimbursed, has been put into place.



Northwest quadrant



Northeast quadrant



Antarctica sheet



Southwest quadrant



Southeast quadrant



Pacific basin sheet

Special AAPG Programs, 1965-1991

Three AAPG services which have proved especially beneficial are the Distinguished Lecturers, the Visiting Petroleum Geologists, and the AAPG Student Chapter programs discussed in this chapter. Tailored to target the needs of specific audiences, all three provide a valuable communication link between the Association and petroleum geologists across the nation.

years, it has become a complex Headquarters operation covering all aspects from distributing speaker availability rosters to societies and universities, to scheduling appearances and arranging complicated travel itineraries.

DISTINGUISHED LECTURER PROGRAM *

Since its beginning in 1941 under the chairmanship of John L. Ferguson, the Distinguished Lecturer Program has progressed considerably in scope. A first year effort in 1942 had four speakers who made twelve appearances. Currently, about eight speakers fill an average of 200 speaking engagements and reach a cumulative audience of around 17,000.

Although the Distinguished Lecturer Program was originally conceived to operate on a self-sustaining basis, the continuing increase of travel costs in the past few years necessitated considerable support from the Association. While each local society and university department pays a set fee for each speaker appearance, it has not been feasible to raise this fee enough to break even on costs. Though generally the speaker has his travel expenses paid either by fees or AAPG subsidy, the speaker or his employer donates his time. In some instances this can amount to four, or even six, weeks of absence from work.

Speakers recruited by the Distinguished Lecturer Committee are, in many cases, persons who have presented significant papers at the Annual Convention or at local and regional meetings. It is truly both an honor and a fitting recognition to be asked to participate.

It is unfortunate that there are usually twice as many requests for speaking engagements as can be filled. Each speaker customarily completes three two-week tours, presenting his lecturers before 25 to 40 groups, making one, sometimes two, appearances a day while on tour. A hardy group, these seasoned speakers deserve commendation by all Association members for their dedication to geology.

Essentially it is the local geological societies and university geology departments which benefit from this AAPG service. It evolved from an initial program whereby speakers, in addition to donating their time, assumed part or all of their travel expenses. Over the

Table 1 lists distinguished lecturers and their topics since 1942.

TABLE 1. AAPG Distinguished Lecturers, 1942-1991

Dates	Name	Title Of Lecture
1942	Leighton, M. M.	"Natural Resources and Geological Surveys"
1942	Born, Kendall E.	"The Pre-Cretaceous Rocks in the Northern Part of the Mississippian Embayment"
1942	Croneis, Carey	"Geological Warfare"
1942	Knight, S. H.	"Physical Evolution of the Rocky Mountains" "The Genesis of the Late Paleozoic Sediments of Southeastern Wyoming" "The Tertiary History of the Wyoming Basin"
1943	Bullard, Fred M.	"Paricutin"
1943	Cloos, Ernest	"Method of Measuring Distortion of Primary Stratigraphic Thickness Due to Flowage and Folding"
1943	Kellum, Lewis B.	"The Geologic History of North-Central Mexico and Its Bearing on Petroleum Exploration"
1943	Krynine, Paul D.	"Diastrophism and Evolution of Sedimentary Rocks"
1943	Ordonez, Ezequiel	"Paricutin"
1943	Rich, John L.	Problems in South America Geology as Suggested by an Aerial Traverse

* The author thanks Barbara Davis of AAPG Headquarters staff, Tulsa, for compiling the list of Distinguished Lecturers recorded here.

TABLE 1. AAPG Distinguished Lecturers, 1942-1991 (continued)

Dates	Name	Title Of Lecture
1943	Russell, R. J.	"Quaternary Delta Succession in the Lower Mississippi Valley" or "Origin of Lower Mississippi Valley Loess"
1943	Thom, W. Taylor	"The Structural Evolution of the Big Horn Basin Region"
1943	Zobell, Claude	"The Influence of Bacterial Activity on Petroleum Deposits and Products"
1944	Adams, John E.	Depth Control of Sedimentation in the Permian Basin
1944	Anderson, J. L.	The Petroleum Geology of Colombia, South America
1944	Bryan, Kirk	Geological Antiquity of Man in America"
1944	Hume, George S.	"Petroleum Developments and Prospects in Western Canada"
1944	Kay, Marshall	"Geosynclines in Continental Developments"
1944	Knight, S. H.	"Physical Evolution of the Rocky Mountains" "The Stratigraphy and Lithogenesis of the Late Paleozoic Rocks of Southeastern Wyoming"
1944	Monroe, Watson J.	"The New Geologic Map of Mississippi and Related Problems"
1944	Read, Charles B.	"Geology and Upper Paleozoic Stratigraphy in Portions of Northwestern New Mexico"
1944	Scott, Gayle	Stratigraphic Correlations and Depositional Environments indicated by Ammonoid Occurrences in the Texas
1945	Bullard, Fred M.	"Paricutin – Mexico's Newest Volcano"
1945	Hubbert, M. King	"The Strength of the Earth"
1945	Hunt, Charles B.	"Geology Applied to Military Intelligence"
1945	Krumbein, W. C.	"Modern Sedimentation and the Search for Petroleum"
1945	Longwell, C. R.	"Geology of the Basin Ranges: Revelations and Problems"
1945	Smith, Philip S.	"Alaska's Potential Oil Resources"
1945	Weaver, Charles	"The Geology of Oregon and Washington and Its Relation to the Possible Occurrence of Oil and Gas"
1945	Willis, Bailey	"Terrestrial Dynamics"
1946	Dickey, Parke A.	"Geology and Secondary Recovery of Oil in the Pennsylvania and Eastern Oil Fields"
1946	Fisk, R. H.	"Geology of the Lower Mississippi Valley"
1946	Hotchkiss, W. O.	"Non-Fuel Minerals and Natural Defense"
1946	Oakwood, T. S.	Chemical Aspects of the Origin of Petroleum"
1946	Pratt, Wallace E.	"Petroleum on the Continental Shelves"
1946	Price, Paul H.	"Evolution of Geologic Thought in Prospecting for Oil and Natural Gas"
1946	Richards, Horace G.	"Subsurface Stratigraphy of the Southeastern Atlantic Coastal Plain"
1946	Scott, W. H.	"Upper Paleozoic History of the Rocky Mountains and Adjacent Great Plains"
1946	Twenhofel, W. H.	"Geology of the Region of the Gulf of St. Lawrence"
1947	Croneis, Carey	"Geologic Crossroads"
1947	DeGolyer, E.	"Prospecting for Petroleum"
1947	Ewing, Maurice	"Geophysical Investigation of Continental Borders"
1947	Moore, R. C.	"Problems of Sedimentary Facies"
1947	Muller, S. W.	"Permafrost and Engineering Problems"
1947	Wade, F. Alton	"Antarctica – Past, Present, and Future"
1947	Weaver, Paul	"The Formation of Evaporites Under Marine Evaporation Conditions"
1948	Billings, M. P.	Orogeny in Appalachian Highlands of New England"
1948	Fitzgerald, Gerald	[No Record of Subject]
1948	Goodman, Clark	"Radioactivity and Petroleum Geology"
1948	Harrison, J. M.	"Structural Geology in the Canadian Shield Revealed by Air Photographs"
1948	Huddle, John W.	"Devonian and Mississippian Paleogeography of Northeastern Arizona"
1948	Levorsen, A. I.	"Time of Oil Accumulation"
1948	Rittenhouse, Gordon	"Interpretative Petrology of Sedimentary Rocks"
1949	Bucher, Walter H.	"Fault Patterns and Fault Movements"
1949	Leggette, R. M.	"Elements of Ground Water Hydrology"

TABLE 1. AAPG Distinguished Lecturers, 1942-1991 (continued)

Dates	Name	Title Of Lecture
1949	Levorsen, A. I.	"Time of Oil and Gas Accumulation"
1949	Mackin, J. H.	"Origin of Mineralizing Emanations in the Iron Springs District, Utah"
1949	Paine, Paul	"Valuation in the Oil Fields"
1949	Shepard, F. P.	"Sediment Patterns on the Asiatic Continental Shelves"
1949	Simpson, George G.	"Continents in the Age of Mammals"
1949	Thomas, A. D.	"Regional Stratigraphy and Structure of Wyoming"
1949-50	Link, Theodore A.	"Theory of Transgressive and Regressive Reef (Bioherm) Development and the Origin of Oil Within Them"
1950	Behre, C. H., Jr.	"Geologic Lineaments of Mexico"
1950	Delo, David M.	"Geology Faces the Mid-Century"
1950	Howard, A. D.	"Antarctica"
1950	Phleger, Fred B., Jr.	"Offshore Sedimentology, Northwest Gulf of Mexico"
1950	Spieker, Edmund M.	"Mountain-Building Chronology and The Nature of the Geologic Time Scale"
1950	Weeks, Lewis G.	"Sedimentary Basin Development"
1950	Wengerd, S. A.	"Reef Sedimentation of Majuro Atoll"
1951	Dott, Robert H.	"The Stratigraphy of Oklahoma"
1951	Dotterweich, F. H.	"Natural Gas - Its Production, Transmission, and Utilization"
1951	Eardley, A. J.	"Tectonic Framework of North America"
1951	Eardley, A. J.	"Ancient Arctica"
1951	Henson, F. R. S.	"Oil Occurrences in Relation to Geological History of the Middle East"
1951	King, Lester C.	"Continental Geomorphology"
1951	Rubey, W. W.	"The Development of the Ocean and the Atmosphere"
1952	Buck, E. O.	[No Record of Subject]
1952	Cox, Ben B.	"Clay Problems"
1952	Hubbert, M. King	"Entrapment of Petroleum Under Hydrodynamic Conditions"
1952	Lowman, Shephard W	[No Record of Subject]
1952	Spieker, Edmund M.	"Mountain-Building Chronology and the Nature of the Geologic Time Scale"
1953	Corps, E. V.	"Results of Recent Oil Prospecting in India and Pakistan"
1953	Dennison, A. Rodger	"The Williston Basin. Structure and Stratigraphy in Relation to Recent Oil and Gas Discoveries"
1953	Ewing, Maurice	"The Atlantic Ocean Basin and Its Margins"
1953	Misch, Peter	"Regional Structural Types of the North American Cordilleran System"
1954	Bullard, Fred M.	"A Volcanic Cycle As Exhibited by Italian Volcanoes"
1954	Fairbridge, Rhodes W.	"Carbonate Sedimentation"
1954	Murray, Grover	Geology and Oil Accumulation in Central Gulf Coastal Plain"
1954	Rich, John L.	"Three Critical Environments of Deposition and Their Paleogeographic Implications"
1955	Adams, John A. S.	"Exploration for Uranium"
1955	Easton, William H.	"Carboniferous Formations and Faunas of Central Montana"
1955	Ertl, Tell	"Colorado Oil Shale"
1955	Gusow, W. C.	"Problems of Oil Migration"
1955	Keller, W. D	"Clay Minerals"
1955	Lilly, Otis J.	"Drilling With Gas"
1955	Moody, Clarence L.	"The American Petroleum Institute's Geological Research Program"
1955	Rich, John L.	[No Record of Subject]
1955	Tomlinson, C. W.	"Recent Studies in the Ouchita Mountains"
1956	Affleck, James	"Geologic Interpretation of Aeromagnetic Surveys"
1956	Bass, N. Wood	"Comparison of Modern Shorelines with Oil-Bearing Sand Senses in Mid-Continent & Denver Basin"
1956	Currie, John B.	"The Origin and Development of Graben Structures Associated with Salt Domes"
1956	Hake, Benjamin F.	"Scientific Manpower and National Safety"

TABLE 1. AAPG Distinguished Lecturers, 1942-1991 (continued)

Dates	Name	Title Of Lecture
1956	Kulp, J. Laurence	"Recent Advances in Geochronometry"
1956	Myers, Donald A.	"Geology of the Late Paleozoic Horseshoe Atoll of West Texas"
1956	Stocking, Hobart E.	"Geology of Uranium"
1956	Wanless, Harold R.	"Problems of the Pennsylvanian in the United States"
1957	Atwater, Gordon I.	"Future of Louisiana Offshore Oil Province"
1957	Cooper, Byron N.	"Appalachian Folding: A Control of Paleozoic Sedimentation"
1957	Dott, Robert H., Sr.	"The AAPG and How it Functions"
1957	Guzman, Eduardo J.	"Geology and Petroleum Development in Mexico"
1957	Hill, Kenneth E.	"Future Growth and Financial Requirements of the World Petroleum Industry"
1957	Levorsen, A. I.	"Some Regional Applications of Paleogeology"
1957	McKee, Edwin D.	"Paleotectonic Mapping"
1957	Sloss, L. L.	"Stratigraphic Analysis and the Search for Oil"
1957	Thompson, Warren O.	"Ancient Beaches in the Search for Oil"
1958	Blackstone, D. L.	"The Tectonic Framework of the Rocky Mountains"
1958	Dallmus, Karl F.	"Mechanics of Basin Evolution and Its Relation to the Habitat of Oil in the Basin"
1958	Edie, Ralph W.	"Limestone Sedimentation and Stratigraphic Traps"
1958	Ireland, H. A.	"Geopolitics and Oil Development in the Middle East"
1958	Runcorn, S. K.	"Paleomagnetism"
1958	Van Andel, Tjeerd H.	"The Application of Recent Sediment Studies to the Interpretation of Ancient Deposits"
1958	Westby, G. H.	"Geophysics and Stratigraphic Problems"
1959	Carozzi, Albert V.	"Tectonic Control of Microfacies"
1959	Conselman, Frank B.	"Future of America Petroleum Geology"
1959	Hiestand, Thomas C.	"A Geologist Discusses Depletion"
1959	Hill, Gilman A.	"Trap Barriers - Hydrodynamic, Stratigraphic, Wettability"
1959	Laudon, J. R.	"Tectonic History of the Western Pacific States"
1959	Linehan, Daniel	"Exploration of Antarctica"
1959	Rea, Henry Carter	"The Geologist and World Oil"
1959	Berry, Fred A. F.	"Trap Barriers - Hydrodynamic, Stratigraphic, Wettability"
1959	Carsey, J. Ben	"The Geology and Oil Development of Alaska"
1960	Donn, William L.	"A Terrestrial Theory of the Ice Ages"
1960	Dorf, Erling	"The Earth's Changing Climates"
1960	Kleinpell, Robert M.	"Principles of Biostratigraphy"
1960	Maxey, George B.	"The Geology of Water and Its Importance to Our Industrial Civilization"
1961	Decker, Robert W.	"Renewed Activity of Anak Krakatau"
1961	Doeglas, D. J.	"Interpretation of Size Frequency Distribution and Classification of Sediments"
1961	Drake, Charles L.	"Structure of the Continental Margin of Northeastern North America"
1961	Nettleton, L. L.	"Gravity and Magnetics for Geologists and Seismologists"
1961	Thorsteinsson, Ray	"Stratigraphy and Structural History of Canadian Arctic Archipelago"
1961	Tozer, E. T.	"Stratigraphy and Structural History of Canadian Arctic Archipelago"
1961	Wilson, John A.	"Miocene Mirage"
1962	Andrews, Donald I.	"Indigenous Pleistocene Production in Offshore Louisiana"
1962	Hughes, Dudley J.	"Faulting Associated with Deep-Seated Salt Domes in the NE Portion of the Mississippi Salt Basin"
1962	Link, Walter K.	"The Geology of the Amazon Basin of Brazil and Case History of Exploration 1954-1960"
1962	Ludlum, John C.	"Prospects and Structural Problems of Exploration for Natural Gas in the Appalachian Area"
1962	Monnett, V. Brown	"The Status of Geological Education in the United States Today"
1962	Rainwater, E. H.	"Stratigraphy and Its Role in Petroleum Exploration, with Special Emphasis on the Gulf Coast"

TABLE 1. AAPG Distinguished Lecturers, 1942-1991 (continued)

Dates	Name	Title Of Lecture
1963	Baile, R. A.	"New Concepts in Geophysics"
1963	Branson, Carl C.	"Pennsylvanian System of the United States"
1963	Crowell, John	"Wrench Faults"
1963	Dietz, Robert	"Growth Faults"
1963	Yarborough, Hunter	"Gulf Basin"
1963	Yzaguirre, Lauro	"Petroleos Mexicanos – Exploration Program in Northeast Mexico"
1964	Cline, Lewis M.	"Geology of Ouachita Mountains – Oklahoma"
1964	Feray, Dan E.	"Role of Tectonic and Environmental Factors in the Origin and Distribution of Sediments"
1964	Lintz, Joseph L.	"Petroleum Provinces of Indonesia"
1964	Osmond, John C.	"The Geology of Nevada – An Exploration Frontier"
1964	Shaw, Ernest W.	"Canadian Rockies – Orientation in Time and Space"
1964	Walker, Theodore R.	"Red Beds and Desert Climates: A Re-examination of the Role of Hot Dry Climates in the Formation of Red Sediments"
1965	Atwater, Gordon I.	"The Effect of Decrease in Porosity with Depth on Oil and Gas Reserves in Sandstone Reservoirs"
1965	Halbouty, Michel T.	"Economics – The New Dimension in Geological Thinking"
1965	Mallory, William W.	"Pennsylvania System in Wyoming – A New Look at an Old Bonanza"
1965	Zarella, William M.	"Significance of Hydrocarbon Deposition on Petroleum Exploration"
1966-67	Bally, Albert W.	"Oil and Gas Exploration, Seismic Reflections and Mountain Building in the Canadian Rockies"
1966-67	Dillon, Ed L.	"Modern Geology Requires Modern Technology"
1966-67	Gould, Howard R.	"Sedimentary Processes and Their Importance in Oil Finding"
1966-67	Jodry, Richard L.	"Pore Geometry of Carbonate Rocks"
1967-68	Gorsline, Donn S.	"Sedimentary Processes and Their Role in the Formation of Future Source and Reservoir Rocks"
1967-68	Masursky, Harold	"Lunar Stratigraphy and Sedimentation"
1967-68	McNitt, James R.	"Status of Geothermal Resources Development"
1967-68	Stehli, Frances G.	"Paleoecological Reconstruction of Depositional Environments – Some Techniques of Possible Exploration Interest"
1968-69	Bisque, Ramon E.	"The Explosion in Earth Science Education and Its Future Effects on the Geological Profession"
1968-69	Dill, Robert F.	"Pleistocene Sea Levels and Continental Margins Sedimentation"
1968-69	Lyon, R. J. P.	"Remote Sensing in Exploration: Can We Use It When We Get It?"
1968-69	Prucha, John James	"Sedimentary Rock Deformation Related to Structure in the Basement"
1968-69	Weeks, Lewis G.	"Oil Exploration in Australia, With Case History Lessons"
1969-70	Beebe, B. Warren	"Natural Gas: Oil's Principal Competitor"
1969-70	Hill, Mason L.	"New Global Tectonics Related to West Coast Structure"
1969-70	Hriskevich, Michael E.	"Middle Devonian Reef Production, Rainbow Area, Alberta"
1969-70	Lehner, Peter	"Salt Tectonics and Pleistocene Stratigraphy on the Continental Slope of the Northern Gulf of Mexico"
1969-70	Lewis, James O.	"Practical Computer Usage for Subsurface Geologists"
1969-70	Rudolph, John C.	"Middle Devonian Reef Production, Rainbow Area, Alberta"
1969-70	Stevenson, Robert E.	"Gross Transport of Suspended Sediments Over Continental Shelves as Analyzed from Gemini and Apollo Space Photography"
1970-71	Cram, Ira H.	"Petroleum Potential of the U.S."
1970-71	Ellison, Samuel P., Jr.	"Geology of the Middle East"
1970-71	Fisher, William L.	"Ancient Delta Systems of the Gulf of Mexico Basin"
1970-71	Glennie, K. W.	"Permian Rotliegendes of Northwest Europe"
1970-71	Morgridge, Dean L.	"The Geology and Discovery of Prudhoe Bay Field, Eastern Arctic Slope, Alaska"
1970-71	Reynolds, Merrill J.	"Omega of Hydrocarbons"
1970-71	Stevenson, Robert E.	"Gross Transport of Suspended Sediments Over Continental Shelves as Analyzed from Gemini and Apollo Space Photography"
1970-71	Tettleton, Bur Von B.	"Compatibility of the Offshore Oil Industry and Marine Environment"

