



*Steve Martin receives the 2000 Midland Section award for Outstanding Achievement and Promotion of the Chemical Sciences during the 56<sup>th</sup> Midland Section Fall Scientific Meeting*

# THE MIDLAND CHEMIST

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## *In this issue,,*

From the Chair: Thanks for a Job Well Done! .....	1
Fall Scientific Meeting Looks toward 'Changing Times' .....	4
Attention K-12 Educators! Travel Assistance Available .....	7
Midland Section Highlights 50-Year Members .....	8
Midland Section Presents Fall Awards .....	11
Matching Gift Received for Outreach .....	13
2001 Midland Section ACS Election Results In .....	14
Volunteers Needed for Section Activities .....	15
Pathways Towards a Sustainable World Makes Progress .....	16
On a Hill Far Away... Pre-Election Results from Washington .....	18
Midland Section Student Affiliates Honored .....	19
Midland Section Home to 'Heroes of Chemistry' Rigterink and Blair .....	20
Midland Section Board Meetings, 2001 .....	21
ACS President-Elect Pavlath Visits Midland .....	22
Alma College Students, Faculty Offer Presentations at National ACS ....	25
Important Dates on the ACS Midland Section Calendar .....	26

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## From the Chair

### Thanks for a Job Well Done!

**T**he Midland Section will soon conclude another year of significant accomplishments because so many members did an outstanding job with their responsibilities. In this my last Chairman's Column, I would like to thank many people for their efforts. For the most part the Section continued to improve its most significant programs and initiated some new programs that will benefit members and the public.

A major achievement occurred in 2000 when Ann Birch assumed responsibility as the new editor of *The Midland Chemist (MC)* when the previous editors asked to be relieved after having served for several years. Ann accepted the challenge and did a terrific job from the beginning. She changed the format of the publication and made it into an even more useful and timely publication for the local membership. Ann also continued as webmaster until her replacement, Tom Styranec, could fill the position, and has served as a director for two years.

Gretchen Kohl has continued to make outstanding contributions in many areas of Section activities: as a councilor, as chair of the National Chemistry Week Committee, and in helping with the Project Science Literacy and Program Committees. Bob Howell, our other able councilor, has also helped with the Program and Government Affairs Committees.

Fred Vance, after having been a Section member for only a little over a year, did an outstanding job as the general chair of the recently completed Fall Scientific Meeting (FSM). George Eastland, who will guide the Section next year as chair, is busy planning for 2001. George also chaired the Program Committee this year. Tina Leaym served as secretary with enthusiasm and accuracy to produce the minutes from the Board of Directors' meetings. She also served as a writer for the *MC* and was active with the Mid-Michigan Technicians Group (MMTG).

Kermit Kwan has very competently served as chair of the Publicity/Public Relations Committee by continuing to improve the amount of cover-



Wendell Dilling, Chair  
ACS Midland Section

Thank  
You !

age the Section receives in the local press and elsewhere. Deb Bergstrom has been a valuable asset giving advice as past-chair and guiding the future of the Section as chair of the Long Range Planning Committee. Phil Squattrito as chair of the Awards Committee continued to make sure the Section recognized deserving area scientists, teachers, and students. He also served as a director.

Steve Keinath has done a superb job again as chair of the Nominations and Elections Committee by developing efficient procedures for carrying out these responsibilities. Peter Qian did a great job again keeping the Section's finances straight as treasurer. Dave Stickles continued to serve the Section as chair of Sci-Fest. He also was a director and helped with the Midland County Fair booth and MMTG events.

Chitra Subramaniam has significantly aided the publicity effort as a committee member, especially for the FSM, and has written for the *MC*. Sarah Snow chaired the Careers and Professional Relations Committee and, along with committee member Don Miller, continued to provide a valuable service to Section members.

Pat and Pete Dreyfuss designed several interesting and outstanding activities as a result of their responsibilities with the Kids and Chemistry Committee. They were both honored at the recent FSM with ACS Service Awards for many years of service to the Midland Section in a variety of capacities. John Blizzard has continued his several years' service as chair of the Project Science Literacy Committee, one of most highly visible and successful outreach activities of the Midland Section. Marv Tegen was also a major player in this committee's work and, in addition, took on the job of chair of the Science Promotions Committee when its activities expanded.

Connie Murphy continued as chair of the Membership Growth and Retention Committee, was a director, and has been a major force for many years in MMTG. Lin Dorman undertook a new assignment this year, that of chair of the new Minority Affairs Committee, and has worked dili-



- **Competitive Analysis**
- **Unknown Identification**
- **Additive Analysis**
- **Taste & Odor Analysis**
- **Color Body Identification**

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gently to bring minority groups in the Section area into our outreach programs. Lin also chaired the *ad hoc* committee to investigate the possibility of a Midland Section Award for Service in the Public Interest of Science.

Two of our outreach programs are very strong because of the dedicated leaders we have in these areas: Margaret Hill as chair of the Project SEED Committee and Ed Benson as chair of the National Chemistry Olympiad Committee. Janet Smith has enthusiastically led MMTG this year and has been a major force in some of the activities in which MMTG has a major role, such as the Midland County Fair activities and Sci-Fest. Likewise Brian Murdoch has contributed significantly as chair of the activities at the Midland County Fair.

Other members who have helped the Section in significant ways this year include Jack Arrington, John Oleson, Walt Rupprecht, Eldon Graham, Joan Sabourin, Art Smith, Steve Snow, and Mike Owen. One always runs the risk of omitting someone when compiling a list such as this. Certainly other members have also served. Most of their names were listed in the April 2000 issue of the *MC*, pages 9–11. Hopefully I have not omitted anyone who should have been included in this list. Again, thanks to everyone who contributed to the achievements of the Midland Section during this successful year.

## FOR HOW MANY MINUTES . . .

...would you feel comfortable discussing with your neighbor or friends the global chemical industry initiative known as *Responsible Care*?

