6 C Carbon 12.011
2 He Helium 4.0026
10 Ne Neon 20.180
74 W Tungsten 183.84
16 S Sulfur 32.06

VOLUME 6 ISSUE 2 DECEMBER 2024

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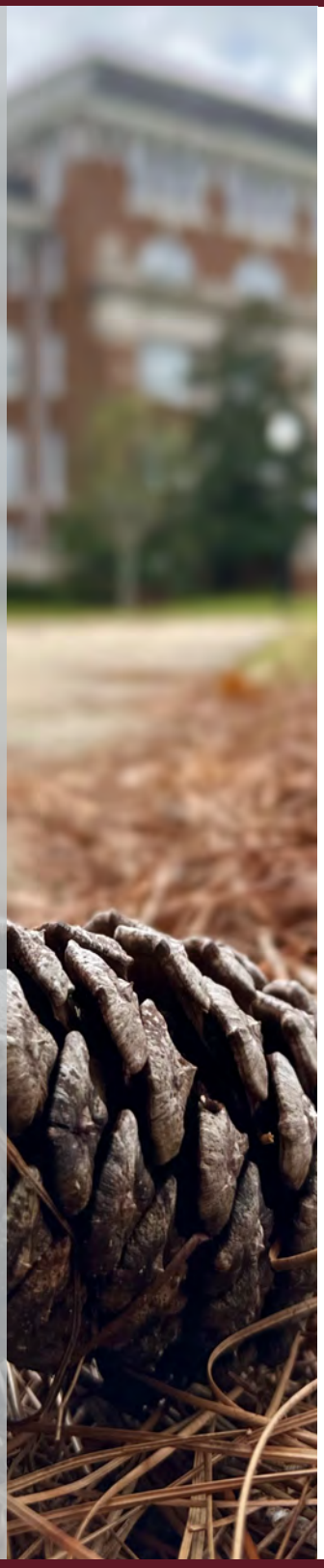


Drab to Fab | *Lounge Renovation*

By Avery Byars

On the first Saturday of the fall semester, over 70 ChE and PTE majors gathered to help give our student lounge on the ground floor of the Swalm ChE Building a needed refresh. Over the years, the lounge has been "well-loved"—older tables and chairs and the walls and carpet demanded renovation. Thanks to a generous donation from Ergon, Inc., the lounge received fresh paint and new tables, chairs, and carpeting. Our AIChE chapter was happy to coordinate a workday with Dr. Bill Elmore, assembling furniture, deep cleaning sofas, hanging blinds, and disposing of threadbare furniture. Volunteers enjoyed snacks and coffee to kick off the morning and a pizza feast to celebrate. Thanks to the outstanding turnout, all the work was finished in just three hours, a task that could have taken days—a perfect picture of teamwork.

ID scanners now accompany all entrances to the lounge, ensuring the new lounge will last for years to come.

I'm delighted to say I've already noticed an increase in students using the lounge since the renovation and an appreciation for a dedicated space to study, work on group projects, and connect with others. The updated lounge also serves as a recruiting factor for prospective students and guests on tours or at special events; they physically see the care and investment our school has in its students.

Current students had a great time working together to make Swalm and our lounge a point of pride for us during our time at MSU; in doing so, they extended this impact to many future classes of ChE and PTE students. Ask anyone involved, and I think they will at least confirm we are all now experts in using Allen Wrenches!

Switching to Psychiatry | *Student Paths*

Kelsei Elmore, a graduating ChE student from Demopolis, AL, will soon start a combined M.S. in Public Health–MD program at the University of Alabama at Birmingham. Until now, Elmore has juggled sciences and the arts—including music, painting, and acting. Here, Elmore offers details on her less usual path and advice for those considering the medical field.

