

MTU
Academy of Sciences and Arts
Academy of Sciences and Arts Dinner and Induction Ceremony
September 13, 2013

OPENING REMARKS

Good evening everyone! I am delighted to welcome each of you to the 19th Distinguished Alumni Banquet and Induction Ceremony for the Michigan Tech Academy of Sciences and Arts. My name is Bruce Seely, Dean of the College of Sciences and Arts. This special evening is perhaps the most satisfying responsibility of the office I am honored to hold. Since 1995, our recognition of distinguished alumni has been one of the most important events in the intellectual life of the College, and tonight we will induct the 54th and 55th individuals into the academy. But this year also marks the 45th anniversary of the founding of the college itself, so I want to begin the ceremony this evening with a few comments about the history of the college, which came into existence in 1968. In recent years I've talked a little about chemistry and biology, so tonight I'll focus a bit on physics.

From the outset, any anniversary review of CSA almost immediately is complicated by the reality that the disciplines and many of their administrative structures actually existed before there was a college of sciences and arts. From its earliest days, Michigan Tech hired faculty in mathematics, chemistry and physics, as well as in the arts and humanities. Typically, a single professor covered each

domain of knowledge, rendering departments unnecessary. As a result, these faculty's placement within the larger institution was fluid, shall we say, and administrative structures changeable. Thus **James Black** was hired in 1913 as an instructor in technical writing, although I am not sure which division he was assigned to. But much less obscure was the contribution these men -- there were no women on the faculty until 1936 when Ella Wood arrived to teach geography and modern languages -- made to Michigan Tech. **Fred McNair**, for example, accepted the position of professor of mathematics and physics in 1893, leaving a teaching job at the Michigan Agricultural College in Lansing; he became Tech's president in 1899 -- *likely an easier job!* **James Fisher**, class of 1893, returned to campus 1895, also as professor of mathematics and physics. His career at the university lasted 67 --years, so it is fully fitting that his name graces the building (opened in 1964) that houses those departments.

In 1927, the university finally formed departments, and physics and math almost certainly were organized at that time. But with Tech so tightly oriented to engineering and mining, faculty representing the array of disciplines now housed in the college occasionally found themselves assigned to odd places. For example, language and literature were part of the public relations division until 1947! Here, it seems was the start of Humanities Department. Similarly, in 1945 the division of engineering administration was formed, bringing together and the faculty who offered courses in an array of areas, including economics, social sciences, political science. From this group eventually emerged not only Social Sciences but also the School of Business and Economics.

The key shifts behind the appearance of CSA came in the 1960s, when president **Raymond Smith** concluded Tech needed to become a full-blown university. The formation of biological sciences in 1962 – the last of the science disciplines to be recognized by a department -- was perhaps the first step in this direction. The unit included not just biology and ecology but also a thriving program in medical laboratory sciences that was started sometime in the late 1940s. **Jim Spain** was the first chair, **and Jack Holland** directed the lab sciences group – which enrolled as many as 150 students in the 1970s. This was the department that one of our inductees entered upon her arrival at Tech.

Smith also supported strengthening the social sciences and humanities, which were tucked away, as we have seen, in corners of the campus. Smith hoped that these intellectual domains would help diversify not only the curriculum but also the student body, as he worked to earn the label *co-educational university*. He envisioned the new departments programs would fashion unique approaches to their disciplines that matched the institutional emphasis upon science and technology; a goal that was eventually realized in the 1980s and 1990s. Thus one of the initial efforts was the establishment of a science teacher education program, first discussed in 1963 and implemented in 1969. Similarly, the university introduced liberal arts degrees in English, Technical Communication and History in 1967, and in 1968 formed the Departments of Humanities and Social Sciences – the same year the College was put in place under Dean David Geddes.

Since then a number of new units have been added. Although Computer Science was not a department until 1986, computers were present in Fisher Hall almost from the beginning. CS was split off from Mathematical Sciences, as happened at

many universities. Chemistry is an interesting story I can only touch upon now. The importance of chemical analyses to metallurgy and assaying meant chemists were always on the faculty, but often in others units. Thus in 1894, chemistry and metallurgy were combined into a single unit, which itself was joined to chemical engineering when that department appeared on campus in 1926 or 1927. Chemistry remained there until 1996, when it was welcomed into CSA after debates that lasted only 6 years! Visual and Performing Arts likewise was the product of such a division, splitting off from Humanities in 1993 – it seems like just yesterday! VPA has developed degree programs in theater technology and sound design that form crucial indicators, to my mind, of the breadth of this particular “technological university.” In 2006, the Department of Education, originally organized in 1969 for the teacher certification program, was renamed the Department of Cognitive and Learning Sciences to house psychology and now a graduate program in applied cognitive psychology and human factors.

