Celebrating 100 years of Nebraska Blueprint.
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From the Editor

This year the Nebraska Blueprint is celebrating its 100th Anniversary. In observance of this milestone, we are taking a look back at history. This issue contains stories describing the beginnings of this publication, the progression of computing systems on our campus and a humorous tale of a little-known feud between the UNL engineering and law students.

We also have several articles about interesting research occurring on the Lincoln and Omaha campuses. Finally, staying true to style, we feature profiles of two students deemed remarkable by their peers.

I am thrilled to see interest and involvement in our publication grow this semester. New additions to the team this issue include three writers, a dedicated photographer and two layout and design artists. We are always happy to have more people working with us to improve the magazine. I would like to thank and welcome our new contributors:

- Tom Pryor, writer
- Gretchen Gonzales, writer
- Becky Surber, writer
- Keith Derickson, photographer
- Rakendra “Rocky” Shrestha, layout & design
- Ji-hoon Park, layout & design
- Abhimanyu J. Lakshman, copy editor

Do not be fooled. There still are plenty of ways to contribute. Therefore, I encourage every interested person to get involved. There is no minimum – or maximum – commitment and a person is guaranteed to learn something he or she would not otherwise learn.

Our team is not comprised entirely of new additions. It is also proper that I should extend gratitude to long-time contributor Deepak Keshwani. Deepak is the former editor of the Blueprint Weekly newsletter and has appeared regularly in each issue of the Nebraska Blueprint magazine. We thank Deepak for his loyal contribution to the organization. Also in line for thanks are our other continuing supporters: Thomas Cudd and Ginger Wingate have made regular contributions to the magazine and the Blueprint Weekly newsletter.

Finally, I would like to thank Tom Mooney for his assistance during the research for my two stories. Tom is a Library Technician in our library’s Archives and Special Collections department. He helped me search for and find materials, and also scanned images from vintage issues.

Thank you for picking up a copy of the Nebraska Blueprint. Please enjoy it and let us know what you think. We are always open to suggestions, comments, and ideas for stories. E-mail the Nebraska Blueprint at <blueprint2@unl.edu>.

[Signature]

NEBRASKA BLUEPRINT 3
You Never Know Where the Road Will Lead

By Becky Surber
Computer Science

Can you think of a person you would describe as an amicable, caring leader who surrounds himself with faith and friends? The person who enters my thoughts when I hear those words is someone I have been privileged to know because of a choice each of us made to stay in our hometown for college.

Although Timothy Carlson, known to his friends as T.C., considered Iowa State and Kansas State for an undergraduate degree, he chose to attend the University of Nebraska—Lincoln College of Engineering and Technology at the Peter Kiewit Institute. The choice was difficult because of a desire to remain free of debt and loans. Consequently, he was thankful for the development of the Walter Scott Jr. Scholarship, one of his most influential reasons for staying in Omaha. The scholarship allowed him to be near his parents, Aileen and Dan Carlson.

Carlson, a graduate student in civil engineering, was introduced to an advisor who influenced much of his progress during his undergraduate years. Dr. Elizabeth Jones guided Carlson through a late registration process before his freshman year, then helped set him in the right direction, he said.

Jones introduced Carlson to undergraduate research by obtaining grants for a project involving Lego Mindstorms. Combining civil engineering and computer science, this project involved programming computers to run model cars, with the goal of modeling common traffic behaviors. Carlson said it was a valuable experience in research for many reasons, but mostly because of the limitations of the Legos in the project. Undoubtedly, he discovered a priceless lesson in life: “Not everything works out like you hope it will.”

As a graduate student, he spent the summer of 2002 doing research at 62 sites throughout Nebraska. Along with classmate Erik Wilkins, Carlson videotaped the activity along different highways (county, state and federal), measuring the roadway, including the lanes and shoulders. They also clocked speeds with radar to determine the 85th percentile speed of the motorists. They mounted a digital camera on the roof of Carlson’s Bonneville, and took 15 minutes of video at each site. Thirty seconds of footage from 32 of the sites was posted on the Internet. In addition, they conducted a survey that measured users’ comfort level with the characteristics of the roads. They developed a regression model through statistical analysis, which they converted into an index for each type of roadway based upon road characteristics.

The goal of this project was to develop the Rural Bicycle Compatibility Index for the Nebraska Department of Roads. This research blossomed into graduate research for his master’s thesis. He expects to graduate in May.

When he is not engrossed in school-related activities, Carlson frequently can be found at Scott Residence Hall, where he is resident director of the dormitory and is known as a personable leader and a wise friend.

Carlson’s faith is extremely important to him. He has made lifetime friends through his church group and feels he has grown on many levels from his church experiences. “God has brought me a long way,” he said. “You never know where the road will lead.”