TABLE 1. AAPG Distinguished Lecturers, 1942-1991 (continued)

Dates	Name	Title Of Lecture
1971-72	Berg, Robert R.	"Identification of Sedimentary Environments"
1971-72	Brown, L. Frank, Jr.	"Upper Paleozoic Fluvial - Deltaic Shelf, a Slope Depositional Systems in a Cratonic Basin, West-Central Texas "Environmental Geology and Genetic Mapping"
1971-72	Ellison, Samuel P., Jr.	"Geology of the Middle East"
1971-72	Miller, Daniel N., Jr.	"Exploration and Development for Future Energy Resources"
1971-72	Natland, Manley L.	"New Classification of Water-Laid Clastic Sediments"
1971-72	Nelson, Thomas H.	"Plate Tectonics and Mainstream Mantle Convention"
1971-72	Stevenson, Robert E.	"Gross Transport of Suspended Sediments Over Continental Shelves as Analyzed from Gemini and Apollo Space Photography"
1971-72	Zeller, Edward J.	"Comparative Geology of the Inner Planets: Geological Characteristics of Earth, Moon, Mars, Venus, and Mercury"
1972-73	Brown, L. Frank, Jr.	"Upper Paleozoic Fluvial-Deltaic, Shelf, and Slope Depositional Systems in a Cratonic Basin, West-Central Geology and Genetic Mapping"
1972-73	Friedman, Gerald M.	"Original and Secondary Pores in Sedimentary Reservoir Rocks: Relationship to CaCO ₃ Cements"
1972-73	Klement, Karl W.	"Practical Classification of Reefs and Banks, Bioherms, and Biostroms"
1972-73	O'Driscoll, E. S. T.	"Basement Tectonics and Fold Patterns – Kinematic Models Approach"
1972-73	Shouldice, D. H.	"Geology of the Western Canadian Continental Shelf"
1972-73	Walton, William R.	"Modern and Ancient Hurricane Deposits – Their Geological Significance"
1973-74	Amoruso, John J.	"Smackover Trend from Mexico to Florida"
1973-74	Bruce, Clemont H.	"Pressured Shale and Related Sediment Deformation: A Mechanism for Development of Regional Contemporaneous Faults"
1973-74	Hennes, Mark E.	"Depositional Anticlines of Deep Environments – Past Success and Future Exploration"
1973-74	Hubbert, M. King	"World's Energy Economy"
1973-74	Masursky, Harold	"Geology of Mars"
1973-74	Muller, German	"Stages of Transformation of Carbonate Sands into Limestone and Dolostone: Fuerteventura, Canary Islands "Recent Inorganic Non-Marine Carbonate Environments" "Heavy Metal Accumulations in River Sediments: A Response to Environmental Pollution"
1973-74	Thompson, Thomas L.	"Application of Plate Tectonics to Petroleum Exploration at Continental Margins"
1973-74	Wilkinson, Colin D.	"Geology of the North Sea Area"
1974-75	Bernoulli, Daniel	"New Views on Alpine Tethys Evolution Based on Joides Results"
1974-75	Brasher, Nugent T., Jr.	"Environmental Impact of Offshore Petroleum Operations"
1974-75	Davis, Gregory A.	"Plate Tectonic Models for Thrust Faulting in Southwestern United States"
1974-75	Dennison, John M.	"Influence of Eustatic Sea-Level Changes on Oil and Gas Accumulations in the Appalachian Basin"
1974-	Meidav, Tsvi	"Geothermal Energy – A Viable Energy Resource" "Emerging Geothermal Resource Exploration Technology"
1974-75	Price, Leigh C.	"Solubility of Petroleum in Water and Its Significance to Petroleum Migration"
1974-75	Smith, J. H. Stuart	"Geology and Hydrocarbon Discoveries of Canadian Arctic Islands" "Geology of Northern Greenland"
1975-76	Busch, Daniel A.	"Integrated Disciplines in Petroleum Exploration"
1975-76	Conti, Louis J.	"Red Wing Creek Field: A Cosmic Impact Structure"
1975-76	Henderson, G. W.	"Red Wing Creek Field: A Cosmic Impact Structure"
1975-76	McCulloh, Thane H.	"Geology of the Santa Barbara Spill – Before and After" "Reliable Quantitative Forecasting of Basin Hydrocarbon Richness – a Novel Geophysical Approach"

TABLE 1. AAPG Distinguished Lecturers, 1942-1991 (continued)

Dates	Name	Title Of Lecture
1975-76	Muehlberger, W. R.	"Our Dynamic Earth, The View From Skylab"
1975-76	Parson, Elmer S., Jr.	"Red Wing Creek Field: A Cosmic Impact Structure"
1975-76	Scholle, Peter A.	"Application of Chalk Diagenetic Studies to Petroleum Exploration Problems"
1975-76	Taner, M. Turhan	"Color Displays in Direct and Indirect Location of Hydrocarbons"
1975-76	Vail, Peter R.	"Eustatic Cycles from Seismic Data for Global Stratigraphic Analysis"
1975-76	Wilson, J. Tuzo	"Plate Tectonics"
1976-77	Bayliss, G. S.	"Principles of Hydrocarbon Generation and Application to Oil & Gas Exploration"
1976-77	Blanton, Sankey L., Jr.	"Geology of Bering Shelf"
1976-77	Browning, J. M.	"Aulacogens and Megashears – A Natural Habitat for Oil and Mineral Deposits"
1976-77	Clement, James H.	"Geologic History – Key to Accumulation at Cedar Creek"
1976-77	Coleman, James M.	"Modern River Deltas: Variability of Processes and Sand Bodies" "Submarine-Slope Failures and Downslope Mass Movement of Sediment"
1976-77	Foster, Norman H.	"Concepts and Techniques Utilized in Successful Exploration for Oil-Bearing Reefs in Indonesia"
1976-77	Logan, Brian W.	"Interpretation of Carbonate Rock Sequences; Sedimentary or Metamorphic Models?"
1976-77	McMillan, Neil J.	"Geology of the Labrador Sea and Its Petroleum Potential"
1976-77	Schmalz, Robert F.	"Evaporites, Sulfides, and Petroleum"
1976-77	Treves, Samuel B.	"Drilling in Antarctica"
1976-77	Vincelette, Richard R.	"Concepts and Techniques Utilized in Successful Exploration for Oil-Bearing"
1977-78	Bird, John M.	"Plate Tectonics and Ore Deposits" "Evolution of the Earth"
1977-78	Coleman, James M.	"Modern River Deltas: Variability of Processes and Sand Bodies" "Submarine-Slope Failures and Downslope Mass Movement of Sediment"
1977-78	Loucks, Gerald G.	"Thrusts – Their Role in Major Hydrocarbon Entrapment"
1977-78	McIntyre, Donald B.	"Revolution in Geologic Thought: Fact or Fiction?"
1977-78	Moore, Clyde H., Jr.	"Diagenetic Controls Over Porosity Distribution in Ancient Carbonate Rock Sequences"
1977-78	Morris, Elliot C.	"Viking View of Mars"
1977-78	Sabins, Floyd F., Jr.	"Exploration Applications of Landsat Imagery"
1977-78	Shinn, Eugene A.	"An Environmental Approach to Limestone Diagenesis"
1978-79	De Voto, Richard H.	"Geologic Environments of Uranium Deposits"
1978-79	Fisher, William L.	"Exploration Science and Public Policy: Conflicts in the Making"
1978-79	Hoffman, Paul F.	"Stratigraphic and Structural Development of Aulacogens"
1978-79	Pittman, Edward D.	"Diagenesis: Key to Pore Geometry and Reservoir Potential of Sandstone"
1978-79	Playford, Phillip E.	"The Devonian Great Barrier Reef of the Canning Basin, Western Australia"
1978-79	Royse, Frank, Jr.	"Structural Geology of Western Wyoming Northern Utah Thrust Belt and Its Relation to Oil and Gas Accumulation"
1978-79	Schlee, John S.	"Structure, Stratigraphy, and Development of Western North Atlantic Continental Margin"
1978-79	Secor, Donald T., Jr.	"Model for Development of Natural Hydraulic Fractures-Implications for Hydrocarbon Migration and Accumulation"
1979-80	Almon, William R.	"Impact of Diagenesis on Exploration Strategy and Reservoir Management"
1979-80	Bebout, Don G.	"Energy Resources of Water-Bearing Geopressed Reservoirs"
1979-80	Buffler, Richard T.	"Geologic History of Deep Gulf of Mexico Basin"
1979-80	Gordy, Peter L.	"Hydrocarbon Accumulations in the Overthrust Belt of Alberta"

TABLE 1. AAPG Distinguished Lecturers, 1942-1991 (continued)

Dates	Name	Title Of Lecture
1979-80	Horne, John C.	"Applications of Depositional Models in Coal Exploration and Mine Planning"
1979-80	Momper, James A.	"Oil Expulsion – A Consequence of Oil Generation"
1979-80	Scholl, David W.	"Resource Potential and Plate Margin Geology of Frontier Basins of North Pacific and Bering Sea"
1979-80	Walker, Roger G.	"Deep-Water Reservoirs: Submarine Fans and Fantasies"
1980-81	Barker, Colin	"Plate Tectonics, Organic Matter, Basin Evaluation for Petroleum Potential"
1980-81	Collins, Stephen E.	"Applying Modern Geologic Methods to Petroleum Exploration and Development – A Case Study of Jurassic Reservoirs in East Texas, North Louisiana, South Arkansas Areas"
1980-81	Evans, Robert	"The Potential of the Evaporitic Environment as a Source of Petroleum"
1980-81	Harms, John C.	"Clastic Depositional Models"
1980-81	Mossop, Grant D.	"Sedimentology and Petrology of the Tar Sands"
1980-81	Murris, Roelof J.	"Middle East - Stratigraphic Evolution and Oil Habitat"
1980-81	Salvador, Amos	"Late Triassic-Jurassic Paleogeography and the Origin of the Gulf of Mexico"
1981-82	Bloomer, Richard R.	"Depositional Environments and Reservoir Morphologies of Channel Sandstones"
1981-82	Bouma, Arnold H.	"Intraslope Basins on Active Diapiric Continental Slope: Key to Sand-Body Geometry in Ancient Submarine Canyons and Fans"
1981-82	Demaison, Gerard	"Petroleum Source Beds; Environment of Deposition and Stratigraphy"
1981-82	Halley, Robert B.	"Evolution of Carbonate Porosity During Burial – Bahamas, Florida, and Gulf Coast, Jurassic to Holocene"
1981-82	Humphris, C. C., Jr.	"Deep Tuscaloosa Gas Trend of South Louisiana"
1981-82	Meissner, Fred F.	"Abnormal Pressures Produced by Hydrocarbon Generation and Maturation and Their Relation to Migration and Accumulation"
1981-82	Monger, James W. H.	"Stratigraphic Evolution of North American Cordillera"
1981-82	Schowalter, Tim T.	"Interpretation of Subsurface Hydrocarbon Shows"
1982-83	Burke, Kevin	"The Development and Distribution of Rift Systems"
1982-83	Curtis, Doris M.	"Comparative Cenozoic Petroleum Geology of Major Deltas – Mississippi, Niger and MacKenzie"
1982-83	Fouch, Thomas D.	"Character of Ancient Petroliferous Lake Basins of the World"
1982-83	James, Noel P.	"The Geologic History of Reefs"
1982-83	Nelson, Ronald A.	"Geological Evaluation of Fractured Reservoirs"
1982-83	Pryor, Wayne A.	"Shales – Their Sedimentology and Geology"
1982-83	Rich, Fredrick J.	"Modern Wetlands and Their Potential as Coal-Forming Environments"
1982-83	Sylvester, Arthur G.	"Wrench Fault Tectonics and Prediction of California's Next Earthquake"
1983-84	Arthur, Michael A.	"Notions of Stinking Oceans? Models for Organic Carbon Burial During Cretaceous Anoxic Events"
1983-84	Balsley, John K.	"Cretaceous Wave-Dominated Delta, Barrier Island, and Submarine Fan Depositional Systems of the Rocky Mountains: Clastic Models for Hydrocarbon Exploration"
1983-84	Hamilton, Warren	"Mode of Extension of Continental Crust"
1983-84	Jones, David L.	"Accretionary Growth of Western North America: Examples from Alaska"
1983-84	Kastner, Miriam	"Origin of Dolomite and Its Spatial and Chronological Distribution – A New Insight"
1983-84	Lockridge, John P.	"Shallow Gas Fields in High Porosity Chalk: An Independent's Exploration Strategy"
1983-84	Rona, Peter A.	"Hydrothermal Mineralization at Sea-Floor Spreading Centers"
1983-84	Wardlaw, Norman C.	"Rocks, Pores, and Enhanced Oil Recovery – A Geological Challenge"
1983-84	Wyman, Richard E.	"The Future of Natural Gas"
1984-85	Dott, Robert H., Jr.	"Episodic Sedimentation of Ancient Shelf Sandstones"
1984-85	Ginsburg, Robert N.	"Sedimentary Models of Pattern, Process, and Succession Derived From Bahamian Carbonates"

TABLE 1. AAPG Distinguished Lecturers, 1942-1991 (continued)

Dates	Name	Title Of Lecture
1984-85	Hilterman, Fred J.	"Seismic Modeling – Geological Predictions and Pitfalls"
1984-85	Jones, David L.	"Accretionary Growth of Western North America: Examples from Alaska"
1984-85	Kastner, Miriam	"Origin of Dolomite and Its Spatial and Chronological Distribution – A New Insight"
1984-85	Lelek, Jeffrey J.	"Anschutz Ranch East – Finding and Defining a Giant Oil Field in the Thrust Belt"
1984-85	*Mutti, Emiliano	"Ancient Turbidite Systems: Models and Problems"
1984-85	Wardlaw, Norman C.	"Rocks, Pores, and Enhanced Oil Recovery – A Geological Challenge"
1984-85	Weimer, Robert J.	"Depositional Models, Intrabasin Tectonics, and Sea Level Changes in Petroleum Exploration"
1984-85	Withjack, Martha O.	"Rift-Related Structures and Their Seismic Expression"
1985-86	Chapin, Charles E.	"Rift Deformation Produced by Combined Extension and Shearing"
1985-86	Galloway, William E.	"Two-Stage Laramide Orogeny in the Southwestern United States: Tectonics and Sedimentation"
1985-86	Ginsburg, Robert N.	"Depositional and Structural Architecture of the Northwest Gulf Coast Tertiary Continental Platforms"
1985-86	Kingston, Dave R.	"Depositional and Structural Architecture of Prograding Clastic Continental Margins"
1985-86	Lindquist, Sandra J.	"Sedimentary Models from the Bahamas"
1985-86	Mero, William E.	"Worldwide Basin Classification and Oil Play Prediction"
1985-86	Rose, Peter R.	"Practical Characterization of Eolian Reservoirs for Development: Nugget Sandstone, Utah-Wyoming Thrust Belt"
1985-86	Surdam, Ronald C.	"Point Arguello Field - History and Geology of a Giant Oil Discovery"
1985-86	Ziegler, Alfred M.	"Dealing with Risk and Uncertainty in Exploration: How Well do We Predict? How Can We Do Better?"
1985-86	*Ziegler, Peter A.	"Predictive Models for Sandstone Diagenesis"
1986-87	Craig, Dexter H.	"Paleogeographic Evolution of China"
1986-87	*Davies, Peter J.	"Evolution of the Arctic – North Atlantic Rift System"
1986-87	Downey, Marlan W.	"Yates Field, West Texas, Thousands of Caves, Millions of Years, Billions of Barrels"
1986-87	Dutton, Shirley P.	"The Great Barrier Reef - Evolution and Controls on Growth"
1986-87	Ingle, James C., Jr.	"Evaluating Seals for Hydrocarbon Accumulations"
1986-87	Miall, Andrew D.	"Diagenetic History of Pennsylvanian Fan Delta Arkosic Sandstones, Anadarko Basin: Geochemistry, Paleohydrology, and Reservoir Quality"
1986-87	Normark, William R.	"Paleoceanographic and Tectonic Evolution of Neogene Basins of the Pacific Rim and the Origin of Miocene Diatomites"
1986-87	Pitman, Walter C. III	"Facies Architecture in Sedimentary Basins: Decline and Fall of the Vertical Profile Analysis"
1986-87	Pray, Lloyd C.	"Modern Turbidite Systems – Model Limitations and Concepts for Comparing Fan Systems"
1986-87	Schull, Thomas J.	"Effects of Sea Level Changes on Basin Stratigraphy"
1986-87	Tankard, Anthony J.	"Capitan Reef Complex (Permian), Guadalupe Mountains, Southwestern United States: A Classic Sedimentologic Model in Flux"
1986-87	Wren, A. Easton	"Oil Exploration in Nonmarine Rift Basins of Interior Sudan"
1987-88	Craig, Dexter H.	"Extensional Tectonics and Stratigraphy of the Hibernia Oilfield, Grand Banks"
1987-88	Downey, Marlan W.	"Seismic Signal Amplitude and Stratigraphy: Back to the Basics"
1987-88	*Esteban, Mateu	"Yates Field, West Texas: Thousands of Caves, Millions of Years, Billions of Barrels"
		"Evaluating Seals for Hydrocarbon Accumulations"
		"Mediterranean Miocene Carbonates: Facies Models and Diagenesis"
		"Unconformities, Paleokarst Facies, and Porosity Evolution"

TABLE 1. AAPG Distinguished Lecturers, 1942-1991 (continued)

Dates	Name	Title Of Lecture
1987-88	Farina, John R.	"A Dry Hole or Reservoir Damage? What We Need to Know"
1987-88	Harris, P. M. (Mitch)	"Carbonate Facies and Reservoir Heterogeneity – The Value of Modern Analogs"
1987-88	**Mancini, Ernest A.	"Depositional Environments and Petroleum Geology of Jurassic Eolian Deposits (Norphlet Formation) Eastern Gulf of Mexico Area"
1987-88	Pray, Lloyd C.	"Capitan Reef Complex (Permian), Guadalupe Mountains, Southwestern United States: A Classic Sedimentologic Model in Flux"
1987-88	Sclater, John G.	"Extensional Models for the Formation of Sedimentary Basins and Continental Shelves"
1987-88	Scott, Alan J.	"A Spectrum of Late Paleozoic and Cretaceous Shelf Bars, Western United States" "Depositional Systems and Cycles, Eocene Yegua Formation, Texas, Gulf Coastal Plain"
1987-88	Thomasson, M. Ray	"Seismic Prediction of Porosity and Hydrocarbon Traps in Carbonate Rocks"
1987-88	Wood, Charles A.	"Geologic Exploration of the Solar System"
1988-89	Boles, James R.	"Diagenetic Mineral Reactions Reveal Rates of Fluid Movement and Timing of Oil Emplacement"
1988-89	Brown, Alistair R.	"Stratigraphic Interpretation of 3-D Seismic Data"
1988-89	Haq, Bilal U.	"Fluctuating Sea Levels of the Mesozoic and Cenozoic and Implications for Stratigraphy"
1988-89	**Kumar, Naresh	"Development Geology of the Giant Fields on the Alaskan North Slope: Key to Successful Reservoir Management"
1988-89	Leonard, Raymond C.	"Geochemical Basin Modeling: Generation, Migration and Entrapment of Hydrocarbons on the Southern Norwegian Shelf"
1988-89	Sarg, J. F. (Rick)	"Carbonate Sequence Stratigraphy and the Controls on Carbonate Platform Development – Case Study for the Permian of West Texas-New Mexico"
1988-89	*Schlager, Wolfgang	"Carbonate Platforms, Sequence Stratigraphy, and Sea Level"
1988-89	Sneider, Robert M.	"Reservoir Description for Exploration and Development: What is Needed and When?"
1988-89	Steidtmann, James R.	"Laramide Basin Subsidence and Basement Uplift in the Rocky Mountain Foreland"
1988-89	Turner, Christine	"Pore Throats to Plate Margins: An Integrated Approach to Basin Analysis"
1989-90	Biddle, Kevin T.	"Basin Evolution Along An Active Transform Margin The Los Angeles Basin" (AAPG's World Petroleum Basin Series)
1989-90	*Brooks, Jim	"New Role of Petroleum Geochemistry in Quantitative Prospect Evaluation and Basin Assessment"
1989-90	**Ebanks, W. J., Jr.	"Development Geology – Advances in the Eighties, Prospects for the Nineties"
1989-90	Edwards, John D.	"Divergent Margin Basins" (AAPG's World Petroleum Basin Series)
1989-90	Groshong, Richard H., Jr.	"Style and Balance of Extensional Structures"
1989-90	Houseknecht, David W.	"Role of Compaction in Determining Sandstone Porosity"
1989-90	Leighton, Morris W.	"Interior Cratonic Sag Basins" (AAPG's World Petroleum Basin Series)
1989-90	Magoon, Leslie B.	"Arctic National Wildlife Refuge – Petroleum Potential in One of the Last Alaskan Frontiers"
1989-90	Picha, Frank J.	"Sedimentary Provinces: Plate Tectonic Classification and Hydrocarbon Habitat – Africa, Middle East, and South America"
1989-90	Read, J. Frederick	"Field and Modelling Studies of Cyclic Carbonates: A Predictive Tool for Petroleum Exploration"
1989-90	***Vail, Peter R.	"Sedimentary Signatures – Tectonics Versus Eustasy"
1990-91	***Bally, Albert W.	"Folded Belts and Their Associated Basins as Seen on Reflection Seismic Profiles"

TABLE 1. AAPG Distinguished Lecturers, 1942-1991 (continued)

Dates	Name	Title Of Lecture
1990-91	Barton, Christopher C.	"Fractal Geometry and Chaos Theory: Their Application in the Earth Sciences"
1990-91	Brown, William G.	"Structural Styles: Arkoma and Ardmore Basins and Arbuckle Mountains"
1990-91	*Doyle, Mark A.	"Stratigraphic Modeling of Sedimentary Basins"
1990-91	*Lawrence, David T.	"Biological Models for Mesozoic Reef Evolution"
1990-91	Kauffman, Erle G.	"250 Million Years of Mass Extinctions – Dinosaurs to Man"
1990-91	Kerans, Charles	"Carbonate Reservoirs: Quantitative Characterization of Facies and Permeability Using Outcrop Analogs"
1990-91	**Nehring, Richard D.	"Creative Evolution of Exploration Concepts in the USA"
1990-91	Pratt, Lisa M.	"Paleoceanography and Paleolimnology of Petroleum Source Rocks"
1990-91	****Sales, John	"Uplift and Subsidence of Northwestern Europe: Causes and Influence on Hydrocarbon Entrapment"
1990-91	Sloss, L. L.	"Tectonics - The Primary Control on Sequence Stratigraphy: A Countervailing View"
1990-91	Van Wagoner, John C.	"Sequence Boundaries in Siliciclastic Strata on the Shelf: Physical Expression"

*AAPG Foundation's Bennison Distinguished Lecturer.

