100 Years of Service
KUME Celebrates a Century Mark

Yes!!! We are 100 years young and you are asked to share in the celebration and recognition of our first century. ME began in 1899 and the year 1900 represented the first full year of existence. To recognize the event, the department will sport the logo you see below in most of its events and news. As indicated below, you are invited to attend the Engineering Expo on Friday, February 25 to see for yourself some of today’s students and projects. In addition, we are having several special events on April 15, 2000; including an Open House (10 am – 3 pm). Invitations will be mailed out shortly. Additional information will be available on the departmental web site http://www.engr.ukans.edu/~kume.

Please visit the campus again this year, meet the faculty, greet the students and let them show you the technology they use to solve problems. It’s a great group and a hard working team of faculty, staff and students. You will be proud.

As you make your plans, please consider dropping the newsletter editor a note about your memories of campus life and experiences and your career accomplishments. Our readers, your fellow KU alums, are interested in what you have to say.

University of Kansas Mechanical Engineering

Meet the New Mechanical Engineering Department Chairman

In the summer of 1999, Dr. Ron Dougherty became ME’s Chairman. Dr. Dougherty plans to perform research in radiative heat transfer, laser diagnostics and dynamic light scattering at KU. He was formerly at Oklahoma State University, Stillwater, where he was honored as Halliburton Outstanding Faculty Member of The College of Engineering, Architecture and Technology in 1995. In 1997, he was recognized with the Pi Tau Sigma Outstanding Faculty Award in the School of Mechanical and Aerospace Engineering. He received his doctoral, master’s and bachelor’s degrees from the University of Missouri, Rolla.

Dr. Dougherty’s first months have been devoted to filling faculty vacancies in the department. By Fall 2000 five new faces will fill the ranks of professor in ME and a new century of excitement will begin.

Dr. Terry Faddis, the past Chairman, is returning to his first love – teaching. Terry brought the department through challenging times and is greatly respected by the Dean, the Mechanical Engineering Advisory Board, and the students.
His teamwork style of working with faculty and others is a model to emulate. We have excellent faculty and Terry’s presence will continue the excellence in instruction for which KUME has long been noted.

1999 Ethanol Challenge
Nine KUME students converted a 1999 Chevy pickup from gasoline to 85 percent ethanol as part of an international competition sponsored by Department of Energy. This yearlong project required the students to design, build and test the entire fuel system and then compete on performance, design, and presentation. This project provided the students with real world engineering and teamwork experience. Just listen to them tell of their efforts and you will walk away proud to be associated with these students who had to complete all their courses, take final exams, and get ready for a national tour during their graduation. The students literally worked around their own graduations to complete the competition.

Unfortunately, just hours before the competition, they blew a piston while trying to get a little performance, but they did get a new block and rebuild it overnight. That was still better than the previous year’s engine fire! Yes, they did get real life experiences! The eye-catching Jayhawk painted on the hood draws crowds wherever it goes and is a major drawing card at exhibitions and fairs. These students are real professionals and were actively recruited by the Big Three carmakers during the competition!

The 1998-1999 team included: Tim Martin, Ferran Ayala, Gregory King, Andrew Mauer and Christopher Runck.

SAE Formula Design Project
Once again the MEs competed in a national contest for Formula 1 cars. The team needed 20 students to design, build, and test the engine, suspension, body, braking, etc. They designed the entire vehicle and spent weeks building and testing it. It scored 24th out of 100 entries at the Silverdome competition. RaceTech magazine featured it in their August ’99 issue for its excellence in body aesthetics and use of a carbon fiber monocoque body. Leading race authorities were duly impressed. This year’s team is working to reduce weight, provide a more ergo-metric interior and increase their competitive position to one of the top ten. In what do they gain experience? Try machine design, thermo, IC engines, strength of materials, finite element analysis, manufacturing, costing, project planning, teamwork, testing, reliability, human factors, and management.

Mechanical Engineering in the Late 19th Century at KU
Frederick U. Bardwell taught the first engineering classes in 1870. Bardwell was brought to KU to be Instructor of Mathematics and Engineering. S.U.Y. Schimonsky taught General Industrial
December 2000

M.E. Vibrations

Drawing in 1882. Engineering students took the same courses as majors in the Art School. The shops were built in 1887 in connection with the boiler-house on the south side of the hill. For many years there was only one student in Engineering, but by 1901 there were 165.

