This year marks the 100th anniversary of the MSU Department of Civil and Environmental Engineering. That’s cause for celebration, and it is a perfect chance to look in the rearview mirror and remember all that has been accomplished.

The look back at 100 years has been made easier by the work of Professor Emeritus Mackenzie Davis and his wife, Elaine. Professor Davis is that rare civil engineer who also has a passion for history. The Davises spent more than a year collecting papers and artifacts that were used to compile the history of the department, which has been assembled in a booklet as part of the centennial celebration.

Civil engineering had its roots in the Agricultural College of the State of Michigan, commonly referred to as “the College” in the 1860s. Theophilus C. Abbot, who later became president of “the College,” taught the only applied civil engineering course, which was surveying. In 1875 Rolla C. Carpenter was put in charge of the Department of Mathematics and Civil Engineering. Carpenter had graduated with a BS degree from “the College” in 1873. He received a Master of Science degree in civil engineering from the University of Michigan in 1875, just prior to taking over the department.

In 1909 the Department of Mathematics and Civil Engineering was divided into the Department of Civil Engineering and the Department of Mathematics. Professor Herman Klock Vedder, who had been in charge of the Department of Mathematics and Civil Engineering since 1891, became the chairman of the new CE department on September 1, 1909.

Vedder held a CE degree from Cornell and had a firm philosophy of the education of a civil engineering student – one that was to remain virtually unchanged until the 1960s. It can be summed up as principles and practice, with the emphasis on the latter. He also expressed a view of the role of the college in “turning out an engineer” that is still in practice today. Namely, that it was not really to turn out engineers but rather to train people “who know how to do things.”

Thomas Maleck, Hilary Owen, and Sarah (Nolf) Binkowski stood in amazement in the middle of Farm Lane looking at the just-completed “Bridge to the Future” entrance to the MSU campus. “It’s beautiful,” says Binkowski. “When we did the feasibility study, no one thought it was possible.”

Binkowski and Owen were part of a group of civil engineering graduate students who in the late 1990s worked on the feasibility of rerouting Farm Lane – a main north/south route through campus – under two railroad crossings. The students’ work was directed by Thomas Maleck, CEE associate professor, and Frank Hatfield, CEE professor (now emeritus). The three had gathered on a cold, windy October day to celebrate the grand opening of the gateway with about 100 dignitaries, alumni, and university leaders and trustees. “I admit it is a real kick,” says CEE Professor Maleck. “It’s a real high for me. For the students this has to be something special because there are so few big projects like this that actually get built.”

Binkowski (MS ’98) now works for Parsons Brinckerhoff, a civil engineering firm in Detroit, as a supervising transportation engineer, and Vedder held a CE degree from Cornell and had a firm philosophy of the education of a civil engineering student – one that was to remain virtually unchanged until the 1960s. It can be summed up as principles and practice, with the emphasis on the latter. He also expressed a view of the role of the college in “turning out an engineer” that is still in practice today. Namely, that it was not really to turn out engineers but rather to train people “who know how to do things.”

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Economy, budget, jobs! These seem to be the cries of woe across the nation, and it is true at MSU and in the CEE department. The Michigan economy has been contracting for several years, the state’s budget deficit has grown, forcing huge cuts, and the state’s universities are shouldering their part of the budget cuts. The CEE department had to absorb a 6 percent budget cut this year, and likely reductions over the next two years will bring the total cuts over three years to about 15 percent. It is extremely difficult for a department our size to absorb a cut of this magnitude without terminating faculty lines. We will have to be creative in devising ways of coping. We are exploring changes to

New Farm Lane (continued from page 1)

Owen (MS ’99) is with the Michigan Department of Transportation in Lansing as a traffic and safety engineer. “With engineering, many projects are very long term,” says Owen. “When we did the feasibility study we did not know whether it would ever happen. It’s nice to see the project completed.”

In 1995 Maleck, whose specialty is highway engineering, was asked to provide his services to the university by Ted Bickart, then dean of the College of Engineering, to help reduce accidents on campus. “During the ’90s there were three fatal accidents at campus railroad crossings. Normally, there is only one railroad fatality in 30 years,” says Maleck, who became part of a group that included leaders from the Michigan Department of Transportation (MDOT) and the university to discuss ways to reduce the fatalities. Maleck told the group that what was needed was a “grade separation,” or separating the road from the railroad with a bridge. In the 1980s there had been a study putting the highway over the railroad tracks. That study concluded that the project was not feasible. However, no one had studied the feasibility of the highway going under the railroad tracks.