**AAPG Foundation's Haas-Pratt Distinguished Lecturer.

***AAPG Foundation's Dean A. McGee International Distinguished Lecturer.

****International Distinguished Lecturer - W. Europe.

THE AAPG VISITING PETROLEUM GEOLOGISTS PROGRAM†

(This article is an update of one published in the April 1983 AAPG Explorer.)

On a basis of time and money expended by AAPG Headquarters, one of the most effective programs in the Association's information activities is the Visiting Petroleum Geologists Program. Unfortunately though, relatively few members seem to be aware of this valuable service.

Begun in 1974, the program was first conceived in the Academic Liaison Committee, and after two or three years consideration was transmitted to the Industry Liaison Committee prior to its presentation as a joint recommendation to AAPG's Executive Committee. Although a number of AAPG members were involved in discussions and conferences during the formative period, probably no one offered more convincing arguments for its creation than Keith F. Oles of Oregon State University.

Prodded by what he had observed in institutions of higher learning, Keith Oles summed up his motivation thusly: "As a professor I was sick and tired of Keynesian 'campus philosophers' filling the students' minds with socialistic garbage."

Early in each Association year a brochure is sent to almost every college and university with a geoscience department. Those that accept and host visiting geologists are informed in advance that these scientists, though sponsored by AAPG, are in fact taking time

from their own work to share their knowledge of the profession with students and faculty. Recruiting, it is stressed, is not a function of the Visiting Petroleum Geologists Program. Rather, the speakers report on the current status of geology as a career and explain the sociological, economical, and political aspects of energy production.

As a rule, a visit to a campus includes a technical talk given during class hours, collective or individual rap sessions scheduled for the students, and a broad-based address usually presented in the evening to students, faculty, their spouses, and other guests.

Understandably, undertaking these rigorous two or three-day sojourns appeals to only a select minority of AAPG members; particularly since those participating must be able to spare the time from their careers and possess the means to pay travel expenses – no small item at current rates. Furthermore, to be well received, they must be able to prepare and present effective talks. Because of the searching questions often asked by students and faculty, the geologist must be well-versed in the science of petroleum geology, conversant on matters of the petroleum industry as a whole, and familiar with public issues affecting energy, geology, and worldwide economic conditions.⁷¹

The Visiting Petroleum Geologist Program has enjoyed obvious success, especially in those states where little or no petroleum exploration is occurring and where public awareness of our industry is lacking. In those states, during rap sessions, area students frequently are motivated to seek careers in the petroleum industry once they understand the opportunities and

†Appreciation is expressed to AAPG members Thomas W. Rollins, George B. Pichel, William P. Siard, and Keith F. Oles for information contributed for inclusion in this paper, and to AAPG staff members Linda L. Farrar, Merle Noel, Susan Bitner, Diane Bullock, Barbara Davis, and Stephanie Darling for supplying requested reference data.

challenges the discipline offers. Often students assume there are no jobs available simply because industry recruiters do not interview at a particular school. Sometimes the geologist is able to give some timely advice.

The Visiting Petroleum Geologists Program serves a vital function in AAPG's overall plan. In addition to disseminating knowledge, it fosters good will between AAPG and the academic community. Probably the greatest compliment the Program has received is the number of requests from universities each year. It is consistently more than the designated petroleum geologists can accept.

Committee Chairmen

There have been nine chairmen of the Visiting Petroleum Geologists Committee. The first chairman, John E. Sherborne, July to October 1974, was instru-

mental in organizing the program but tragically died in office barely three months after his term commenced. Sherborne was followed by:

- 1974–1975 – Charles J. Mankin
- 1975–1978 – George B. Pichel
- 1978–1984 – Thomas W. Rollins
- 1984–1985 – George B. Pichel
- 1985–1986 – Susan M. Landon
- 1986–1987 – Herbert G. Davis
- 1987–1990 – William A. Sax
- 1990–1991 – Norman L. McIver

A tabulation of participating speakers since the program's beginning; the number of speakers, their visits and total audience since 1974, and a list of the 140 universities and colleges visited is appended (Tables 2, 3, and 4).

TABLE 2. Visiting Petroleum Geologists, 1974 through June 1991

Sunit K. Addy	E. O. Fitzsimons	James O. Lewis, Jr.	Eugene F. Reid
Roger G. Alexander, Jr.	Ted E. Flanigan	Kathleen M. Lippert	Richard H. Remmer
George B. Asquith	James B. Fleece	Richard B. Lodewick	William E. Richardson
Richard R. Bloomer	Sara S. Foland	John C. Lorenz	Thomas W. Rollins
R. W. Boebel	Robert L. Foree, Jr.	Tom Mairs	Richard H. Sams
A. S. Bonner, Jr.	Sam Frazier	Mark McElroy	William A. Sax
Ygnacio Bonnillas	M. Gordon Frey	Norman L. McIver	Fred M. Schall, Jr.
John G. Borger	James A. Gibbs	Thomas M. McLaren	Richard E. Schneider
Lyle G. Bruce	Howard R. Gould	L. D. Meckel	Madelyn Schumacher
Ronald A. Butterworth	Patrick J. F. Gratton	Robert Megill	Hany R. Shalaby
Elisabeth Campen	Jeffrey C. Greenawalt	Lee H. Meltzer	William P. Siard
Don F. Carlos	John F. Greene	William J. Metzger	Elliot M. Simonberg
John R. Carson	Robert D. Gunn	Harry J. Meyer	Sigmund Snelson
William M. Chapelle	Jean L. Hamilton	Susan M. Morrice	Richard H. Snyder
Timothy L. Clarey	John F. Harris	D. E. Nedland	Glen W. Specht
James H. Clement	Frank W. Harrison	Elisabeth G. Newton	Richard Steinmetz
Robert D. Cowdery	William E. Harrison	Charles A. Norman	Raymond T. Stotler, Jr.
Norbert E. Cygan	Allen G. Hatley	Michael S. O'Day	M. Ray Thomasson
Ricky J. Dauzat	Mary Sue Hayward	Fred M. Oglesby, Jr.	Edd R. Turner
Herbert G. Davis	James H. Henderson	Mark D. Orgren	Willis W. Tyrell, Jr.
James R. Davis	Billy D. Holland	Donald A. Parks	Stephanie B. Urban
Charles F. Dodge	Greg D. Icenhour	Marshall C. Parsons	Arthur M. Van Tyne
Rebecca L. Dodge	A. V. Jones, Jr.	Charles E. Payton	Robert W. Walker
Richard O. Donley, Jr.	Harold A. Kuehnert	Samuel T. Pees	William W. Webber
Jack F. Dougherty	David R. Lammlein	George B. Pichel	Kenneth A. Weiler
Allan F. Driggs	Susan M. Landon	Max G. Pitcher	Larry D. Woodfork
Ward W. Dunn	G. Byrd Larberg	Lewis S. Pittman	Thomas L. Wright
Howard L. Ellinwood	E. D. B. Laudeman	William F. Precht	Donald L. Ziegler
A. Gordon Everett	Susan W. Laule	Arthur J. Pyron	
David B. Finnell	Donald W. Lewis	Barbara J. Radovich	

TABLE 3. Summary, Visiting Petroleum Geologist Program

Year	Total number of scheduled visits	No. of Speakers	Est. number of student and faculty attendance
1974-75	8	6	711
1975-76	22	11	1309
1976-77	9	7	308
1977-78	45	18	3764
1978-79	51	18	2958
1979-80	35	18	2999
1980-81	58	26	5134
1981-82	50	23	4279
1982-83	50	33	5598
1983-84	54	40	5071
1984-85	52	49	3436
1985-86	77	43	4066
1986-87	28	43	1510
1987-88	35	59	2000
1988-89	32	60	1800
1989-90	35	56	1901
1990-91	37	46	1807

TABLE 4. Colleges And Universities Receiving AAPG Visiting Petroleum Geologists, 1974-1991

Amherst University (Massachusetts)	Drake University (Iowa)
Appalachian State University (North Carolina)	Duke University (North Carolina)
Arizona State University	East Carolina University
Auburn University (Georgia)	Eastern Illinois University
Ball State University (Indiana)	Eastern Kentucky University
Baylor University (Texas)	Eastern New Mexico University
Beloit College (Wisconsin)	Eastern Washington University
Bloomsburg State College (Pennsylvania)	Edinboro University (Pennsylvania)
Boise State University (Idaho)	Emory University (Georgia)
Boston College (Massachusetts)	Florida International University
Bowling Green University (Ohio)	Florida State University
Brigham Young University (Utah)	Fort Hays State University
Brown University (Rhode Island)	Fort Lewis College (Colorado)
Bryn Mawr College (Pennsylvania)	Franklin & Marshall College (Pennsylvania)
Bucknell University (Pennsylvania)	Furman University (South Carolina)
California State University (Hayward)	Georgia Southern College
California State University (Long Beach)	Georgia State University
California State University (Northridge)	Georgia Southwestern College
California University of PA	Grand Valley State University (Michigan)
Carleton College (South Carolina)	Hardin-Simmons University (Texas)
Carleton University (Minnesota)	Hope College (Michigan)
Case Western Reserve University (Ohio)	Humboldt State University (California)
Central Michigan University	Idaho State University
Central Washington University	Illinois State University
College of the Redwoods	Indiana State University
College of William and Mary (Virginia)	Indiana University (Bloomington)
College of Wooster (Ohio)	James Madison University (Virginia)
Colorado College	Kansas State University
Colorado School of Mines	Kent State University
Colorado State University	Knox College (Illinois)
Columbia University (New York)	Lafayette College
Cornell University (New York)	Lamar University (Texas)
Dalhousie University (Nova Scotia)	Lawrence University (Wisconsin)
Dartmouth College (New Hampshire)	Lehigh University (Pennsylvania)
DePauw University (Indiana)	Louisiana State University

TABLE 4. Colleges And Universities Receiving AAPG Visiting Petroleum Geologists, 1974-1991 (continued)

Louisiana Tech University	University of Chicago
Mackay School of Mines (Nevada)	University of Cincinnati
Mansfield University (Pennsylvania)	University of Colorado (Boulder)
Memorial University of New Foundland	University of Connecticut
Memphis State University (Tennessee)	University of Delaware
Mesa College (Colorado)	University of Eastern Illinois
Michigan Technological University	University of Eastern Washington
Middlebury College (Vermont)	University of Florida (Gainesville)
Monmouth College (Illinois)	University of Georgia
Montana State University	University of Hawaii
Morehead State University (Minnesota)	University of Idaho
Mount Holyoke College (Massachusetts)	University of Illinois (Urbana)
New Mexico Institute of Mining and Technology	University of Iowa
New Mexico State University (Las Cruces)	University of Kansas
North Dakota State University	University of Kentucky
Northeast Louisiana State University	University of Lowell (Massachusetts)
Northeastern Illinois University	University of Maine (Orono)
Northeastern University (Illinois)	University of Massachusetts
Oberlin College (Ohio)	University of Miami (Florida)
Ohio University (Athens)	University of Michigan
Ohio State University	University of Minnesota (Duluth)
Oklahoma State University	University of Missouri (Columbia)
Old Dominion University	University of Missouri (Kansas City)
Oregon State University	University of Montana
Purdue University (Indiana)	University of Nebraska (Lincoln)
Radford University	University of Nebraska (Omaha)
Rensselaer Polytechnic Institute (New York)	University of Nevada (Reno)
Rice University (Texas)	University of Nevada (Las Vegas)
Rutgers The State University (New Jersey)	University of New Mexico
San Diego State University (California)	University of New Orleans
Smith College (New York)	University of North Carolina (Chapel Hill)
Sonoma State University (California)	University of North Carolina (Wilmington)
South Dakota School of Mines & Technology	University of North Dakota
Southern Illinois University (Carbondale)	University of Northern Arizona
Southern Methodist University (Texas)	University of Northern Colorado
Southwest Missouri State University	University of Northern Illinois
Stanford University (California)	University of Northern Iowa
State University of New York	University of Notre Dame (Indiana)
State University of New York at Fredonia	University of Oklahoma
State University of New York at Oswego	University of Oregon
Stephen F. Austin State University (Texas)	University of Pittsburg (Pennsylvania)
Sul Ross State University (Texas)	University of Puget Sound (Washington)
Syracuse University (New York)	University of Rhode Island
Texas A & M University	University of Rochester (New York)
Texas Agricultural & Industrial University	University of South Alabama
Texas Christian University	University of South Carolina
Texas Technological University	University of Southern California
Trinity University (Texas)	University of Southern Florida (<i>Tampa</i>)
US Naval Academy	University of Tennessee (Chattanooga)
University of Akron (Ohio)	University of Texas at Arlington
University of Alabama	University of Texas at Austin
University of Alaska (Fairbanks)	University of Texas at San Antonio
University of Arizona	University of Toledo (Ohio)
University of Arkansas (Fayetteville)	University of Utah
University of Arkansas at Little Rock	University of Virginia
University of California at Los Angeles	University of Washington
University of California at Riverside	University of Wisconsin (Milwaukee)
University of California at Santa Barbara	University of Wisconsin (Oshkosh)

TABLE 4. Colleges And Universities Receiving AAPG Visiting Petroleum Geologists, 1974-1991 (continued)

University of Wisconsin (River Falls)
 University of Wisconsin at Eau Claire
 University of Wyoming
 Utah State University
 Washington & Lee University (Virginia)
 Washington State University
 Waynesburg College (Pennsylvania)
 Weber State College (Utah)
 West Virginia University
 Western Illinois University
 Western Michigan University
 Western Washington University
 Whitworth College (Washington)
 Wichita State University (Kansas)
 Williams College (Massachusetts)
 Wooster College (Ohio)
 Wright State University (Ohio)

**AAPG STUDENT CHAPTER PROGRAM,
1978-1990**

James A. Hartman
Metairie, Louisiana

The AAPG Student Chapters Program was the brainchild of the 1978 Membership Committee, which at its meeting in Oklahoma City that year, recommended to the Executive Committee that a pilot program of four to six universities be initiated for a three-year period. To the Committee's knowledge, AAPG had never made a concerted effort to develop such a program, and with the high student enrollment at that time (in excess of 40,000 in the United States alone) such a program seemed timely. Prior to submitting this recommendation, it was necessary to prepare a model set of bylaws and an operations manual. Similar documents were obtained from various professional organizations that had extensive experience with student chapters and served as guidelines for the student chapter bylaws and operations manual. The proposal was submitted to the Executive Committee at its Casper, Wyoming meeting on June 3, 1979, and a six-school three-year pilot program was approved. Robert Gunn was AAPG's president and he strongly supported this program. Of the six universities, New Orleans, Oklahoma, Southern Methodist, Texas A&M, and Texas Tech were considered "oil patch" universities and Maryland was a "non-oil patch" university. One of the primary goals of this program was to get students to think of themselves as professionals prior to graduation. Accordingly, the following statement was added to the purposes of the program: "student chapters also provide a means of contact with the geological profession both inside and outside academia." The students were encouraged to attend local geological society meetings and section meetings of AAPG.

Initially the Student Chapters program was operated

as a subcommittee of the Membership Committee. The members of the initial subcommittee were Jules Braunstein, Charles F. Dodge, David E. Eby, James A. Hartman (chairman), O. T. Hayward and James A. Noel. In late 1981 when the program was beginning to expand rapidly, the Executive Committee established the Student Chapters Committee, which still is in charge of the program. The chairmen and their terms of service are given in Table 5. Table 6 is a list of those members who have served on the Committee.

In addition to the benefits received by all members of AAPG, student chapter members received numerous other benefits. These included transportation assistance to the annual meeting and regional meetings, a rebate of a portion of AAPG's dues, and participation in a student paper contest at the annual meeting with cash prizes and plaques being awarded. Additionally, a \$25 gift certificate for use at the AAPG Bookstore was given to each participant in the Student Paper Contest. The first contest was held at the Denver convention in 1980 and sixteen papers were presented. The winners for that convention and for all subsequent conventions are listed in Table 7. In 1984, the two divisions were combined into a single division.

The first year of the program was highly successful with the six chapters having a total membership in excess of 250. During this first year, AAPG Headquarters received numerous inquiries from other universities about how they could join the program. The Executive Committee of AAPG decided to allow the program to expand by three universities during the 1980-81 year, so Baylor, Louisiana State, and Wright State were added. Once again, many additional queries were received at Headquarters. With the success of the program, the Executive Committee decided to abandon the pilot program after its second year opting for a rapid, yet orderly, expansion. Consequently, by the Annual Meeting in 1982, there were 16 chapters. By the Annual Meeting in 1990 at San Francisco, the number of chapters had expanded to 33. Table 8 is a list of these chapters.

Initially the cash awards for the Student Paper Contest were \$100/50/25 for 1st/2nd/3rd places and were funded by AAPG. These awards were increased in 1984 to \$300/200/100 when the AAPG Foundation agreed to provide the funds. James E. Wilson, then chairman of the Foundation, was a strong advocate of this program and other student events which the Foundation supported over the years. A major increase in the amount of the cash prizes was made possible in 1989 by the generous support of Shell Oil Company. Shell agreed to present to the first place winner \$1000; the second place winner \$500; and the third place winner \$250. In addition, Shell agreed to present to the Geology Departments at the winners' universities a sum of \$5000/2500/1000. Shell's commitment is for five years. In 1990, additional corporate support was forthcoming. A Poster session was added, awarding both cash prizes and plaques. Texas Crude matched Shell's contribution of \$10,500 for the poster session winners and their departments for 1990. Amoco Production provided a grant of \$250/participant to help defray

travel expenses, while Edge Petroleum gave each participant a grant of \$100 to use in slide preparation. In addition, Exxon USA funded the student reception.