"While many of my peers have started full-time at chemical plants, I will pursue the inner workings of a different chemical plant—the human body. Growing up in a rural area brings many joys, but also an awareness of a quality healthcare shortage. When I was little, I remember riding 45 minutes to see my primary care doctor; missing school was fun, but looking back, I realize how inaccessible it was for my mother. This, combined with working in the field, has opened my eyes to the struggles patients face in seeking treatment in rural areas such as medicine unavailability, long wait times, and costly bills.

When I started college, I wanted to become a pharmaceutical scientist at the forefront of the R&D process, developing new medications and processes. However, after many hours of shadowing and a new interest, my career goals changed. When I discovered the Rural Medical Scholars program at UAB, I was intrigued, yet skeptical. The program emphasizes bringing physicians to rural areas but takes more time than is typical. However, the extra year means an understanding of the complexities of providing adequate care to patients in rural areas. With many hands-on experiences and travel/conference opportunities, the program brings students closer to the hearts of rural communities.

In particular, the mental health of children is integral to communities. Psychiatrists working with young adults and children are rare; the suffering caused by the loss of a child to mental illness leaves a void for the community to fill. With this in mind, I aim to become a family medicine physician specializing in child psychiatry, bringing awareness to rural communities of the importance of the child psyche.

My degree includes a biomolecular concentration, entailing more biological sciences classes and preparing me for the MCAT. A background in ChE also allows me to think critically and solve problems. From the first day, the 'figure it out' mindset is engrained into your brain. Figuring it out does not necessarily mean that you do it alone (professors offer plenty of help); it means that the problem may take multiple tries or approaches and solve. This mindset is crucial to being a physician: you must figure out the best way to treat the patient and restore their wellness. With this degree, I confidently say that I can figure out anything.

To my fellow ChEs interested in this field, the road is not easy. There will be nights you can not join your friends after a Fluid Flow test because you have to study biochemistry or finish that lab analysis, as well as periods of free time you must use to shadow or volunteer. Don't give up! Remember that greater things await you. Changing and saving lives await you. Figuring out treatments and lessening disparities await you. Most importantly, being the physician you are destined to be awaits you."

Congratulations, Kelsei!

ASC Attendee Anecdotes | *Conference Report*

By Josh Bowman

In late October, the MSU chapter of AIChE sent a delegation of 10 undergraduate students and advisor Dr. Julie Jessop to San Diego for the Annual Student Conference (ASC). Attendees engaged in various networking, professional development, and workshop-style events led by leaders in industry and academia.

On the first evening of the conference, chapter co-presidents **Catherine Boltz** and **Victoria Taylor** presented their workshop "Engaging Young Minds: A Guide to STEM Outreach." As **Katelyn Wilson** describes, "They gave great tips on how to make connections within the community and on how to make sure the experiments run smoothly … on how to keep the

Niki Ye at LGBTQ+ & Allies Panel

young students involved in the experiments."

Events continued the next morning with biopharma leader Michael Thien's keynote address "Re-imagining Chemical Engineering Curriculum, Career, and Riding the Tiger." **Avery Byars** recounts, "[his] career alone was inspiring as he has helped to come up with treatments and a vaccine to Ebola, HIV, and COVID-19," and explains, "'Riding the tiger' referred to finding what motivates you and what kind of 'tiger' you want to be in the industry in your personal career goals and methods." At the Town Hall, AIChE leadership touched on many topics currently relevant to the field including post-graduate education, research, manufacturing, PE licensure, networking, mental health, AI, energy, and public health.

Delegation, from back, left: Paul Gramelspacher, Avery Byars, Katie Evans, Dr. Julie Jessop, Victoria Taylor, Garrett Simmerman, Katelyn Wilson, Chloe Shivers, Catherine Boltz, Caroline Boltz, Niki Ye

Many breakout sessions followed, ranging from technical deep dives to professional masterclasses. **Paul Gramelspacher** attended a session on Rheology and Mixing, saying, "We covered the study of soft matter's physical properties and focused on viscosity—its measurements and data analysis, including comparisons drawn between a fluid's viscosity and a solid's Young's modulus of elasticity. The most interesting part was the introduction of thixotropy—the hysteresis of viscosity for a non-Newtonian fluid's viscosity with extreme shear stress. A practical tip from the mixing part of the session is that baffles/fins on the inner wall of a stirred vessel can discourage vortices and promote mixing."