It appears Carlson is headed for excellence.

Soybean Competition looks for innovation

Nebraska college and university students can enter the 2003 Innovative Uses of Soybean Contest until April 30, 2003. Cash prizes will be awarded for first place, runner up and honorable mention. There is no entry fee.

Entries will be evaluated by a team of University of Nebraska—Lincoln faculty and the Nebraska Soybean Board, which will present the award.

Contestants may work with an adviser or professor, individually or as a team. Entries must include a written report describing the product and how it was developed, the projected market impact of the product and a product sample. Students are encouraged to contact Mr. Loren Isom to review entry concepts and coordinate research and product development efforts with an appropriate faculty advisor.

For more information, visit the Innovative Uses of Soybeans Contest Web site at <http://agproducts.unl.edu/contest.htm> or contact Isom at 472-8187 or <lisom2@unl.edu>.

The Industrial Agricultural Products Center is part of NU’s Institute of Agriculture and Natural Resources.
Feel the POWER!

By Ginger I. Wingate
Biological Systems Engineering

E veryone strives for success in life, and success is what the University of Nebraska Quarter Scale Tractor team strives for every year. It takes time, energy and determination to achieve great things, and these qualities keep the team moving toward the top.

The 2001-02 University of Nebraska-Lincoln Quarter Scale Tractor team succeeded and placed in the top ten at the International ASAE (Society for Engineering in Agriculture, Food and Biological Systems) Competition in Moline, Ill., in June 2002. It took the efforts of ten dedicated students.

"To have a concept of the machine and turn it into a product that the students design and build is truly amazing," said Dr. Leonard Bashford, team advisor.

Picture this: it is late in the night, you are having trouble keeping your eyes open, you have not seen the outside world in a day or two, you start to dream of a magnificent machine pulling a weighted sled down the track and watch it keep pulling and pulling and... a loud noise revives you and you realize it was your own stomach growling. You have been working so hard on making that dream a reality you neglected the needs of your body. The machine is almost complete and competition is near. In a few more hours you will know that the sweat and lack of sleep was all worth it. In the end you will be proud of your masterpiece – the Quarter Scale Tractor.

This project would not have been successful without the efforts of students and faculty, as well as the material and financial support from businesses and alumni. Team member Tim Bray said the most memorable and valuable aspect of taking part in the project is “working as a team.”

In the fall of 1998, a number of agricultural engineering and mechanized systems management students decided to take part in the ASAE sponsored event. Since that time, the team has risen from 19th to 8th place. Interest also has risen among students, faculty, alumni and businesses both locally and statewide.

This year the team consists of about 25 students from various disciplines, including agricultural engineering, mechanized systems management, biological systems engineering, mechanical engineering, agribusiness, animal science.

Every spring the team travels to the quad-city area to compete among other universities from around the world. The tractor team is judged on a written design report, a team presentation, individual design judging and a performance competition. The performance competition, the highlight of the event, is comprised of a multistage tractor pull using a progressive sled. The students on the UNL tractor team attend other statewide pulls in addition to this competition.

What is the best part of being a member of the team? "The hands-on experience and putting classroom education to work in a real-life situation," said Tom Person.

To see the history and recent photos of the team, visit their website at http://bse.unl.edu/Undergrad/qtrscale. Other inquiries may be sent to the Fundraising and Personal Relations team at <unltractor@yahoo.com>.
Independent Study Team Goes Robotic

By Gretchen Gonzales
Computer Engineering

The members of Team Karel are finding there’s a lot more to learning than just attending classes – especially when you’re doing an independent study project that involves robotics.

“You have to bring so much of what you already know together in a project like this,” said Mike Beson, a junior in Computer Engineering on the Omaha Campus. “We probably have to teach ourselves 50 percent of what we’re applying.”

Team Karel is an undergraduate independent study team focused on robotics. Team members are Beson; Andrew Reynolds, a senior in computer science; and Mark Hanus, a junior in computer engineering. The project began with Beson’s and Reynolds’ search for a way to apply some facet of computer engineering or robotics.

With Reynolds’ passion for computer engineering, Beson’s drive to find an undergraduate research project and Hanus’ efficiency in programming, Team Karel was born in May 2002.

Karel will be a two-and-a-half foot tall robot that can be programmed to travel independently and will have the ability to identify a human from inanimate objects. It will then deliver/display a message through the 22 LED matrices mounted upon the body.

The team was granted $300 from professor Herb Detloff to begin work on its project.

As a summer intern at Senior Technologies, Hanus brought the results of the team’s brainstorming ideas to the engineers in the office.