The newest department in the college also grew out of the earlier activities, in this case related to a physical training program launched about 1929 under the guidance of **U. J. Noblet**, later head of Forestry. Concerns about educating the body as well as the mind prompted the addition of Sherman Gym in 1946, in response to demands of returning veterans for space for physical education and recreation. The gym was remodeled into the Walker Arts and Humanities Building in 1985, but evidence of the pool can still be found in the classrooms on the ground floor, east side. The department initially known as Exercise Sciences, Health and Physical Education was organized in 2006 and renamed Kinesiology and Integrative Physiology in 2011.

I should say a little more about Physics, our second inductee tonight hails from that group. For a long time, teaching was the main activity in the department. **Tom Ellis**, for example, had secured grants from the Atomic Energy Commission in the mid and late 1950s to purchase teaching and research apparatus. **D.O. Wyble** secured NSF funding for undergraduate research in 1964, and by 1968 he was supporting a s regular summer institute for teachers. Nuclear science remained central to the department's educational efforts, and student visits to the research reactors at the Argonne National Lab and the University of Michigan were regular events in the 1960s and early 1970s. These educational endeavors were perhaps epitomized by **David Chimino**, known not only for his pyrotechnic displays in class, but also for establishing in 1966 the pattern of offering physics labs in sections that trailed the lecture courses. But research also was emerging by this time, with **Roland Keeling** securing an NSF grant in 1963 to continue his Dielectric Study of Hydrated Nitrates. In 1969, a significant grant allowed the construction of 2 nuclear training and research labs in radiation physics, including a neutron generator. But **Barry Kunz's** arrival in 1980 really kicked off an more extensive research effort, with such projects as a computer modeling study of solid state fuels with **Don Beck** in 1981. A Condensed Matter Institute followed in 1982, then the installation of a FPS Series T supercomputer in 1984, and a series of grants from the Office of Naval Research after 1986. That same year, **Bryan Suits** secured a grant from Argonne National Lab for equipment and a training fellowship. From these foundations have emerged the strongest funded research effort in the college, symbolized today by the million-dollar cloud chamber that is due to arrive any day from Holland, Michigan for installation into the Dow building's high-bay space.

Clearly, the college has come a long way on some interesting paths. I've only skimmed the surface of our history, but I think two patterns are evident here. First, we clearly see the commitment of the faculty to learning and the education of their students, that was matched by curiosity and a desire for knowledge. Even during Tech's early years, this pattern was evident – as demonstrated by the case that Bryan Suits documented a few years ago, of Fred McNair's construction of the world's largest pendulum (4,000 feet) in the Tamarack Mine shaft in 1901. The second pattern is a significant measure of institutional flexibility in regard to academic structure. Tech has simply not shown the fixation of many universities in developing complicated administrative structures – usually with big staffs. Perhaps unintentionally, this situation allowed the development of academic units that are inherently inter-disciplinary and thus less prone to develop into rigid and impermeable silos. I believe we continue to make the most of this relatively unique but beneficial situation, as seen by the development of at least five departments in CSA that have few, if any peers, because of their inherently interdisciplinary structure.

I believe that our two inductees tonight are among those alums who benefited from these patterns of institutional development. So let's us turn to the reason for this evening – the recognition of two distinguished graduates of the College of Sciences and Arts. **Dr. Mary Janet (known as MJ) Kachmarsky Knapp**, a graduate from the Department of Biological Sciences and **Dr. Debasis Datta**, a graduate from the Department of Physics. 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). An engraved plaque with a photograph of the recipient 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 a sense of the various influences of science, technology, the liberal arts, language, and arts on all of our lives. The members of the Academy and those to be inducted this evening have shown these qualities in their exemplary careers and lives. They are inspirational role models who have provided a splendid example for all of us.

The College provides Academy members with a plaque to remember this occasion. Tonight we are also honoring our inductees with a beautiful, original photographic image of the Keweenaw taken by emeritus Humanities faculty member Joe Kirkish. The pictures, displayed on the easels next to the podium, are chosen because they capture the beauty of the Copper Country that surrounds Michigan Tech and which forms such a large part of the memories of so many of our graduates.

