

MTU
Academy of Sciences and Arts
Academy of Sciences and Arts Dinner and Induction Ceremony
April 5, 2018
Remarks by Bruce Seely
Dean, College of Sciences and Arts

Good evening everyone! My name is Bruce Seely, Dean of the College of Sciences and Arts. I am delighted to welcome you to the 2017-18 Distinguished Alumni Banquet and Induction Ceremony for the Michigan Tech Academy of Sciences and Arts. We have been doing this for some time now – as evidenced by the 60 plaques depicting distinguished alumni mounted in the hallway outside the college office. The college inaugurated the Academy in 1995, and we always look forward to this event. It is a highlight of the college’s academic year.

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It is time for the official festivities to begin! This is the 23th induction ceremony into the Academy, and it’s always a great evening! This evening I want to set the stage by drawing some linkages to the 50th anniversary of the College of Sciences and Arts, which comes this fall. I have in mind connecting our inductees to aspects of the college’s history over those 50 years, by sharing four vignettes from CSA’s history.

Let’s begin by jumping back to the mid 1960s and the formation of the College of Sciences and Arts. I believe the key event was President J.R. Van Pelt’s decision in 1965 to rename the *Michigan College of Mines and Technology* as *Michigan Technological University*. This was a contentious step, as I’ll explain before the evening is over. For now, however, what matters is that the new name altered how the Tech saw itself. Van Pelt’s successor, Ray Smith, acted on the new image by launching the academic reorganization in 1968 that created the College of Engineering, and the College of Sciences and Arts (CSA). The new structure elevated the visibility of both the sciences and those disciplines traditionally identified as the liberal arts, although Smith expected every part of the college to fit under that new banner of a *technological university*. Each of the vignettes that follows shows how this effort worked out.

Vignette # 1 concerns music. I know everyone appreciated our jazz players earlier this evening. Well, those student musicians trace back to the efforts of David Geddes, the first dean, who arrived in 1969 to guide the new college. Geddes inherited strong programs in math and physics, recently moved into a new building (Fisher Hall, 1964); and in biology. Formed in 1962, Biologocial Sciences had implemented a Master’s program in 1965. So Geddes focused on the new departments of Social Sciences and Humanities,

and we still benefit from his actions. One key move was his support for a Copper Country Art Council, a move enthusiastically endorsed by local residents interested in music. The positive response informed Geddes' decision to hire the first music instructor at Tech, John Clarke, and then to form the Keweenaw Symphony Orchestra (KSO). Geddes started the symphony by canvassing UP high schools for unused instruments, eventually buying 60 from one local school for \$200. After spending another \$500 for repairs, the orchestra was stocked with a dozen violins, 2 violas, 3 cellos, and 2 string basses. Shortly thereafter the orchestra made an impressive debut with 36 players. By the time Geddes left in 1973, the KSO had performed six times and the music program has only grown since, remaining very much part of this college, despite the absence of music majors.

The second episode concerns the inductee who has the distinction of earning her bachelor's in computer science before Tech had a dedicated CS department! Bill Powers, the second dean, guided most of the steps to starting computer science at Tech. On many campuses, computer science grew out of electrical engineering, but Tech, perhaps surprisingly, followed another general pattern and grew a computer science unit out of mathematics, beginning in 1973. The new group was an instant success. Various mainframe devices in the Administration Building and a couple of IBM computers in Fisher Hall were important resources for the unit. Linda Ott, currently Associate Dean for Special Initiatives, was the second member hired and served for a time as the unit's coordinator and later as department chair. Not until 1986, however, was computer science split off into its own department – just about the our inductee graduated. Before long the department had almost too many students for the faculty, which fluctuated in number between 6 and 9. Over its history, the department has usually had the largest enrollment in the college, a position it currently holds with more than 460 undergraduate majors. Research has steadily assumed greater importance, yet the commitment to quality undergraduate education has remained. What that education should look like has been a key issue, as the field changes so quickly. Programming has changed from cards to tape to languages; mainframes gave way to high-performance clusters or personal devices, while mobile computing via phones and apps dominates discussions today. One other change has been more frustrating, as the number of women dropped from about 50% at the outset to fewer than 10% in 2000. Scholars have recently suggested that part of the explanation concerns the changing portrayal of computers and computing in popular culture as masculine endeavors after 1980; other factors include deeper cultural and social norms. It is heartening that the pattern is changing today, albeit slowly, thanks in large part to role models such as our inductee this evening, and to the efforts of one of her professors, Linda Ott. Both have helped shape the world of computing at Tech and beyond.