As the program matured, additional events were added at the annual meeting. At the 1983 convention in Dallas, two short courses for students and faculty were presented. "Interview Skills Workshop" was presented by Mary Sue Hayward to 100 students and "Career Opportunities in Petroleum Geology and Energy Minerals" was presented by a panel of professional geologists to a crowd of about 120. These courses have been offered at several conventions since that time and additional courses were added in response to requests by the students. Table 9 is a list of all courses and their presentors.

Field trips were added in 1984 at the San Antonio Convention. The first trips were to a drilling rig and to the Edwards Plateau area. These trips, as well as all student and faculty events, were priced only to cover costs to attract the maximum number of participants. At least one field trip has been presented at each convention since 1984. Table 10 is a list of field trips and their leaders.

The 1984 San Antonio Convention was the site of the first Student Chapter General Store. This concept was developed by the Headquarters staff in response to requests by some student chapters to sell various items at the convention to help defray travel expenses. The Executive Committee approved the concept with the provision that the Student Chapters benefit from it. AAPG purchases the items sold at the General Store such as clothing or AAPG jewelry. Students provide the manpower to help the staff operate the store, and in return their chapters receive a portion of any surplus generated. The General Store has been operated at every convention since 1984 and has returned sig-

nificant funds each year to the participating chapters. In 1987, a motion was approved to give back 10% of the surplus from the General Store to the AAPG Foundation. They continue to do this each year.

With the industry slowdown in the early 1980s, and the subsequent drastic reduction in student enrollment, there was concern that the student chapter program might be in jeopardy. This has not proved to be the case, and although the number of members has decreased, most chapters appear strong.

The program's success is a direct result of the combined hard work of the Student Chapters Committee, the students themselves, the faculty sponsors, the industry liaisons, and the wholehearted support of the Executive Committee and Headquarters staff. The latter includes Executive Director Fred Dix, Don O'Nesky, Norma Miller and Donna Riggs. Norma Miller has been the main workhorse of the Headquarters Staff, as far as the Student Chapters program is concerned, and deserves special recognition. And of course, the recent industry support has been most important. Based on results to date, it appears highly likely that the Student Chapter Program will continue for a long time.

TABLE 5. Student Chapters Committee Chairmen

Chairman	Years Served
James A. Hartman	1981-1984
David E. Eby	1984-1986
Richard C. Hager	1986-1988
Robert C. Shoup	1988-1990
Richard C. Hager	1990-1991
Robert L. Mathis	1991-1994

TABLE 6. Committee Members From 1981

Members	Years Served
Robert T. Clarke	1984-1995
Stewart Chuber	1993-1996
Gloria D. Cummins	1990-1995
Charles F. Dodge	1981-1986
David E. Eby	1981-1987
Richard C. Hager	1984-1995
Johnny B. Hailey	1986-1989
James A. Hartman	1981-1994
O. T. Hayward	1983-1985
Susan K. Heathcote	1985-1989
William E. Hottman	1983-1995
Karl J. Koenig	1981-1984
Gregory M. Larberg	1987-1990; 1992-1995
Matthew M. Laughland	1992-1995
Robert L. Mathis	1989-1995
James A. Noel	1981-1984
Veronica A. Mcfarland-Trigg	1989-1992
Robert C. Shoup	1983-1994
Manny D. Valle	1988-1993
Susan A. Waters	1990-1995

TABLE 7. Student Paper Contest Winners 1980-91

Location/Year	Division	Rank	Student	University
Denver 1980	Graduate	First	Sandra Phillips	Texas A&M
		Second	Timothy Drexler	University of Oklahoma
		Third	Robert C. Shoup	University of Oklahoma
	Undergraduate	First	Diane M. Simpson	University of Maryland
		Second	Evelyn Crossbard	University of Oklahoma
		Third	Gary G. Umbehagen	University of New Orleans
San Francisco 1981	Graduate	First	Timothy G. Holdeman	Wright State
		Second	Douglas G. Neese	University of Oklahoma
		Third	Job F. Blickwede	University of New Orleans
	Undergraduate	First	Edwin F. Jacobsen	University of Maryland
		Second	Jeanne Trivisono	University of Maryland
		Third	Stanley A. Orrell	University of Maryland
Calgary 1982	Graduate	First	David B. Crass	Baylor University
		Second	Edwin L. Trice	Baylor University
		Third	Christopher G. Avenius	University of New Orleans
	Undergraduate	First	David Brimberry	Baylor University
		Second	John P. Varndell	University of Maryland
Dallas 1983	Graduate	First	G. Michael Grammer	Southern Methodist University
		Second	Martin L. Shields	Baylor University
		Third	Thomas P. Ehrhart	Stephen F. Austin State Univ
	Undergraduate	First	Bernal V. Reneer	Baylor University
		Second	George D. Allen	Baylor University
		Third	Timothy M. Collins	University of Maryland
San Antonio 1984	Combined*	First	DeAnna L. Palladino	Baylor University
		Second	David L. Brimberry	Texas Tech University
		Third	Darrell Moore	Texas Tech University
New Orleans 1985	Combined	First	Milton A. Surles, Jr.	Baylor University
		Second	Stacy C. Atchley	Baylor University
		Third	Reese B. Pinney	University of New Orleans
Atlanta 1986	Combined	First	John Beck	Baylor University
		Second	Michael Carden	Baylor University
		Third	Mark G. Kittridge	Colorado School of Mines
Los Angeles 1987	Combined	First	Mark A. Chandler	Columbia University
		Second	Chris Barker	Baylor University
		Third	Hilary Clement Olson	Stanford University
Houston 1988	Combined	First	David N. Witter	Colorado School of Mines
		Second	Sally Abercrombie	Baylor University
		Third	Kimberly Sue Homan	Baylor University
San Antonio 1989	Combined	First	William Hardie	Baylor University
		Second	Nancy Hardi	Texas A&M
		Third	Matt Pranter	Baylor University
San Francisco 1990	Combined	First	Kurt Grimm	University of California
		Second	Dave Valasek	Colorado School of Mines
		Third	Don Edwards	Baylor University
Dallas 1991	Combined	First	Andrew Davidoff	Texas A&M
		Second	Patrick O'Connell	Baylor University
		Third	Lawrence Hinde	Baylor University

*Divisions were combined and judged as a single division from 1984 to the present.

TABLE 8. AAPG Student Chapters

Student Chapter	Faculty Sponsor	Sponsoring Society
Auburn University	David King, Jr.	Alabama Geological Society
Ball State University	Richard Fluegeman, Jr.	
Baylor University	Harold Beaver	Fort Worth Geological Society
Bowling Green State University	James E. Evans	Ohio Geological Society
California State University, Los Angeles	Perry Ehlig	Los Angeles Basin Geological Society
California State University, Bakersfield	Robert Horton, Jr.	San Joaquin Geological Society
Colorado School of Mines	Harry Kent and Timothy A. Cross	Rocky Mountain Association of Geologists
Cornell University	Teresa Jordan	New York State Geological Association
Fort Lewis College	John A. Campbell	Four Corners Geological Society
Hardin-Simmons University	Ed Hughes and Charles Lane	Abilene Geological Society
Louisiana State University	Arnold H. Bouma	Baton Rouge Geological Society
Louisiana Tech University	Gary S. Zumwalt	Shreveport Geological Society
Michigan State University	Duncan F. Sibley	Michigan Basin Geological Society
New Mexico Institute of Mining and Technology	Ronald F. Broadhead	New Mexico Geological Society
Northeast Louisiana University	Hugh B. Doney	Shreveport Geological Society
Northern Illinois University	Donald M. Davidson, Jr.	
Oklahoma State University	Zuhair Al-Shaieb	Oklahoma City Geological Society
Southern Methodist University*	Robert L. Laury	Dallas Geological Society
Stanford University	Stephan A. Graham	Northern California Geological Society
Stephen F. Austin State University	R. LaRell Nielson	East Texas Geological Society
Texas A&M University*	Robert Berg	Houston Geological Society
Texas Tech University*	Thomas Lehman	Lubbock Geological Society
University of Cincinnati	Wayne A. Pryor	Ohio Geological Society
University of Idaho	Kenneth F. Sprenke	Idaho Association of Professional Geologists
University of Maryland*	Anthony Segovia, David Doan, and Peter B. Stifel	Geological Society of Washington
University of Missouri at Kansas City	Richard J. Gentile	
University of Missouri at Rolla	Robert Laudon and Gerald Rupert	
University of New Orleans*	William C. Ward and Ralph L. Kugler	New Orleans Geological Society
University of Oklahoma*	John D. Pigott	Oklahoma City Geological Society
University of Southern California	Bernard W. Pipkin	Los Angeles Basin Geological Society
University of Texas at Arlington	Donald F. Reaser	Fort Worth Geological Society
University of Texas at Austin	Martin Lagoe	Austin Geological Society
University of Texas at El Paso	Dave L. LeMone	El Paso Geological Society
University of Tulsa	Colin Barker and Peter Michael	Tulsa Geological Society
Wright State University	Byron Kulander	Ohio Geological Society

*Charter Member Chapter

TABLE 9. List Of Short Courses

Courses	Year Given	Presenter(s)
Workshop in Interview Skills	1983-86	Mary Sue Hayward
Career Opportunities in Petroleum Geology and Energy Minerals	1983-86	William Ayrton Thomas Bultman Kelton Cloud Roger Harris James Hartman Gary Huber Susan Landon Robert Sneider David Eby Jame Gibbs Nancy Holland Stephen Sears Harrison Townes
Structural Styles and Evolution of Sedimentary Basins	1985	Albert Bally
Petroleum Geochemistry	1986	Mark Northam
Computer Applications in Petroleum Geology	1986	Kent Hunter Richard Hager
Applied Petrophysics	1987	Tim McGinley
Computer Applications in Petroleum Geology	1987	Paul Hall
Sequence Stratigraphic Interpretation	1988	Peter Vail
John Sangree		
Development Geology, Strategies for Recovery of Oil Remaining in Existing Reservoirs	1989	Texas Bureau of Economic Geology
Seismic Expression of Structural Styles: A Modeling Approach	1990	Martha Withjack Kristian Meisling David Fisher
Production Geology and Reservoir Description Needs in Field Development	1990	Robert Sneider
Comparative Sedimentology of Coastal Clastic Deposits: Bridges to Ancient Shoreline*	1990	Edward Clifton
Carbonate Depositional Environments	1991	Peter A. Scholle

*SEPM course

TABLE 10. List Of Field Trips

Trip	Year	Leaders
Drilling Rig	1984	Members of the Student Chapter Committee
Lower Cretaceous of the Edwards Plateau	1984	David Eby Richard Hager Robert Clarke
Modern Mudlumps and Associated Environments of the Mississippi Delta	1985	Robert Clarke George Hart
Drilling Rig, Offshore Louisiana	1985	Joseph Studlick
Recent Barrier Island Environment Kiawah Island, S.C.	1986	John Barwis Walter Sexton
Miocene Monterey Formation	1987	Caroline Isaacs William Benfield Pedro Ramirez Robert Clarke
Structural Features of the Southern Andreas Fault System	1987	John Crowell Robert Clarke
Recent Sediments of Southeast Texas	1988	Rufus LeBlanc, Sr.
Lower Cretaceous of the Edwards Plateau	1989	David Eby Richard Hager Robert Clarke
Geological Setting of the San Francisco Bay Area	1990	Raymond Sullivan Jon Galehouse Richard Hager Robert Clarke
Structure and Stratigraphy of the Arbuckle Mountains and Criner Hills, Southern Oklahoma	1991	Rodger E. Denison Jerry J. Kendall James C. Cooke Richard C. Hager

SECTION III

The Association: Landmark Policy Statements by AAPG Presidents, 1965-1991

The emergence of the petroleum industry as a major factor in the national and global economy resulted inevitably in political involvement. By the late 1970s the Association had acquired, in addition to its primary function of gathering and disseminating scientific data, the task of providing factually accurate information to the general public. This included such issues as depletion of energy reserves, environmental and ecological impact, and exploration and development of onshore and offshore government lands.

Despite opposition voiced by a few non-interventionists who believed the Association should restrict its activities to scientific matters, most AAPG members felt that the information being released on behalf of the industry at that point, by advertising agencies miles away from the oil patch, lacked the convincing authenticity that statements by practicing geologists could provide. Consequently, AAPG mounted a concentrated effort, utilizing the podium, press, radio, and television, to defend the industry's policies.

The three papers that follow are representative of the type of policy statements issued by Association presidents during the 1965 to 1991 interval. They reflect the temper of the period in which they were released and are included here at the request of the individual authors to supplement accounts of their terms in office (Section I, Chapter 3).

What Our International Petroleum Policy Should Be*

Sherman A. Wengerd

President 1971-72 – American Association of Petroleum Geologists

Socrates once said, "There is only one good, that is knowledge; there is only one evil, that is ignorance."

Aristotle – student of Socrates and teacher of Alexander the Great – said, "The only way to achieve true success is to express yourself completely in service to society."

The subject of this chapter is, "What our International Petroleum Policy Should Be." As a scientist, an exploration geologist, and as president of the American Association of Petroleum Geologists, I believe my views reflect the opinions of the majority of our 15,000 members. In spite of our name, we are an international scientific association; we have many members who are citizens and residents of other nations, and our American members explore for oil and gas in all parts of the Free World. In fact, it is our expertise that finds the oil for many foreign nations. Therefore, I feel that our views on international petroleum policy have much scientific and political weight. We must be heard as scientists who are willing to put our reputations on the line.

In every phase of international policy, petroleum or any other, the foreign policy should be integrated with domestic policy; in fact, it should be an extension of that national policy and a supplement to it. A foreign policy and a domestic policy in conflict with each other is nonsense. The two should be consistent parts of an integrated entity for the United States.

Like charity, policy begins at home. A meaningful foreign policy cannot be formulated until an understandable domestic policy is established. Our international petroleum policy must be based on our domestic petroleum policy, which today, we are sadly lacking.

Therefore, before getting into international policy, I must discuss the domestic base on which it should rest.

What do we mean by "policy"? What I mean by policy is a consistent and related body of aims, programs, and actions by officials and agencies of the federal government pertaining to petroleum or, to put it more broadly, the energy resource industries.

What is the United States energy policy today?

That's the \$64,000 question. Executive agencies of the government are following many diverse courses while elective officials are espousing conflicting proposals. There is confusion, uncertainty, and most operations are at cross-purposes. It can be truthfully said that today the United States has no policy regarding energy resources. We can hope that Senator Henry Jackson's committee will come up with the answers soon.

The energy resource industries have been suffering from this lack of policy or from the conflicting effects of unrelated policies of independently operating federal agencies. A unification of intent is necessary now.

CURRENT SCENE

First item: While the original oil import program was designed to hold up oil prices to a certain extent, the Federal Power Commission has pursued a policy of driving down natural gas prices, although both oil and gas are products of the search for hydrocarbons financed by income from the sale of both. The result: exploration for both oil and gas has fallen off drastically and a serious gas shortage is already being felt.

Second item: The Atomic Energy Commission went hog-wild in predicting an abundance of low-cost electricity by nuclear generation within a very short time, displacing the energy available from millions of tons of coal. So the coal industry, prudently or not, closed many mines and refrained from opening new ones while power companies built few new steam plants. But environmental and other bugs developed in nuclear technology, completion of plants was delayed, and costs were far above anticipation. The result: today we have a shortage of both electricity and coal to generate energy in many places of our nation.

Third item: This nation has suddenly gone on an ecology kick. We have massive programs with missionary zeal to end pollution of air and water and save the beaches, mountains, forests, birds, bees, and flowers. That's all well and good, but environmental protection has become an overriding policy that has shunted aside all other considerations. The result: Huge new oil dis-

*Address presented at the National Materials Policy Forum held in Austin, Texas, May 1972.

coveries in Alaska cannot be produced, developing offshore oil and gas is halted, and plans for new refineries and tanker terminals are stymied.

So I think it is quite evident that in the matter of energy sources and development, the United States is following a group of unrelated, often conflicting courses that add up to no policy at all.

The next question is, do we need a petroleum or an energy policy? Why not just let things work themselves out?

I am as great a champion of free enterprise as anybody, but free enterprise cannot operate effectively in a condition of conflict and chaos. Industry has the goals, but not the governmental guidelines. We need to know where we are supposed to go and abundant governmental encouragement as to how to get there.

Perhaps more important, energy is so crucial to the well-being and future of the American people that we, as a nation, cannot afford to let things drift.

It should not be necessary to prove, even to a politician running for dog catcher, that our entire economy and standard of living depend on mechanical energy and its wise use. Oil and gas supply 75% of that energy. Statistics by the United Nations show that nations with the highest per capita consumption of petroleum have the highest national income, and the United States stands at the top of the list in all categories.

The need for more energy of all kinds, petroleum energy in particular, is growing spectacularly. There are many published forecasts by competent economists, and all are of the same general magnitude. The most recent forecast by the National Petroleum Council states that total domestic oil demand will increase from 13.7 million barrels per day in 1970, to 26.0 million barrels per day in 1985. Some economists predict the demand for oil will increase more than 3.8% per year.

In the face of such forecasts and despite rising requirements of our citizens, the oil and gas industry in the United States is not capable of increasing its output appreciably. Why? This is no place to go into statistics, but we are already unable to supply the demand for natural gas. We are close to, if not at, our capacity to produce crude oil, and full capacity production would not meet demands without supplement from imports.

This is not nature's fault. Careful geological studies by the American Association of Petroleum Geologists for the National Petroleum Council indicate that 55% of the oil and 66% of the gas available in the United States is yet to be discovered. Further, there are tremendous potentials in liquid fuels or gas from coal, oil shale, tar sands, heavy crude, and increased recovery from existing fields.

We have not run out of oil, but we are at the point of running out of available supplies of oil sufficient for our needs. What we have run out of is inexpensive oil and gas. And we are about to run out of the incentive to go after the higher-cost petroleum because the market price is unattractive.

The reason for this rests with federal policies – price controls, tax provisions, and import permits –

which hold down prices and the return on capital by domestic producers. The situation can be reversed by a new set of policies. If this nation goes about this task the way it went about putting a man on the moon, we could attain whatever degree of self-sufficiency in energy resources that we desire.

These days we see many dire predictions about the inability of the United States to increase its output of oil and gas and the need to resign ourselves to ever-increasing imports. Most people overlook the footnotes which say that these predictions are based on current trends in the industry and the continuation of present defamatory and restrictive government policies.

So let us change the policies, reverse the trends, and make the most of the natural resources with which our great country is endowed. We must know where we are going domestically before we can have an intelligent foreign policy.

GUIDELINES

Here is an outline of the planks that geologists and geophysicists – the people who find petroleum and other energy resources – propose for a domestic petroleum policy for the United States:

1. A national, long-term goal increasing our resource base to make the United States as self-reliant in energy as possible while reasonably balancing cost, dependability, and protecting the environment.
2. It should have as its constitutional base national security, and security should be defined as more than oil for the military in case of war; broadly, it should include secure supplies for the civilian economy.
3. It should be adopted by Congress as an overriding policy applying to all federal departments and agencies, transcending political and sectional interests. It should be written in consistent, comprehensive, and understandable language, and it should be enforceable in the courts.
4. The policy should be administered by a single federal agency, such as the proposed Department of Natural Resources, which would have the authority to coordinate adherence to the policy by all other agencies. At present, there are 61 federal departments, bureaus, commissions, offices, and congressional committees setting or administering energy policies, and not even the president has the power to coordinate them.
5. The policy should be *market oriented*. This means that free and competitive market forces should regulate the interrelationship of energy supplies, their uses, and prices. In other words, no federal regulation of prices or end-use controls except in extreme emergency, such as war. For example, why should the FPC rather than market demand set the prices for gas at the wellhead?
6. A balance must be struck between the need to develop new energy sources and the need to protect the environment. Some agency must be given

the authority to make practical and commonsense compromises permitting industry to function under reasonable safeguards to the ecology. It is obvious that the Environmental Protection Agency is not operative at such a logical level.