If you are a member of the chemical industry, we urge you to learn about this initiative, which calls on chemical companies to demonstrate their commitment to improve all aspects of performance that relate to the protection of health, safety, and the environment.



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## Fall Scientific Meeting Looks toward 'Changing Times'

By Fred Vance

The 56<sup>th</sup> Fall Scientific Meeting (FSM) took place on October 28 at the Dow Employee Development Center (EDC) in Midland. The theme for the event was "Changing Times," highlighting the revolutionary period in history in which we live and emphasizing how we must adapt what we do as scientists and ACS members to accommodate the technological, profession, social, and educational changes.

The keynote address, given by ACS President-Elect Attila Pavlath, focused on how the ACS should adapt its practices to suit the needs of its members, from the student thinking of a career in science to the most established and distinguished researchers. One of Dr. Pavlath's suggestions was that our education system needs to be revamped to include continuing education, so that companies could benefit from having a workforce at the forefront of scientific innovation without resorting to a cyclical hiring scheme in which experience is traded for fresh education. He argued that employees would benefit from increased long-term job security, and that our academic institutions would benefit from not only the increased industrial involvement, but also from the ability to conduct larger volumes of research without producing more graduates than the market could bear. Ultimately, he stated, the benefit would reach first-time students since the demand in the marketplace would recover from the oversupply of students now entering the workforce.



*Fred Vance chaired this year's Fall Scientific Meeting. He and 14 other volunteers prepared a program that included diverse scientific topics, a panel discussion, and numerous poster sessions.*

*Photo: R. Van Effen*



*Dr. Attila Pavlath, ACS president-elect, was the keynote speaker at the Fall Scientific Meeting. He spoke on changes that ACS needs to make to adapt to a changing society.*

*Photo: R. Van Effen*



A discussion panel headed by Sarah Snow of Dow Corning expanded on the theme as it tackled some of the difficult problems posed by the changing face of the chemical industry. Specifically, they focused on issues such as a more transient workforce, the increasing number of immigrants to fill U.S. technical positions, and the demands that an increasingly global economy places on American workers. The panel included representatives from The Dow Chemical Company, Kelly Scientific Resources, and Central Michigan University, as well as Dr. Pavlath.



*The panel discussion focused on the changes being seen in employment in the chemical industry.*  
Photo: R. Van Effen



*Poster sessions, many presented by college students, drew a constant stream of visitors.*  
Photo: R. Van Effen

The meeting had an excellent array of technical presentations as well. Fifteen people presented oral presentations in symposia on *Careers in Chemical Technology*, *Chemical Education*, *Thermophysical Properties of Elastomers*, and *Biochemistry: Applications to Medical Science*. The technical program was completed with 31 poster presentations from both industrial and academic contributors, displayed both during lunch and at the end of the meeting. Particularly exciting were the large number of student presentations and the large numbers of interested viewers throughout the day.

One highlight of the 56<sup>th</sup> FSM was the spectacular facility in which it was held. Rick Gross, vice-president of Research and Development at Dow Chemical, donated the use of the facility for the ACS gathering. The site features well-appointed and spacious rooms, state of the art presentation equipment, and a professional environment. A full staff at the EDC kept everything running smoothly, from the preplanning stages right up to handling logistical, A/V, and housekeeping issues on the day of the event. Catering was provided by the Sodexho Marriott group, who used their on-site facilities to provide a continental breakfast, light lunch, and beverage service throughout the day.

As the largest annual gathering of our members, the FSM was host to 164 people, about half of whom were ACS members. There were attendees present from several companies including Dow Chemical, Dow Corning, MMI, and Kelly Scientific. Academic institutions accounted for fully half of the attendees, coming from locations near and far including Delta College, Saginaw Valley State University, Central Michigan University,



*The facilities offered a professional, yet relaxed setting.*

*Photo: R. Van Effen*



Kettering University, Ferris State University, Eastern Michigan University, and the University of Michigan.

The 56<sup>th</sup> FSM provided a forum for the exchange of ideas—technical, social, educational, provocative, and most of all, enjoyable. It fulfilled a primary obligation of the ACS to its members in providing an opportunity for students, teachers, researchers, consultants, technicians, and managers to come together and communicate on common ground. Many thanks are due to the organizing committee and the contributors who helped to make the meeting a success. I encourage everyone to participate next year in this exciting and informative annual event.

### **Volunteers**

Dean Millar

Laura Vosejpka

Gary Ronk

Connie Murphy

Udo Pernisz

Elizabeth Butch

Dave Karpovich

Andrew Wood

Lee Hoffman

Chitra Subramaniam

Jim Malek

Don Miller

Sarah Snow

Pete Dreyfuss

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## **Attention K-12 Educators! Travel Assistance Available**

*By Marvin Tegen*

**W**ould you like to tell others about success that you have had teaching science? Starting in January 2001, the Midland Section of the American Chemical Society will have money available to help defray some travel costs for educators attending national or regional meetings of an education-related professional group. Travel grants of up to \$250 will be available to K-12 educators presenting either posters or papers of their work at such meetings or conferences.

The grants are available to any educator who lives or works within the borders of the Midland Section (Bay, Midland, Saginaw, Gratiot, and Isabella counties), or a county adjoining the Section. Grants are available to any educator, whether you teach in public, private, parochial, or home schools. If you have a good experience that you would like to share with others, we would like to help you. Full details, requirements, and information on applying for the grants will be available on the Midland Section web site (<http://membership.acs.org/m/midl>) by January.