So graduate students Owen and Binkowski, along with John Aldighieri (MS ’98) and Mousa Abbasi (PhD ’98), took directed studies, supervised by Maleck and Hatfield, to determine the feasibility of lowering Farm Lane under two existing railroad crossings — the Canadian National line north of Service Road and the CSX line just north of the commuter lot at the corner of Farm Lane and Mt. Hope Road. Farm Lane was chosen for the project instead of Harrison or Hagadorn roads because the railroad crossings were far enough apart to allow for two underpasses, and the university had adequate right-of-way at Farm Lane to move the road to the west.

This project included possible designs for the railroad bridges. Hatfield, with help from “several extraordinary students,” investigated alternative designs and costs for those bridges. The plan also had to protect the Baker Woodlot that runs along Farm Lane south of Service Road and had to make allowances for storm water management, bicycle paths, and sidewalks.

The resulting report concluded that indeed the project with the highway going under the railroad tracks was possible. The work led to a joint publication by MSU’s Department of Police and Public Safety and the Division of Campus Park and Planning (recently renamed Campus Planning and Administration) in July 1997.

Eventually, the project became a joint partnership between MSU and MDOT. The project was officially launched in October 2007. However, Farm Lane was not closed to vehicular and pedestrian traffic until March 2008. “The goal was to complete the project with the road being closed for only one football season,” says Maleck. “That is an incredibly short time frame for a big project like this. It could easily take three years for this type of project.” Farm Lane officially reopened September 30, 2009; the dedication took place October 16.

As part of the project, the roadway was moved to the west to avoid any environmental impacts on Baker Woodlot. It also was widened from two lanes to five, along with the addition of new sidewalks and bike paths, new

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Celebrating 100 Years (continued from page 1)

who know how to put into practice some of the simple theories to the end that that they are able
to earn a living immediately upon graduation.
Over time, experience enables former students
to become engineers." Today, we formalize that
philosophy. The civil engineer with a BS degree
becomes an engineer-in-training. After four years
of experience and the successful completion
of the practical exam, the graduate is truly a
professional engineer.

Surveying was a prominent part of the
civil engineering curriculum over the first 75
years. The requirement for surveying has been
gradually eliminated, so that in the 2009 catalog
it is not listed as a course, but is integrated into
a broader course entitled "Introduction to Civil
Engineering."

Environmental engineering, which is now
an important part of the department, evolved
slowly. In the beginning it was called sanitary
engineering. Today the Environmental Engineer-
ing Program is focused on developing practical,
usable solutions to 21st-century problems.

Here is a look at other events that have influ-
enced the department over the last 100 years.

Notable Events

• In 1919 the people of Michigan approved a
  state bond issue in the amount of $50 million to
  build highways. A long-standing association with
  the Michigan State Highway Department began
  when C. A. Melick withdrew from the college
  in 1919 to join what is now called the Michigan
  Department of Transportation (MDOT). Over
  a long period of time Melick provided topics,
  information, and guidance on thesis projects. To
  this day, many MSU CE students find research
  projects, financial support, and jobs at MDOT.

• Michigan enacted legislation that estab-
  lished the Professional Engineer license in 1919.
• In 1921 the student chapter of the American
  Society of Civil Engineers was established.
  This was the first of three professional student
  organizations. The National Civil Engineering
  Honor Society, Chi Epsilon, was installed as
  chapter number 42 in 1951. The Environmental
  Engineering Student Society (a student chapter
  of the Air & Waste Management Association) was
  established in 1988.

• Michigan Agricultural College became the
  Michigan State College of Agriculture and Applied
  Science (M.S.C.) in 1925. In 1955, the M.S.C.
  abbreviation became MSU with the granting of
  university status and another name change
  to Michigan State University of Agriculture and
  Applied Science. In 1964 the name Michigan
  State University was adopted.