7. A practical leasing policy for public lands, both onshore and offshore, including oil shale, must be part of the overall energy policy. It must incorporate the principle of multiple use with the royalty, bonus, and lease terms designed to generate the greatest amount of development by private industry, with optimum income to the federal treasury.
8. The role of government must be confined to researching more, less expensive, energy sources and their efficient utilization, while maintaining a free competitive market and fostering the health of the resource industries as a whole. The government must not undertake direct exploration for petroleum or operation of commercial oil wells, coal mines, uranium plants, and so on, except for research.
9. The government must provide a political and economic climate favorable to the growth of the domestic resource industries, including tax and fiscal policies that generate the huge sums of capital required to expand our resource base.
10. Imports should be limited to supplement, but not supplant, domestic energy sources. Their quantity and price should not discourage continuing or expanding efficiently operated industries unless productive capacity builds to a point officially determined to be beyond the needs of national security. This means that the price of imports must be high enough to encourage capital investment in new projects and, perhaps, high enough to stimulate developing untapped sources such as shale oil. The Organization of Petroleum Exporting Countries has already seen to this. The increased cost to consumers must be considered as premiums on a national security insurance policy, and it must be accepted by the public or else we will have neither security nor independent energy within a few years.

OUTLOOK FOR THE FUTURE

With such a domestic policy in effect, our foreign petroleum policy boils down essentially to a question of imports: what volume and from what sources? We will always have a sizeable volume of imports, although the volume need not be as large as some pessimists are predicting. However, under the policy I have outlined, the volume would be limited by the degree of self-sufficiency determined to be our national goal.

The foreign part of our national energy policy is concerned primarily with sources of our oil and gas imports. The most important consideration here is reliability. We should have sources that we can depend on to continue the flow of supplies regardless of

changes in international conditions.

Reliability is becoming more important than price. Up until now, the best source of imports was the one offering them at the lowest cost. This is no longer the sole consideration in national policy.

The era of inexpensive energy has ended everywhere. The rest of the world, like the United States, has run out of low-priced oil and gas. Again, the resource base and potential production are enormous, but some 80% of the Free World's petroleum reserves are in nations belonging to the Organization of Petroleum Exporting Countries (OPEC).

During the past two or three years, the actions of OPEC have completely changed the nature of the world's petroleum trade and outlook for its future. This fact is not yet fully realized by some of our government officials. The OPEC nations have shown a remarkable unanimity in working together to raise the export prices of crude oil uniformly. No longer can importers play one source against another to haggle down the price. The world petroleum trade had changed from a buyer's market to a seller's market. World demand for energy, most of it in the form of petroleum, is growing faster than demand in the United States. Today we must compete with other industrial nations of the world for foreign supplies. The OPEC nations have the power to determine the volume and the price of those supplies.

Now that the OPEC nations have tested their power and tasted victory, they are not going to play dead. In most of these nations, petroleum is the principal, if not the only, source of wealth and foreign exchange. These nations realize that petroleum is an exhaustible resource, and they are not going to sell their birthright cheaply. We can write it down for a certainty that inexpensive foreign oil is a thing of the past.

So instead of shopping around for the least expensive oil, we should look for the most accessible and most reliable sources. Accessibility is now a matter of geographical proximity, and reliability is partly the size of the country's resource base but largely a matter of having a stable and friendly government. On both scores, Canada and Mexico are at the top of the list and the rest of the Western Hemisphere follows.

However, the Western Hemisphere does not have the reserves to supply its own petroleum needs. Venezuela, the only important exporter, is a leader in OPEC and has recently taken a number of steps regarding her oil companies that can hardly be called friendly acts. Canada, too, is stirring with nationalistic spirit and if she should ever decide to use all her own oil instead of importing part of her requirements, there would be little left for the United States to import.

Therefore, we must deal with the Eastern Hemisphere. Here there are only two important sources of petroleum for the export trade: (1) Russia and China, who are presently in a cold war with the United States and can hardly be classed as friendly and reliable sources; and (2) OPEC, in addition to taking various measures to raise export prices, has a goal of nationalization, if not expropriation, of the petroleum facilities now operated by private oil companies within the

members' territories. Indonesia is already largely nationalized; Venezuela, Iran, Iraq, Algeria, and Libya are partly nationalized; and within the last three months the companies in most of the other Arab countries have agreed in principle to 20 to 40% government participation in their ownership. The OPEC countries say their goal is 51% control of petroleum facilities and operations, and some of them want 100%. In some countries, notably Iran and Venezuela, large concessions will expire within a few years and government oil monopolies are ready to take over, whether or not they have the expertise to continue new exploration and development.

Within a few years, we and the other oil-importing nations are going to be faced with a united front of national oil companies. It will be the governments of the OPEC nations, not our government representing United States oil companies, that say who gets how much oil and on what terms. Instead of company-to-company commercial dealings, world oil trade may become a matter of government-to-government negotiation. That means that political considerations will outweigh commercial factors.

Think what this could mean if we become heavily dependent on the OPEC nations for much of our energy supply. They could not only gouge us with the price, but they could cut off our supplies if they did not like our policies. Some of them are already talking about sanctions. For example, it is not at all inconceivable that the Arab nations, who control the bulk of the OPEC oil, could starve us for oil unless we reverse our Middle East policy. If the United Nations can impose economic sanctions on certain African countries because of their racial policies, it is within the realm of possibility that OPEC could embargo oil shipments forcing us to change our domestic policy. Today, oil is an international form of football.

So the world oil trade is entering a whole new ball game, where politics rather than economics calls the tune. Therefore, the United States must be prepared to fight fire with fire if necessary. In order to do this we may have to abandon some of our traditional foreign policies.

We should exempt petroleum trade from our historic most-favored-nation policy which obligates us to treat the goods of all countries alike. We should be free to discriminate, through differential tariff rates of selective quotas, in favor of those exporters whose oil is most accessible and most reliable, and against sources on which we do not want to become too dependent.

We should consider joining with other big importing nations such as Japan and western Europe, presenting a united front to OPEC. Perhaps this might eventually result in an international petroleum agreement, signed by both exporting and importing nations. Potentially, this would allocate world supplies so that all consumers would be assured of a share, give exporters a fair return, and renounce using petroleum as a political weapon by either sellers or buyers.

Such an agreement is far down the road. In the meantime, with the future as uncertain as it is, the

United States must act unilaterally and selfishly. We must limit the volume and the sources of our petroleum imports and keep the price from depressing our domestic industry. The machinery for doing this can be either tariffs or quotas or a combination, but our national administration must be flexible. The benefits of the price differential should go to the public rather than to a private interest, a foreign government, or governments bent on making us utterly dependent and then bleeding us dry.

At the same time, our State Department should give the strongest support, possibly short of gunboat diplomacy, or even with gunboat power, to United States' oil companies operating abroad. They must insist that other nations adhere to the American principles of sanctity of contract, with no confiscation without adequate compensation. Only in this way can civilized nations operate in peace and stability for all citizens who utilize energy.

I realize that some critics will label this policy chauvinistic, power politics, and oil imperialism. My answer is that this is no time for idealism or diplomatic niceties. A dependable supply of energy is of such overwhelming importance to our nation that if oil is to be used as a political weapon, we must be prepared to fight with every weapon in our arsenal.

There is only one other alternative. This brings me full circle to my original premise which I will restate like this: the best foreign petroleum policy for the United States is having such an adequate supply of domestic energy from the North American continent that we do not need to depend as heavily as predicted on foreign sources.

Following are several quotes concerning international oil and United States national energy policy.

I think I can safely say that we should look to our neighbor to the north, Canada, for a permanent energy alliance because it is a free country like ours without communist threat and where there is a very high energy supply potential. For this reason, it has remained a mystery to me that the United States and Canada have not, long ago, reached a firm petroleum international policy which later can be expanded into a petroleum hemispheric policy. In fact, the policies between these two great neighbors should include all forms of energy.

— *Michel T. Halbouty*
March 24, 1966

Five and three-quarters years later, Halbouty's forecast finally seeped into a prominent politician's mind:

The notorious instability of some of the major producing areas of the world is well known. The possibility that this instability will be exploited by others to the detriment of the United States is always present.

The situation elsewhere in the world makes it all the more important that we secure our energy supplies by utilizing to the fullest the resources

of the North American continent. In this connection, I am convinced that our relationship with our Canadian neighbors on energy matters must be strengthened. I believe we should be working toward the development of a broad North American energy policy. It may be desirable to establish a joint Canadian-United States energy board to develop such a policy and to deal with problems of mutual concern and to exploit opportunities for mutual benefit in the energy field.

– Senator Henry M. Jackson
November 16, 1971

If we have any enemies they must be chuckling over our dwindling discoveries of oil and gas. They will not need much armament if they control our oil supply. We will not need the ships and planes recommended by the Secretary of Defense if we cannot use them. Blackmail would leave us only two choices: surrender or nuclear war.

– Frank A. Morgan
statement before Senator Proxmire's committee.

*I challenge you never to forget,
“When the law is not on your side,
argue like hell about the facts.”*

Environmental Enigma

Robert D. Gunn

President 1978-79 – American Association of Petroleum Geologists

It is easy to be part of the environmental movement if you live in Maine or California, and it is easy to oppose it if you live in Texas. The environmental movement really has a lot going for it – it has performed valuable services to our country. If it has accomplished nothing else, it has made the scientific community aware of its social responsibilities. But in the United States today, we are facing our problems with too much pessimism. The static mentality, which results from a “no growth” philosophy, perceives that our resources are running out, that our technology is perverse, and that we are living with entropy and decay. This country cannot afford the luxury of such negativity. We can maintain our position in this economic world only if earth scientists are given the license to judiciously explore, find, and develop our mineral riches.

Today the United States is producing approximately nine million barrels of oil a day which, coincidentally, is the amount that we use for transportation and for our chemical industries. The lower 48 is a mediocre oil province, and has been picked over for well over a hundred years by the best oil searchers in the world. We are going to need all the cooperation we can get from the people and from the government in order to simply maintain the level of production at nine million barrels a day.

Petroleum will become scarce, not because of geological limitations, but because of political and environmental constraints. While the political constraints continue, we must use our valuable domestic petroleum only for transport and chemicals. That means that other fuel needs should be supplied by uranium and coal as often as possible.

In the next few months, it will be of paramount importance that we earth scientists advise the American people and Congress that most of the oil and gas found in our country's future will be found on Federal lands. We must encourage expeditious availability of Federal acreage, both on and offshore.

We must become involved in the classification of acreage under the Wilderness Lands Act of 1964. This act dictated that the RARE I Study take place. The acronym RARE refers to Roadless Area Review and Evaluation. Every roadless tract on federal land of 5000 acres or more was to be classified for future use. In

RARE I, approximately nine million acres were classified as wilderness. Then two years ago, environmental groups established that this study was not comprehensive enough, thereby forcing the Forestry Service to undertake the RARE II Study. Approximately 62 million additional acres are now under the process of evaluation. These recommendations will be submitted to Congress on January 28, 1979.

Most of this acreage is in the western part of the United States with the majority located along the Disturbed Belt where the most significant discoveries of oil and gas in the United States during the last 20 years have occurred. The difficult thing about this urgent classification procedure is that our industry is caught in a dilemma. We are being asked to provide data that we are forbidden to collect and the Forestry Service is being forced to analyze a resource trade-off without knowing what resource it is actually dealing with. I can proudly report to you that AAPG's Environmental Geology Committee and the Rocky Mountain Association of Geologists worked long and hard to provide significant amounts of geological information in regard to the RARE II land assessment. The industry and the country as a whole will someday be very grateful to these groups of people.

Vincent McKelvey, the deposed head of the USGS said, “The geographic frontiers have long since been traversed and prospected for the obvious signs of mineralization. But while the boundaries determined by geography have been reached and partially explored, the ones determined by human ingenuity are, at best, only dimly perceived if sighted at all.”

I have recently returned from Alaska where I met the friendliest and most professionally frustrated geologists in the world. I couldn't help but feel that each of them was very optimistic about his oil, gas, and mineral prospects; prospects which may never be explored. I came away with the feeling that Alaska is potentially the fanciest piece of real estate in the whole world.

Alaska is in trouble. Under Section 17 (2) of the Alaska Native Settlement Claims Act of 1971, the federal government was authorized to classify up to 80 million acres of wilderness lands to be selected by December 18, 1978. In May of this year, under the sponsorship of Congressman Morris Udahl, 123 million acres were classified in H. R. 39. This acreage was so

located that much of the remaining unclaimed acreage is not accessible. I find it unimaginable that such a valuable oil and mineral province could be withdrawn from exploration (and I must emphasize that I said only exploration) at a time when the country needs it the most. How frustrating! Why do the players in this game – the Sierra Club, the Friends of the Earth, and the United Auto Workers which make up the “Alaska Coalition” – attempt to prevent judicious exploration for both hydrocarbon and mineral reserves when the very future of our country may depend on their availability? I wish I could understand!

Many environmentalists have stated that if our mineral and energy situation becomes “really” serious, these lands could be opened for exploration. We must advise these people that there is a long lag time between exploration and actual production. On land, from the time of discovery to on-line production, over five years may be consumed. Offshore, this period can include over 10 years of time; time that will not be available should there be a “really” serious emergency.

H. R. 39 was rushed through the House of Representatives, but the Senate version of this bill is receiving serious and responsible consideration. Important and realistic input is being offered by the Office of Technology Assessment, our Alaskan geological friends, the American Association of Petroleum Geologists, and last but not least, the Department of Energy. Recently, the Senate set aside its version of the bill until next session. I am hopeful that the bill that does pass will be realistic.

You and I as earth scientists are natural environmentalists. We know how land forms came to be and we know they can be preserved and even enhanced. We must make it known that the extraction industries are sufficiently sophisticated today to deal with our environment. We must encourage the multiple-use concept; that is, where certain lands are made available for grazing, timber, hard mineral production, transportation, and recreation, as well as, the development of petroleum production. The American Association of Petroleum Geologists Division of Professional Affairs has recently approved a statement forcefully endorsing the multiple-use concept.

Unfortunately what is considered an intelligent use of land to businessmen is often not to environmentalists, and vice versa. The need for some type of compromise is apparent. The concept of multiple-use is a workable compromise supported by the petroleum industry. Such a compromise, however, cannot be worked out in an air of hostility and suspicion regarding the would-be users of land.

Those areas that are uniquely wilderness areas must be preserved without industrial exploitation, but the others must be fairly and unemotionally evaluated.

The environmentalist we oppose is that person who built his mountain home last year and is now totally consumed with maintaining the status quo. This type of environmentalism offers an extraordinary opportunity to combine the qualities of virtue and selfishness. This group is industrially exempt. By this, I mean that this elitist point of view does not take into account the

basic practicalities and necessities of our lifestyle. My quarrel is only with the political environmentalism that offers no reasonable alternatives and proposes solutions which entail abandoning present proven technology while waiting for solutions that are naively soft, attractive, or just around the corner. Stopping growth simply means falling behind, with all the economic consequences that would result.

Statesmen have always assumed that the quality of a country's economic development is among the principal factors determining its political, military, and international influence. The economic standard is determined by energy; the use of oil, gas, and coal now, and the use of uranium and thorium in the future. I therefore maintain that the development of nuclear energy is one of the most necessary prerequisites for retaining the economic and political independence of our country.

The major obstacle to public support of nuclear energy is doubt about its safety. This is a result of environmental propaganda. Nuclear energy is the safest; not just in some aspects but in all aspects including terrorism, sabotage, and waste disposal. The idea that a nuclear plant can blow up like an atomic bomb is preposterous. It is impossible because uranium for explosives is enriched to more than 90% pure, while uranium used to generate nuclear power is only 3.5% pure.

If all backup safety systems failed and there were a total loss of cooling which brought about an accidental melt, the molten core would eventually melt through the floor and sink into the ground to a depth of about 20 feet where it would be safe until salvage operations began.

Thermal pollution from the discharge of hot water into streams only shifts the spectrum of species very slightly. It has actually been called “environmental enhancement” by some scientists.

Waste disposal poses no problem whatsoever. Waste can be fused in glass and encased in steel and then buried about 2000 feet deep in a salt lens. These radioactive wastes decay 90% of their life even before they leave the reactor and, within 300 years, are safer than uranium ore in its natural state on the outcrop.

Actually, living near a nuclear plant is safer and cleaner than living near a power plant that burns coal which emits more radioactivity than the nuclear plant, plus sulfur dioxide, nitrogen oxide, and particulate matter.

Per unit consumed of energy, the hazards to human lives are at least 100 times greater for electricity generated from coal than from nuclear energy. The risks of accidents are incomparably greater for fossil fuels than for nuclear power.

Now, what about coal? To give you an idea of the immense volumes of coal that we possess, primarily in the western part of the United States, there are 18 times more BTUs of energy in our coal deposits than the Middle East possesses in oil. Our president knows this is true and he is encouraging the country to expedite the conversion to coal. The only problem is, he won't let us mine it and he won't let us burn it. The federal government owns an estimated 60% of the

western coal and controls another 20% through policies affecting tracts contiguous to federal land.

Environmentalists acting through the courts have done a great deal to slow our coal development. Due process tends to serve those who benefit most from delay and not the consumer who may benefit from fast action.

As an example, on September 21, 1977, Federal District Court Judge Jay Pratt ruled in favor of the Natural Resource Defense Council (NRDC), a private environmentalist, activist lawyers group and against the United States Department of the Interior. The case was NRDC vs. Hughes. As a consequence, the Department of the Interior must now rewrite the already prepared Environmental Impact Statement on Coal Leasing; thus freezing any new coal leases on federal lands until lengthy new Environmental Impact Statement requirements are fulfilled. It is estimated that this will take at least until 1981.

What has happened is that the court arbitrarily gave the decision making powers on federal coal leasing to the NRDC which is a private organization. The NRDC now, in effect, controls federal coal leasing policy in the United States.

This was not an adversary proceeding, because:

1. The Justice Department attorney, Jay Moreman, was, until he took the job representing the Department of the Interior, the executive director of the Sierra Club Legal Defense Fund.
2. The attorney, Jon Lesche, assigned to prepare the Department of the Interior Environmental Impact Statement is the same lawyer who, two years before, prepared the NRDC case against the Department of the Interior.

3. The NRDC attorney, B. Terras, in the proceeding was also a Sierra Club attorney; therefore, we see an arrangement where two "buddy" lawyers are on opposite sides of the case.

Our legal system was not designed to work this way.

I might point out that the very same "Moreman-NRDC" team effort has spilled over into the field of international affairs. The NRDC is demanding Environmental Impact Statements on Eximbank bank loans to foreign developing countries to assure that the foreign environment is not disturbed as a result of the loan. Our country is thereby losing constructive involvement with developing nations to other competing nations.

It is dangerous paradox that we earth scientists, who collectively know more about the mineral and water resources of the earth and who have the highest regard for the total environmental balance of the world, have no effective voice in public policy. But the fact is that this situation is of our own making: we earth scientists have not been sufficiently involved! We have not assumed our social responsibility. We must develop a constructive dialog with our environmental friends and with the public. We must be heard! The environmentalists and the public must be informed that the earth is not static, but that geological processes continually alter its interior and exterior. They must be aware that the world society cannot function without minerals; minerals that must be searched for and found by earth scientists.

Actually, you and I possess the only limited resource in this country; the one that can release us from reliance on all others. It is the imagination and creativity of free men. We must use them responsibly if our nation is to survive economically.

Key Elements for a National Energy Policy*

John D. Haun

President 1979-80 – American Association of Petroleum Geologists

The United States is using more than six billion barrels of oil per year and producing only half of that amount. The balance of our appetite for oil is fed by imports. But oil and natural gas resources in the United States, and the world, are finite. Within the next decade or so, the world petroleum supply and demand curves will cross. The results could be catastrophic if we are not prepared.