My third story moves to the 1990s, after Bill Powers moved across campus to the provost's office, and Max Seel shifted from chair of computer science to the dean of CSA. Right from the beginning of his 18-1/2 year term, Max found himself engaged in discussions about bringing chemistry into the college. Chemists and chemical analysis had been at Tech from the very beginning, for chemistry was connected to mining through assaying and metallurgy. By 1894, chemistry and metallurgy were merged into a single unit, which later was joined to chemical engineering department in 1926 or 1927.

The BS degree in chemistry was launched in 1929, and Melvin Calvin, Tech's sole Nobel laureate, earned one of the first bachelor's degrees in chemistry in 1931. That same year the MS in chemistry was put in place.

Things remained this way until the 1990s, which was marked by six years of discussions and debate about moving the department to CSA. Max pressed hard for the change – he is a quantum chemist, after all. Key issues concerned the different cultures of scientists and engineers that affected mentoring, salaries, and tenure decisions, and the invisibility of chemistry inside an engineering department. Max and others argued chemistry would be stronger if grouped with other natural sciences in CSA, resulting in improved graduate education and additional external funding. The final vote of the chemistry faculty in 1996 was 14-3, with 2 abstentions, in favor of joining the college. Our second inductee tonight shows that the plan has worked out, for she arrived to pursue her doctorate here not long afterwards. Her success suggests that the department made a good start in living up to expectations.

Our final vignette puts us at the end of the 20th century, by which time almost every CSA department had undergraduate and graduate programs. But four academic activities were not well placed. Neither teacher education nor psychology had found suitable department homes, while the visual and performing arts faculty were not completely comfortable in Humanities. Under Max's guidance, new academic departments came into existence to solve both issues, albeit not within challenges. The fourth area concerned physical education. PE *was* a department in the college, but it offered no majors and had only one tenure-track faculty. Here too, Max helped work out a strategy to build an academic program in this unit.

The starting point was a continuing institutional commitment to physical education and exercise for the body as well as the mind. But the instructors were athletic coaches, which seemed to restrict options. Then in 2005, the passing of long-time department chair Cheryl DePuydt created the need, and an opportunity, for new directions. Max decided to seek a new department chair who could develop degrees in health and physical education and in exercise science. Jason Carter accepted the position as an untenured assistant professor AND department chair. Other chairs – myself included – were convinced Jason was nuts, but we misjudged his energy and dedication. (Jason coached Houghton boys basketball team during his first two years as well!) Within a year, a degree program was approved, a couple of faculty positions were filled, and Max proposed renaming the unit the Department of Exercise Science, Health, and Physical Education – ESHPE. Since then, the pace of change has not slackened, with additional new faculty driving the creation of first a BS in Sports and Fitness Management, and more recently MS and Ph.D. programs in Kinesiology and Integrative Physiology. Those degrees led to the second renaming of the department. Taken together, this trajectory reflects the university's decision to make human health a strategic focus of teaching and research. It is wonderful, then, to see an early graduate of the department back on campus tonight to become the first member of KIP to join the Academy.

Three people; four points of emphasis -- all connected to patterns of continuity concerning the college's role on this campus: Quality education to prepare our students for success and for a good life; strong research to advance knowledge; all intended to address the needs of our larger society. But our inductees show as well how the college has changed, becoming broader in scope, more deeply interdisciplinary in approach, and steadily more international as well. Thus through our inductees we can see the college's role, and its history. So we're glad they are here! And now it's time to turn to the reason we have gathered here this evening and induct our newest members.