• In 1837 the civil engineering curriculum was
  accredited by the Engineers Council for Profes-
  sional Development (ECPD). ECPD became
  the Accreditation Board for Engineering and
  Technology (ABET) and finally, just "ABET."

• In the 1950s, unbeknownst to students and
  faculty alike, the days of the iconic "slip stick"
  (slide rule) were numbered. The Michigan State
  University Integral Computer (MISTIC) joined the
  leading ranks of computing technology when
  it became operational in 1957. Civil engineering
  students in the class of 1959 still remember the
  trials of writing code in machine language to run
  (or fail) on MISTIC.

• With the advent of the microcomputer
  laboratories in the 1980s, homework assignments
  requiring programs written in BASIC® were
  assigned.

• By 2009, the required course in computer
  science was replaced with a course in engineer-
  ing modeling.

• The slide rule that had served engineers
  for more than a century was displaced by the
  electronic calculator in the 1970s. ☀

CE Facilities Move and Expand

• The CE department started out in a build-
  ing, built around 1885, that was sometimes called
  the mechanical lab or mechanical shops and
  later referred to as the engineering shops.

• An Engineering Building was built in 1907
  and formally dedicated on June 22, 1908. Both
  the engineering building and the mechanical
  building were destroyed in a fire in the early
  morning hours of Sunday, March 5, 1916.

• R. E. Olds Hall of Engineering was built on
  the old foundation of the former Engineering
  Building. The College of Engineering occupied
  Olds Hall until 1962.

• On December 28, 1960, groundbreaking cer-
 emonies for a new engineering building on Shaw
  Lane took place. Construction was completed
  in 1962. In 1989, the building was renovated and
  expanded. A $34.5 million, 77,000-square-foot
  addition was dedicated on October 11, 1989.

• The environmental engineering faculty
  moved into new offices and laboratories in the
  Engineering Research Complex located behind
  the Clinical Center off Bogue Street in 1987.

• In 2002, the Civil Infrastructure Laboratory
  was established just off Jolly Road south of
  campus. The Structural Fire Testing Facility was
  opened in 2007 and is housed in an addition to
  the Civil Infrastructure Laboratory. ☀

New Farm Lane (continued from page 2)

pump houses and detention basins, extensive landscaping, and two new
service drives constructed just west of Farm Lane. U.S. Senators Debbie
Stabenow and Carl Levin and U.S. Representative Mike Rogers are credited
with helping to secure the original funding for the construction. In addition,
MSU has made significant financial contributions.

Hatfield was glad to collaborate with Maleck on the project. "During my
morning commutes to MSU, I often was delayed by trains parked across
Farm Lane," says Hatfield. "While waiting, I observed students, some car-
rying bikes, crossing over couplings between freight cars. Obviously, grade
separations were needed to eliminate this risk of serious injury or death."

"The critical elements in the original feasibility study were successfully
provided," says Maleck. "However, we also wanted three grade separations
for pedestrians at other points along the railroad tracks on campus. I hope
someday that will be possible."

For Maleck there is only one bottom line to the completed Farm Lane
project. "I am convinced that a life or lives have been saved by this project.
We cannot forget that." ☀

– Jane L. DePriest
Instructor Emerson L. Grindall demonstrates a slide rule computation (1947).

A fire destroyed the first engineering building (the present site of Olds Hall) on March 5, 1916.

Groundbreaking ceremonies for the current Engineering Building on Shaw Lane took place on December 28, 1960.

Rolla C. Carpenter with surveying equipment, circa 1885.

A civil engineering surveying class in the mid-1880s.
... The 100-Year Celebration

This year marks the 100th anniversary of the Department of Civil and Environmental Engineering. A celebration dinner, attended by 160 alumni, faculty, staff, and friends of the department, was held on October 30, 2009.