A Reader Remembers the 1940’s

David Ellsworth Gray, ME’55, provides the following memories of his early campus life.

Memories of the Mechanical Engineering Department in the 1940s
by
David B. Gray, ME’55

My memory of the mechanical engineering department is a mirror image of the novel Goodbye Mr. Chips. The novel is about a schoolmaster’s influence on many students over the years. My memory is about many schoolmasters and their influence on me.

I arrived on campus as a teenager in the summer of 1944 in the company of my father, Professor Ellsworth S. Gray, the new department chairman. My father was hired by Professor Jacob O. Jones, acting dean (if my memory is correct) of the engineering school.

Professor Jones’ specialty was fluid mechanics. I still have a copy of his textbook, Introduction to Hydraulics and Fluid Mechanics. I was fortunate to have been a student in his classroom before he retired. He was the most patient of all the department’s professors. When I insisted that the pressure loss term in Bernoulli’s Equation is negative, he calmly pointed out that the equation must balance. He would have been justified in “bleeding all over” my paper with red pencil. But Professor Jones taught by principle and let the student work out the gritty details until the numbers came out “right” and the student “got it.”

Professor Frank L. Brown’s specialty was engineering mechanics. I still have a copy of his textbook, Engineering Mechanics, which covered the topics forces at rest and forces in motion (i.e. statics and dynamics). Each of the two topics required a semester’s work. His were the most clear and concise lectures I have ever heard anyone present.

I can still picture Professor Brown in his shirtsleeves and red suspenders putting a problem on the blackboard. He would put one and only one problem on the board at each lecture, each covering a new concept within the main topic. Professor Brown always walked up the 14th Street hill and all the way across campus to his classroom in Marvin Hall, refusing all offers to ride. Instead of a briefcase, he carried a large carpenter’s tray filled with books, chalk and his unique set of blackboard drawing implements, including a long, wooden chalk compass. The compass could scribe at least a 3-foot diameter arc on the board in yellow, white, blue or red.

The engineering laboratories were behind Marvin Hall. The mechanical engineering lab was at the far (south) end of the main laboratory building. It was so remote in those days; nobody was disturbed when all the accumulated crud in the mechanical lab’s steam boiler was blown into the atmosphere under full boiler pressure from a standpipe in an adjacent field. With the exception of the Military Science building downslope, there were no other buildings to compete with the southern view across the Kansas prairie, almost to Ottawa. In like manner, there was nothing to block the Kansas wind from ripping into the mechanical engineering lab, bone-chilling in winter and searing hot in summer.

In the 1940s the mechanical engineering lab focused on steam, the prime source of energy, which powered western civilization from the industrial revolution into the twentieth century. A two story, double-drum, water-tube boiler dominated the laboratory’s main floor. Adjacent to the boiler, sitting in regal splendor, was an immense double-acting steam engine made by Corliss, a company I’ve still never heard of. It was “double-acting” because each stroke of its piston provided power, the latest innovation in reciprocating steam engine design.

Corliss called it their “Unaflow” engine. Live steam expanded in one end of its cylinder while the piston pushed spent steam from the other end. Then its valves, linked to the crankshaft, switched to let live steam into the end, which had
finished the exhaust, and the cycles would continue. The valves switched power smoothly that the process seemed to be continuous. One could hardly hear spent steam exhausting to the condenser located in the lab’s sub-basement, a wide trench covered by cast iron grating.

The Unaflow engine’s twin flywheels were at least five feet in diameter and dynamically balanced with huge, integral counterweights. The engine ran so quietly one could hear its brawny journals whispering in their oiled bearings in counterpoint to the click, click, click of the crossstee. It was a wonderful engine designed to run forever, and it probably will. The last I heard, it was powering an electrical generator somewhere in South America.

I was hired by my father to work part-time in the mechanical engineering lab at 35 cents an hour. I did odd jobs, including painting the lab floor, wiping down steam engines after a class had finished a test run and firing the steam boiler under the direction of Jacob Rumold. Mr. Rumold was the chief mechanic, steamfitter, welder and genius of all trades who kept the lab operating.