## Midland Section Highlights 50-Year Members

By Chitra Subramaniam

*Editor's note: Throughout this year we have described the careers of scientists who have been members of ACS for 50 years. Although we have not been able to reach all year 2000 50-year members, this series of articles showcases the accomplishments of long-time Midland Section members.*

**R**obert. A. Delap received a bachelor's degree in chemistry and math from Augustana College, Sioux Falls, South Dakota, in 1948. He took a 3-year break from his college career to serve with the United States Army combat engineers in World War II, and traveled to England, France, Germany, and the Philippines during this service. Then, he joined The Dow Chemical Company, where he was employed for 33 years until his retirement in 1982. He spent his initial years at Dow working with the Cellulose Department on product development for ethylcellulose and methylcellulose polymers, and later developing analytical tests for the styrene polymer family. Bob is currently retired and lives with his wife in Midland, where they have lived for 51 years. In his retired life, he enjoys activities at the Midland Community Center, traveling, bowling, golf, and helping the elderly with voluntary tax consulting. In the last 3 years, he has also been heavily involved in tracing his genealogy with considerable success, having found ancestors dating back to 1750 in Massachusetts.

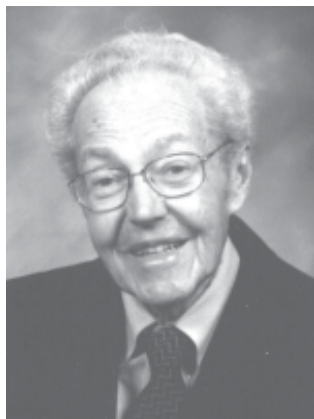


Henry. J. Dishburger received a bachelor's degree in chemistry and mathematics from the Stephen F. Austin State University in Nacogdoches, Texas, in 1950, and a master's degree in biochemistry from Oklahoma State University at Stillwater, Oklahoma, in 1952. He started his professional career with the Hanford Atomic Products Operation of the General Electric Company in Richland, Washington, in 1952. He then joined Organic Process Research, Texas Division of The Dow Chemical Company in 1956, and moved to the Agricultural Products Division in Texas in



1965. Henry moved to Midland in 1970 and worked with the Agricultural Products Division at The Dow Chemical Company, Midland, for 20 years until he retired in 1990, as a senior research manager. He consulted for some time after his retirement. He spends most of his time now volunteering for different organizations, church work, golf, reading, and gardening. He currently lives in Midland with his wife, E. Merle Dishburger.

Wallace U. Seiler attended Evansville College, Indiana, from 1932 to 1934, received a bachelor's degree in chemical engineering from Purdue University in 1937, and did post-graduate work at the University of Michigan at Ann Arbor from 1945 to 1946. During World War II, he was employed in Ann Arbor at the University of Michigan with Prof. Badger, working on military projects. He was employed with The Dow Chemical Company from 1937 to 1980, and held various positions including Technical Service Engineer, Manager-Solvents Field Service, and Contract Research and Development Specialist. He is currently retired and lives in Midland with his wife Charlotte. The Seilers own a cottage in northern Michigan and enjoy traveling.



Howard L. Garrett received a bachelor's degree in chemistry (1950) and a master's degree in botany (1957), both from the University of Michigan. He had a long and successful career of 38 years with The Dow Chemical Company. Three of those years were spent at the Rocky Flats plant near Boulder, Colorado, and the remainder with the Analytical Lab in Midland. From 1958 until his retirement in 1986, he worked as a microscopist using both light and electron microscopes. In his retirement, Mr. Garrett has done some consulting, but spends a significant amount of time producing photomicrographs of crystal-line compounds as an art form. He has participated in art fairs for the past 10 years, and now plans to market the art via the Internet. He has also served on the City of Midland Beautification Advisory Committee for 12 years. In addition to photography, his interests include gardening, traveling, and natural history. His love for national parks has taken him to all but one of the 55 United States national parks. He has also traveled to all the conti-



nents except Antarctica and hopes to go there in the not-too-distant future. He is currently retired and lives in Midland with his wife Kathy.

Owen Stafford received a bachelor's degree in chemistry from Fresno State University, California, in 1950, and a master's degree in chemistry from Stanford University, California, in 1951. During World War II, he served as a navigator with the United States Air Force. He started his professional career with the Polymer Research Division of The Dow Chemical Company in 1951. He was primarily involved with the Saran Polymerization Lab. He was employed at Dow for the next 34 years, until his retirement in 1985. Mr. Stafford currently lives in Midland with his wife. In retirement, he enjoys playing golf and tennis.



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## Midland Section Presents Fall Awards

*By Phil Squattrito*

The Midland Section presented three awards for outstanding performance at the 56<sup>th</sup> Fall Scientific Meeting on October 28 at The Dow Chemical Company Employee Development Center in Midland. The award for Outstanding Achievement and Promotion of the Chemical Sciences went to Dr. Steven J. Martin of The Dow Chemical Company. Steve holds a B.S. degree in biochemistry from Michigan State University and a Ph.D. in analytical chemistry from the University of Illinois. A member of the scientific staff at Dow since 1977, Steve rose through the scientist ranks in the Analytical Laboratory and in 1996 was named senior scientist in the Advanced Materials group of New Businesses R&D. He is also currently a research fellow, one of only six company-wide at Dow. He is the author of more than 80 internal

reports and 30 journal articles, and holds four patents. His principal scientific accomplishments include the development of new analytical methods and instrumentation for characterization of polymer chemistry, structure, and structure-property relationships. These new methodologies have been applied to polyvinylidene chloride stability, polymerization of benzocyclobutene, styrene-divinylbenzene copolymers, and polybenzoxazole (PBO). Steve led the scientific effort on PBO, both polymer and fiber. He characterized the polymerization mechanism and kinetics, leading to a commercially viable process. He also characterized the fiber photooxidation mechanism and developed several stability enhancement schemes.