Bill Taylor (past chair) and Therese (Sutphen) Kline (BS 2001)

Sam Castronovo (MS ’70, PhD ’97), Bill Saul (past chair), and Mackenzie Davis (emeritus professor)

Dave Lakin (BS ’76), Jean DeDecker, and Frank DeDecker (BS ’49)

Hassan Abbas (PhD student) and Ted Simon (BS ’42)

Paul Woodruff (BS ’59, MS ’61) and Bob Thomas (BS ’59)

Jim Lubkin (emeritus professor), Ron Harichandran (chair), and Bob Wen (past chair)

Scott Stovitts (BS ’92, MS ’94), Fritz Klingler (BS ’87, MS ’88), and Jim Grant (BS ’92, MS ’96)

Satish Udpa (Dean) and Rod Conrad (BS ’67)
Alumni Connections

Centennial Fellowship Fund for Endowed Graduate Student Support

To continue to attract the finest graduate students and maintain its standing as a leading research program, the CEE department has established the Centennial Fellowship Fund, a pooled endowment fund. “Having the very best and brightest graduate students in the department’s laboratories and classrooms will clearly benefit our faculty and undergraduate students,” says Ron Harichandran, the department chair. “Engaging undergraduate students in research is one of the best ways to recruit our own students for graduate school.” Exceptionally talented graduate students will also allow CEE to remain competitive when hiring and maintaining quality faculty, since both recruitment and retention of first-rate faculty is greatly correlated with the quality of graduate students.

The fund has already obtained lead gifts from John and Theresa Holmstrom and Mike and Lanae Kettlewell. Mike Kettlewell (BS ’78) is president of Christman Constructors, Inc., and did an outstanding job teaching CE 471: Construction Engineering in spring 2009. John Holmstrom (BS ’83) is vice president of Christman Constructors and served on the department’s Professional Advisory Board from 2004-07.

Since 1960, state appropriations have declined nationally for public universities. In Michigan, appropriations declined from 80 percent of the total MSU budget to roughly one-third by 2005. The impact at MSU is felt all over campus, as budgets have tightened and graduate tuition has increased. In order to improve our ability to attract and support graduate students, funding is needed from individuals for fellowships, not only to help alleviate the overall cost to students, but to attract and retain the very best students.

The American Society of Civil Engineers (ASCE) has recommended requiring a master’s degree as an academic prerequisite for licensure and admission to the practice of civil engineering at the professional level. According to the ASCE, the knowledge for entry into the profession exceeds today’s typical civil engineering baccalaureate degree, and the civil engineering profession is undergoing significant changes that require a greater level of training.

For additional information on contributing to the Centennial Fellowship Fund or other giving opportunities with the MSU Department of Civil and Environmental, please contact the Engineering Office of Development at (517) 355-8339 or egrdevel@egr.msu.edu.

Faculty Connections

ASCE Wellington Prize

M. Emin Kutay, assistant professor, in collaboration with Ahmet H. Aydilek, associate professor in the Department of Civil and Environmental Engineering at the University of Maryland, were presented with the American Society of Civil Engineers (ASCE) 2009 Arthur M. Wellington Prize for the paper, “Seismic Effects on Moisture Transport in Asphalt Concrete,” published in ASCE’s Journal of Transportation Engineering. The research outlined in the paper can be highly valuable for pavement engineers and researchers, because, for the first time, the moisture transport in asphalt concrete is defined under real traffic conditions.

The Arthur M. Wellington Prize is a national-level publication award given annually to one paper on transportation that is published in ASCE journals. The citation for this prize especially noted its unique contribution to the field of transportation.

International Conference on Structures in Fire

Venkatesh Kodur, professor, is heading up the organizing committee for the Sixth International Conference on Structures in Fire (SIF), which will be held on the MSU campus June 2 to 4, 2010. The conference will bring together academicians, researchers, and practitioners from around the world to discuss the latest international developments in structural fire engineering.

Kodur is one of the world’s leading experts on the effects of fire on materials and structural systems. He leads projects at MSU’s Structural Fire Testing Facility, which opened in June 2007.

For the latest information on the conference, visit www.egr.msu.edu/sif10.

Young Investigator Award

Jung-Wuk Hong, assistant professor, recently received a grant from the Air Force Office of Scientific Research (AFOSR) Young Investigator Research Program (YIP). This grant will support his work in the coupling of peridynamics and finite element formulation for multiscale simulations. He was one of 38 researchers selected for an award, which he will receive over a three-year period.