 “[The engineers] were very interested in sharing more ideas with us,” Hanus said. “They suggested what more we could do. We would point out a problem with their idea and then they would help to resolve it with something better.”

Team Karel agrees that teamwork and compromise are key factors in any group task in the end.”

Each member has his own specialty – Hanus does most of the code, Reynolds is on LED hardware and Beson takes care of the hardware for the robot – and they each try to do a little of everything to learn more about every aspect of the project.

Although there still is much more code design and hardware work left in this project before its completion, it has already made its premier to the world.

On Oct. 14, representatives from the University of Nebraska Medical Center visited the Peter Kiewit Institute. UNMC is looking into new surgical technology for their facilities and wanted to find out what the college was doing in the field of robotics.

“We’re planning on developing our capabilities in the area of robotics as it may support research at UNMC in their robotics surgery area,” said Dr. Bing Chen, professor and chair of the department of Computer & Electronics Engineering.”

Although the facilities at PKI haven’t reached their full potential in respect to robotics technology, groups like Team Karel prove there is an interest and a drive to learn more and do more in the robotics field.

From Left: Andrew Reynolds, Mark Hanus and Mike Beson pose for a picture with their robotic creation.
A Fine-Tuned Balance

By Deepak Keshwani
Biological Systems Engineering

Nick Barber
Major:
Biological Systems Engineering
Standing:
Senior

Quite often, we come across fellow students who seem able to balance the demands of an engineering major with other activities extremely well. Nick Barber is one such student.

Barber, a senior majoring in biological systems engineering, is a Lincoln native who graduated from Lincoln High in 1998. Choosing to attend the University of Nebraska-Lincoln seemed the obvious thing for Barber. Apart from the proximity to home, he was inspired by the experiences of his older brother, who also was a biological systems engineering major at UNL. Barber spent his senior year in high school primarily studying biological sciences.

"I chose engineering because I wanted to earn a degree that would provide opportunities to apply the theory learned in biology, chemistry and physics classes," he said.

On the academic front, Barber also teaches a physiology laboratory for the School of Biological Sciences at UNL. Despite his hectic life, Barber makes time to pursue other interests. He writes poetry and music, studies the Bible and trains for competitive races and triathlons. He also enjoys learning new musical instruments and spending time with friends.

Barber's interest in music stands out. He learned to play the piano and read musical theory when he was just six years old.

"When I was about ten, I picked up my dad's guitar and learned the basic cords. After that I started developing my own style, influenced by Jerry Garcia, The Samples, Phish and Paul Simon."

Soon after, Barber learned to play the saxophone and concentrated heavily on developing his vocal skills. He likes to write music that reflects what he has learned from life. A lot of his music reflects his learning about God through studying the Bible.

"For the most part, my songs don't reveal my own struggles," he said. "I'm pretty non-romantic in my writing style."

Barber's greatest accomplishment as a musician was completing the recording of his solo album, which took about fifteen months, mainly because of commitments at school. But he was not completely alone in this venture. He acknowledges his long time friends Chad and Case, with whom he developed most of his songs.

Barber graduated in December and has been accepted at UNMC; he will start there in August. His goal is to work with communities that have high Latino and other underrepresented populations.

Students Receive Honors and Awards

Daniel Buettner, Lin Xu and Lui Zou received a scholarship to participate in the Fifth International Symposium on Abstraction, Reformulation and Approximation held in Alberta, Canada. They are working with Berthe Choueiry, computer science and engineering.

Katie Fraass Wlaschin, a 2001 chemical engineering graduate from Scottsbluff, received a 2002 National Science Foundation Graduate Fellowship. She is pursuing a master's degree at the University of Minnesota-Twin Cities.

Jason Hascall and Michael Schultes, both civil engineering students, have received the 2002 APWA scholarships. Hascall is from Tea, S.D., and Schultes is a Hastings native.

Student Takes First in Essay Competition

Dustin Boesch With the Phillip E. Rollhaus Trophy.

Dustin Boesch, a graduate assistant in mechanical/roadside safety engineering at the University of Nebraska-Lincoln, won the Philip E. Rollhaus Jr. 2002 Essay Competition. The international competition is sponsored by Quixote Transportation Safety and is named in honor of the company's founder, Philip E. Rollhaus Jr.
2002 marks the 100th anniversary of the Nebraska Blueprint, the College of Engineering and Technology's student-engineering magazine. To commemorate this occasion, the Blueprint looks to the past. A query of the UNL Libraries archives revealed twelve boxes of old Blueprints hiding in storage. Among them was a box containing the series of the first several issues of the magazine—an ideal place to look for the heritage and history of the publication.