It is little comfort to recount the ways we arrived at the energy problems in the United States. Instead, we need to accept the problems as real and work together as a nation to find both short-term and long-term solutions.

The American Association of Petroleum Geologists' Executive Committee, representing 23,000 members world-wide, urges reducing our dependence on imported oil. This should be the major tenet of a United States energy policy and plan. Such a policy must emphasize:

1. Increasing domestic oil and natural gas exploration,
2. Increasing accessibility of public lands for petroleum and mineral exploration,
3. Improving oil recovery from existing fields,
4. Abandoning divestiture plans for oil companies,
5. Developing alternatives for traditional fossil energy sources,
6. Increasing conservation efforts, and
7. Developing reasonable environmental safeguards.

Attempts to develop a national energy plan are plagued by fears, however unrealistic, that the energy industry will take undue advantage of developing shortages. Congressional actions reflect this concern with such short-term economic objectives as increased prices and inflation.

AAPG members are also concerned about our economy, but we feel it is in the best interest of our nation for government, the citizenry, and private enterprise to cooperate in finding real solutions to our energy problems; solutions which will help us mitigate the consequences of depleting the world's fossil fuel energy.

DOMESTIC EXPLORATION FOR OIL AND NATURAL GAS

Any measures to decrease our deficit in international payments must include deregulating wellhead prices. Higher prices will stimulate exploration, develop crude oil and natural gas resources. Any increases in domestic energy costs will reduce demand. Further, total energy costs may not increase appreciably. The long-term result of increased wellhead prices will result in increased availability of needed energy alternatives such as coal, nuclear, and oil shale.

Higher crude oil taxes will only decrease the incentives for domestic exploration and development at a time when domestic drilling should be higher than at the record levels of 1956.

PUBLIC LANDS ACCESSIBILITY

Subject to reasonable attention to preserving our environment, public onshore and offshore lands must be available for the maximum exploration for energy fuels and minerals. Past and present practices restricting exploration activities on the theory that some areas may be designated as wilderness must be discontinued.

Regulators and the public must realize that minor environmental impacts produced by most exploration and development activities can be, and are, corrected in a relatively short time.

The time to consider designating wilderness areas is after determining the petroleum and mineral potential. This determination can only be accomplished by drilling!

The recent lock-up of 110 million acres in Alaska before conducting adequate exploration for petroleum and mineral deposits demonstrates a lack of understanding the long-term interests of the United States and its citizens.

Wilderness evaluations should be expedited while permits, regulations, and reports should be combined and simplified.

Public lands accessibility is a fundamental national problem. Regional attitudes calling for excessive restrictions should not have the effect of prompting decisions contrary to the national interest. For example, it is not reasonable to permit offshore petroleum development along the shores of some states while denying development off the shores of others. Colonial attitudes toward certain parts of the country have no place in a modern democracy.

Present methods of onshore leasing, subject to some modification, should continue. Federal onshore and offshore oil and gas leasing must be accelerated.

Past methods of leasing Outer Continental Shelf (OCS) lands have worked reasonably well and should continue. Recent leasing methods involving royalty bidding will have a negative effect on long-term additions to oil and natural gas reserves. The higher the federal royalty, the larger a new field must be for economic viability.

The ultimate result of high royalty payments will be a lack of development or early abandonment of fields that could provide significant additions to reserves. The argument that royalty bidding offers smaller companies the opportunity to compete is not valid when considering the maximum good for the country.

Pre-leasing on-structure drilling in OCS areas determining the presence or absence of oil or natural gas is a misguided concept. Implementing this method of OCS development would, in effect, put the federal government in the exploration business; an activity which is now adequately served by private enterprise.

This practice, if initiated and coupled with royalty bidding, would increase the initial revenue to the federal government, but would be disastrous for the national goal of increasing petroleum reserves. The fundamental objective of OCS leasing should be maximum resource development, not maximum income to the federal government!

The long-term benefits of on-structure drilling by petroleum companies after lease acquisition may result in more federal income from taxes and royalties, than from federally-sponsored drilling.

IMPROVED RECOVERY OF OIL FROM EXISTING FIELDS

Improved or enhanced oil recovery (secondary and tertiary recovery) has been a major target of research and development in the petroleum industry for many years. At present, only about 33% of petroleum is recovered from known reservoirs. Billions of barrels more could be realized with improved or enhanced oil recovery. Tax and pricing concessions to this effort are appropriate actions for the federal government, in addition to cooperative projects now in progress.

Again, the aim should be increasing petroleum availability rather than generating a maximum income for the federal government.

There are conflicts between enhanced oil recovery activities and regulations designed to protect the environment. Much heavy oil requires steam injection for

economically attractive production. In California alone, more than 100,000 barrels per day are not produced because of Environmental Protection Agency restrictions.

ABANDONING DIVESTITURE PLANS FOR OIL COMPANIES

Vertically integrated companies produce, transport, refine, and market petroleum products. Some companies also have developed horizontally to produce coal, uranium, or geothermal energy. Efforts have been made to break up integrated companies by forced divestiture of vertical or horizontal functional divisions.

Divestiture, either vertical or horizontal, will not increase our supply of energy and will not enhance the economy of our country. Vertically integrated companies have the opportunity to absorb losses or compensate for low profits in one activity by taking advantage of profit opportunities in another activity. Vertical divestiture would probably result in inefficiencies and increased consumer costs.

We believe that horizontal divestiture is equally inappropriate. As the availability of crude oil and natural gas decreases, it becomes more and more imperative that petroleum companies become energy companies.

Oil companies' experience and expertise in exploring, developing, transporting, and refining petroleum can be used to great advantage by efficiently developing new "alternate" energy sources. The massive capital needed to develop new energy sources is more appropriately a function of oil and natural gas companies than of companies that do not have corporate histories of investments in projects having a high potential for financial loss.

The fear that petroleum companies might control alternate energy sources to restrict developing the alternate sources is not confirmed by history. Further, it does not make economic sense in view of the corporate philosophy of anticipating profits from investments.

AGGRESSIVELY DEVELOPING ALTERNATIVES FOR TRADITIONAL FOSSIL ENERGY SOURCES

A "war-effort" program is necessary to develop significant production from alternative energy sources by 1990. With adequate incentives and/or governmental assistance (guaranteed loans, product purchase agreements, and tax credits), industry can accomplish this objective most efficiently.

Coal is the most obvious fossil fuel alternative to out traditional dependence on oil and natural gas. In addition to the direct combustion of coal, there is a need for synthetic gasoline to replace declining domestic oil production. A national objective should be to produce synthetic gas and liquids (synthetic fuels) from coal of at least the equivalent of one million barrels of oil per day by 1990.

We should conduct oil shale exploitation using conventional mining techniques as well as in situ meth-

ods. It will be extremely difficult and expensive to scale up to a production level of one million barrels of shale oil per day within the next 20 to 25 years.

Natural gas has been produced for many years from eastern Devonian shales and western "tight" sandstone reservoirs and similar reservoirs in other areas. We should increase our efforts to tap these resources in larger volumes. Federally-initiated incentives are appropriate. The geologic nature of these reservoirs, however, precludes an abrupt large-scale production increase.

The emotional climate surrounding nuclear energy has inevitably slowed developing this important energy source in the United States. But this country and the world must become more dependent upon nuclear fuels to generate electricity.

Solutions to the problem of disposing of radioactive waste have been developed and should be implemented. In addition, developing breeder reactors as quickly as possible, and spent-fuel reprocessing should be normal practices. Fusion reactors are not expected to be in operation for at least 50 years, which will be too late to ease our interim energy problems.

Geothermal energy should be exploited wherever possible. Even a small increment of energy from this source is important. We should encourage investigating methane-saturated geopressured waters of the Gulf Coast region.

Economic and technological problems with solar energy probably will slow any significant contributions from this energy source until the next century. Nevertheless, implementing more aggressive research and pilot programs as soon as possible are necessary.

Traditional energy sources like oil, natural gas, coal, nuclear minerals, and water power, will carry the bulk of the energy burden during the remainder of this century, allowing us sufficient time to pursue vigorously developing alternative energy sources. We must, however, begin action now in pursuit of all alternative energy sources!

INCREASED CONSERVATION EFFORTS

We believe that we must increase our efforts to conserve all forms of energy and become meticulous in our efficient use of available energy. Stringent conservation is mandatory to stretch conventional energy sources over the time needed to develop alternate sources. We have neither the energy nor the time to waste.

Existing laws, such as highway speed limits, should be vigorously enforced. Concentrated efforts for public education regarding the economic implications of exponential energy growth are necessary.

Past conservation efforts by Congress, governmental agencies and the private sector are commendable. It is

apparent, however, that severe conservation measures will ultimately lead to a decline in gross national product and, ultimately, a decline in our standard of living.

REASONABLE ENVIRONMENTAL SAFEGUARDS

One of the basic characteristics of geologists is a keen interest in outdoor activities. This interest and concern for the earth is a contributing factor in their choosing geology as a profession. Consequently, geologists favor activities that minimize environmental degradation. We have not just recently acquired this attitude. We have long been aware that the earth – its plants, animals, minerals, and oceans – nurtures all of us and must be protected.

However, we know it is possible to conduct seismic exploration and exploratory or development drilling in a manner permitting us to restore the impacted areas satisfactorily. Usually, such impacts are quite temporary.

Prohibitions against petroleum or minerals exploration in wilderness or potential wilderness areas "in the national interest" are commonly contrasted with exploration activities thought to be "in the interest of the energy industry." This bias must be dispelled! Energy and minerals exploration activities, especially during this time of serious crisis, are unequivocally "in the national interest."

To summarize: The United States uses more than six billion barrels of oil per year and only produces three billion barrels per year. With the exception of discovering the Prudhoe Bay field in Alaska, we have only been adding reserves of less than 1-1/2 billion barrels per year. This includes discovering new fields and reservoirs in oil fields, extending old fields, and revising previous estimates. Maintaining our present rate of production is a major challenge to the petroleum industry and to the nation.

Future energy needs currently served by oil and natural gas will be met by extending existing fields, discovering new fields, improving recovery, adding alternative sources (including substituting natural gas for oil), and continuing imports of foreign oil.

Economic incentives or disincentives, environmental constraints, foreign policy, and production patterns of the oil-producing nations will determine the future mix of domestic and imported oil or natural gas supplies.

The American Association of Petroleum Geologists firmly believes that it is in the nation's interest to initiate policies at the earliest opportunity that will enhance long-term energy resource additions, and to vigorously avoid short-term expedencies.

SECTION IV

The Association: Recognition of Distinguished Members, The Sidney Powers Medalists, 1943-1991

The Association has always been generous in its recognition of those who make outstanding contributions to the field of geology. The list of honors and awards bestowed each year at its annual convention has grown to include, in addition to the Sidney Powers Award, the Honorary Membership Awards, the Human Needs Award, the Public Service Award, the Distinguished Service Award, the J. C. "Cam" Sproule Memorial Award, the President's Award, the George C. Matson Award, the Journalism Award, the A. I. Levorsen Memorial Award, the Wallace Pratt Memorial Award, and the Jules Braunstein Memorial Award. Recipients of these over the past 25 years comprise a list in itself worthy of separate publication.

It is fitting that this updating of the Association's history from 1965 to 1991 should end with a tribute to the Sidney Powers Medalists. It is hoped that the accomplishments as recorded here by Grover and Sally Murray, will inspire the men and women of the American Association of Petroleum Geologists to garner even greater attributes and recognition for themselves, their profession, and the Association in the years to come.

Sidney Powers Memorial Award

(HOMO SAPIENS VAR. SIDNEY POWERSI¹)

Grover E. Murray and Sally M. Murray
Lubbock, Texas

"No one knows what he can do until he tries."
– Publilius Syrus, *Maxim* 785
(in Bartlett, 1946)



Sidney Powers
1890 – 1932

INTRODUCTION AND HISTORY

The Sidney Powers Memorial Medal is the American Association of Petroleum Geologists' most distinguished award. This award was established in 1943 to preserve the memory of Sidney Powers, a dynamic

force in the first decade of the Association's development, a guiding genius in the development of the profession of petroleum geology and a continuing inspiration to young and old alike through his rigorous pursuit of scientific data related thereto. [See Eulogy and Biography by Wrather (1933) and Clark (1933)].

Morley (1966) reviewed the history of developments regarding the Medal Award Committee and the Sidney Powers Memorial Medal (p. 742-743):

MEDAL AWARD COMMITTEE

The Medal Award Committee was established at the Fort Worth annual meeting in April, 1943. A clause was added to the bylaws stating that the purpose would be to choose recipients for all medals or other awards which may be established by the executive committee.

The Committee was to be composed of nine members appointed by the president, for three year terms, each incoming president to appoint three new members as three retired. One of the appointees each year must be a past-president, and three ex-officio members to be the president of the Association, the president of The Society of Exploration Geophysicists (S.Ex.G.), and the president of The Society of Economic Paleontologists and Mineralogists (S.E.P.M.). The president of the Association was to be the chairman unless at his election he appointed a chairman to serve for one year.

Acting under his prerogative, Rodger Denison, the incoming president, assumed the chairmanship of this new committee (*Bulletin*, v. 28, 1944, p. 668). At the first executive committee meeting on April 21, 1943, of the newly elected officers (A. Rodger Denison, president, Robert W. Clark, vice-president, Robert E. Rettger, secretary-treasurer, Carey Croneis, editor, and Fritz L. Aurin, past-president), rules and regulations to guide the committee's work were adopted. These rules gave power to the medal award committee to solicit funds in the sum of \$10,000

¹Adapted from response by Grover E. Murray on receipt of the 36th Powers Medal, Dallas, Texas, 1983.

for the Sidney Powers Memorial Medal Fund. The first appeal for funds was sent out June 15, 1943. By September, president Denison could report in the Association Round Table that \$3,754 had been contributed by 471 members and others. By the 1944 Dallas annual meeting the fund had reached \$5,777 from 795 contributors. The affiliated geological societies had much to do with raising this money. The successful establishment of the Sidney Powers Memorial Fund culminated in August, 1944. Eight hundred contributors had by then raised the fund to \$5,807.25. E. DeGolyer then contributed \$4,192.75, to bring the fund to its goal, of \$10,000, for a principle account (*Bulletin*, v. 28, 1944, p. 1231), the income from which was to be used for the purchase of the medal award. The committee, through extensive correspondence, formulated criteria for the determination of the recipients. By a series of preferential mail-ballots, Wallace E. Pratt was nominated for the award and after approval by the executive committee was declared the first recipient of the Sidney Powers Memorial Medal. The medal and a citation written by E. DeGolyer were presented at a ceremony on the evening of March 27, 1945 in Tulsa, Oklahoma (*Bulletin*, v. 29, 1945, p. 477-494).

Rodger Denison, in introducing E. DeGolyer, who made the presentation, said of the award (p. 477): "This award is in recognition of distinguished and outstanding contributions to or achievements in Petroleum Geology. Eligibility for the award is extremely broad, there being no limitations with respect to membership in the Association, nationality, or otherwise. Under these broad rules, it is even possible for a scientist of some other profession to receive the award. The criteria are solely the quality or quantity of the contributions or achievements. We have, then, in this award the highest honor which can be bestowed by the profession of Petroleum Geology."

Everette DeGolyer's presentation includes the interesting biography of Wallace Pratt, and the recipient's reply in the form of a eulogy of Sidney Powers. We can only suggest renewed reading of these interesting and inspiring talks in the May, 1945, *Bulletin*. (See Denison, p. 477; DeGolyer, p. 478-490; Pratt, p. 491-494.)

In his citation of Medalist Edgar W. Owen, W. J. Hilsweck wrote additionally regarding qualifications (1964, p. 1437):

In the learned and professional organizations, a distinguishing characteristic is the practice of individual societies to recognize one of their fellows for transcendent gifts he has bestowed on his co-laborers. The Sidney Powers Memorial Medal Award is the label placed on this honor by our Association.

The candidate for Medalist is recommended after an intense analysis of his career, and the contributions he has made in the application of

exploration and exploitation techniques are weighed. His written and spoken words must have had a significant effect upon geological thought; his teaching has had to be inspirational; his scientific and professional contributions must exhibit personal sacrifice.

The basic qualifications and specifications for the Medal remain in effect today although some changes in the by-laws and the rules have occurred. Principally, they are:

1. The presidents of SExG and SEPM are no longer ex-officio members of the Medal Award Committee due to changes in relationships between those organizations and AAPG.
2. In 1967, a constitutional amendment implemented automatic Honorary Membership for recipients of the Medal who might not have been so recognized previously. It apparently was not retroactive.
3. A revised constitution and by-laws (*AAPG Bulletin*, 1969, v. 53, p. 223-231, p. 1137-1146; 1970, v. 54, p. 562-565), duly approved and implemented July 1, 1970, placed responsibility for recommending "... recipients for all honors and awards which may be established by the Executive Committee ..." (Bylaws, Art. IV, Sect. 7, Honors and Awards) in the jurisdiction of the newly created Advisory Council (Bylaws, Art. IV) and apparently eliminated the Medal Award Committee, per se.
4. The only change of possible real significance was made in 1975, when the Advisory Council recommended (April 7) and the Executive Committee approved (Minutes of June 30-July 1, 1975, meeting, p. 4) that "...selection of Powers Medalists be restricted to the membership of AAPG."

Exactly why this restriction was placed on the medal award is unclear especially in view of the fact that in the 30 years from 1945 to 1975 only one Medalist – the renowned W. Maurice Ewing – was not a member of AAPG at the time of receipt (1969). Ewing was duly designated an Honorary Member under the 1967 revision of the constitution and bylaws. He applied for certification in December 1969 (Sponsors: G. Moses Knebel, Hunter Yarborough, Jr., George C. Grow, Jr., Michel T. Halbouty) and was properly certified in 1970 (#1219). All other recipients of the Medal have been long-time members of AAPG, frequently with many years of service to the Association.

Special attention is drawn to this particular change to emphasize that today, rather than being awarded solely "...in recognition of distinguished and outstanding contributions to, or achievements in, petroleum geology..." (Denison, 1945, *AAPG Bulletin*, v. 29, p. 477; AAPG, 1989, Honors and Awards [unpublished report], p. 2; *AAPG Bulletin*, v. 77, p. 2131) the requirement of membership (in AAPG) introduces a **factor which could take precedence over contributions or achievements**. We hasten to point out, however, that the matter of membership is perhaps a moot issue. For one to be considered for the Award, a nomination has to be made to the Honors and Awards

Committee which reviews annually the nominees and makes a recommendation to the Advisory Council. The Advisory Council achieves its own decision and, in turn, recommends to the Executive Committee which makes the final decision to award the Medal. We consider the chances of a non-AAPG member passing all these hurdles to be essentially nil. Therefore, we continue to question why the 1974-1975 Advisory Council and Executive Committee felt it necessary or desirable to change the original requirements which we believe gave the Award a broader spectrum – as was the obvious intent of the founders of the Award. We also point out that if some non-member did make such an outstanding contribution that his/her nomination was recommended by the Honors and Awards Committee and the Advisory Council, the Executive Committee, within its broad powers, (1) could deny the recommendation or (2) could elect the individual to Honorary Membership and therefore eligibility for the Award.

Accordingly, specifications and qualifications for the Medal now read (AAPG, 1989, Honors and Awards [unpublished report], p. 2):

SIDNEY POWERS MEMORIAL MEDAL

The Sidney Powers Memorial Award is given in recognition of distinguished and outstanding contributions to, or achievements in, petroleum geology. It is AAPG's most distinguished award, and is made at such times as the Executive Committee may designate, but not more than once in any calendar year.

Restrictions

The recipient must be an Active (includes Honorary, Emeritus, and Life) Member of the Association. A candidate must be living at the time of selection and willing to be present to receive the medal and certificate at the time and place designated by the Executive Committee, normally at the Annual Convention.

Guidelines for Consideration of Candidates

Consideration should emphasize **contributions to petroleum geology** – not necessarily service to the Association. Contributions may have been in a variety of forms or combinations, such as a significant development in geologic concepts, advancement in discovery thinking, leadership in exploration and the development of explorationists, inspiration and academic preparation of petroleum geologists, etc. Publication is not a necessary criterion; it is recognized that in today's competitive world, publication may not be feasible for many very able explorationists. Honorary Membership is not a prerequisite for consideration, but it may serve as a useful checklist for potential candidates.

