

# Four Branches Soar, Roar, Knot

## ME's Headline Rocket, Hot Ore

Fire, Underwater Welding, Add to Richards Lure

A student-designed solid fuel rocket scheduled to shoot up 26 miles when fired will be one of the featured displays of the mechanical engineering department in Richards during the E-Week Open House Thursday.

Other mechanical engineering displays range from the pouring of molten aluminum and brass to a booth answering questions about commercial fuels and lubricants.

## CE Window Already Known As A Winner

A display showing one of the newest engineering projects in the Nebraska area that has won a national award for its outstanding design will be presented in the window of the Gas Company by the Civil Engineering department.

The display consists of a replica of the Missouri River pipeline suspension bridge at Plattsmouth, Nebraska, and a small portion of the river. A background, which depicts the relation between the academic and the practical application of the engineering principles, consists of large blue prints and various instruments used in the design of this type of project.

The bridge itself was judged by the American Institute of Steel Construction to be "best of show, and an outstanding example of an abstract design for a utilitarian purpose." It was designed by Matthews and Kenan for the Northern Natural Gas Company, and was fabricated by the Pittsburgh-Des Moines Steel Company.

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**"STUDENTS"**  
**AUTOMOTIVE**  
**HEADQUARTERS"**

ing questions about commercial fuels and lubricants.

**Hot Ore Flows**  
The foundry will be pouring molten ore into molds at 8 p.m. when M. E. students dressed like spacemen will be handling the white-hot metal.

A metal spinning display will demonstrate how sheets of aluminum are formed into bowls and cups like those used on the dinner table.

For anyone who ever wondered how underwater damages are repaired, modern methods of underwater welding with electric arc and acetylene torch will be displayed.

A block of wood will be burned with a jet of cold air as part of the displays on power.

**Combustion**  
The combustion show will demonstrate modern techniques used to produce the tremendous energy required by jet engines, gas turbines and rocket motors. The huge amount of energy that can be released from such an everyday fuel as propane will be demonstrated as the mechanical engineers "play with fire."

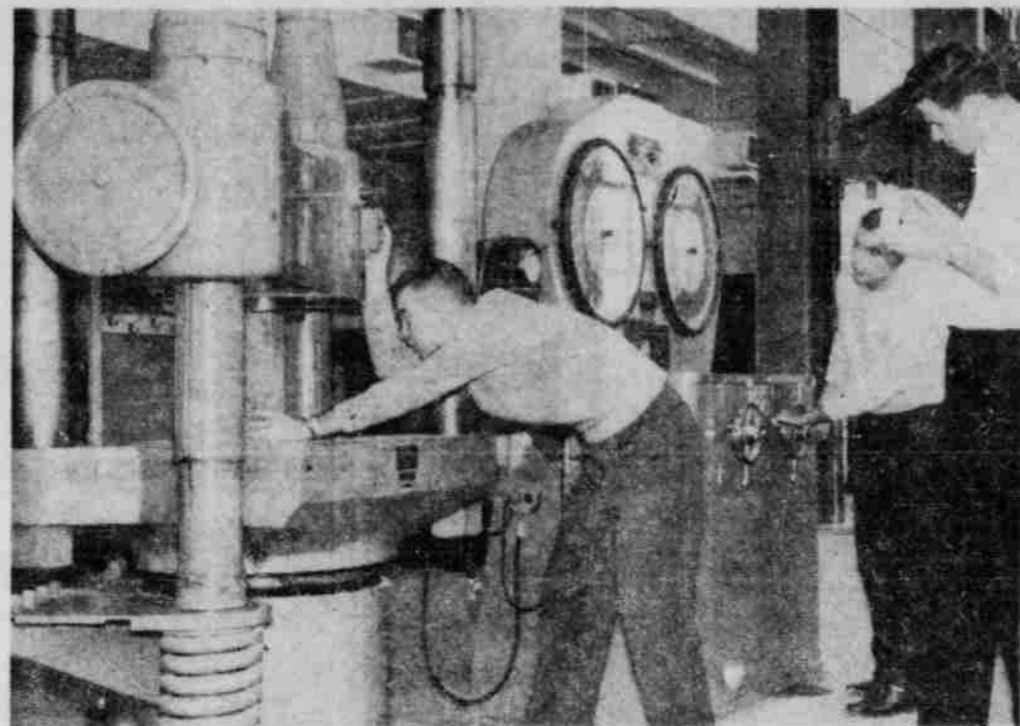
An industrial engineering display to show how production planning and plant management is handled in larger industrial manufacturing concerns is set up. Many questions about modern industrial developments and mass production methods should be answered in this demonstration.