Induction Ceremony

Inductees into Michigan Technological University's Academy of Sciences and Arts must meet several criteria. They must have graduated from a program of the College or one of its predecessors. They also must have brought distinction to themselves, their academic department, the College of Sciences and Arts, and Michigan Technological University through participation, commitment, and outstanding leadership in their profession and through public service. Election to the Academy publicly recognizes our appreciation and pride in those alumnae and alumni for their exemplary achievement and professional excellence. Members of the Academy now include distinguished academics, leaders of industry, members of the National Academy of Sciences, a Hollywood executive, and the University's sole winner of a Nobel Prize - Melvin Calvin (1964). Each recipient receives an engraved plaque with their photograph; a copy also will be displayed in the Walker Arts and Humanities Center to serve as an inspiration for our current students and for our faculty and staff. Michigan Tech is committed to graduating superbly educated individuals who serve their professions, students prepared to thrive in the arenas of graduate and professional schools, and leaders who have recognize the various influences and interactions of science, technology, the liberal arts, language, and arts on all of our lives. The members of the Academy and the persons to be inducted this evening have shown these qualities in exemplary careers and lives. They serve as inspirational role models and splendid examples for all of us.

Distinguished Young Alumni are graduates who exhibit these patterns and attributes at an early stage of their careers, and have begun to bring distinction upon themselves, and to their department and the university. They, too, serve as role models for our current students in the many fields of study in the College of Sciences and Arts. Furthermore, our first Young Alumni have shown so clearly the impact of the steady and successful broadening of the college's programs over the past twenty years. Like all members of the Academy of Sciences and Arts, our young alumni are making a difference in the world.

In addition to a plaque, the College presents every Academy inductee with an original photographic image of the Keweenaw taken by emeritus Humanities faculty member and photographer Joe Kirkish. These beautiful pictures, displayed on the easels next to the podium, capture the beauty of the Copper Country that surrounds Michigan Tech and usually acts as the backdrop the memories of our graduates about this area. Please feel free to examine Joe's pictures after the ceremony.

I'm very sorry to say that one of our inductees, Dianne Marsh, was prevented from reaching Houghton by aircraft mechanical problems, so her induction will take place next year. But two other distinguished alumni are here the evening, despite the awesome spring (sic) snow we see outside tonight.

According to our tradition, the department chair introduces the new member to be inducted. Cary Chabalowski, Chair of the Department of Chemistry, will initiate this process for us.

On behalf of the Department of Chemistry it is my privilege, this evening, to honor an alumnus of the department and to induct her into the MTU Academy of Sciences and Arts. Would Ge Wang please come forward.

Professor Ge Wang earned her PhD at Michigan Technological University in 2002, having received a BS and MS in China in 1992 and 1995. In 2004, she joined the University of Science and Technology Beijing (USTB) as an associate professor and was promoted to professor in 2006 and doctoral supervisor in 2008. While at USTB, her positions have been director of the International Office, assistant president, and vice president for international cooperation and graduate studies. She currently is the director of the Beijing Key Lab of Function Materials for Molecule and Structure Construction, and chair professor of Materials Science, School of Materials Science and Engineering.

Dr. Wang's research interests include the composition and architectural design of a series of functional composites with the goal of improving the efficiency of energy utilization and resource consumption. Applications include energy conversion and storage, primarily through the design and synthesis of nanostructured materials for solving critical issues in solar cell production, green catalysis and new energy storage systems. She examines catalysts for carbon dioxide reduction, and explores energy storage materials. Dr. Wang's lab brings together expertise in materials science, catalysis, electrochemistry and physics to address the many challenges that emerge in the field of energy.

