

## **The First EE Program in the Nation**

Engineers and Electrons by John D. Ryder and Donald G. Fink, IEEE Press, 1984, cites the first electrical engineering department in the country as being at the University of Missouri . They place the date of origin as 1886. Engineering at the University of Missouri by Mendell P. Weinbach, Engineering Foundation, University of Missouri , 1941, dates the departmental origin as 1885, and claims only second place, while recognizing MIT as having started electrical engineering in 1882. Other authors cite Cornell as a contender.

Detailed reading of the Board of Curators' official minutes and incidental papers of the 1880's reveals no reference to academic programs or course approvals, except by inference from the titles of faculty members appointed in these years. In 1885, William T. Schuermann was reappointed for a second year as assistant professor of physics and engineering was added to his title. The ECE department celebrated EE's 100th birthday in 1984 with the satisfaction of being correct to within one percent.

From the very beginning, the chief instigator in the faculty for electrical engineering was Professor Benjamin Franklin Thomas who was professor of physics from 1880-1885. It appears that Professor Thomas intended from the very beginning of his career at MU to form an electrical engineering department. As a first step, he insisted that his title be Professor of Physics, not Professor of Natural Philosophy which was then the custom implying that he was interested in being recognized as an advocate of applications, not pure science. We do not know if he ever tried to obtain the title Professor of Engineering, however, William Schuermann was professor of physics and engineering at least as early as 1885 . Significant electrical experiments and demonstrations were clearly underway by 1882, the University of Missouri having received an Edison dynamo and a steam engine to power it in that year. It was Professor Benjamin F. Thomas who arranged for the first demonstration of incandescent lighting west of the Mississippi in January, 1883 , after installing such equipment in the main building of the University of Missouri during the previous year. Professor Thomas also installed the first telephone in Columbia , MO , a line extending from the Boone County National Bank to the residence of I. O. Hockaday.

One of the puzzles not yet resolved is why electrical applications were not developed as part of physics. But it is very clear from the outset, in Professor

Thomas' own words, "...that he saw it as being separate from his department of physics". It is not clear how joyfully the Dean of Engineering at the time welcomed this new subject. He evidently eventually understood its significance, because even though there were a few reverses in the early years, electrical engineering never disappeared from the College of Engineering. The first published curriculum in electrical engineering appeared in the catalog of 1886. That is probably what the other writers refer to when they say the department started in 1886, however, Weinbach claims in his book that Professor Thomas recommended the establishing of a department of electrical engineering in 1884, having found that the number of physics students had more than doubled. According to this source, the new department was formed the following year (1885). The functional beginning, however, can be considered as the first appointment of a person whose responsibility was to develop the practical application of electrical engineering (as early as 1880). The professor of physics, Dr. Thomas, who really started the idea of electrical applications, had also to keep physics going and needed help for this new off-shoot which was immediately incorporated into the College of Engineering. In 1884, the Board appointed William T. Schuermann to help Thomas.

Charles Cross, professor of physics, and F. A. Walker, president of MIT, were drafting an announcement for a course scheduled to begin in 1882-the first formally titled electrical engineering course in the country. Cross graduated in the MIT class of 1870 and was immediately hired as instructor. When Edward C. Pickering, who had established in 1869 the first systematic laboratory instruction in physics in this country, left MIT for the Harvard Observatory in 1877, Cross became the head of the department. The 1881 MIT catalog announced: "On alternate years a course of lectures will be given upon the scientific principles involved in the more recent application of Electricity including the Telegraph, the Telephone, Electric Lighting, and the transmission of power by electricity." In 1882, with the addition of an extended course of Laboratory instruction in electrical measurements, the lecture course became the senior-year instruction in the new "alternative course in Physics... for the benefit of students wishing to enter upon any of the branches of Electrical Engineering." In 1884, Cross hired William L. Puffer to head the new dynamo laboratory. In the same year the course in electrical engineering became "Course VI" in the catalog, no longer a subcourse under physics.

William Anthony had been hired in 1872 at Cornell and his interests in things electrical were immediately clear. As early as 1873 he taught his students “measurement of electromagnetic power, with reference to electromagnetic machines and motors.” In 1882, a young man just back from a continental tour wrote to the Cornell student paper suggesting that the students look into the new profession of electrical engineering. President White also agreed. In early 1883, he asked Anthony to draw up a curriculum for an electrical engineering program. With the approval of the trustees and faculty, this curriculum was offered that fall (1883).

Regardless of which school actually established the first electrical engineering department in the years of rapid development between 1882-1885, it is clear that Cross, Anthony and Thomas were the fathers of electrical engineering education in this country.