A booth will be set up to answer the visitor's questions on present commercial automotive gasses and oils in the fuels and lubricants lab. A display of solid metal in partial combustion promises a spectacular show.

At the entrance to Richards will be a 45 pound thrust pulse jet which was designed and built by students.

Other displays will demonstrate how wood patterns are made to produce metal casting molds, and how fluid flow is measured.

**Radar Tracks Model**  
A window of Wells and Frost department store is decorated with an unusual display by the electrical engineers. E. E. students have built a radar set and screen which picks up the path of a model plane as it enters and crosses the window.



**FRAGMENTS AWAY**—Mechanical engineer Larry York, Delbert Tesar and Bob York practice for the concrete shattering exhibition for the M.E. Open House. The big testing press will be one of the Richards' students prize displays.

## EM Prowess Knots Steel

Gyro Defies Gravity in Bancroft

Steel bars being tied into knots and gyros that appear to defy gravity—these are only a hint of some of the displays dreamed up by students in the Engineering Mechanics Department as their part in the E-Week displays.

A display to prove that concrete is a flexible material will consist of a concrete block bridge with a gauge to record vibrations.

To prove that steel can be bent and twisted considerably without failure, steel bars will be tied into knots and pulled tight with a tensile machine.

Department co-chairmen Rod Clifton and Jim Weaver report a wide variety of displays for Open House.

**Concrete Display**  
The displays have been designed to please the general public and also to familiarize the public with the scope of engineering mechanics, according to Clifton.

A step by step demonstration of the making and uses of concrete is another of the large displays in the E. M. department.

The first display is an illustration of how ready mix concrete is made and placed. Models and pictures take the observer through the step by step process of making ready mix concrete.

"Jacked-up construction" is the subject of the next display in the series. In this method for constructing concrete

walls, instead of erecting forms, and then placing the concrete into the forms, the concrete is poured as a flat slab in a horizontal position.

**Other Displays**  
When the concrete has "set" the walls are tipped into place by means of hydraulic jacks.

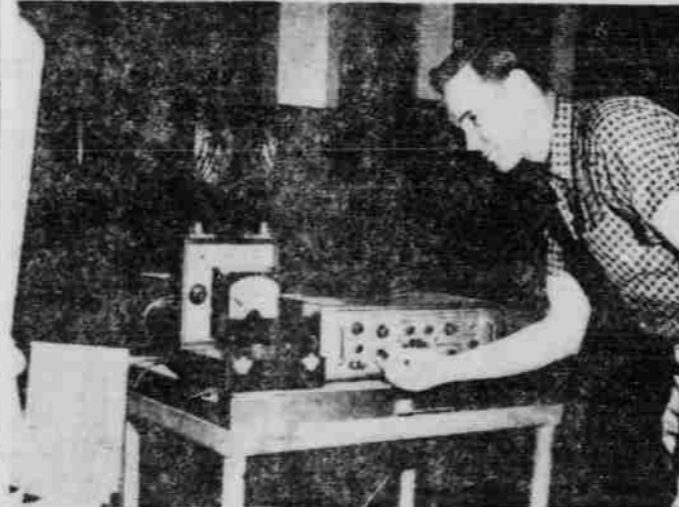
Two displays that have been popular in previous E-Weeks are being shown again. One is an airplane that simulates a plane in flight with automatic controls.

The other is a mono-rail, a

small truck or car powered by electricity travels on this single rail.

A bicycle wheel gyro acts as if it were defying gravity. Other displays include a beam vibrating, the course work covered during the freshman year in engineering mechanics, foreign and old drawing sets and a display on foreign drawings.

Besides the planned displays, glass cabinets along the walls contain models and illustrations of other phases of engineering mechanics.



**REALLY TOUCHY** — Vaughn Nelson, senior in ag engineering, twists knobs on a device so sensitive that it can measure the strain the weight of

the book places on the front end of the tractor. The strain gage is part of the AgE E-Week Open House Display.

## Intelligence Tester Offered By AgE's

Big Roar on Campus Will Be Grain Dryer

Have you ever wondered how smart you are?

One of the Agriculture Engineers' displays is designed to help you find out. They will have an electric question box set up in their display area in the Selleck parking lot.

The box can test knowledge in various fields electronically by telling if your answers are right or wrong.

Other displays include a radio controlled tractor, weight transfer demonstrations and tire flexure tests.

**Big Roar**  
The roar which will be heard on campus during E-Week is the portable grain dryer. The dryer will include a 375-bushel capacity bin. The device will be operated from a tractor power take off with the air blast heated by a propane flame.