Dr. Wang has been responsible for many research projects sponsored by China's National Key Research and Development Program, 863 Program, and the National Natural Science Foundation. She has published more than 120 SCI papers in a variety of journals, including ACS Nano, Nano Energy, Advanced Energy Materials, some of which were reviewed and recognized by Professor Robert H. Grubbs, a Nobel laureate in Chemistry. She has received 51 national invention patents and second prize in the Beijing Science and Technology Awards in 2011. In 2012, she accepted a special chaired professorship endowed by the Chang Jiang Scholars Program of the Ministry of Education and in 2013 she was elected to enter the National Hundred, Thousand and Ten Thousand Talents Projects, and awarded the title of National Young Expert with Outstanding Contributions. In 2016, she won the Natural Science Award first prize for Outstanding Achievements in scientific research at a university.

Ge, we are delighted to induct you into the Academy of Sciences and Arts at Michigan Tech. Congratulations!

Dr. Jason Carter, Chair of the Department of Kinesiology and Integrative Physiology will continue the proceedings.

It is my privilege this evening to honor a graduate of our department and induct him into the Michigan Tech Academy of Sciences and Arts.
Would Steve Short please come forward.

Steve Short was born and raised in the Upper Peninsula of Michigan, and graduated from Kingsford High School in 2005. At Michigan Tech he earned a dual BS degree in Exercise Science and Biology (pre-professional) in 2010 and was a proud member of the MTU Football Team, quarterbacking the Huskies as a four-time captain. Steve went on to earn a doctorate in physical therapy (DPT) from the University of Dayton in 2014.

While at Dayton, Steve became interested in movement and injury research in elite sport. This focus led to an internship and clinical rotation with the Oklahoma City Thunder, in addition to professional opportunities with the Indiana Pacers, numerous collegiate athletic programs, and private-sector performance training of professional athletes. He received Dayton's DPT Student Achievement Award.

Upon completion of his studies at Dayton, Steve began practice at Back in Motion Physical Therapy, in Iron Mountain, MI, with fellow MTU graduate, Chris Moore. But it was not long before Steve accepted a position as the first full-time physical therapist and assistant strength and conditioning coach for the NBA's Denver Nuggets. He spent the summer of 2016 as the lead Athletic Coach for the German National Basketball team en route to their qualification for EuroBasket 2017.

After three seasons, Steve moved into his current position as director of sports medicine for the Nuggets, and is responsible for the integration of evidence-based health and performance services throughout the organization's high performance unit. Steve is a certified strength and conditioning specialist through the National Strength and Conditioning Association, and is board-certified in Sports Physical Therapy through the American Board of Physical Therapy Specialties. He will sit for the completion of his post-graduate Orthopaedic Manual Physical Therapy Fellowship through the American Academy of Orthopaedic Manual Physical Therapists and Regis University later this spring.

Steve resides in the foothills of the Rocky Mountains with his amazing wife Gretchen, who is also a practicing doctor of physical therapy. He continues to receive inspiration from his family in the UP, including his parents, Dan and Mary Kay, both Copper Country natives, and his sister Sara, who is leading today's youth as an educator. Steve is here tonight with his wife Gretchen, his sister Sara and his parents Dan and Mary Kay.

Steve, we are thrilled to induct you as a Young Alumnus member of the Academy of Sciences and Arts, the first graduate of KIP to enter the Academy. Congratulations!

Bruce Seely: Concluding Remarks

The accomplishments of our inductees inspire us always to continue to create the circumstances for the success of our students. But I want to suggest that another lesson might be taken from this event as well. Earlier I noted that our inductees reflect both continuity and change in CSA's history. But balancing the old and the new also matters to Michigan Tech more generally. So as the university enters a period of multiple transitions in leadership, I'd like to reflect for a second on this balancing act.