Procedure For Recommendation

Nominations for this award should be submitted, along with documentation, to the Chairman of the Honors and Awards Committee at Association Headquarters. All nominations become part of a permanent file for future consideration and need not be resubmitted, but additional information

may be submitted at any time. The Committee's recommendations will be submitted to the Advisory Council, which in turn will submit its selection to the Executive Committee for final action.

Description of Award

The gold-plated medal features a bas-relief likeness of Sidney Powers and the name of the Association on the obverse side. On the reverse side are inscribed the words, "Awarded for Distinguished Achievement in Petroleum Geology," along with the name of the recipient. The medal is mounted in Lucite and is presented along with an embossed certificate. Honorary Membership is automatically bestowed upon recipients of the Sidney Powers Memorial Award, if they have not already received that honor.

History

The Powers Medal was established in 1943. The first recipient was Wallace E. Pratt.

Sidney Powers was a founding member and the 14th president of the Association. He died in 1932 at the age of 42. Frank R. Clark, in his memorial to Sidney Powers said, "Sidney Powers will be known by future generations for his able contributions to pure and applied geology, but, important as are his scientific achievements, his character was greater, because it typified service to others."

RECIPIENTS

Through 1991, the Association has presented 44 medals. In some instances, neither the certificate which accompanied the medal nor any record of the citation embossed thereon could be located. In those instances the senior author summarized the germane points made by the citationist.

Medalists to date are:

1945 (1)

**WALLACE EVERETTE PRATT
(1885-1981)**

CITATION: "For his early and continued contributions to the Art of exploration for oil through application of the Science of Geology and for his advancement of the Profession of Petroleum Geologist through his able and friendly skill as an administrator and executive."

– E. DeGolyer.

FULL CITATION: *AAPG Bulletin*, v. 29, p. 477-490.

"As great as he was as a petroleum geologist, Wallace Pratt will be remembered above all as a distinguished philosopher of the science of petroleum."

– Amos Salvador

MEMORIAL, *AAPG Bulletin*, v. 66, p. 1414-15. G.S.A. Memorial to Wallace Everette Pratt, 1885-1981 (by Amos Salvador).

[1946 – No Award]

1947 (2)

**ALEXANDER DEUSSEN
(1882-1959)**

SUMMARY OF FULL CITATION: For (1) inspirational leadership and guidance for a generation of fellow work-

ers through his exemplary individual accomplishments as a petroleum geologist; (2) classical presentations regarding the geology of the Gulf Coastal Province, especially oil and gas occurrence, underground water supply and salt-dome growth and distribution; (3) productive advisement to the Texas, Canadian, and U.S. governments regarding oil and gas reserves and natural resources; (4) pioneering efforts in the development and use of electric logging; (5) establishing one of the early micropaleontological laboratories for research on Gulf Coastal sediments; and (6) formulation of the Association's Code of Ethics.

– Wallace E. Pratt (*abridged by Grover E. Murray*)

FULL CITATION: *AAPG Bulletin*, v. 31, p.829-835.

MEMORIAL: *AAPG Bulletin*, v. 44, p. 371-374.

(See also *GCAGS Transactions*, 1959, v. IX, Dedication)

1948 (3)

**ARVILLE IRVING LEVORSEN
(1894-1965)**

SUMMARY OF FULL CITATION: In recognition of (1) distinguished contributions to, and achievements in, petroleum geology by virtue of successful oil finding; (2) inspirational leadership, forward and creative thinking, influencing myriads of students and young geologists, as well as others, thereby substantively furthering the interests of petroleum geology; and (3) publishing many new and original ideas related to exploration.

– Arthur E. Brainerd (*abridged by Grover E. Murray*)

FULL CITATION: *AAPG Bulletin*, v. 32, p. 823-826.

MEMORIAL: *AAPG Bulletin*, v. 49, p. 1534-1537; G.S.A. Memorial to Arville Irving Levorsen, 1894-1965 (by Wallace E. Pratt).

[1949 – No Award]

1950 (4)

**EVERETTE LEE DEGOLYER
(1886-1956)**

SUMMARY OF FULL CITATION: For revolutionary contributions to and significant achievements in petroleum geology through (1) spectacular geological discoveries of oil and gas in the western hemisphere, especially Mexico; (2) formation and administrative leadership of Amerada Petroleum Corporation, Rycade Oil Company, Geophysical Research Corporation, and the Consulting firm of DeGolyer and McNaughton; (3) pioneering in the design, development and application of the reflection method of seismic surveying; (4) completion of the first practical and successful torsion balance survey in the U.S.; (5) first geophysical discovery of a producing oil field in the U.S.; (6) extensive public and philanthropic activities; and (7) eminent publications, including pioneering studies on the nature of salt domes. "... in so doing he helped mightily in making a science."

– Carey Croneis (*abridged by Grover E. Murray*)

FULL CITATION: *AAPG Bulletin*, v. 34, p. 971-974.

MEMORIAL: *AAPG Bulletin*, v. 41, p. 969-974; GSA

Memorial to Everette DeGolyer, 1886-1956 (by Wallace E. Pratt)

1951 (5)

**MAX STEINEKE
(1898-1952)**

SUMMARY OF FULL CITATION: For (1) exceptional achievements in the discovery of vast reserves of oil and

gas in Saudi Arabia with reconnaissance and detailed surface geology, including the initial use of structural core drilling; and (2) outstanding contributions as a teacher through his training of young geologists.

– G. C. Gester (*abridged by Grover E. Murray*)

FULL CITATION: *AAPG Bulletin*, v. 35, p. 1694-1697.

MEMORIAL: See *AAPG Memoir* 6, p. 1319-1352; American Arabian Oil Co., *Aramco and its World*, p. 174-203, Washington, D.C., 1981; *Aramco World Magazine*, "Aramco: A Celebration," v. 35, May-June, 1984; Stanford University, *The Stanford Earth Scientist*, December 1990, p. 5-7 and front cover.

1952 (6)

**KENNETH CONRAD HEALD
(1888-1971)**

CITATION: "To Dr. Kenneth Conrad Heald, scientist and promoter of science, executive and business administrator, leader and developer of men, brilliant in intellect, outstanding in achievements, rich in the warmth of human kindness, rich in humor and the joy of life, and rich in the love of those who knew him."

– Max W. Ball

FULL CITATION: *AAPG Bulletin*, v. 36, p. 1486-1492.

MEMORIAL: *AAPG Bulletin*, v. 56, p. 2298-2300.

1953 (7)

**FREDERIC HENRY LAHEE
(1884-1968)**

SUMMARY OF FULL CITATION: For outstanding contributions to and significant achievements in petroleum geology through (1) faithful and sustained interest and participation in Association activities; (2) significant publications regarding faulting, lateral versus horizontal migration, and Lahee's *Field Geology*, which directly or indirectly resulted in the discovery of many of the great oil fields of the world; (3) success in leading and guiding one of the most respected and able oil finding organizations in the industry; and (4) providing both the industry and the nation with needed, accurate statistics of annual discovery, relative efficiencies of different methods of exploration and the relation of effort to discovery.

– A. I. Levorsen (*abridged by Grover E. Murray*)

FULL CITATION: *AAPG Bulletin*, v. 37, p. 1822-1826.

MEMORIAL: *AAPG Bulletin*, v. 53, p. 2014-2015; G.S.A. Memorial to Frederic Henry Lahee, 1884-1968 (by William B. Heroy, Jr.)

1954 (8)

**GEORGE MARTIN LEES
(1898-1955)**

SUMMARY OF FULL CITATION: For outstanding success in exploratory ventures internationally, especially in the Middle East, and for his outstanding contributions to geological literature related to petroleum geology.

– E. DeGolyer (*abridged by Grover E. Murray*)

FULL CITATION: *AAPG Bulletin*, v. 38, p. 1627-1631.

MEMORIAL: *AAPG Bulletin*, v. 39, p. 1447.

[1955 – No Award]

1956 (9)
WILLIAM EMBRY WRATHER
(1883-1963)

CITATION: "For his outstanding contribution, through wise and vigorous leadership as a pioneer, in the field of petroleum geology; for distinguished achievement through the early successful application of geologic principles to oil-finding; and for effective direction through arduous war-time years of critical geologic activities of government."

– Wallace E. Pratt

FULL CITATION: *AAPG Bulletin*, v. 40, p. 1740-1743.

MEMORIAL: *AAPG Bulletin*, v. 48, p. 1733-1738; G.S.A. Memorial to William Embry Wrather (by J.E. Brantly).

1957 (10)
JOSEPH POYER DEYO HULL
(1889-1967)

CITATION: "For distinguished achievement in successfully administering the affairs of the American Association of Petroleum Geologists, both managerial and editorial, and in selflessly serving petroleum geology throughout the world by probity in example, consideration in precept, and steadfastness in respect for the power of the printed word."

– C. L. Moody

FULL CITATION: *AAPG Bulletin*, v. 41, p. 1647-1648.

MEMORIAL: *AAPG Bulletin*, v. 52, p. 174-175.

1958 (11)
PAUL WEAVER
(1888-1964)

CITATION: "For eminent service to the profession in the application of the fundamental disciplines in advancing the science and technology of exploration for oil and gas reserves; for outstanding contributions to the advancement of petroleum geology through geophysics; for distinguished achievement in adding to our knowledge of salt dome mechanics; and as a pioneer and leader in many other fields of economic geology."

– Roy R. Morse

FULL CITATION: *AAPG Bulletin*, v. 42, p. 1745-1748.

MEMORIAL: *AAPG Bulletin*, v. 49, p. 317-319; G.S.A. Memorial to Paul Weaver, 1888-1964 (by Morgan J. Davis).

1959 (12)
RAYMOND CECIL MOORE
(1892-1974)

CITATION: "For major contributions to the science of geology in the fields of stratigraphy and paleontology; for distinguished service as a teacher and as state geologist of Kansas; and for outstanding leadership in the organization and direction of local, national, and international societies responsible for the advancement and application of geology."

– Edgar W. Owen

FULL CITATION: *AAPG Bulletin*, v. 43, p. 1738-1741.

MEMORIALS: The Paleontological Society, 1989, *Memorial and Bibliography, Memoir* 25, 29 p. by Christopher G. Maples and Rex Buchanan, in v. 63, Supplement to no. 6, Pt. II of II; Kansas Geological Survey, *The Journal*, 1989, v. 7, no. 1-2, *In Celebration of Raymond Cecil Moore*, p. 5 and *Tribute to Lillian*

Boggs Moore, p. 4 by W. W. Hambleton; Kansas University Dept. of Geology, Special Publication, no. 2, 1967, eds., Curt Teichert and E. L. Yochelson; *Ray Moore: A Personal Tribute* by Wallace E. Pratt and Merrill W. Haas, p. 3-4 and *Raymond Cecil Moore* by Carl O. Dunbar, pgs. 5-17.

1960 (13)
HENRY VAN WAGENEN HOWE
(1896-1973)

CITATION: "For outstanding contributions to petroleum geology through research in stratigraphy and micropaleontology; for distinguished service to the profession by organizing and guiding the development of a leading school of geology at Louisiana State University, and by inspirational teaching of many of industry's geologists and micropaleontologists."

– H. N. Fisk

FULL CITATION: *AAPG Bulletin*, v. 44, p. 1260.

MEMORIAL: G.S.A. Memorial to: Henry V. Howe, 1896-1973 (by James P. Morgan); H. V. Anderson, 1974, *GCAGS Transactions*, v. 24, p. XXII-XXIII.

1961 (14)
CLARENCE LEMUEL MOODY
(1888-1963)

CITATION: "For distinguished achievement through successful application of geology, paleontology, and seismology to oil finding; for his contribution to the geology of the United States; for his steadfast character and his sharing of scientific knowledge with others; for his leadership in furthering the objectives of the American Association of Petroleum Geologists."

– Frank R. Clark

FULL CITATION: *AAPG Bulletin*, v. 45, p. 1285-1287.

MEMORIAL: *AAPG Bulletin*, v. 48, p. 1205-1207.

1962 (15)
LEWIS GEORGE WEEKS
(1893-1977)

CITATION: "For outstanding contributions to petroleum geology, especially the origin, migration, and accumulation of oil on a worldwide basis and to petroleum economics; for his illustrious leadership in the geological profession; for his far-reaching inspiration to his associates, students, and geologists in many lands; and for his distinguished service and contributions to the American Association of Petroleum Geologists."

– George V. Cohee

FULL CITATION: *AAPG Bulletin*, v. 46, p. 1332-1333.

MEMORIAL: *AAPG Bulletin*, v. 63, p. 378-379.

1963 (16)
HOLLIS DOW HEDBERG
(1903-1988)

SUMMARY OF FULL CITATION: In recognition of advancement of petroleum geology through eminent geological contributions and activities, distinguished administrative leadership and dedicated inspirational teaching.

– Grover E. Murray

FULL CITATION: *AAPG Bulletin*, v. 47, p. 1480-1481.

MEMORIAL: *AAPG Bulletin*, v. 73, p. 1022-1025; G.S.A. Memorial to Hollis D. Hedberg, 1903-1988 (by Timothy A. Anderson).

1964 (17)
EDGAR WESLEY OWEN
(1896-1981)

SUMMARY OF FULL CITATION: For (1) consummate success as an oil finder; (2) laudable services to higher education, increasing the common ground between industry and the university and aiding students in career orientation; and (3) achievements in applied sciences as embodied in his career.

– *William J. Hilseweck (abridged by Grover E. Murray)*

FULL CITATION: *AAPG Bulletin*, v. 48, p. 1437-1439.

MEMORIAL: *AAPG Bulletin*, v. 65, p. 1652-1654; G.S.A. Memorial to Edgar Wesley Owen, 1896-1981 (by Robert H. Dott, Sr.).

1965 (18)
VICTOR ELVERT MONNETT
(1889-1972)

SUMMARY OF FULL CITATION: In recognition of outstanding contributions to the concept and knowledge of buried hill structures, innovative teaching of geology, eminent administration and building of the School of Geology at the University of Oklahoma, and significant impacts on the profession through his guidance of substantively large numbers of students into petroleum geology imbued with the conviction that new and significant reserves of oil and gas would be discovered through the active application of geology.

– *William J. Hilseweck (abridged by Grover E. Murray)*

FULL CITATION: *AAPG Bulletin*, v. 49, p. 1069-1070.

MEMORIAL: *AAPG Bulletin*, v. 57, p. 751-752.

1966 (19)
WILLIAM BAYARD HEROY
(1883-1971)

SUMMARY OF FULL CITATION: For outstanding contributions to, and significant achievements in (1) earth sciences, (2) the use and applications of geophysical methods, (3) petroleum exploration, (4) the public welfare, and (5) administration.

– *Robert E. Rettger (abridged by Grover E. Murray)*

FULL CITATION: *AAPG Bulletin*, v. 50, p. 1823-1824.

MEMORIAL: *AAPG Bulletin*, v. 58, p. 2537-2538.

1967 (20)
CAREY CRONEIS
(1901-1972)

CITATION: "In recognition of unparalleled success in welding geology, education and administration; major contributions to the Paleozoic geology of Mid-Continent United States; building the Rice Geology Department to eminence in a decade; inspirational influence on many eminent geologists through teaching or personal contacts and bringing petroleum geology to the attention of the public through civic and professional activities."

– *Grover E. Murray*

FULL CITATION: *AAPG Bulletin*, v. 51, p. 1414-1416.

MEMORIAL: *AAPG Bulletin*, v. 56, p. 2088-2089, G.S.A. Memorial to Carey Croneis, 1901-1972 (by L.L. Sloss).

1968 (21)
WILLIAM MAURICE EWING
(1906-1974)

CITATION: "For the pioneering character, worldwide scope and fundamental nature of his research into the

facts of ocean geology, leading toward the solution of many major riddles of earth science; for the example of his inventive genius, inspiring enthusiasm and vigor, for the astuteness and vision that sparked his work, for his generous sharing of knowledge, and for his distinguished achievement in education and administration, particularly the building of Lamont Geological Observatory in a brief period to its pre-eminent position as an earth science center."

– *Lewis G. Weeks*

FULL CITATION: *AAPG Bulletin*, v. 52, p. 1337-1339.

MEMORIAL: *AAPG Bulletin*, v. 58, p. 2192-2194; G.S.A. Memorial to Maurice Ewing, 1906-1974 (by J. Lamar Worzel).

1969 (22)
IRA HIGGINS CRAM, [SR.]
(1901-1989)

CITATION: "In recognition of extraordinary success as a catalyst who *does* take part in the action; for having fruitfully fused the talents of geophysicists, geologists, and petroleum engineers; for early recognition of the productive possibilities and problems of offshore areas and complex structures; for cogent explanations of geology, geophysics, and the economics of natural resources to laymen and legislators; and for being a geologist who brightly illuminates the Powers tradition."

– *Carey Croneis*

FULL CITATION: *AAPG Bulletin*, v. 53, p. 1545-1546.

MEMORIAL: *AAPG Bulletin*, v. 73, p. 951-952; G.S.A. Memorial to Ira Higgins Cram (Sr.), 1901-1989 (by Grover E. Murray).

1970 (23)
FRANK RINKER CLARK
(1881-1974)

CITATION: "In recognition of his unyielding insistence on excellence; of his surpassing capacity to train and inspire others; of his remarkable endowment with the ability to think and to reason logically, without prejudice; of his many great contributions, tangible and intangible to geology and to geologists; of his humility and compassion toward all things; and of his right to inherit the veil of the Powers' tradition."

– *Kenneth C. Heald*

FULL CITATION: *AAPG Bulletin*, v. 54, p. 1770-1773.

MEMORIAL: *AAPG Bulletin*, v. 59, p. 176-177; G.S.A. Memorial to Frank Rinker Clark, 1881-1974 (by Frank A. Morgan).

1971 (24)
FRANK ALBERT MORGAN
(1889-1976)

CITATION: "In recognition of his staunch character and his extraordinary achievements in petroleum exploration; his great service to petroleum geology, to his colleagues, to this Association, and to the oil industry whose foundation is the excellence of its geologists and the integration of their science with the business of oil discovery and production; all in the tradition of his distinguished friend, Sidney Powers."

– *Henry H. Neel*

FULL CITATION: *AAPG Bulletin*, v. 55, p. 1108-1110.

MEMORIAL: G.S.A. Memorial to Frank A. Morgan, 1889-1976 (by Mason L. Hill).

1972 (25)
MORGAN JEFFERSON DAVIS, [SR.]
(1898-1979)

CITATION: "In recognition of extraordinary success as a petroleum geologist and farsighted leadership in the oil industry; for his willingness as an oil company executive with an already heavy load to assume leadership of scientific and educational organizations; for his early recognition of Permian reefs in West Texas and New Mexico which have proved to be of major economic significance; for his diligent effort in the important aspects of life in his community; and for dramatically illustrating at all times the type of courageous judgment characteristic of Sidney Powers."

— *W. Dow Hamm*

FULL CITATION: *AAPG Bulletin*, v. 56, p. 1884-1885.

MEMORIAL: *AAPG Bulletin*, v. 65, p. 1650-1652; G.S.A. Memorial to Morgan J. Davis, 1898-1979 (by Wallace E. Pratt and Dean A. McGee).

1973 (26)
GORDON INGHAM ATWATER
(1907-1973)

CITATION: "In recognition of extraordinary success as a petroleum geologist; for masterful and productive integration of geology, geophysics, and economics; for incisive analyses of salt diapirs, contemporary faulting, and the relationships of porosity to hydrocarbon productivity, and for cogent, lucid presentations of these analyses; and for mindful attention to public and individual problems of the petroleum industry."

— *Grover E. Murray*

FULL CITATION: *AAPG Bulletin*, v. 57, p. 1807-1809.

MEMORIAL: (No known record)

1974 (27)
GEORGE MOSES KNEBEL
(1899-1974)

CITATION: "In recognition of a remarkable career as a petroleum geologist; for success as an oil finder extraordinary; for stimulating the minds of those explorationists who are fortunate to have been his associates; for seeking the truth through research; for being a dedicated and contributing member of our Association; and in particular for the vigor, empathy, and warmth he has given those of us who have walked by his side."