The award for Outstanding Service to the Midland Section was presented to Drs. Peter and Patricia Dreyfuss, both retired from Michigan Molecular Institute. The early part of their careers was spent in Akron, Ohio, where they were both active in the Akron Section. When they moved to Midland they continued to be active in ACS. Pete has served as



*Steve Martin, recipient of the 2000 Midland Section award for Outstanding Achievement and Promotion of the Chemical Sciences, is a senior scientist and research fellow at The Dow Chemical Company. Photo: R. Van Effen*

section chair, Program Committee chair, and general chair of the 1987 Fall Scientific Meeting. He has been a member of the Board of Directors for the past eight years and has served on other Fall Scientific Meeting Committees including Program, Keynote Speaker, Registration, and Exposition. He was a program co-chair and special events coordinator for the 1990 Central Regional Meeting hosted by the Midland

Section. Pete is currently a member of the Board of Directors, the organizing committee for the 56<sup>th</sup> Fall Scientific Meeting, and the Kids and Chemistry Committee.

Pat was the general chair of the Central Regional Meeting in 1990 hosted by the Midland Section and served as chair of the Central Regional Steering Committee the following year. She chaired the Midland Section *ad hoc* Committee on Incorporation and has served as the Section's corporate agent for the past eight years. She served as a director for five years. In the past year, she has been the main driving force behind the Section's Kids and Chemistry program, organizing several hands-on learning experiences that have reached scores of children in the Midland area.

The award for the Outstanding



*Pete and Pat Dreyfuss received the 2000 award for Outstanding Service to the Midland Section.*

*Photo: R. Van Effen*



*Kurt Bell, a chemical technician at The Dow Chemical Company, received the 2000 Midland Section award for Outstanding Chemical Technician.*

*Photo: R. Van Effen*



Chemical Technician was given to Kurt A. Bell of The Dow Chemical Company. Kurt received his A.A.S. degree in chemical technology from Ferris State University in 1989 and joined Dow as a chemical technician that year. He worked for six years in the Materials Science and Development Lab in Central R&D and for the past five years has been in the Process Development Lab in Contract Manufacturing Services. His area of specialization is calorimetry, coupled with FT-IR and GC-MS. Kurt also has expertise in a wide range of instrumentation. His experience is such that he serves as a mentor to new technologists in CMS. His supervisors speak extremely highly of his technical abilities and performance on a variety of projects. Kurt also participates in recruiting and interviewing prospective chemical technicians at Lansing Community College and serves as an external advisor to the chemical technology program at LCC. He frequently hosts student groups from regional chemical technology programs and shows the students what technologists do. He has also continued his education through coursework at Central Michigan University.

## **Matching Gift Received for Outreach**

*By Wendell L. Dilling*

**W**e are extremely pleased to announce that the Midland Section recently received a matching gift of \$14,860 from the national ACS for our outreach programs National Chemistry Week, Project SEED, and National Chemistry Olympiad. This gift matched a portion of the contributions we received from The Dow Chemical Company Foundation and from Dow Corning Corporation this year for these programs. We wish to express our great appreciation to these two benefactors for their generosity to the Midland Section. We are also grateful to the national ACS Board of Directors for making this matching gift to the Midland Section possible.

This matching gift was the result of the Challenge 2000 program established by the national ACS Board of Directors in December 1994. Contributions of \$2,500 or more to eligible programs are matched by national ACS on a dollar-for-dollar basis. Eligible programs are primarily outreach programs. Previously these matching gifts applied only to contributions made directly to the national ACS, but this year the program was extended to contributions made to local sections.

The Midland Section has been the recipient of generous contributions from The Dow Chemical Company Foundation and from Dow Corning Corporation for many years. Recently these contributions have been designated mainly for our outreach programs. With the extension of Challenge 2000 matching gifts to contributions received by local sections we had the opportunity to apply for a match based on these contributions received from our two major benefactors.

## 2001 Midland Section ACS Election Results In

*By Steve Keinath*

**T**he year 2000 Nominations & Elections Committee is pleased to announce the following Midland Section ACS officers for 2001:

Chair-Elect

Pat Cannady

Dow Corning

Secretary

Estelle Lebeau

CMU

Treasurer

Doug Beyer

Dow Chemical

Chair, Nominations & Elections Committee

Steven E. Keinath

MMI

Alternate Councilor (2-year, vacancy fill-in term)

Thomas H. Lane

Dow Corning

Board of Directors (3-year terms)

Debora F. Bergstrom

Dow Corning

Karol Childs

MCFTA / HOI

David L. Stickles

Dow Corning

The Nominations & Elections Committee would like to express its sincere *thanks* to all of the candidates who agreed to run for positions in this year's election. The commitment and enthusiasm displayed by all of the candidates led to another successful Midland Section ACS election.

The N&E Committee received 145 valid ballots. Thanks to all Midland Section ACS members who voted in this year's election.

—Steve Keinath (Chair), Pete Dreyfuss, George Eastland,  
Bob Howell, Gretchen Kohl, and Art Smith  
Year 2000 Nominations & Elections Committee

## Volunteers Needed for Section Activities

*By George Eastland*

With the start of the new year not far off, the Midland Section of the ACS will again need people to help with the many committees and activities sponsored by the Section. We have a number of committees with chairs already in place. Those chairs can use additional help. Those committees and chairs are:

- Awards ..... Philip Squattrito
- Careers and Professional Relations ..... Sarah Snow and Don Miller
- Chemistry Olympiad ..... Ed Benson
- Environmental Affairs ..... John Oleson
- Finance ..... Jack Arrington
- Government Affairs ..... Walter Rupprecht
- Historian ..... Wendell Dilling
- MMTG ..... Phyllis Anderson
- Minority Affairs ..... Linnaeus Dorman
- Program ..... Pat Cannady
- Project Science Literacy ..... John Blizzard
- Project SEED ..... Margaret Hill
- Science Promotion ..... Marvin Tegin
- Sci-Fest ..... Dave Stickle
- Technical Society Interface ..... Eldon Graham
- *The Midland Chemist* ..... Ann Birch
- Web Site ..... Tom Styrane

Committees without chairs are listed below. Last year's chair is given, and some may assume those duties this year, too. When I asked them to serve this next year, several gave me a definite 'maybe.'