Victoria Taylor attended Evonik's "From Campus to Corporate" presentation on key tips for aspiring ChEs. She took away, "Success in this field starts with a solid foundation in technical theory. Developing a comprehensive understanding of chemical engineering fundamentals—such as fluid mechanics, transport phenomena, process design, thermodynamics, and chemical reaction engineering—is essential, as these principles support industries like healthcare, food and energy production, and electronics. Beyond technical expertise, networking and leadership are critical for career growth. Students are encouraged to build connections through professional groups, career events, alumni engagement, and leveraging existing relationships. Key questions to ask alumni include how they prepared for their first professional role and any advice they wish they had known before starting their first job."

Avery Byars and Chloe Shivers at AIChE Leadership

Corny Corner

What is a chemical engineer's favorite Christmas song?

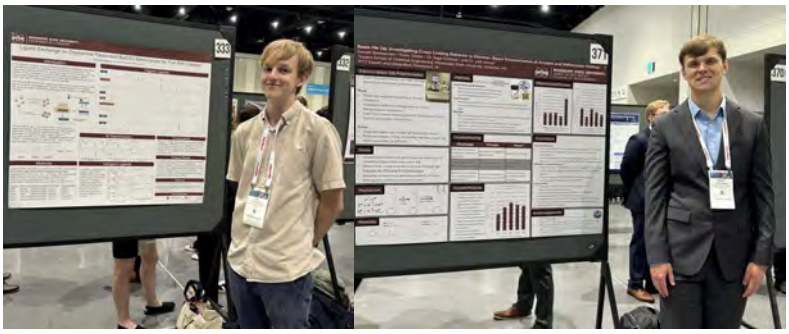
See page 4.

Many State students also attended Joseph Cramer's " The Path to Becoming a Licensed Professional Engineer (PE)," saying they learned about the undertaking and its benefits. **Caroline Boltz** describes the process: "The first step is to

continued on next page

register for the Fundamental Engineering (FE) Exam after or during your last semester during your undergrad degree. After passing the FE, you gain experience under a current PE for about four years, building a portfolio of projects demonstrating your experience. After that, you can take the PE exam in whichever field you want to practice, not necessarily that of your undergrad degree." **Chloe Shivers** summarizes that "being licensed allows you to stand out because it is a universal standard. Only a PE can practice professional engineering, and you can work in consulting, advertising, and sign and seal documents. PEs typically earn more money."

If you are interested in more topical lessons from the 2024 ASC, ask these attendees:



Paul Gramelspacher & Garrett Simmerman at Student Poster Competition

ChemE Car - Victoria Taylor

First Industry Positions - Catherine Boltz, Niki Ye

Materials Eng. - Garrett Simmerman

Mental Health - Chloe Shivers

Pharmaceutical Industry - Katie Evans, Katelyn Wilson

PhD Paths - Paul Gramelspacher, Garrett Simmerman

Process Engineering - Katie Evans

Paraquat Puzzling | *Undergraduate Research*

Madeline Raynor

Since the spring of this year, I have been conducting research with the MSU Chemical Laboratory under Dr. Erika Womack, and this experience has motivated me to pursue research in the future.

At the lab, I have conducted research on the amount of the herbicide paraquat found in vegetable crops. Paraquat is one of the most widely used herbicides, but the tests for detecting it have had a significant amount of variability and leave much room for error. The chemical is extremely toxic when ingested in small amounts, so for the safety of consumers, it is important to develop a foolproof method for measuring the amount of paraquat found in plants. I presented this research at MSU's spring undergrad research symposium, and I found that experience to be extremely helpful. It allowed me to practice explaining my research concisely and comprehensibly.