The Blueprint magazine was first published in 1902 and was made available by the Engineering Society of the University of Nebraska. The early Blueprints were about the size of a Readers Digest, and were printed on pulp paper by the presses of The Norfolk Daily News in Norfolk, Neb. The original Blueprint staff consisted of an editor-in-chief, a business manager and three department managers. When the magazine was first created, corresponding members of the engineering society contributed all the articles. The first issues did not include any written contributions from members of the student body.

Volume I of the Nebraska Blueprint featured eight articles. One extensive article described the operation of the Cuban sugar industry. It was contributed by Joseph A. Sargent, an assistant engineer at the Department of Cuba. It featured several diagrams, photographs and foldout hand-sketches.

Among other contributions were:
- “Load Factor of La Captial Power House” – Chief Engineer, La Captial Traction and Electric Co, London and Buenos Aryes
- “Pipe Subways at the University of Nebraska” – Assistant

Superintendent of Grounds and Buildings
- “Timbering in Gold Mines” – Assistant Engineer, Homestake Mining Co, Lead, SD
- “Interior Lighting” - Professor
- “Sanitation of Havana” – Assistant Engineer, Dept. of Sewers, Havana
- “Power Brakes on Electric Cars [street railways]” – Professor

As you can see, there were many contributors from a wide variety of disciplines and locations around the world.

Volume II, published in 1903, presented an article entitled, “The Independent Telephone Movement.” It is interesting to read how the author revelled at the penetration of this modern technology.

“No other branch of the electrical sciences has made such rapid advances as telephony... A quarter century ago there were no telephone systems. But now one can step to his telephone and talk to nearly any one in the business world... What would the modern business man do without his telephone? It has become a necessity.”

One might say the same things about today’s Internet, cellular phone and portable computing devices.

Volume III was published in 1904. The creators of this issue started to bring the content home with features of the three major engineering departments at the time. A professor from each department contributed a lengthy article detailing their department and their classrooms and laboratories.

The fourth issue of the magazine was distributed in 1905. This was the first Blueprint to feature actual data from research conducted at the University of Nebraska. L.W. Chase, a mechani-
cal engineering instructor and the namesake of Chase Hall, contributed an article about a gasoline motor he designed with a former classmate. The two engineers designed and made the motor from scratch at the college of engineering. The article included an extensive display of the data collected over several series of tests.

Volume V, published in 1906, also had a huge amount of tabulated data from experimentation on a gasoline engine. The researchers were experimenting with such things as variable jacket water, gas mixture, point of ignition, and compression. During this and the few years that followed, the Blueprint started to read like an eccentric engineering textbook, complete with equations, tables and diagrams.

The publication continued to grow and enjoy success. By mid-century it was being released on a nearly monthly basis. And in the early 60s, with the advent of Playboy, the editors added a “Miss Non-Tech” section, which featured a young woman from another college within the University. Needless to say, that section disappeared with the rise of the women’s movement and as more women enrolled in the College.

By this time there were more than a dozen staff members involved with every issue. As the 80s and 90s rolled around, lack of money and decreased student involvement caused the magazine to slow its issue rate.

Finally, the magazine became an attachment to Contacts, the engineering alumni magazine.

In the winter of 2002, the Nebraska Blueprint released its first stand-alone issue since being attached to Contacts. Since then there have been two more, including this one. Today the publication focuses on student research and activities, as well as features on students. Nebraska Blueprint also has made the leap to the Internet for the first time. The staff continues to strive to make the Blueprint a viable entity in our college again.

*To see this, and previous issues of the Nebraska Blueprint online visit [http://www.nuengr.unl.edu/ET/Publications/pub2.html](http://www.nuengr.unl.edu/ET/Publications/pub2.html).*

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Before the 1940's, a computer was a tool used mostly by the military, the government and large companies. As the 1950's rolled around, smaller companies found this new tool a useful one in expanding business. Computer companies like Burroughs and International Business Machines (IBM) began to expand and find their niche. By the late 1950's, colleges and universities found these new computing machines were becoming vital to research and were an effective tool for recruiting.

In the summer of 1958, Chancellor Hardin asked Dean John C. Weaver to identify the most urgent research needs of the university. Weaver replied that the Number One need of the University was a centralized computing center. The staff unanimously agreed.

Weaver stressed the importance of computing to institutions on the leading edge. "It is too few years, no institution will be considered adequate for research training without a well-organized computing laboratory," he said.

The first computer Weaver suggested was the IBM 650—one of the most widely used computers of the time. It was made available to colleges and universities on a rental basis and at a 60 percent educational discount. The applicable IBM hardware would rent for $24,408 annually.

Despite Weaver's recommendations and the wide use of the IBM computer, the University opted for the Burroughs 205. On Sept. 23, 1960 it arrived and was installed.