- Midland County Fair Activities ..... Brian Murdoch
- Fall Scientific Meeting ..... Fred Vance
- Membership Growth and Retention ..... Connie Murphy
- National Chemistry Week ..... Gretchen Kohl
- Publicity/Public Relations ..... Kermit Kwan

Please take a couple of minutes to scan the list and see if one of those committees might interest you. If so, contact the chair (or past chair) for more information. If you have any problems contacting anyone on the list, please feel free to contact me.

Thanks.

George Eastland, SVSU

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## Pathways Towards a Sustainable World Makes Progress

*By John Oleson*

A team of local AIChE and ACS members is making progress on a project called “Pathways Towards a Sustainable World” (PTSW). Locally there are two thrusts aimed at residential heating and cooling with electricity generation. The first uses gas turbines and mechanical devices. The second is looking at fuel cells.

The gas turbines would get first access to the natural gas to spin the turbine and generate electricity. The heat from the turbine would then be used to heat or cool a residence. The thought is that the turbine would only operate when the heat is needed. When air conditioning is needed the heat would power an NH<sub>3</sub> cycle refrigeration unit. The spinning shaft of the turbine can also be used to operate blowers or compressors.

The status of this project is that we have been having trouble finding a turbine small enough (5KW) thus have been looking at housing complexes. Recently, smaller units are available and we are looking at these. Edison in Detroit is setting up some for residential use, but they would generate electricity for the home. This is an important advance, but we were looking to take power from the grid and return the electricity we generate to the grid. In the near future the group working on this will be assembling their findings, doing efficiency improvements, assessing practicality, and communicating the results.

The status of the fuel cell option is that small fuel cells are very possible and exist because fuel cells are built up from small modules. Getting a combination that would work for a residential location does not seem to be a problem. The problem is in the technology, where the carbon in natural gas carbonizes the units. This either occurs in the reformer or hydrogen generator if the unit operates on hydrogen. If the unit is using natural gas directly, carbonization occurs in the cell. In either case this problem must be solved if the units are to be practical. The by-product heat would be used just as in the turbine system. In the case of fuel cells, information will be summarized and communicated as it is assembled.

Additional work has been progressing on “the carbon balance over the eons of time.” Brainstorming and literature searches have resulted in a story worthy of being told. The small team working on this will be composing a series of articles for publishing. They will be fun and very interesting reading. They will bring our thinking of ourselves into perspective of the 4.5 billion-year life of the earth.

A few other events have occurred based on getting a genesis from the “Pathways Towards a Sustainable World” activity. A proposal has been

put together to benchmark fuel efficiency using the second law of thermodynamics. The proposal would use college professors (U of M, MSU, and U of Texas) to calculate the fuel efficiency of various devices and then compare these efficiencies with the stated efficiencies. They will find that the stated efficiencies do not use the second law of thermodynamics and are much lower when viewed theoretically. The aim is to understand—with validated numbers—the real efficiency of the world's fuel use to drive R&D towards inventing and developing machines that get more value from the fuel. The most dramatic benchmark comparison is for home heating, where the furnace is officially cited as being 90% efficient when it does not recover any work from the fuel and is only 8% entropic efficiency. We burn 12 times more gas than we theoretically should. We do not have a problem with fuel quantity but rather with the availability of machines that get all the value from the fuel. Once the numbers are benchmarked and validated against the theoretical efficiency then the team would begin a communication program to try and change where we invest our research dollars.

Another event that occurred was the meeting of the US Chemical Industry—Vision 2020 task force. They were looking into the future and determining what key thrusts in chemistry, chemical engineering, supply chains, information systems, and manufacturing and operations would need to be developed in the next 20 years for the industry. High on the list was “develop and commercialize a machine that can have 85% entropic efficiency.” It is felt that chemistry and chemical engineering will be required to make this goal a reality.

My final topic is results from the study to find alternate feed stocks and combining energy generation with chemical production. This study began in PTSW and has been funded by the DOE using a system of synthesis gas from coal that is used to produce methanol and then the residual gas used to produce electricity in a combined cycle co-generation system. The system takes advantage of the very clean synthesis gas from the coal. It reacts the hydrogen out of the synthesis gas to make methanol, and the CO that is left is burned to make power and heat. The study is nearing completion and is showing very positive results. Energy generation and feed stock utilization are excellent. Commercialization looks like a real possibility.

PTSW efforts will continue. We can always use others that would like to help. Please give me a call and we can discuss. My number is 517-631-1442 and e-mail is [johnleson@dellnet.com](mailto:johnleson@dellnet.com).

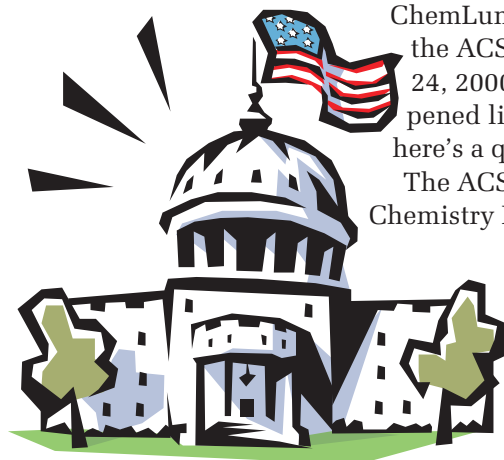
## On a Hill Far Away... Pre-Election Results from Washington

*By Gretchen Kohl and Bob Howell*

**W**e'll make this short and sweet, as everyone is probably tired of hearing results from Washington D.C., or Florida, at this point. As reported in the last issue of *The Midland Chemist* (Vol. 37, No. 7), you heard the great news about the Midland Section, our Public Relations Committee, and the MMTG group, all winning

ChemLuminary Awards (3 for 3!!) during the ACS National Meeting (August 20–24, 2000). Everything else that happened literally pales by comparison, but here's a quick summary.