Devices to measure the moisture in the soil and tell the rate the water moves through the ground will be demonstrated. The devices

that do this are called "irrometers" and "irrigators."

Maximum fuel economy will be shown through the use of a dynamometer and a flow gauge. A carburetor will be set up to show how to get the most out of a gallon of gasoline in an internal combustion engine.

**Tire Strain**  
Strain gauges will be used to show strain on tractor tires. Tractors will also be used in the weight transfer demonstration.

Weight transfer will be measured by the application of strain gauges to the front axle and using certain calculations.

The agriculture engineers' will show through displays and demonstrations the improvements and aids which have been made in agriculture through the use of engineering.

## Architects

### Show Embassy

A model of the U. S. Embassy in New Delhi, designed by Architect Edward R. Stone, will be the Architecture window's center of interest.

The building, an example of the love which architecture holds for man, consists of a delicately thin concrete roof, pierced concrete screen, and reflective pool.

A small mobile consisting of a sketch by Leonardo DaVinci on the proportions of the human body in relation to architecture, will also be included in the display. The use of mannequins surrounding the model will heighten the effect.

The chairmen for this display are Jeff Vandever and John Reitter.

## French Film Tonight

The French film, "Wages of Fear," will be presented by the 1958 Film Society tonight at 8 p.m. at the Nebraska Theater.

## "NU's GOOD RIGHT ARM"

Word that the University of Nebraska Foundation assets have increased more than a quarter of a million dollars in 1957 is good news.

This brings the total assets of the Foundation to a respectable \$2,417,712 figure. Total new funds of the foundation received during 1957 totaled \$676,048.

This made last year the best in the 22-year history of the organization.

Its program supplied funds for research projects, scholarship and grants in aid, fellowships and assistantships, improvement in museum exhibits, specialized research equipment, judging teams expenses, faculty support, lectureships and teaching awards.

One of the fine things about the Foundation's work is that it makes possible activities and improvements that could not otherwise come about and lends stability to the long-range growth plans of the University.

The Foundation is the University's good right arm, making possible more intensive efforts in the fields for which universities exist.

Under the tested leadership of John K. Selleck who will serve as president for the next two years, the Foundation is assured of expanding the fine record it has made in the past.

From an editorial in the Lincoln Journal

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**Foundation**  
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Lincoln, Nebraska

## ChemE Dyes, Plastics, Fill Avery Lab

How is cloth dyed evenly and without stains in industrial weaving? How is plastic made which can be used in so many different fields which used wood, glass, metal or paper only a few years ago? How are aluminum tumblers, trays and pitchers dyed with such color and brightness?

The chemical engineering department will answer these and other questions through small scale demonstrations at its E-Week Open House displays.

**Scaled Displays**  
Although the chemical engineer's objective is to develop and control apparatuses which make chemical processes applicable to industry, the displays will be more a matter of chemistry since the projects had to be scaled down to illustrate certain points.

Selective dyeing of cloth will be shown in a demonstration of dyeing acrylic and 16 cloth into a three color pattern.

The cloth will be scoured and bleached, then put into a solution of dye fixate and acid. The solution and cloth are heated for ten minutes at 149 degrees, then the cloth will be lifted and the three dyes will be added. After the cloth is reheated in the new

solution for one and a half hours at a temperature slightly over 200 degrees, it will go on to a 20 minute detergent bath.

Upon completion of all the steps, the cloth will emerge with a tri-color pattern and no spots or stains.

The Plastics Industry will be represented by a demonstration of the making of thermal plastic. Although in industry the plastic is made with a continual flow, the chemical engineering display will show it made through the batch process.

The making of the plastic involves the combination of phenol and formaldehyde with the aid of a sodium hydroxide catalyst to form polymerized molecules.

Control of temperature, time of reaction and concentration of the catalyst can be used to give the plastic desired properties.

**Aluminum Dying**  
The anodizing process will be used to show how aluminum can be successfully dyed. Electroplating of metals will also be shown.

The display may also include the plating of individual souvenirs for the public.

Other displays in the chemical engineering display will include chemical experiments which will show the properties of chemicals.

An example of a property experiment is the "clock reaction." Two colorless solu-

tions will be added together and in thirty seconds they will turn blue.

All of the displays will be explained in simplified terms to the public attending the E-Week Open House.

## Historical Society Plans May Meeting

The Nebraska State Historical Society will hold its 1958 spring meeting at Fairbury, Neb., Sunday, May 4.

Harold H. Dunham from the University of Denver, will speak on "The Pony Express: Communication Extraordinary" at a noon luncheon.

Following the luncheon, a historical tour of the Rock Creek Station about seven miles Southeast of Fairbury is planned.

investigating pipes?

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