In the beginning, the Center was expected to serve the University in the same way as the library. Everyone would have access and users would have to program their problems, code their solution and participate in running the program on the machine. The staff would just instruct and help when needed. Staff and students would use the center for free except for tape and cardpunches. Nonstudents would pay up to $40 per hour on the 205 computer. With approval from the University Research Council, nonstudents and faculty could get free time on the computers. The center was modeled after existing ones at Virginia and Utah.

The University's needs for the computer continually grew, but the computer did not. It quickly became a valuable research tool and time on the computer was worth quite a bit. The College of Engineering had since acquired its own IBM 1620 and endured heated internal exchanges concerning its use.

In a proposal in 1961, the University of Nebraska Computing Center made some very important statements about the 205 and concluded that the card/paper-tape machine was outdated; a system with magnetic tape drives and a module disk file would better suit the needs of the University. One popular system of the time was the IBM 1410.

As long as the code was written in FORTRAN, the 1410 was compatible with the 20K storage IBM 1620, systems the colleges of Engineering and Agriculture previously had purchased. The 1410 had a 40,000-character memory with 4.5 microsecond access time to these characters. The disk storage module could hold 20 million characters with 50-180-millisecond access times. The four magnetic tape drives could read 20,000 characters per second.

To demonstrate the need for a new computing system, the computing center made comparisons between the University of Oklahoma's IBM 1410 and Nebraska's Burroughs 205. The computations and programs were 50 times faster on Oklahoma's machine. The library of available programs came from such institutions as UCLA, Columbia University, Penn State and the University of Michigan. These programs could do matrix inversions, simultaneous equation solving, polynomial root finding, least square filters, Eigenvalue calculating and Eigenvector computing.

With these many considerations in mind, it appeared as if the IBM 1410 would be the best buy on the market. But even with all the positive details about the 1410, there were obstacles the University would have to deal with in order to receive the system. The University was facing a deadline to order the 1410 to take advantage of a 60 percent educational discount from IBM. Since the Burroughs 205 had become outdated so quickly, funding from sources such as the National Science Foundation had dried up. It cost the University 10 times the as much money to run programs on the Burroughs as it did on the IBM 1410.

B.H. Platt of Iowa State University wrote a letter to University of Nebraska comptroller Joseph Soshnik on Jan. 14, 1963, explaining the ISU setup. An IBM 1401, IBM 650 and an ISU-built system made up ISU's computing center. The "center" was really spread across campus, but shared between departments. The registrar's office utilized the system, as did the residence halls, student classes and labs.

Much of the equipment at ISU was rented. "With the rapid changes in this industry, I think it would be foolish to purchase the equipment," Platt said.

From Kilobytes to Terabytes:
The Contrast of Old and New Computer Systems

By Thomas Cudd
Computer Engineering
Since the first days of the Computing Center, there have been some changes in the way the University handles computing. Because prices are far more reasonable, the University no longer rents the machinery. The Department of Computer Science and Engineering handles the computing needs of students in this day and age. In similar fashion, the department recently upgraded to a more modern system. Those students who have CSE e-mail accounts already have received the e-mail saying that the CSCE server is up and running with the CSE server being phased out. According to Charles Daniel, UNIX system manager and advisory committee member to the Research Computing Center, the University tries to have an up-to-date system.

"Every time the Department upgrades, every four to five years, we want to see a 10-fold improvement in some aspects and more," Daniel said.

There definitely is an improvement when a comparison is made of some of the statistics of the two systems. The CSE server had four 450 MHz processors while CSCE has eight 750 MHz RISC processors. CSCE has 255 GB of disk space allocated for all the students. CSE only had 1 GB of RAM, while CSCE has 32 GB of memory. The 32 GB of RAM was greater than expected by many in the department.

"We got more than we expected in terms of what we paid for and our returns," Daniel said.

This new server's price was in the $70,000-$75,000 range, similar to what CSE's cost about four years ago. CSCE also has three years of maintenance included with the deal. The deal with Sun Microsystems appeared to be the best bet. With a system of this magnitude, a bidding process included such companies as SGI and IBM. This is the first Sun Server the department has used. Daniel also said it has lived up to the expectations with no visible performance degradation.

Over the past months, CREE was another Sun server up and running in order to test the waters on a Sun system's usability. With only two CPUs and 2 GB of RAM, it was used as a running test and a stepping-stone into the more powerful system. Becoming familiarized with the system was important for the department in order to maintain the best service for faculty and students.

"The department bought something small because they always try to provide all types of platforms for students and people in the department," Daniel said.