The ACS has allied with the Green Chemistry Institute, which is a not-for-profit collaborative dedicated to environmentally benign chemical synthesis and processing research and education. The late Joe Breen (retired EPA), who was the chair of the Committee for Environmental Im-



provement (CEI), of which Gretchen is a committee member, first staffed it. This alliance seeks to promote green chemistry through collaborative information dissemination, chemical research, conferences and symposia, and chemical education. The ACS has already been working on green chemistry education through a grant from EPA. A laboratory workbook based on the Presidential Green Chemistry Awards and a new video are already available. Contact Gretchen or the ACS website for more information.

The Washington meeting had attendance of over 13,000 at the time of the Council meeting, with 269 companies occupying 461 booths (sold out) for the exhibition. The Employment Clearinghouse had 1616 jobs listed by 155 employers, with 1056 candidates for a total of 2875 interviews (0.65 ratio, as opposed to 1.85 in '98). The chemist unemployment rate nationally is at a low of 2%, with the median salary for all levels at \$70,000/year. This of course does not mean much to anyone who has been recently downsized and must move to find this work, but it does hold hope for those willing and able to relocate.



The Council meeting was not held in one of the hotel ballrooms (which is the customary location) but in the amphitheatre of the massive International Trade Center. We shared a cab from our hotel that morning, one of us with suitcase in hand for an after-meeting airport departure. The taxi dropped us at the ‘wrong’ end of this building, so in the process of getting there we made an unexpected tour that included the U.S. Customs Department and many underground floors of other government offices.

The results of all the issues for Council have been printed in *C&E News* already, but the main one that we’ll bring to your attention is the official wording change to call ACS Council voting ‘Regions’ as ‘Districts.’ This will end the confusion, hopefully, between the ‘regions’ used to denote our Central Regional Meeting, from our Region II voting status. We will still be in the Central Region for meetings but will be in District II for councilor elections. It is a subtle point, but confusing to anyone who has previously asked what region we are in and has been given two different answers.

Speaking of districts, on the day before the Council meeting, Gretchen made official visits to Capitol Hill with a CEI staff member, meeting with representatives from Senators Levin and Abraham and Congressman Dave Camp. Congress was not in session, so just the staff was in the office. We recommend that other Section members visiting Washington D.C. take advantage of the opportunity to visit these offices. They are interested in what constituents have to say, and the CEI office can equip you with ACS policy statements or pending legislation that you are free to comment on as a potential voter of their district. As always, if you have any comments that you’d like to make to us to report to national ACS,

**Midland Section Student Affiliates Honored**  
Midland Section student affiliates chapters received recognition from National ACS as noted in the October 16 issue of *C&E News*. The student affiliates chapters at Alma College (Kevin Metz, president; Melissa Strait, faculty adviser) and Saginaw Valley State University (Jason Stotter, president; Deb Huntley and David Karpovich, faculty advisers) received “commendable” awards. The student affiliates chapter at Central Michigan University (Megan Treutle, president; Estelle Lebeau, faculty adviser) received an “honorable mention” award.

by Ann Birch

gretchen.kohl@dowcorning.com) or Bob (774-3582 or bob.a.howell@cmich.edu).

These awards were given on the basis of the programs and activities in the 1999–2000 academic year. All the chapters will be honored on April 1, 2001, at the Student Affiliates Chapter Awards Ceremony at the 221<sup>st</sup> ACS national meeting in San Diego.

## Midland Section Home to ‘Heroes of Chemistry’ Rigterink and Blair

*By Ann Birch*

**A**t the ACS national meeting in August 1999, members of the “pyridine team” from The Dow Chemical Company were honored as part of that year’s Heroes of Chemistry program entitled “Heroes of Chemistry: Honoring Chemical Innovations in Food and Agriculture.” The Midland Section is proud to be home to two of the honorees: Ray Rigterink, a member since 1942, and Etcyl Blair, a member since 1949.

The Heroes of Chemistry program recognizes innovations by men and women whose works in traditional and nontraditional fields of chemistry have led to successful commercial applications or products. The “pyridine team” included Etcyl Blair, Ray Rigterink, Arthur Sexton, Howard Johnstone, Bill Taplin, Cleve Goring, and Frederick John Peskitt. This team of researchers was instrumental in the development of nine major agricultural products. According to *Around Dow*, a publication of The Dow Chemical Company, “their work improved the health and welfare of millions of people worldwide through crop protection on farms and insect control in cities.”

In 1951 Dr. Edgar Britton asked Etcyl Blair to assemble a team to synthesize organophosphates. One of the first people that Etcyl recruited was Ray Rigterink. Ray was highly regarded as Dow’s expert in heterocyclic molecule synthesis. Co-workers nicknamed him “two-a-day Ray” for his exceptional ability to discover and synthesize at least two compounds by noon each workday and spend his afternoons meticulously preparing for the next day’s discovery efforts.

During Ray’s 41-year career at Dow he made contributions in numerous areas including monomer synthesis, polymer catalysis, and agricultural products chemistry. He is credited with 50 patents and 10 publications. Some of his most notable achievements include the invention of four products: Dursban insecticide, Reldan insecticide, hexaflumuron insecticide, and Coydon coccidiostat. His accomplishments earned him the H.H. Dow Gold Medal—the highest scientific award given by The Dow Chemical Company for outstanding achievement. Ray lives in Midland with his wife Leta.

Etcyl Blair originally joined Dow’s E.C. Britton Laboratory as a research chemist specializing in synthesis of organophosphorus compounds. This work led to the development of several agricultural products including Korlan and Ruelene insecticides and Coydon coccidiostat. During his tenure as a researcher, Etcyl was awarded 22 patents and published numerous papers.