During the short two and one-half years at K.U. before his death, my father added a steam power generating section and a new internal combustion engine section to the laboratory. Mr. Rumold provided the labor.

The internal combustion section consisted of five I.C. engines arranged in a circle around a dynamometer that could be rotated and coupled with the engine whose characteristics were to be demonstrated. There were two International Harvester tractor engines (one of them a diesel), a Cadillac V-8, a Plymouth flat-head six and a Waukesha diesel.

The power generating station consisted of two small Westinghouse steam turbines (the only turbines in the lab), each coupled with an electric generator and operated from an adjacent control panel. At the time of my father’s death the lab’s steam boiler was being fitted with a super-heater to supply dry steam required by the turbines. To my knowledge, the super-heater installation was never completed. As a result the turbines never ran and the power station never produced a single watt of electricity.

Another engine attracting attention on the lab’s main floor was the huge, single cylinder, Foos diesel. To this day I don’t know the origin of Foos, the diesel’s maker, but I would guess Germany. The engine was so tall one had to climb its integral ladder to a platform to lubricate the exposed valve rocker arms. Its flywheel was so large it turned in a pit built into the lab floor. Of all the engines in the lab, I think the Foos was Mr. Rumold’s favorite.

I also think Mr. Rumold was the only person who had the nerve to start the Foos. It was started with compressed air supplied from the lab’s Ingersol Rand air compressor. A long pry-bar, inserted into detents cast into the flywheel’s rim, rotated the flywheel until the piston was just past top center. One person worked the crowbar while another stood on the platform to watch the movement of the rocker arms to indicate when the valves closed.

Starting the beast was a special event. Word would get around that Rumold was about to start the Foos. Several of us gathered to watch the action, hearts in our throats. For one thing, the compressed air must be dry so water wouldn’t condense in its cylinder. The other thing was air pressure. Pressure had to be high enough to start the flywheel rotating but cut off and purged before the piston’s compression stroke began. If things didn’t go right a lot of steel would be crushed to pieces and cause the mechanical engineering department much embarrassment.

Gathering dust on the lab’s mezzanine were some interesting exhibits. A World War I aircraft engine, an Hispano-Suiza V-12 of the type which powered Eddie Rickenbacker’s SPAD fighter, and a torpedo of the kind launched from a submarine. Its sides were cut away to reveal its complex propulsion system. The exhibits were mostly ignored until time for the annual engineering exposition.

One time, the student in charge of organizing the department’s exhibits for the exposition decided to move the torpedo to the main floor. The task, of course, fell to Mr. Rumold. But, the lab’s traveling bridge hoist didn’t cover the mezzanine
and a sling was made to lower the torpedo over the railing. I can't remember how the torpedo reached the height of the railing, but I do remember that it slipped from the railing and almost fell to the lab floor. Somehow the sling caught the torpedo before it hit. The torpedo remained on the main floor until the Navy (I think) took it away.

Lindley Hall was almost brand new when I first saw the campus. Rocks excavated to make its basement were still piled high in the field between Lindley and Marvin. German prisoners of war were brought up from their camp outside Lawrence in work parties to break up and haul the rocks away. One day, one of the prisoners put his sledgehammer down and casually walked over to the lab. I expected whistles to blow followed by gunfire, but nothing happened except a quiet conversation between the prisoner and Mr. Rumold. They conversed in a language I couldn't understand but knew was German. I almost had a fit. I knew Mr. Rumold was of German extraction, but surely he wasn't that German -- there was a war going on, wasn't there? I asked Mr. Rumold what they had talked about but he was noncommittal. To this day I wonder how the prisoner knew that a man standing in the doorway of a building in work clothes could speak German.

In those days we used slide rules to do calculations. The small, hand-held electronic calculator hadn't been invented. I can't remember why, but most students used the K&E brand slide rule with etched ivory scales bonded to a wooden matrix rather than the aluminum type such as the Pickett brand. Perhaps it was the prospect of making the slide rule smoke if one became proficient in its use. During those infamous pop quizzes, our slide rules worked furiously to produce an answer in the allotted ten minutes. One soon learned that a smoking slide rule wasn't beyond all reason. One had to be careful, especially during a final exam. A slide rule sometimes became so hot that the cursor's glass would soften and warp its crosshair, which is why the decimal point often wound up in the wrong place.