To better serve the students, this server is located in the basement of Ferguson Hall where it can utilize the 1 G-bit fiber optic connections with other computers. The CSE server is located in the basement of Walter Scott Engineering Center and has a 100 M-bit connection.

Although these systems are meant to help with the needs of students, the Research Computing Facility handles the research needs of those who need more powerful computer time. Their fastest system, PrairieFire, is ranked as the 139th fastest computer in the world according to http://www.top500.org/, a site established "to provide a reliable basis for tracking and detecting trends in high-performance computing." This system is composed of 128 Nodes, each with two 1.4 GHz AMD Processors, 1 GB of onboard memory, and 20 GB of hard disk space. With such high computing speed and great storage, PrairieFire can be used to model scenarios such as biological attack dispersion, vehicle collisions and quasars.

Renee Augustyn, computer engineering, has worked on three dimensional models of PrairieFire, including individual nodes and even node parts. Eventually PrairieFire will render images and movies, greatly reducing the amount of time needed to create new promotional materials.

Image rendering is one important aspect in the future of PrairieFire. According to a June 24 e-mail from Richard Sincovec, chair of the Department of Computer Science and Engineering, PrairieFire eventually will be connected to the Access Grid. According to the government website, "The Access Grid (AG) is the ensemble of resources that can be used to support human interaction across the grid. It consists of multimedia display, presentation and interactions environments, interfaces to grid middleware, interfaces to visualization environments."

Said Sincovec in the e-mail: "We plan to use the Access Grid technology for real-time collaborative software development and testing." Simulations can be viewed in real-time and decisions can be made on the fly.

As these technologies improve and expand, students will likely see powerful research tools available for more extensive undergraduate work. Processing speeds unimaginable to professors in the 1960's are available to almost every student within seconds.

For more information:
- UNL Archives and Special Collections
Battle of the Brains: Engineers VS. Lawyers

By Adam Holmberg
Computer Engineering

Deepak Keshwani, a long time contributor to the Blueprint organization, once mentioned an old feud between engineering and law students. When he added things like fires being set and people instigating riots, it sounded too wild to be true. With the help of Tom Mooney at the University of Nebraska’s Archives and Special Collections, I’ve found those ‘rumors’ to be true. The “Ancient Feud between the engineers and laws” was a turbulent part of this school’s past – a tale many have never heard.

It all started in 1927. Tensions between the engineering and law students came to a head in a rousing round of tit for tat spanning that spring’s entire Engineers’ Week.

Daily Nebraskan coverage of the activities began on May 4, when the first breech of pride made the front page.

“Engineers in Near Riot When Dirigible Reading Changed for Pharmacists.”

During the preceding night, someone had vandalized the engineers’ dirigible, which was anchored near the Administration Building. The lettering on the vessel, which had previously read “Engineers’ Week,” had been changed to read “Pharmacy Week.” Although the pharmacy school’s exhibition was indeed that week, those students were not among the suspects.

“For,” the engineers reasoned, “Pharmacy Week would not have been printed upon the dirigible to betray the culprits.”

The following page of the same issue showcased letters from Pharmacy Week and Engineers’ Week chairmen. The chair of Pharmacy Week wrote a letter emphasizing that he was sure no pharmacy students had participated in the defilement. The subsequent letter from the engineer’s chair was a public acceptance of the statement.

So the culprits were still to be found.

Don’t turn the page, friends! The excitement has only begun. Apparently tension between the engineers and law students had existed for some time, so “the laws” were the obvious perpetrators in the minds of the engineering students. According to a report in the next day’s Daily Nebraskan, the engineers managed to attach a huge sign to the side of the law building during the night, advertising E-week in an impressive display of spite.

As one might imagine, the law students arriving the next morning were in no hurry to find those engineers and congratulate them on the cunning reciprocation. Instead they ripped the sign from its heights and marched across the street, where they purchased some gasoline and made their way back to the engineers’ dirigible. They doused the airship with gasoline, set it afame and pulled it to the ground where they could stab it and prod the flames; all this while the engineers were at convocation. Eventually they got out, and the story continued to unfold...

“Something very near to a riot and closely resembling a ‘free for all’ was staged by the engineer and law students on the second floor of the Law building Wednesday morning after 11 o’clock classes had started... the result of an attempt on the part of the Engineers to avenge the burning and wholesale destruction of their dirigible, the E'27...” – DN May 5, 1927

Not every student was compelled to continue the feud, though. Some law students attempted to soothe the wounds by assisting the engineers in the repair of the E'27. Unfortunately, their classmates did not take kindly to this kind of outreach:

“Laws Punish Culprits Who Play Traitor”

“Three members of the Law college who broke faith with their group to the extent of assisting the Engineers in repairing the dirigible E'27... were summarily punished during the intermission between ten and eleven o’clock classes yesterday morning. The irate lawyers forced the culprits to run a gauntlet of paddles as atonement for their misdemeanor. A double rank of paddle-wielders lined the sidewalk south of the Administration building to take part in the ceremony. A considerable number of spectators were attracted to the scene by the vicious ‘thwack! —Spat! — Thwack!’ of the instruments of torture.”