Etcyl's 35-year career with Dow spanned numerous functions, from laboratory researcher to laboratory director, to global research director for Dow's Agricultural Products Department, to vice-president and director for Health and Environmental Sciences for Dow. Etcyl lives in Midland with his wife Ruth.

In a recent interview with Etcyl, he described some of his activities since "retirement." (ACS members never seem to really retire!) Etcyl is active in the Watershed Initiative Network (WIN), serving on the agricultural pollution subcommittee. WIN is a nonprofit program that obtains funding for and initiates projects dealing with agricultural, commercial, and other activities that impact the watershed of the Saginaw Valley. Examples of projects include the use of farm filter strips to reduce the movement of farm chemicals and wastes to the groundwater and the development of biodegradable soybean oil for boats.

Etcyl has for years been heavily involved with the Midland Center for the Arts, including the science programs in Matrix Midland and the symphony orchestra where he is an emeritus board member. As part of his community involvement, Etcyl worked on the committee for the Central Intermediate Auditorium, which not only improved the school facilities but added valuable performance capability for the community.

*Portions of this article were adapted with permission from an article in Around Dow, Sept./Oct. 1999.*

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## Midland Section Board Meetings, 2001

*By George Eastland*

**B**elow is the 2001 schedule for the Midland Section board meetings. Everyone is welcome to attend. All board meetings begin at 7:00 p.m.

Monday, January 15	Midland, Delta College Midland Center, Room 12
Monday, February 5	Midland, Delta College Midland Center, Room 12
Monday, March 5	Midland, Delta College Midland Center, Room 12
Monday, April 2	Midland, Delta College Midland Center, Room 12
Monday, May 7	Saginaw Valley State University, location TBA
Monday, June 4	Central Michigan University, location TBA
Monday, August 6	Delta College, location TBA
Monday, September 10	Midland, Delta College Midland Center, Room 12
Monday, October 8	Midland, Delta College Midland Center, Room 12
Monday, November 5	Midland, Delta College Midland Center, Room 12
Monday, December 3	Midland, Delta College Midland Center, Room 12

## ACS President-Elect Pavlath Visits Midland

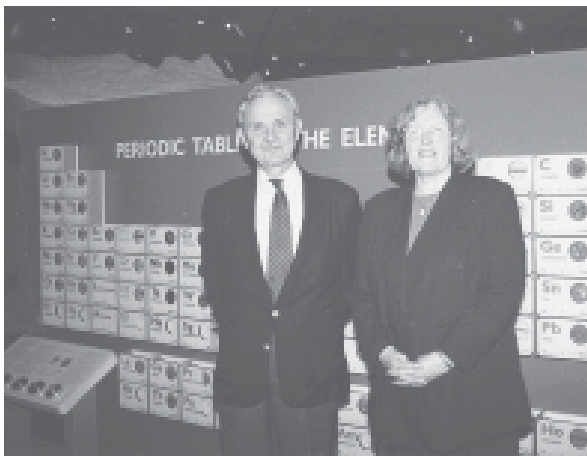
*By Angelo Cassar and Gretchen Kohl*

**D**r. Attila Pavlath, the elected national ACS president for 2001, visited Midland October 26–28. He had been invited as the keynote speaker for the 56<sup>th</sup> ACS Fall Scientific Meeting, themed “Changing Times.”

Angelo and Gretchen, along with nephew Gabriel Kirsch, a chemist from the Detroit ACS Section, hosted Dr. Pavlath on a busy tour of Midland area highlights on Friday.

The day started with a tour of the Hall of Ideas Science Museum at the Midland Center for the Arts, led by museum director, Karol Childs. Pavlath remarked how well many categories of science were depicted at the Hall of Ideas, especially chemistry, through the magnificent periodic table display. He next toured the H.H. Dow Museum, our local National Historic Chemical Landmark, where we had the opportunity to hear about the life and times of the founder of The Dow Chemical Company, Herbert H. Dow, presented enthusiastically by Midland Historical Society director, Gary Skory. The site also features the first ACS “ChemisTree,” a snowdrift crabapple, planted during the Landmark dedication ceremony, and meant to be a living memorial from the Midland Section ACS to H.H. Dow.

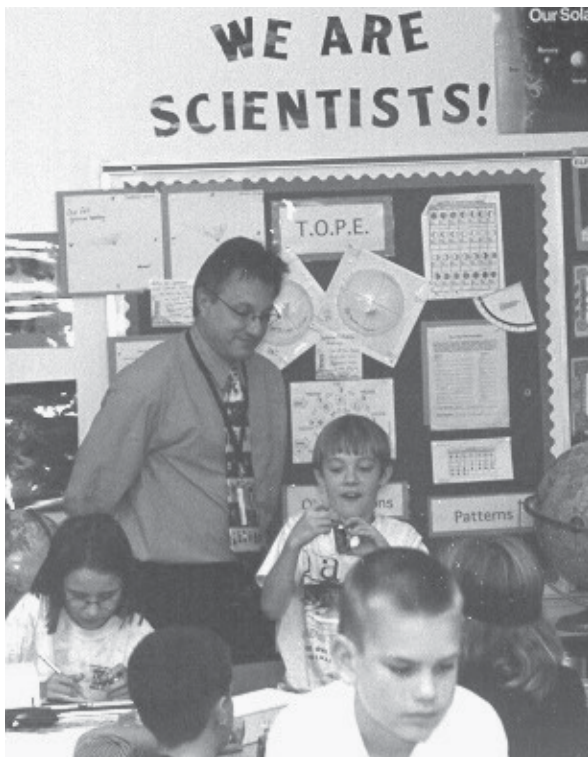
After lunch, we visited Midland’s Carpenter Elementary School. We met with John Blahunka, principal, Sarah Lindsey, K-12 Midland Public Schools science coordinator, and Bev Curnutt, MPS teacher consultant for communication and staff development. Several of the Carpenter teachers—Sue Burtch, Clare Jorgensen, Robin Harshman-Rogers, and Vicky Richard—had been selected by Midland Section ACS to win the Excellence in Elementary School Teaching Award, during our Educators’ Banquet in May. Dr. Pavlath met with these teachers to personally recognize their efforts to interest students and parents in science. A tour of three class-