Most universities emphasize research and innovation that promises to change the future while celebrating, (as we are doing tonight) and sometimes clinging to, tradition to avoid change. Michigan Tech is hardly exempt from this paradox. As early as 1900 mining began shrinking as a field for the school's technically-trained graduates while newer fields of engineering emerged. Yet the board of directors at the Michigan College of Mines, many alumni, and other stakeholders stoutly resisted adding those new programs; some would not even discuss such changes. The state legislature attempted at one point to prevent the formation of a degree in metallurgy. Not until a new president took over in the mid-1920s would Tech add academic offerings in engineering in response to the continued decline of mining enrollments. But changing the school's name to reflect these new realities proved a step too far. Even after more than 25 years of discussion, all that could be accomplished was adopting the name Michigan College of Mining and Technology (MCMT). This rhetorical exercise seemed designed to keep engineering in its place, not too visible or important. *Think about THAT for a moment!*

The Great Depression hampered further broadening of curricular offerings during the 1930s, even as unemployment caused some to advocate for more attention to science, business and forestry. Forestry was a natural addition for the a college in Michigan's Upper Peninsula, and 2- and 3-year programs were launched in the late 1930s by U.J. Noblet; a 4-year degree was first awarded in about 1940. But these steps came only after a legal review to determine whether the school could add such a "foreign" program.

The postwar era witnessed more pressure for change as mining and metallurgy lost even more ground with the closing of local mines. To be sure, research designed to extend the productive life of UP iron mines through taconite production opened a productive research agenda in the 1950s. But the reality was that almost 1/3 of the college's student body studied mechanical engineering by 1950, while electrical engineering accounted for another 25%. Even so, presidents Dillman (mid 1930s-mid 1950s) and Van Pelt (mid 1950s-mid 1960s) struggled to secure support from their boards, alumni, and the legislature for broader educational opportunities. Forestry finally found a building in the late 1940s -- a former school house that was overcrowded and drafty. Yet Biological Science was not added as a department in 1962.

By the late 1950s, president Van Pelt argued the school's name was both inaccurate and misleading. Indeed, by 1962 only 44 of the 2,700 students on campus pursued mining degrees; including metallurgy and related programs brought the total for all mineral-related program to only 15%. Even so, mining alums vocally opposed change, so only

reluctantly did the Board consider the name Michigan College of Science and Technology in 1963. Van Pelt, however, believed Tech's future depended upon a name that did not target ANY area of study. With some slick politicking, he persuaded the governor to include the name Michigan Technological University in the revised state constitution. As you might expect, Van Pelt faced sharp criticism from many quarters. Still, the Board approved a general plan in 1964 that emphasized not only technological programs but also supported a broader liberal education program. Both Van Pelt and his successor Ray Smith agreed that more breadth and a more diverse student body were required to succeed in higher education in the 1960s. They sought to make the campus more attractive to women, adding a communications program within Humanities in 1973 and strengthening Biology. Smith always insisted that the liberal arts be comfortable with the banner of a technological university, and the college has never deviated from this defining characteristic. But the addition of College of Sciences and Arts and its programs was not welcomed in every quarter and additional changes came slowly. Even in 1990, Max Seel's letter of appointment as dean contained the charge to make the college a full partner in the life and prospects of the university.

Hesitance to change is hardly limited to academia, of course. It proved every bit as difficult to move Highway 41 so it did not run through the center of campus. From a safety perspective, this seemed a common-sense step once the campus grew rapidly after World War II. With the Memorial Union and Wadsworth Residence hall built on the south side of the highway in the mid 1950s, and Fisher Hall and the Library constructed there in 1964 and 1966, students claimed they took their lives in their hands to get to class on time! But raucous public hearings about road relocation during the 1950s convinced the State Highway Department it was not worth the effort. When Tech tried to reopen the question in the mid 1960s, the highway department initially refused. Eventually Ray Smith's campus master plan of 1966 finally forced the issues and the road was moved in 1968-70.