Shekhar Joshi, Chair of the Department of Biological Sciences, could not be with us this evening. In his absence, he asked if I would represent the department for the induction proceedings. Thus, would Dr. MJ Kachmarsky Knapp please come forward.

On behalf of the Department of Biological Sciences it is my privilege to honor an alumnus of the department and to induct her into the MTU Academy of Sciences and Arts.

Dr. MJ Kachmarsky Knapp graduated from Michigan Technological University in three years in 1972 with a BS in Biology and Pre-Med. She furthered her medical education at Georgetown University and Wayne State University, earning her master's in physiology and pharmacology, summa cum laude. Her research in blood coagulation under professor Dr. Walter Seegers included studies of Antithrombin III, Thrombin and Heparin. MJ graduated from Michigan State University's medical school in 1977. She also conducted independent research in community medicine with a graduate assistantship and was lead project medical school tutor in physiology, microbiology, biochemistry and molecular biology. During her medical residency, she served as volunteer physician at the Common Ground Crisis Center, Birmingham, Michigan, a post she held for 14 years.

MJ continues more than 34 years as a clinical professor of medicine at Michigan State and Detroit Medical Center, with hospital affiliations at the University of Michigan, Providence, Botsford, William Beaumont and Henry Ford. She has been a physician in private practice for 36 years. Significantly, her three sibling

engineers, two others in the family and her husband of 37 years, Robert Knapp ('71 BS, '72 MS) are all MTU alums.

MJ received the Golden Apple Award Recognition of Public Service for 18 years of volunteer service from the local public schools. She was a long time physician for area recreational and travel team sports, summer swim league and Olympic Development Teams of soccer and cross country. She has been an adult sponsor of the International High School Student Ambassador Overseas Program and continues to be a long-time patron of Medecins Sans Frontieres (Physicians Without Borders), Greenfield Village/Henry Ford Museum, Detroit Institute of Arts and Symphony. She just participated in the 56th Annual Labor Day Mackinac Bridge Walk.

For over 20 years, MJ has participated extensively in the Physicians Abroad Program in 11 countries and has traveled to 17 other nations. And this past year she received outstanding service recognition from the University of Michigan; Wayne State University, Michigan State University and Georgetown University.

MJ is here tonight with her husband and Michigan Tech alum

Robert – one of the few engineers to grace this event! 😊

It is now my great pleasure and privilege to extend the compliments and congratulations of my colleagues to **MJ Kachmarsky Knapp** for distinguished career achievements and to recognize her with the induction into the Michigan Tech Academy of Sciences and Arts.

MJ, would you like to say a few words?

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At this time, I would like to call on **Dr. Don Beck, Professor of Physics**, to continue with the proceedings.

It is my privilege, this evening, to honor a distinguished alumnus and to induct him into the MTU Academy of Sciences and Arts. As spokesperson for the department let me say how delighted we all are to recognize Debasis Datta with this honor.

Would **Dr. Debasis Datta** please come forward.

Debasis Datta graduated with a PhD in Physics from Michigan Technological University in 1994. Prior to joining Michigan Tech, he received his master's in physics from Indian Institute of Technology. His research work at Tech resulted in ten publications in American Physical Review. Following the completion of his postdoctoral work, he started his career in Information Technology in 1996 as a software engineer in the IT services industry.

During his 16 year IT career, Debasis worked at DaimlerChrysler, PeopleSoft, Oracle and General Motors Corporation where he is currently employed. As a senior principal consultant at Oracle, he delivered cutting edge solutions for more than 20 companies across healthcare, financial, technology, energy, retail and education industries and received the prestigious Oracle QOOL MVP award for

quality, performance and consistency. Over the years, he has progressed from roles heavily focused on software development and technology infrastructure into his current role as a senior enterprise architect providing guidance and leadership in the areas of Transformation and Optimization, Technology Strategy and Standards and Governance at General Motors.

Debasis is an avid amateur photographer and loves to experiment with server software and platforms. He is working on building a "private cloud" infrastructure in his basement with open source technologies for personal use.

Debasis is here tonight with his wife Devashree.

It is now my great pleasure and privilege to extend the compliments and congratulations of my colleagues to **Debasis Datta's** distinguished career achievements and to recognize him with the induction into the Michigan Tech Academy of Sciences and Arts.

Debasis, would you like to say a few words?