*Dr. Pavlath and Karol Childs, director of the Hall of Ideas, stand before the Hall’s periodic table.*

*Photo: Angelo Cassar*

rooms revealed third graders dissecting rock aggregates for fossils, fourth graders making battery testers, and fifth graders opening boxes containing new microscopes. Seeing the enthusiasm of the students as they explored their new “micro-world” was truly invigorating. Blahunka pointed out that one of the factors in the excellent science program at Carpenter, in addition to the fine teachers and the support of the Science Center, is the parents’ contribution of their time both during and after school. Tom Lane, Midland Section alternate councilor, is one such Carpenter



*Principal John Blahunka watches as students at Carpenter Elementary School work on a science project.*

*Photo: Angelo Cassar*

School parent who assisted in the decision to purchase the microscopes for the school. Pavlath was impressed by the science program at Carpenter school and our other area science literacy projects, such as the teacher training workshop program (“Bringing Science to Life in the Classroom”), and Delta College’s chemical technician training program. He has discussed asking national ACS to use our area programs as a national model for school science curriculums and is considering formal national ACS recognition.

Next on the agenda was an informal meeting with Midland Section Board members to discuss ACS member needs and Dr. Pavlath’s plans for 2001. Both problems within ACS and possible solutions were discussed. One such problem is the image of chemistry as depicted by the news media. Dr. Pavlath pointed out that he has asked ACS members to submit nominations for the Technology Milestones program. This effort will recognize the 125 years of innovative breakthroughs in chemistry and chemical engineering that have improved our society, in the hope of correcting



*Gretchen and Dr. Pavlath and students at Carpenter Elementary School dissect rock aggregates for fossils.*

*Photo: Angelo Cassar*

a negative public view of chemistry. Pavlath also discussed his philosophy of change and encouraged the members at this informal meeting to submit suggestions as to how we can make ACS a more relevant society for its members.

This meeting was followed by an evening “tailgate party” at Ashman Court, open to all ACS members. The theme of this party was football, with the con-

cept that Pavlath will be the new “quarterback” for the ACS “team.” The room was decorated with a goal post in the middle of the room, pennants of various teams on the wall, and miniature “polymer” football players atop a Mexican appetizer, which resembled a football field. The food was excellent as were the discussions at this party.

Saturday was the Fall Scientific Meeting. Pavlath’s keynote address, “It Is Time for a Change,” discussed the changing needs of chemists and that ACS needs to provide more than meetings and publishing. After the keynote address, he participated in a related issue panel discussion, “Recent Trends in the Chemical Industry,” moderated by Sarah Snow. All the panelists stressed the need for industry, academia, and ACS to work together to improve the quality of life for chemists and society. Pavlath stressed the importance of personal dedication, as exemplified by the contributions of H.H. Dow to this community and the future hopes for society as he’d seen at Carpenter Elementary.

After the symposia, we bid farewell to Dr. Pavlath at the airport. His message of change in a fast-changing world has left its mark on Midland, as we conversely left an impressive mark on him. We are excited about his commitment to improve ACS. Give him your comments for change at [www.pavlath.org](http://www.pavlath.org).



# Alma College Students, Faculty Offer Presentations at National ACS Meeting

by Scott Hill

Ten students and four faculty members from Alma College joined many

other chemists at the 220<sup>th</sup> national meeting of the ACS in Washington DC, August 20–24. The following presentations were made.

- Synthesis and reactivity studies of iron complexes to model the active site of metalloenzymes: An approach to connect aspects of organic inorganic, and biochemistry in undergraduate research. B. Hansert
- Creating an undergraduate laboratory experience in advanced organic chemistry. S.T. Hill
- Molecular orbital calculations to support experimental measurements in physical chemistry lab: Energies of dimer formation for mixed organic solvents. J. Hutchison
- Interdisciplinary service-learning involvement in Central Michigan. M.M. Strait, M.C. Borello, E.C. Lorenz, R.A. Roeper
- Exploring the chemistry of iron complexes to model the active site of the enzyme isopenicillin N-synthase. S. Gwizdala and B. Hansert
- Synthetic studies toward the production of a cyclooxygenase inhibitor. N.G. Carman and S.T. Hill
- Synthetic studies toward an enzyme inhibitor. J.D. Hicks and S.T. Hill
- Synthetic studies toward a marine natural product. J. J. Swidorski and S.T. Hill
- Stability contributions and strengths of hydrogen bonds in the enolic forms of acetylacetone. K.M. Metz and J. Hutchison
- Chemical analysis of refinery wastewater discharge. D.M. Finkbeiner and M.M. Strait
- Geochemical monitoring of Total Petroleum wastewater discharge. S.R. Baker, D.M. Finkbeiner, and M.M. Strait
- Future generations: A youth outreach program. K.J. Wibby and K.S. Wendling



*Sherri Gwizdala (pictured) and Bernhard Hansert presented a poster on modeling the active site of enzymes.*

## Important Dates on the ACS Midland Section Calendar

- December 4    Midland Section board meeting, Delta College Midland Center,  
Room 12, 7:00 p.m.
- January 8     Deadline for February issue of *The Midland Chemist*
- January 15    Midland Section board meeting, Delta College Midland Center,  
Room 12, 7:00 p.m.
- February 5    Deadline for March issue of *The Midland Chemist*
- February 5    Midland Section board meeting, Delta College Midland Center,  
Room 12, 7:00 p.m.

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