Before working at the Mississippi State Chemical Laboratory, I knew that I had a passion for toxicology, but I had no practical experience that could help me in the future. I wasn't even sure if toxicology was what I really wanted to pursue because I had never done anything like it before. By conducting research there, I have not only obtained extensive laboratory and research experience that I can use in the future, but I have also confirmed that toxicology is what I want to pursue going forward.

The experience gained from pursuing research can prepare you for graduate school studies and allow you to discover what your real passion is within the workforce. Before finding the research job that I have now, I had helped with other research projects in subjects such as hypersonic propulsion vehicles and even sustainable wood science. While these experiences were extremely informative and fun, they made me realize I did not want to pursue a future in those fields. There's nothing wrong with trying new things and branching out from what you know best. Doing so has allowed me to find what I love and has motivated me to pursue higher education, which I had not considered before doing research.

If you want to get involved in projects around campus, I recommend asking a professor that you like if they have any openings or if they need some extra hands on deck. Also, there are a few research programs on campus that can help you find a lab to work with. I got into my research lab by applying for the BRIDGES program, which helps give minority and underserved students research opportunities on campus.

Corny Corner

O Chemistree!
O Chemistree!

Mark (Tony) Robertson ('90) | *Alumnus Highlight*

By Josh Bowman

Over an almost 34-year career with Dow Chemical in Louisiana, Mr. Mark (Tony) Robertson, PE, has worked in various technical roles and is now a key leader in the Dow process engineering technology network. Post graduation, Robertson has stayed involved at MSU: on the MSU Recruiting Team for Dow, as a Dow/MSU Diversity Liaison, and through annual participation in CHE 3331 Professional Development Seminar. As a mentor to many young technical professionals, he offers his journey and advice to Swalm School students.

Originally, Robertson chose to study chemical engineering as a step toward a career in orthopedic surgery. However, he explains, "I had so much fun in my internship experiences that I decided to stick with chemical engineering" as a path unto itself. He cites meeting a bustling Dr. William Hill in the Unit Operations (see p. 6) lab as an encouragement to choose MSU for his academic and intercollegiate athletic pursuits. He continues, "Balancing Faith, school, and football occupied a significant portion of my time and forced development of disciplined habits. Combine that with the 'can do' attitude of MSU people and you have what I am today."

Robertson is currently the Process Engineering Director for the Dow Industrial Solutions Technology Center. "[The Center] is a repository of technical information for process safety, capital project implementation, and next-generation technology." His latest work supports carbon capture use and sequestration. Robertson's other roles include his work as a Dow Manufacturing and Engineering Fellow, a representative on the American Chemistry Council Hydrogen Cyanide Panel, and the manager for two Department of Energy selected projects on lithium-ion battery electrolyte solvent development. His technical expertise includes process modeling, crystallization, solids handling, gasification, oxides, monomers, and continuous improvement. His skills in project capital and root cause analysis are also often requested.

Regarding his emphasis on a disciplined and methodical skillset, Robertson expands, "Memorizing the formula or knowing how to punch a calculator or develop a spreadsheet is insufficient. Solving issues requires an understanding of the first principles and truly knowing how to apply them. There is a transition from the theoretical learned in college and applying that knowledge in a practical manner in industry. That is where college graduates can stumble post graduation and where co-op and internships can help."

In addition to learning from class and early work experience, he advises, "Seek out business challenges that others might evade for fear of the appearance of failure. Even if you don't fully accomplish the mission, you will be seen as someone willing to take the proper business risk and will gain valuable knowledge in the process." Robertson points to post-graduate education and training funds offered in most major industries and adds, "Occasional external seminars such as those with AICHE or NSBE will also provide a nice addition to an individual's skill set." Some forego obtaining professional licensure, but he contends, "A Professional License may not seem like it pays dividends at first, but it gives third-party verification that one is well-versed in the fundamentals and may be required for higher-level work in a company during career development."