The fiasco didn’t stop there, though. The Daily Nebraskan reported some exciting events that occurred the night of May 5, 1927.
“Engineers Raid P.A.D. House in Night Debacle”

Reportedly, the dispute erupted yet another time that week when the lawyers drove to the dirigible and attacked it again. Leaving their laboratories, the engineers gathered into a mob and headed for one of the law fraternities: Phi Alpha Delta.

“They organized into a mob and headed for the P.A.D. house where they surprised the lawyers in the act of carrying eggs down stairs in readiness for the attack. They proceeded to scatter them in a somewhat broken condition about the house.”

The zealous assailants caused around $1,000 in damage to the Phi Alpha Delta house. They broke doors, windows and furniture, as well as caused damage to the floors and rugs. A police riot squad was called sometime during the melee and someone, seeing a torch carried by the engineers, sent in a fire alarm. The firemen actually used their equipment to soak and dispel the large group of onlookers that had gathered. Two of the law students were dragged from the house and thrown in a pool on campus.

“Virtue and Wilson Tubbed”

“Clarence C. Virtue and Hugh Wilson, the two lawyers taken from the house were taken to the campus and ducked in the Pharmacy pool, around which the engineers gathered to plan further aggressions.”

They continued the rampage by going to another law fraternity: Delta Theta Phi. Fortunately, that house escaped the fate of the P.A.D. house.

“Bill Matschulla, house manager, used his argumentative ability to talk the gang out of making such a mess of their house as they did of the P.A.D. house. A compromise was made whereby the engineers agreed not to destroy any property if allowed to make a thorough search of the house for lawyers. None were found so they left without further fighting.”

-DN May 6, 1927

Eventually the escapades came to an end.

“They organized into a mob and headed for the P.A.D. house where they surprised the lawyers in the act of carrying eggs down stairs in readiness for the attack. They proceeded to scatter them in a somewhat broken condition about the house.”

“Things had quieted down by midnight although engineers were still hunting laws at a late hour.”

Toward the end of that mad week, the deans of the two colleges entered a plea to their respective students to settle the dispute. The dean of the engineering college at the time was O.J Ferguson, the namesake for the computer science and engineering building. The suggestion was to assess each student in both colleges a charge of 75 cents for damages.

“The [engineers] responded with a unanimous vote in favor of accepting the recommendations of the deans... Collections were started at the meeting. It was agreed by all that the nominal price of seventy-five cents was ridiculously moderate for the fun they had.” – DN May 10, 1927

The lawyers considered themselves the victims of the week, but agreed to the settlement because it was in the best interest of the University and the College of Law.

Apparently, this wasn’t the only time the students had exercised aggression against one another. A little tidbit from the second page in a Daily Nebraskan during the week following E-week brings this story to an amusing close:

“The law-engineer fracas last week brought back some recollections to an old student. It seems that several years ago the engineers besieged the laws in the law building and proceeded to flood the building with a fire hose. The laws retreated to the second and third floors, the story goes, dragged down some of those half-foot thick law books from the library shelves, and pitching them out of the windows, laid out a number of engineers.” – DN May 10, 1927

In a paper at the end of the week, an editorial opined that the feud would continue unabated in the future.
Big Hopes for Tiny Device

By Tom Pryor
Mechanical Engineering

Saving lives.
Fighting terrorism.
Exploring distant planets.

It's all in a day's work for a group of researchers at the University of Nebraska–Lincoln working to make these tasks much easier through research in the field of neutron detection.

The initial development of a boron carbide semiconductor by UNL physics professor Peter Dowben has now allowed a team of researchers to create a neutron detector that is much smaller and more compact than previous detectors.

Researchers involved in the project include Brian Robertson, associate professor of mechanical Engineering; Peter Dowben, Charles Bessey, Professor of physics & astronomy; Shireen Adenwalla, research assistant professor in physics & astronomy; and Dr. Jennifer Brand, associate professor of engineering. The team also includes Ph.D. student Andrew Harken, master's students Ravi Billa and Rekha Padmanabhan, and undergraduate Angel Gunn.

Traditional neutron detectors rely on the emission of light or gamma radiation produced when the neutron is captured by the detection device. These detectors contain a medium to react with neutrons, but also require an additional component to measure the light or gamma ray emission. For this reason these detectors are often bulky and can require large amounts of power to sense incoming neutrons.