— *Merrill W. Haas*

FULL CITATION: *AAPG Bulletin*, v. 58, p. 1879-1881.

MEMORIAL: *AAPG Bulletin*, v. 59, p. 1024-1025; G.S.A. Memorial to George Moses Knebel, 1899-1974 (by W. E. Wallis).

1975 (28)
DEAN ANDERSON MCGEE
(1904-1989)

CITATION: "Dean McGee, eminent petroleum geologist, energy developer, and industrialist, but above all a gracious man, willing to contribute his time and talents for the benefit of his fellow citizens; it is fitting that he should receive this award, for Sidney Powers was also such a man."

— *K. K. Landes*

FULL CITATION: *AAPG Bulletin*, v. 59, p. 1711-1713.

MEMORIAL: *AAPG Bulletin*, v. 74, p. 1295-1298.

1976 (29)
WILLIAM DOW HAMM
(1900-1983)

CITATION: "A distinguished scientist and international explorationist of true pioneer family background; uncommonly successful in finding new petroleum reserves in many parts of the world; a man of faultless character and the recipient of many richly deserved honors; a trainer of men; a fine administrator; a man of courage and determination, and above all, a warm friend."

— *Morgan J. Davis, [Sr.]*

FULL CITATION: *AAPG Bulletin*, v. 60, p. 1595-1597.

MEMORIAL: *AAPG Bulletin*, v. 68, p. 661-662.

1977 (30)
MICHEL THOMAS HALBOUTY
(1909-)

CITATION: "For distinguished and outstanding contributions to and achievements in petroleum geology; in the affairs of the AAPG, and technical publications, in continuing education and research, in helping young people, in public service, and in public understanding of petroleum geology and the oil and gas industry."

— *John D. Moody*

FULL CITATION: *AAPG Bulletin*, v. 61, p. 2037-2040.

1978 (31)
KENNETH HARTLEY CRANDALL
(1904-1987)

CITATION: "For outstanding contributions to petroleum geology and the petroleum industry; for the early observation that maximum exploratory results require fusing geological and geophysical data, close cooperation of many people and continuing alertness to new data and new ideas; for increasing academic and public understanding of petroleum geologists and the petroleum industry."

— *Ira H. Cram*

FULL CITATION: *AAPG Bulletin*, v. 62, p. 1740-1741.

MEMORIAL: *AAPG Explorer*, May 1987.

1979 (32)
WILLIAM HIRST CURRY, JR.
(1904-)

CITATION: "For outstanding geological contributions and their successful application to petroleum discovery, for public service in informing our government of the urgent need for adequate petroleum exploration and for continuing service to our profession and this Association."

— *Kenneth H. Crandall*

FULL CITATION: *AAPG Bulletin*, v. 63, p. 1558-1561.

1980 (33)
KENNETH KNIGHT LANDES
(1899-1981)

CITATION: "To an outstanding and untiring geologist, teacher, writer, and administrator for his many contributions to petroleum geology and service to our Association and the geologic profession."

— *John T. Rouse*

FULL CITATION: *AAPG Bulletin*, v. 64, p. 2193-2194.

MEMORIAL: *AAPG Explorer*, January 1982; G.S.A. Memorial to Kenneth Knight Landes, 1899-1981 (By John A. Dorr, Jr.).

1981 (34)
MASON LOWELL HILL
(1904-1992)

CITATION: "For leadership in discovery thinking, for inspiration to his fellow geologists for outstanding contributions to the art and science of geology, especially in the area of fault interpretation and for dedicated service to his profession."

– *John E. Kilkenny*

FULL CITATION: *AAPG Bulletin*, v. 65, p. 2448-2450.

MEMORIAL: *AAPG Bulletin*, v. 76, p. 1847-1849; G.S.A. Memorial to Mason Lowell Hill, 1904-1992 (by Rollin Eckis, Marie Hill and Dorothy Stout).

1982 (35)
DANIEL ADOLPH BUSCH
(1912-)

CITATION: "In recognition of outstanding scientific achievements; for development of new exploration concepts, especially in search for stratigraphic traps; for devoted and inspirational training of explorationists, worldwide, in the art and science of oil finding; for establishment of AAPG's Continuing Education Program; and for outstanding leadership and dedicated service to his profession."

– *Howard R. Gould*

FULL CITATION: *AAPG Bulletin*, v. 66, p. 1656-1658.

1983 (36)
GROVER ELMER MURRAY, [JR.]
(1916-)

CITATION: "To Grover E. Murray, distinguished professor and administrator, eminent geological scientist and author, for his visionary leadership, administrative ability, and dedicated service to our professional associations, particularly AAPG; the excellence of his prolific published contributions, and his years of inspirational geological teaching."

– *Donald R. Boyd*

FULL CITATION: *AAPG Bulletin*, v. 67, p. 1429-1432.

1984 (37)
ROBERT JAY WEIMER
(1926-)

CITATION: "His wise teaching, his illuminating stratigraphic studies, and his eminent leadership of professional activities have enriched all geologists and dignified their science."

– *Bruce F. Curtis*

FULL CITATION: *AAPG Bulletin*, v. 68, p. 1058-1061.

1985 (38)
JERRY BEN CARSEY
(1902-1988)

CITATION: "His zeal for training young geologists to find hydrocarbons, his personal fervor for finding significant oil and gas reserves, his visionary leadership, dedication and service to AAPG, have enriched geologists and strengthened our profession."

– *Bernold M. Hanson*

FULL CITATION: *AAPG Bulletin*, v. 69, p. 819-821.

MEMORIAL: *AAPG Bulletin*, v. 73, p. 525-527.

1986 (39)
MERRILL WILBER HAAS
(1910-)

CITATION: "To Merrill W. Haas, distinguished earth scientist, for his visionary leadership; for outstanding contributions to and achievements in petroleum geology; for devoted and inspirational work with young explorationists; and for dedicated service to AAPG and to his profession."

– *Michel T. Halbouty*

FULL CITATION: *AAPG Bulletin*, v. 70, p. 760-762.

1987 (40)
JAMES ERNEST WILSON, [JR.]
(1915-)

CITATION: "To James E. Wilson, for his leadership in exploration and the development of explorationists, his distinguished contributions to the petroleum industry, and his dedicated service to AAPG and to his profession."

– *Thomas F. Hart*

FULL CITATION: *AAPG Bulletin*, v. 71, p. 750-752.

1988 (41)
RUFUS JOSEPH LeBLANC, SR.
(1917-)

CITATION: "To Rufus J. LeBlanc in recognition of outstanding contributions and leadership in research on stratigraphy and sedimentation, for devoted and inspirational teaching of earth scientists engaged in petroleum exploration and development, and for his dedicated service to AAPG and the petroleum geology profession."

– *Robert M. Sneider*

FULL CITATION: *AAPG Bulletin*, v. 72, p. 497-499.

1989 (42)
HUGH NEUMANN FRENZEL
(1918-1990)

CITATION: "In recognition of exemplary character, outstanding scientific contributions, enhancement of professionalism in the geologic community and for distinguished leadership and service to AAPG and the petroleum geology profession."

– *Richard D. Jons*

FULL CITATION: *AAPG Bulletin*, v. 73, p. 675-676.

MEMORIAL: *AAPG Bulletin*, v. 74, p. 1481-1483.

1990 (43)
JOHN TAYLOR GALEY
(1907-1992)

CITATION: "To John T. Galey, fourth generation oil and gas man, quintessential *independent* petroleum geologist and gentleman, for a long and illustrious career of high achievement and unstinting service in the science and profession of geology and its practical application toward the betterment of mankind."

– *Larry Woodfork*

FULL CITATION: *AAPG Bulletin*, v. 74, p. 1135-1137.

MEMORIAL: *AAPG Bulletin*, v. 77, p. 1105-1106; G.S.A. Memorial to John Taylor Galey, 1907-1992 (by Larry D. Woodfork).

1991 (44)
JOHN E. KILKENNY
(1913-)

CITATION: "To John E. Kilkenny, a geologist's geologist, who distinguished himself in many ways: as an Earth scientist in the fields of petroleum geology and geothermal geology, where he was a creative oil and steam finder; as a leader and inspiration for young and old explorationists, and whose dedication to AAPG and professional leadership attest to his character and attainment.

– Ted L. Bear

FULL CITATION: *AAPG Bulletin*, v. 75, p. 978-981.

DISCUSSION

"Let each man pass his days in that wherein his skill is greatest."

– Propertius, *Book II, Elegy 1, Line 46*
(in Bartlett, 1946).

Medalists and their careers clearly reflect certain similarities and activity patterns. Many common denominators exist, yet each is unique. Achievements and accomplishments of the Medalists are inspiring and stimulating and serve to establish worthy goals for all members of the Association – but especially for younger members. In preparing this summary, relevant factors and activities have been documented where possible from material published in the *AAPG Bulletin*, notably biographies and citations supplemented by data from *Men of Science, Who's Who in America* and other society publications. Some activities and affiliations were not readily available, such as religious preferences and political affiliations and, therefore, the record is not entirely complete. Hopefully at some point in time, someone will be able to fill in omissions and correct errors in these data.

"It takes a long time to bring excellence to maturity."

– Publilius Syrus, *Maxim 777 (in Bartlett, 1946)*

Longevity appears to be a characteristic of the Medalists; this is especially noteworthy in that many of them were born long before the age of modern medical miracles and many participated actively in international exploration, often under physical conditions adverse to their health. Thirty-five of the 44 Medalists were born by 1907, before the presentation of the Model-T and, therefore, before the profound impact of the automobile on the American culture and the petroleum industry. That year, 1907, President Theodore Roosevelt spoke prophetically to the Congress regarding resources:

"We are prone to speak of the resources of this country as inexhaustible; this is not so. The mineral wealth of this country, coal, iron, oil, gas and the like, does not reproduce itself, and therefore is certain to be exhausted ultimately; and wastefulness in dealing with it today means that our descendants will feel the exhaustion a generation or two before they otherwise would."

Most Medalists have been between 64-77 years old at the time of receiving the Medal; 7 were less than 64

years old, 7 were over 77, and 5 were 60 years of age or younger on receipt of the Medal (Figure 1). The ages of the youngest recipients and the average age of the recipients generally has risen each decade since creation of the Award. The age of the oldest recipient rose for the first two decades, then dropped in the third, but even so, the oldest age for a recipient in that decade represented a substantial increase over the first decade.

One Medalist was born in Ireland. The other 43 were born in only 22 of the United States, as Table 1 shows.

TABLE 1.

Births	State(s)
6	Texas
4	Kansas, California
3	Minnesota, New York and Wisconsin
2	Arkansas, Kentucky, Missouri and Washington
1	Iowa, Louisiana, Massachusetts, New Hampshire, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Utah and Wyoming

All but one received their entire academic education in the United States. Only one-third had sufficiently high academic grades to be elected to Phi Beta Kappa or Tau Beta Pi but most were elected to Sigma Xi. Twenty-four obtained master's degrees and 14 had earned doctorates. The list of degree granting institutions and the numbers of degrees granted by each institution is interesting (Table 2).

TABLE 2.

No. of Degrees	Institution
BACCALAUREATES:	
1	Capital, Chicago, Colorado College, Columbia, Hamilton, Harvard, Iowa, Johns Hopkins, Louisiana State (Baton Rouge), Michigan, North Carolina (Chapel Hill), Pomona, Princeton, Rice, St. Andrews, Syracuse, Utah, Washington, Yale
2	Stanford, Texas A & M, Wisconsin (Madison)
3	California (Berkeley), Denison, Oklahoma (Norman)
4	Kansas (Lawrence), Texas (Austin)
MASTERS: MS/MA/ME	
1	California (Berkeley), Claremont, Cornell, Johns Hopkins, Iowa, Minnesota, Missouri, Ohio State, Rice, Royal College (Mines), Texas (Austin), Texas A & M, Wyoming
2	Louisiana State (Baton Rouge), Harvard, Stanford
3	Kansas (Lawrence), Texas (Austin)
DOCTORATES	
1	Chicago, Cornell, Louisiana State (Baton Rouge), Ohio State, Rice, Vienna (Austria)
2	Wisconsin (Madison)
3	Harvard, Stanford

Computer searches of GEOREF files (American Geological Institute) disclose that the recipients published a total of more than 2500 papers through 1991 – at a remarkably consistent average of about 70 papers per individual per decade, *exclusive* of company reports and similar types of articles. Such an average is obviously skewed by the very heavy production of papers by a few awardees.

To date, all Medalists have been men and all were married. All but a few participated actively at some time in Association affairs. Each engaged in full-time or consulting work for at least one company whereas the majority also maintained full- or part-time consulting offices at some stage during their careers. Most worked for a state survey or the USGS. All taught in some manner and most held corporate or academic administrative positions. All but one engaged in domestic (United States) exploration for petroleum and more than two-thirds conducted exploration in other countries and in the oceanic realms. A large majority were industrial geologists for most of their careers. Only about one-fifth were employed primarily in academia.

The broad spectral interests of the Medalists extend well across the entire field of geology and into related disciplines. They set high standards for themselves and they have been held in high esteem by their peers. They have been generous of their time and talents, thereby catalyzing and enriching the lives of innumerable individuals through extensions of themselves and inspiring others to achieve alike. They also have paid mindful attention to public and petroleum industry problems, giving freely of their abilities in these regards.

Through administrative and managerial roles they have blended geology and allied disciplines into viable tools to search for and to develop petroleum and other resources at home and abroad. Because all of them were born when petroleum geology was in its infancy

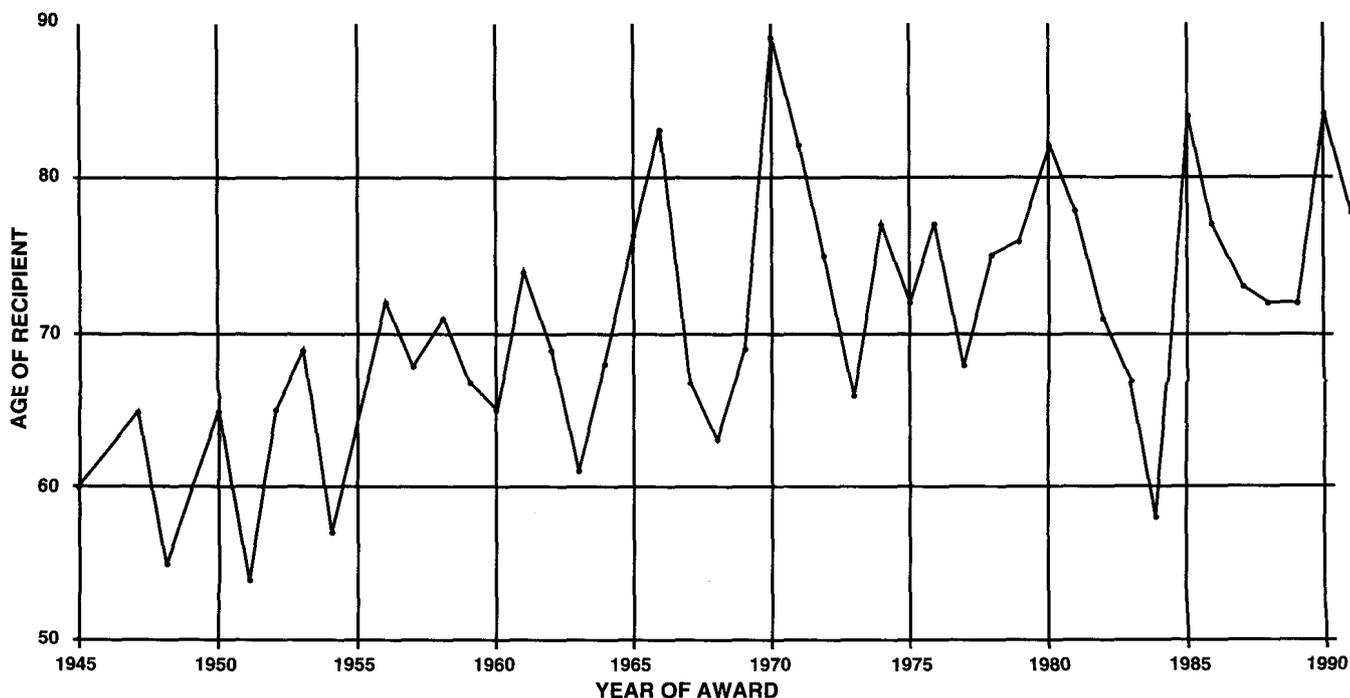
and development, their contributions substantively affected and shaped the discipline. They led the way to adopting new knowledge and applying it to new circumstances. Their contributions ranged from pure to applied geology; the great variety of topical subjects in their published papers illustrates the disciplinary breadth of their total contributions as well as the diversity of their interests and abilities.

The most noteworthy aspects of their collective careers are (1) they found or supervised the exploration for and discovery of enormous quantities of oil and gas with relatively crude instruments and concepts; (2) they trained, or were involved in training, large numbers of outstanding petroleum geologists; (3) they directly or indirectly influenced the thinking of a substantive majority of practicing American petroleum geologists; and (4) they reflect the advancement of a broad spectrum of petroleum geology.

Obviously, these men were achievers and leaders simply because they dedicated their talent and abilities to their chosen profession. One may conclude that they would have succeeded at almost anything they chose to undertake.

Their lives have extended over approximately one-half of our national history. Thus, the majority have experienced at least 5 wars, a population increase from 50-250 million, 15-20 U.S. presidents, several major California earthquakes, discovery of the North and South Poles, OPEC, space exploration, the great depression of the 1930s and oil-price fluctuations from 2¢ to \$40.00 a barrel, as well as development of such every-day items as the 35-mm camera and color film, the telephone, the internal combustion machine, radio and television, the airplane, electronics and impact of the computer in all areas of life. In many ways, most important was the presentation of Henry Ford's "Universal Car" at an affordable price.

FIGURE 1. Recipient's Age in Year Medal Was Presented.



During their careers, domestic discoveries peaked in the middle years of this century and major discoveries were made on every continent except for Antarctica. The rotary drill was developed and technological achievements permitted it to be moved offshore into harsh, challenging environmental frontiers. The seismograph evolved and, over time, seismic stratigraphy, 3-D and bright-spots became street-corner words; the gravimeter and magnetometer became airborne; the early, crude, hand-operated electrical log (Schlumberger) grew into a host of sophisticated geophysical logs; the digital computer revolutionized the human computer; the Deep Sea Drilling Project transformed geologic data and concepts into plate tectonics and the development of new and useful concepts of exploration for petroleum and other natural resources. COCORP disclosed the existence of fascinating and unexpected stratigraphic sequences and deformational tectonics in large segments of the earth's crust, some extending to great depths; paleontologists demonstrated the presence of primitive life forms in rocks about 3.5 billion years old and thereby the probable formation of hydrocarbons at an early stage in the earth's history; and through sequence stratigraphy much of the geologic record was partitioned into "small bits."

Continuing and significant new advances in the exploration for earth resources have taken place during the working lives of the Powers Medalists; indeed, they were among the vanguards developing and applying new geological ideas, concepts and techniques to the search for petroleum. Their achievements and contributions undeniably constitute a cherished and invaluable legacy for present and future generations. To paraphrase a comment by Wallace Pratt, the first recipient of the Sidney Powers Memorial Medal – "For. . . [them] geology was a way of life."

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ACKNOWLEDGMENTS

We are deeply grateful for help and assistance provided by various Medalists or their families; Mary Norton, formerly of Aramco and now a free-lance writer in Austin, Texas; Maxine Steineke Goad, daughter of Medalist Steineke, now residing in the Santa Fe, New Mexico area; Linda Farrar, Merle Noel, and Fred A. Dix, Jr., of AAPG Headquarters staff; Patsy Okaya and John Mulvehil and his associates of GEOREF, A.G.I.; Barbara J. Richards and Michael Wahl, G.S.A. Headquarters; Archivists of the Universities of Tulsa, Kansas, and Texas Tech; and Mrs. Brenda Simmons and Mrs. Xantippe Stafford, who ably survived the numerous revisions and typed the final draft of the manuscript. Thank you.