Concluding Remarks – Bruce Seely

This event always prompts me to think about the state of higher education, and the pace of changes around us can be scary. When we were younger, rapid change seemed exciting, but now it just makes me dizzy. For example, Educause reported that 60.4% of college students turn on their phones as soon as they woke up, and 67.3% look at the phone just before they go to sleep. College students reported that

they want more lecture capture (71.5%) for review and convenience; more integrated use of their laptop during class (60.9%); more integrated use of the tablets in class(51.1%) and more integrated use of their smartphone with class (49%). It's not surprising that 96.5% of college students are on Facebook. It is a little reassuring when Educause reported that only 7.8% of students felt they learned more in totally on-line courses. But 57.7% of students said they tended to learn more in courses that included some on-line elements, and only 22.1% preferred course with no on-line components. College faculty are somewhat less sure about all of this technology. Only 28% of those **who teach MOOCs** believe that students in those courses deserve formal credit, but 34% assume that eventually their university will grant such credit. And 79% believe MOOCs are worth the hype! How to make sense of all this? I urge everyone to look at an article in the New York Times September 8 "The Pop! of the Wild," for a marvelous statement by a biologist about the strengths and shortcomings of this on-line turn in education.

But that is not all that is changing – over the past twenty years, can you guess which field has recorded the largest increase in degrees awarded in the U.S.? **Personal and culinary services**, followed by parks and recreation (more than 800%) , natural resources and conservation, homeland security and law enforcement, and health professions. The first areas of rapid growth in which Michigan Tech has degree programs are biological sciences and visual and performing arts – both of which increased their degrees by about 125% since 1991. Psychology (which enrolls 77% female students) and computer sciences (which does not attract as many women) both grew 72% nationwide. Many of the core areas for Tech have grown, but at nothing like that rate. Physical sciences degrees

are up nationwide 50%; but engineering is up only 23% to 77,390 degrees and math and statistics up 19% while engineering technology is down 4%. Some of this could be good news for CSA, if only we struggled less to recruit students to those rapidly growing fields we have on campus.

So how we are teaching and what we offer as a university present a mixed bag of sorts, but from a historical perspective that's not altogether surprising. Education has always aroused conflicting viewpoints. Henry Adams, the American **educator** once observed, "**The chief wonder of education is that it does not ruin everybody concerned in it, teachers and taught.**" And Benjamin Franklin once commented about a person, "**He was so learned that he could name a horse in nine languages; so ignorant that he bought a cow to ride on.**" And Mark Twain observed, "**I have never let my schooling interfere with my education.**" Closer to our time, American writer Max Leon Forman concluded that "**Education seems to be in America the only commodity of which the customer tries to get as little he can for his money.**"

Theodore Roosevelt at least thought education had value, of a perverse sort, when he commented that "**A man who has never gone to school may steal from a freight car; but if he has a university education he may steal the whole railroad.**" But most of us find more comfort in the sentiment of Sherwood Anderson, who wrote that "**The whole object of education is...to develop the mind. The mind should be a thing that works.**" And I think it is clear that this process of developing the mind is dependent, in the end, upon teachers who care about helping students accomplish that task. I firmly believe that education cannot, in the final analysis, be about passing tests and or other hoop jumping

exercises. Rather, as 19th-century British cleric Mandell Creighton explained, **“The one real object of education is to have a man in the condition of continually asking questions.”** Even more insightful was the comment of Chicago journalist Sydney Harris: **“The whole purpose of education is to turn mirrors into windows.”**

The two distinguished alums we have recognized this evening certainly showed how our faculty inspire and encourage their students to ask questions and find those windows. Indeed, one of the nicest aspects of the evening is the chance to bring together again faculty and the one-time students they helped start down the road. Something rather rare happens at evenings like this, for as Max Forman noted, **“Teachers are people who start things they never see finished, and for which they never get thanks until it is too late.”** I am gratified that the people we have honored in turn recognized faculty who, at least for tonight, get to hear thanks for their efforts.

It is time for me to bring this wonderful evening to a close. We have enjoyed good food, delightful jazz, pleasant surroundings, and good company, topped off by the satisfaction of seeing two such deserving graduates honored for their achievements. I am so pleased that MJ and Debasis could join us; I am equally pleased that our faculty can share in this ceremony. I wish to thank both MJ and Debasis for the time they spent with our students today, talking to them and inspiring them in the process. I wish only that more of our students could hear their words this evening – but we know some of them will be here someday, thinking back themselves about how they started on the road to their career.

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Let me thank all of you for spending the evening with us, and ask that everyone travel home safely. Good night!