The newly developed boron carbide detector eliminates these problems. The boron carbide detector is smaller than the size of a dime and requires very little power to operate. The unit is powered with small batteries, but its modest energy requirement could allow alternate power sources such as solar cells to be implemented.

The detector is composed of a diode formed on a very thin layer of a boron-rich boron carbide semiconductor. The nucleus of a boron atom in this layer actually absorbs the neutron and reacts

“There were times when how we would get our detector to work was a mystery, but we all had confidence that the solution would be found if we worked diligently and carefully.”

– Andrew Harken
charges freed by the nuclei.

Although the abundant energy released makes detection easier, the analysis of the incoming energy still is a painstaking task.

“I have spent quite a bit of time on the electronics used to analyze the signal from our detector when it detects a neutron,” said Harken, the Ph.D. student who has been highly involved in the fabrication of the detector.

There are many proposed uses for the detectors, but the most promising is the potential for detecting nuclear material. This includes possible use as an anti-terrorist device to detect weapons such as dirty bombs or as a safety device to help monitor radioactive waste. Robertson also offered several other uses for the detector, including medical research (to help increase the effectiveness of radiation therapy), space exploration (to help detect the presence of water on distant planets), and as a sensor (to help in the drilling of oil and gas wells).

Although the team has come up with something quite extraordinary and groundbreaking, there were times when positive results were not so certain. But even when things did not always look promising, they continued to plug away.

“There were times when how we would get our detector to work was a mystery, but we all had confidence that the solution would be found if we worked diligently and carefully,” Harken said. But the hard work and long hours paid off and now they have some very impressive results to show for it.

The team has several patents pending on the detector and the operations used in its production. Their main focus is on improving the reliability and efficiency of the device. Robertson said the device “could be nearly 100% efficient” with continued research and experimentation.

Said Harken of the research efforts and recognition: “We have pride and honor that many members of the international scientific community have acknowledged that we have done something special, and they are interested in what we are doing.”

First Place, from Page 7

In his essay Boesch, a native of Humphrey, Neb., highlighted the dangers of railroad grade crossings and included creative means to mitigate the dangers of these crossings, focusing on using reflective tape on the sides of train cars so they are better seen at night. He also recommended using an innovative barrier wall to keep motorists off the track when a train is present. His sponsor, Ron Faller, is a research assistant professor in the Midwest Roadside Safety Facility.

Boesch received a check for $3,000 and Faller received $1,000. Michael G. Dresses, Vice President of Marketing for Quixote Transportation Safety, said the competition had a record number of entries from around the world.

“The judging was so close that we decided to award seven $1,000 finalist prizes instead of the three that were planned.”

Brian Coon, also a graduate student at UNL, was a finalist in the competition. He received $1,000; his sponsor, John Reid is an associate professor of Mechanical Engineering.

“I think this is pretty outstanding to have UNL represented as one quarter of the winners in this competition,” Boesch said.

Feud, from Page 12

“And the feud between the two student bodies will continue, as ever, possibly a bit more bitter, assuredly not sweetened a bit.” — DN May 6, 1927

As we know, today that feud has been forgotten, save the occasional rumor and expository piece in the student magazine. The surprising thing is that no one got hurt, arrested, or expelled. In fact, to read the editorial in the May 5, 1927 Daily Nebraskan, it was nothing much to worry about.

“That there should be rivalry between students of colleges of different training and different outlook on life is natural enough. It is a healthy sign that the boys concerned are vigorously loyal to the professions they have chosen as their life work. ... The students are boys in the exciting days of college life. Let them have their little conflicts and rivalries. They'll probably all laugh about it heartily within a few months after graduation.”

I doubt the situation would have been taken so lightly had it happened today. But hey, these days we can blame such aggression on video games and rap music. I wonder what they used back then?

Oh, remember the original law student who instigated the entire chain of events by painting on the engineers' dirigible? They ended up identifying that man. It turns out he was not a law student. He was not even a student at the University of Nebraska. He was just an out of town visitor trying to have a little fun.
Around the College of E&T

Above: Electrical Engineering students showcased their senior design projects last semester. Photo by Bryan Altman.

Top: Students from the Department of Biological Systems Engineering showcase their senior design projects during E-Day. Top right: Timothy Bray and Ryan Baker with the Transformer. Top left: Justin Cermak, Lisa Stahr and Donee Hawley with their project Sand Creek Stabilization. Photos by Gail Ogden.

Left: In the two photos left, mechanical engineering students learn how to use embedded processors, sensors and electronics to improve mechanical systems in the Mechatronics System Design class taught by Dr. Shane Farritor. Photos by Shelby Pridie.