There used to be a coffee shop across the street north of Lindley Hall. A lot of us went there for coffee and doughnuts before morning classes began. I really think we went there hoping to impress the sisters from the (then) Chi Omega house with our clipboards and slide rules, because the coffee wasn't worth the walk from Marvin Hall. We never saw anything resembling a Chi 0. Our strategy didn't work because the laws of physics didn't work that early in the morning.

There was no love lost between engineering and law students. One reason, I think, was envy. Marvin Hall was at the wrong end of the campus. We might as well have been in a monastery. Green Hall, on the other hand, was perfectly located between the library and student union buildings that enabled budding lawyers to sit on the steps of Green Hall and watch the co-eds walk by. ("co-ed" was a politically correct word then.) Every now and then, as reported in the Daily Kansan, there was a complaint about audible critiques made by the law students on the merits, or lack thereof, of each co-ed as she passed by. We would never have engaged in such crude behavior had the men of Marvin occupied that privileged location.

Now, the phrase "Men of Marvin" is as obsolete as a slide rule. The mechanical engineering laboratory, as I knew it, is gone. Professors Hood, Jones, Gray and Brown are gone. I sometimes wonder if force still equals mass times acceleration. Something Professor Tait said still operates in my mind. He said that one doesn't know much about a subject unless one can describe it with numbers. Professors Tait, Palmerlee, Kipp, Nemecek and Rose are also gone, superb schoolmasters, every one of them. Their ghosts still haunt the halls wherever the "engine school" is located. Their legacy thrives wherever their former students work anywhere in the world.

David Gray lives in Ft. Worth, Texas and we thank him for this excellent commentary on life in ME. We welcome all such entries, and if you are a talker rather than a writer call Sharon at the ME office or LaRoux Gillespie at 1-888-337-6346 and we will call you back and record your comments.
A Student Remembers Nemecek and His Thermo

Robert L. Klamm, B.S.M.E. 1960 sent us the following: I always enjoy reading “M.E. Vibrations.” I especially enjoyed the July 1999 issue. It sure brought back fond memories of the “bill.” I enjoyed the piece that Robert L. Parker ‘57, ‘59 wrote about his time at K.U. and specifically about Professor Ivan Nemecek. I remember Robert Parker when he was a full-time instructor. I was one of his students for some dynamic courses (fluids or mechanics can’t remember which) but I remember he was quite impressive, always neatly dressed and very punctilious. I am so sorry to hear about his illness with multiple sclerosis. I was so glad to hear him mention Prof. Nemecek, he was one of my favorite professors. He taught thermodynamics and was considered a very tough professor. Well, I was probably the only one that liked his courses because of his quiet, stern behavior. I remember an amusing incident with Prof. Nemecek. One day I had a question about a thermo problem so I went to his office for some assistance, which was on the second floor of Old Fowler Hall. When I walked up to the second floor he was standing outside his office by a lab bench boiling water in a glass beaker with a Bunsen burner. He was in what looked like a deep trance watching the water boil in the beaker. Thinking he was conducting some kind of experiment. I said, “Sorry to interrupt your experiment, but I have a few questions.” He continued to watch the water boil like I was not even present. So, finally he acknowledged my presence and said, “Oh, I’m just boiling water for my coffee.” I thought that was quite amusing coming from the professor since he looked so interested watching the water boil. I thought he was conducting some sort of test. He impressed me enough that I also took an advanced thermo class from him my senior year. By the way, I received “A’s” in both courses.

Keep up the good work and tell your engineering students if they need any control panels or nameplates for their special projects, my company, Precision Nameplate, will be happy to provide them at no-cost.

More Life in the 40’s and 50’s

Robert C. "Bob" Kunkle, BSME ’47 of Trenton, MI, wrote in August: I read your July issue which I received a week ago and was interested and amused with the “Life in ME during the 40s and 50s” article. I came from the South Pacific through the San Diego Training Station arriving in Lawrence by troop train in 1944. We threw our sea bags on a truck and then marched from the station to fraternity houses that were used as barracks. The student in charge of the house I was assigned to was Sparky McSpadden, who had a brother on the ship I had just transferred from. During my days in V-12, I lived in three different houses. We ate our meals in the top floor of the then Student Union, which was called the mess hall. It was there during an evening meal that we learned that the war was over. I had accumulated enough points at that time to leave the Navy and return as a veteran. I took a light class schedule and taught “The Geometry of Engineering,” better known as “Descript” during my last three semesters.