Hong’s research interests are in the areas of computational mechanics, finite element method, meshless method, material plasticity, biomechanics, and structural health monitoring. The AFOSR Young Investigator Program is open to scientists and engineers at research institutions across the United States who have received a doctorate or equivalent degree in the last five years and show exceptional ability and promise for conducting basic research.


Student Connections

**CEE Student Helps MSU Win Championships**

Irish eyes were certainly smiling when Jeannie Deacon, CE senior, who is from Wexford, Ireland, helped the MSU field hockey team win not only the Big Ten title, but also the Big Ten Tournament Championship. The team finished the regular season undefeated and remained undefeated in the tournament. Deacon scored twice in the final tournament game and was named, along with teammate Floor Ripma, to the all-Big Ten tournament team. The field hockey team competed in the NCAA Tournament in November, but lost to the University of Virginia.

**MSU Varsity Alumni Fellowship**

CEE master's degree student Kurt Kivisto is the first recipient of the MSU Varsity Alumni “S” Club Joey M. Spano Graduate Endowed Fellowship. Kivisto was awarded $1,000 toward his graduate studies in geotechnical engineering. Kivisto graduated in December 2008 with a BS in civil engineering. He began his graduate studies last May and received his master’s degree in December.

The fellowship was established to provide academic scholarships to Spartan letter winners who wish to pursue an advanced degree at MSU. The endowment supports former student-athletes who are MSU Varsity Alumni “S” Club members, have completed their undergraduate studies with a GPA of 3.1 or higher, and have demonstrated outstanding character and exceptional leadership through university and community involvement.

Kivisto was a member of the 2007 NCAA National Championship hockey team as well as the 2006 CCHA Tournament Championship team. During his playing days, Kivisto won the Most Improved Player Award, was named to the Dean’s list, and earned Academic All-Big Ten honors in 2007 and 2008.

**Environmental Challenge**

Building on a legacy of Spartan success, an MSU student team that primarily included environmental engineering students took third place in the Environmental Challenge International at the annual conference of the Air & Waste Management Association (A&WMA) in Detroit in June.

Members of the MSU team, called GeoGreen Solutions, were Biao Change, Idumathy Jayamani, and Ziqiang Yin, all master’s degree students majoring in environmental engineering; Becky Larson, a PhD student in the Department of Biosystems and Agriculture Engineering; and Felix Yeboah, a master’s degree student in Community, Agriculture, Recreation and Resource Studies.

The team proposed a waste reduction and recovery program and a mechanical biological treatment technology, which had an added advantage of generating energy from solid waste via anaerobic digestion. The students said the experience expanded their knowledge of sustainable solid waste management options and the complexities associated with real-life designs. The opportunity to work on a common problem with colleagues from other academic backgrounds and interests was rewarding, because it challenged them to re-examine their perspectives and approaches to complex societal problems.

MSU’s Environmental Science and Policy Program and the East Michigan Chapter of the A&WMA gave financial support that made the team’s participation in the contest possible.

**EESS Offers Workshop for Girl Scouts**

The Environmental Engineering Student Society (EESS) had a busy fall with several guest speakers and a Girl Scout Badge Workshop, which helped the scouts learn about aquifers and how pollution would affect a lake and aquifer.

**Advisory Board Organizes Professional Lecture Series**

For the 2009-2010 academic year, members of the CEE Professional Advisory Board are participating in a series of presentations to students. The lecture series began in October and will continue through April 2010. The presentation topics were selected to appeal to a broad range of students. Presentations are informal and address common topics ranging from engineering contracts and entrepreneurship to mainstream topics, including sustainable design, LEED accreditation, and Building Information Modeling (BIM).

“The Advisory Board had been searching for a way to reach out to the engineering students,” says William B. Kusso, manager, structural and civil engineering, with Giffels, LLC, who is coordinating the lecture series. “The lecture series is a great opportunity for us to share our real-world experiences with the students and help them to better prepare for their careers after college.” Participation from board members has been enthusiastic.

“This is one small way that we can give back to the university and the department that is one of the main reasons why we have been successful in our own engineering careers,” says Kusso. ☺
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NAME

STREET ADDRESS

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GRADUATION YEAR

DEGREE

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www.egr.msu.edu/ecurrents

This is the Farm Lane bridge near the location of the current MSU Auditorium, as it appeared around 1910.