In his spare time, Robertson is an Associate Minister at his church and a BSA Scoutmaster. Above all, he summarizes, "Walk in Faith. Be fundamentally sound in the First Principles. Be practical in your work. Have fun!"

Thank you, Mr. Robertson, for representing the School well in all your endeavors!

A Lasting Impact

The MSU chapter of AIChE thanks the late Hunter Henry and his family for their past and continued support of Swalm School and chapter activities.

Henry graduated from MSU ChE in 1950 having a long career with Dow Chemical. He and his wife Lila were extremely generous, creating scholarships, faculty recognition awards, and endowed chairs at MSU.

Alumni Engagement Opportunities

The Swalm School is proud of its graduates! You are inspirations to current students, and there are opportunities to continue engagement.

Keep us abreast of your latest accomplishments for the newsletter, website, and social media.

Volunteer to give a professional development seminar for CHE 3331. Recent presentations include Networking, Lifelong Learning, ChE Career Path Flexibility, Bringing Your Full Self to Work, Sustainability, Recovering from Failure, and Budgeting & Investing.

Participate in the Swalm alumni mentoring program. Mentors contribute to the professional preparation of their mentees by interactively sharing their knowledge, experience, and counsel.

Those interested can email Dr. Julie Jessop at jessop@che.msstate.edu.

2024 AIChE Award Winners

Mississippi State University Student Chapter
Outstanding Student Chapter Award
For an exceptional level of participation, enthusiasm, program quality, professionalism, and involvement in the university and community.

Hunter Chunn
Donald F. & Mildred Topp Othmer Scholarship Award
For academic achievement and involvement in student chapter activities.

Lauren Temples
Donald F. Othmer Second Year Student Academic Excellence Award
For attaining the highest scholastic grade-point average during their first and second years of undergraduate education.

Dr. Julie Jessop
Outstanding Student Chapter Advisor Award
For outstanding performance in guiding the affairs and activities of their student chapters in accordance with AIChE principles.

Asiah Clay
Minority Affairs Community's Minority Scholarship Award for College Students
For academic achievement, leadership, service, and involvement in student chapter activities.

Joshua Bowman
First Year Student Recognition Award
For the most involvement in student chapter activities during their freshman year.

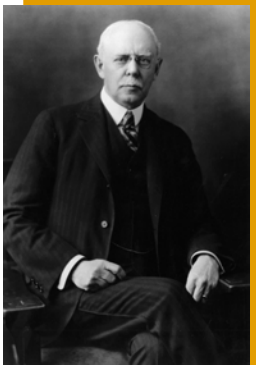
In Memoriam Logan Gaillard

By Emalee West

It is difficult to encapsulate the most important characteristics of the human spirit into words. It is even harder to display them to others day in and day out, but Logan Gaillard was the person who could do it. In the words of all who knew him, Logan was one of the few people who could light up a room, inspire you to keep working on your worst days, and most importantly, be one of the truest friends you could ever have. Everyone who met him was his friend, whether they knew it or not. His free spirit will always be remembered by those who knew him, and he will continue to inspire us even though he is gone. He will always be in my heart and everyone else's.

ChEs in History

Arthur D. Little was instrumental in developing chemical engineering as a field at MIT and in the United States more broadly. He introduced the concept of *unit operations* (or basic process steps) and was a founding member of the AIChE. Little was also instrumental in the US development of cellulose nitrate, chrome tanning, cellulose acetate, and WWII gas masks.



Congratulations to our Fall 2024 ChE Graduates!

Thanks to everyone who contributed to making this issue a success! Look for the next issue this spring.
Josh Bowman,
Newsletter Editor

Courtney Cochran (AIChE, ΩXE)
Kelsei Elmore (AIChE)
Larry Haller
Lucas Ladner (AIChE)

Corny Corner Suggestions?
We'd love to hear them. Email Dr. Bill Elmore at elmore@che.msstate.edu.

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