### **How we burned down MU in 1892**

Professor Benjamin F. Thomas, the father of electrical engineering at the University of Missouri , and his students wired Academic Hall for electric lighting sometime in 1882. Apparently EE students were responsible for operation of this facility. On the evening of January 9, 1892 a fire, probably caused by an electrical short or overloading, demolished what was then most of the University of Missouri . The MU Columns which are still a prominent monument on the main quadrangle of the MU campus, are all that remain of the early campus. Although this was a great tragedy at the time, it resulted in the campus expanding from a one building college to a many building university.

In 1882, even before Edison put into operation his Pearl Street lighting station in New York City , we find Thomas endeavoring to get an appropriation for the purchase of an Edison dynamo and of Edison lamps to be studied by his students. He was not successful, however, in his efforts, and President Samuel Spahr Laws appealed directly to Edison . President Laws had been president of the gold exchange in New York and had given Edison his first job fixing a crude ticker tape machine, invented by Laws, for reporting gold exchange prices. Improvement in this original “ticker tape machine” by Edison eventually lead to the stock market ticker tape which Edison is credited with inventing.

In the spring of 1882, shortly after the Pearl Street station was put in operation, Edison presented to the University through President Laws a

dynamo of his manufacture and some incandescent lamps. This machine is still in kept in operating condition in the electrical engineering building at MU. Thomas still had the problem of driving this dynamo. Although steam was available, a steam engine was needed. Thomas eventually obtained the loan of a steam engine from Messrs. D. June and Company of Fremont, Ohio . This equipment was set up in the basement of Academic Hall, and on January 10, 1883 , Thomas gave a public exhibition of incandescent electric lighting in the presence of the Board of Curators.

At the request of the Board and the president, the Chapel in Academic Hall was wired for incandescent lighting by Thomas and his students. Using a cluster of incandescent lamps and a powerful reflector, he was fond of throwing a beam of light from the top floor of Academic Hall across the length of Eighth Street . Referring to this, the Missouri Statesman of January 19, 1883 , gives the following account:

“An electric light placed in a window at the University last Saturday night, illuminated the entire street from the University to the Courthouse and attracted a great deal of attention.”

On January 9, 1892 , an event occurred which got the attention of the whole State of Missouri . About six o'clock several employees entered Academic Hall to open up the chapel for an entertainment to be given by the Athenaeum literary society. The engineer (G. W. Lanigan) and the janitor (Joeseph Zumsteg) went at once to inspect the wires in the basement, where pipe-fitters had been at work a few hours before. About seven, the great bell in the tower of the College of Agriculture clanged out on the crisp night air, summoning the public to the open session. As soon as the bell began to ring the janitor opened the doors of the chapel, and in about ten minutes the engineer turned on the lights. “In probably about fifteen minutes the first alarm of fire which I heard was given by George Venable, who called my attention to a little blaze of fire around the sun-light. I then ran to the basement to cut off the light. While I was in the cellar, the sun-light fell. There were two distinct wires from this which ran up the library floor without crossing: there were four wires for the other lights and two switches.”

From the basement, the engineer returned to the boiler-house. “Mr. Lockwood, an engineering student,” said he, “was helping me. After I had gotten the engine started, I noticed that we should have had the lights turned

on. I got the machine started up pretty well when all at once I noticed the lights go down, then go up, and about that time Boulton Clark, the fireman said, 'The building is on fire'. Feeling sure it was among the wires, I turned the lights off, and went to see where the trouble was. We used that night a 400-light machine manufactured by the Addison Electric Company, and so far as I can learn, we had never had four hundred lights turned on all at once before."

And thus, the great fire of central Missouri began. It has been rumored that the administration urged that all the lights be turned on at Academic Hall over objections of the engineer. It has also been rumored that a faculty committee was formed immediately after the fire to determine what was to become of the columns, all that remained of the great Academic Hall. Since the columns are still standing, it is probably fair to assume that the committee has yet to make a decision about the columns. The two Edison dynamos were undamaged in the fire and now reside in the Electrical Engineering Department.

The fire was a blessing in disguise. It stirred up public interest in the University- -even to the extent of having it moved to another locality. With the funds collected from insurance, given by the state and generously subscribed by the people of Boone County , there were built six new buildings including the historic old part of Engineering East. These buildings were grouped around the quadrangle with the stately six columns, the remains of the destroyed building, in the middle. G. F. Rothwell, president of the Board suggested that the columns be left standing as they are to this day.