During this time, many people who were retired came back or stayed beyond retirement age to teach. One [professor] who taught mechanics had a heart problem. There was no elevator, so when he had to change floors he took out his watch and spent 30 seconds on each step. I wondered then as I do now why the school could not make better accommodations for him. I remember Dean Jones, “Smiley” McNown, Professor Hay and others. The article didn’t mention Professor Brown’s ability to “draw a straight line diagonally across the board changing hands in the middle of the board to the opposite corner (his words),” his bowler or pipe clinched firmly between his teeth. I also remember the ASTP marching out a short time after arriving on campus. The Army had canceled the program and most of those people ended up going into units and serving as foot soldiers. I also remember when the V12 program was converted to the NROTC program. I remember Cousins but none of the others in the article, but I remember many others. Charlie Black and Charlie Keller both went with Black and Veatch, Eddie Irish who became a fighter pilot. [I remember] Don Learned perhaps best of
all, he came to Detroit after an MBA from Harvard and worked for Ford. The last four weren't MEs but were in the V-12 program. Chuck Elliot and Marge “Fibber” Fadler came to Detroit.

I left the Navy in ‘46, graduated in ‘47 and came to Detroit in the fall to work for The Detroit Edison Co. I spent 24 years in several operations or production jobs. I was Project Manager for 12 years and retired in 1986. Since 1991, I have been a counselor and an Officer of the Service Corps of Retired Executives. In 1998 I became a Platinum Card or lifetime member of S.C.O.R.E.

Your article suggests sending material before August. Since I didn’t get the copy until August I hope I won’t be considered a slacker.

Editor’s Note: No, Bob, you are no slacker! We really appreciate the memories. Thanks.

News of Graduates

James A. Nottingham, BSME ’40, lives in Charlotte, VA. He is now retired as V.P. and General Manager of Sperry Marine. He is active in the Senior Center, Elks, Masons, the Shriners, Crime Stoppers, County Police Advisory Committee and golf.

Joe R. Town, Essex, VT, is retired Past President of Blodgett Oven Company in Burlington, VT and The Vendo Company, Fresno, CA. He and wife Peggy have three children. He spends most of his time consulting and doing charity work.

Omer Lamborn, BSME ’52, is married and has three children and four grandchildren. He spent 30 years as a world traveler/engineer for the Bendix Corporation, then president of a precision sheet metal shop. He is a retired golfer, traveler, novice home computer operator and avid reader.

Robert J. Costello, BSME ’55, lives in Scottsdale, AZ and is Vice President Hotel Development-mainland for the Food Pantry Ltd. a Honolulu, Hawaii Gift and Resort Shop entity. His two brothers notified him that we counted him among the missing in the last issue. Nice to find you Bob! What a place to be lost in.

Joseph H. Liu, BSME ’90, Rochester Hills, MI, is Senior Project Engineer at General Motors. His job includes vehicle body structural analysis using finite element methods, including nonlinear, dynamic, modal and durability analysis.

James Amos Wiley, BSME ’51, MSME ’60, Huntsville, AL, is retired from NASA MSFC. He was an aerospace engineer. James is a widower with two children and two grandchildren.

Walter B. Stapp lives in Las Cruces, NM.

Another Father-Son Combination

In the last edition we asked formentions of other father-son or parent-child relationships for ME grads. We add the following to the list:

Peter Black ME ’65 - Matt Black ME ’98
Alumni Update

In order for us to know what you are doing and inform others in future newsletters, drop us a note or fill in this form and return it to: M.E. Vibrations Newsletter, The University of Kansas, Mechanical Engineering, 3013 Learned Hall, Lawrence, KS 66045 or send us e-mail at kume@ukans.edu or visit our web site at http://www.engr.ukans.edu/~kume.

Name______________________________________Class__________
Address_______________________________________

Company_______________________________________Title___________

News about yourself, your family, your job:__________________________________________________________

____________________________________________________________________________________________

____________________________________________________________________________________________

____________________________________________________________________________________________

____________________________________________________________________________________________