Preference for the familiar also shows in the college's history as well. After all, I am only the fourth dean of the college. Yet I would like to suggest that this continuity may be fundamental to the way that the college has grown, changed, and expanded in new directions. Moving an academic organization is never easy – but this college has built a computer science group and added numerous research initiatives and departments to explore the environment, water, the atmosphere, materials, technical and scientific communication, human health, public policy, and human factors – among others. CSA retains a deep commitment to educating the whole person, regardless of their major, and part of that effort has encouraged creative strategies for fitting the arts under the label of a technological university.

In short, I think this college has found ways to balance old and new, using its continuity to promote necessary changes. And the results can be seen in the careers of our alums, two of whom are here this evening. I deeply appreciate the support this administration has given the college as we have worked and planned to grow and expand. The result has been superb new faculty who are still showing how good they can be. We do not know how far they can carry us, but it will be a long way! They are young, interdisciplinary,

and committed to teaching AND research. They are seeking external funds successfully despite the most difficult environment for funding since the 1960s. Because of them, the college is poised to have an enormous impact on the future of Michigan Tech. That is why I am not just optimistic about the future, but excited about who the future inductees will be. I suspect we will see future Academy members whose careers are in data science, nano-materials, geographic information systems, digital media, cyber-security, bioinformatics and genomics, and human health, among other fields.

But I'm getting way ahead of myself, so let me bring us back to inductees who have just joined the Academy. They are reminding us how Tech graduates have made, and continue to make, a difference in the world by what they know and do, and as importantly by how they live their lives. I thank them for being such great role models and for sharing their time and energy with us and our students over the next day or so. I congratulate them again for their accomplishments. They make us proud, and we are delighted to have you here as the 62nd and 63rd members of the Academy of Sciences and Arts!

I hope all of you have enjoyed this evening, with its delightful interactions, great entertainment and superb meal, the wonderful setting, and above all the opportunity to celebrate with the newest inductees on the Academy of Sciences and Arts. My thanks to everyone who shared tonight with us and helped make it a success. I am grateful for the pleasure of your company, so be sure to travel home safely. Good night!

Closing comments: Bruce Seely
Continuity and change in CSA

Thanks, Glenn, for joining us on this grand evening! The accomplishments of our inductees inspire us always to continue to create the circumstances for the success of our students. But I want to suggest that another lesson might be taken from this event as well. Earlier I noted that our inductees reflect both continuity and change in CSA's history. But balancing the old and the new also matters to Michigan Tech. So at this moment of multiple transitions in leadership, I'd like to reflect for a second on this balancing act.

Most universities emphasize research and innovation that promises to change the future while celebrating, (as we are doing tonight) and sometimes clinging to, tradition to avoid change. Michigan Tech is hardly exempt from this paradox. As early as 1900 mining began shrinking as a field for technically-trained graduates while newer fields of engineering grew. Yet the board of directors at the Michigan College of Mines, many alumni, and other stakeholders stoutly resisted adding new programs; some would not even discuss such changes. The state legislature attempted at one point to prevent the formation of a degree in metallurgy. Not until a new president took over in the mid-1920s would Tech add academic offerings in engineering in response to the continued decline of mining enrollments. But changing the school's name to reflect these new realities proved a step too far. Even after more than 25 years of discussion, all that could be accomplished was adopting the name Michigan College of Mining and Technology (MCMT). This rhetorical exercise seemed designed to keep engineering in its place, not too visible or important. Think about THAT for a moment!

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The postwar era witnessed more pressure for change as mining and metallurgy lost even more ground with the closing of local mines. To be sure, research designed to extend UP iron mines through taconite production opened a productive research agenda in the 1950s. But the reality was that almost 1/3 of the student body studied mechanical engineering by 1950, while electrical engineering accounted for another 25%. Even so, presidents Dillman (mid 1930s-mid 1950s) and Van Pelt (mid 1950s-mid 1960s) struggled to secure support from their boards, alumni, and the legislature for broader educational opportunities. Forestry finally found a building in the late 1940s -- a former school house that was overcrowded and drafty. But Biological Science was not added as a department in 1962.

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