

## College's Purpose Is Re-emphasized By College Dean

The "abiding purpose" of the K-State College of Engineering was reemphasized emphatically during the first annual Dean's Convocation of the March 14-20 Engineering Open House Week.

Citing the College's long-range planning report of October 5, 1970, Dr. Ralph G. Nevins, engineering dean since 1967, stressed:

"Its abiding purpose is to maintain a continuing capability to serve the best interests of students and the profession. We must be sensitive and responsive to the ever-changing demands of the profession.

"We must be prepared to re-evaluate and redirect our efforts to insure continuing opportunity for diversification, updating, changes in emphasis and faculty development.

"We must apply our engineering talents to optimize the organization, programs and facilities of the College to effectively and efficiently utilize the limited resources available to us while assuring our students and the profession a quality product.

"To face this objective squarely will require courage to seriously consider the priorities for KSU and the State of Kansas and make some tough decisions," Nevins said.

Attended by graduating seniors and faculty of the College, the convocation was held on St. Patrick's Day. It will be a new tradition for Engineering Open House Week.

### Alums to Meet

A coffee and informal program starting at 2:30 p.m. on Saturday, May 15, will be given for engineering alumni attending class reunions on commencement weekend, May 14-16. The meeting, set for the Intra-Fraternity Council Room of the K-State Union, will be hosted by Dean Emeritus M. A. Durland; Dr. Kenneth K. Gowdy, assistant dean; and Prof. Dwight A. Nesmith, Engineering Experiment Station director. Reunions are for graduating classes of years one and six through and including 1951.



GIRLS, ONCE A RARITY IN ENGINEERING AT K-STATE, are now enrolling in the College in greater numbers than ever before. Dr. Curtis G. Chezem, head of nuclear engineering and an advocate of educating more women engineers, talks with four freshman coeds in his department's curriculum (l. to r.): Mrs. Madonna Gurchiek, Alice Christy, Kathleen Carley and Vicki Swisher.

## Service Awards Given At Open House Banquet

A partner in one of America's leading engineering-architectural firms and a dean emeritus of the KSU College of Engineering received awards during the festive Engineering Open House on March 19-20.

L. M. Van Doren, partner, Van Doren-Hazard-Stallings-Schnacke, with central offices in Topeka, received the Distinguished Service Award in engineering. It was presented by Dr. John Chalmers, academic vice president at KSU.

Van Doren, a '1938 graduate of KSU's department of civil engineering, was recognized for outstanding service to his profession, state, community and alma mater, said Dr. Ralph G. Nevins, dean of engineering.

A special appreciation award from the College was made to Dean Emeritus M. A. Durland for his many years of distinguished service to the engineering education program at K-State. His honor was conferred by Dean Nevins.

Presentation of these awards was part of several activities of the 47th annual open house which attracted an estimated 6,000 persons.



Van Doren



Durland

Charles A. Stryker, senior in civil engineering, was crowned St. Patrick, the engineers' patron saint. Becky Ann Smith, sophomore in family and child development, was crowned St. Patricia, St. Pat's lady.

The third annual Engineering Alumni Symposium, held Saturday morning, March

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# Manpower Shortage Predicted, Help of Alumni, Friends Sought

While some may think the employment picture for engineers is bleak, Dean Ralph G. Nevins of the K-State College of Engineering forecasts a continuing shortage of engineers from the present through 1980.

Dean Nevins acknowledges that there is obviously an oversupply of engineering talent in the aerospace industry and military. But he sees a continually increasing demand for professional engineers, particularly in environmental protection, building design, utilities and services.

He can see no reason for panic. Though applications to engineering colleges in the U.S. are slightly down, engineering enrollments seem to be holding steady.

What Dean Nevins is worried about is a widescale overreaction to what he terms a "temporary shift" in engineering employment. To prevent decreased engineering enrollments, he encourages alumni and friends of the K-State engineering education program to continue to encourage bright students to consider engineering careers.

Nevins fears that current "public reaction to oversupplies in the aerospace and military sectors may tend to decrease enrollments as occurred in the early 1950's."

Any panic at this point, he says, may cause a shortage of needed manpower in three to five years similar to what happened nationally in 1957 when the U.S.S.R. launched the first Sputnik.

"Companies began bidding for engineers. Had we not had a shortage of engineers then, there probably would have been a better distribution of engineering talent. It probably would not have resulted in any oversupplies such as we have before us now," Nevins said.

The dean called attention to statements made by Geoffrey H. Moore of the Bureau of Labor Statistics who testified last fall before the House Special Subcommittee on Education.

"He said that while an estimated 1.1 million engineers were employed in 1968, 1.5 million will be needed by 1980. If current engineering enrollment trends continue as we suspect they will, manpower needs will be short of requirements in 1980," Nevins indicated.

Focusing on the anticipated need to solve environmental problems, Dean Nevins noted that "engineering manpower in this area is likely to double by 1975; from 35,800 to a needed 70,000. By 1980, some 105,000 will be needed."

The dean's statistics come from the April issue (Vol. 5, No. 4) of "Environmental Science and Technology" in an article, "Manpower for Environmental Protection."

"We will need all types of engineering disciplines to solve many of these critical problems, devise new systems and products and improve the quality of life and the environment.

"The B. S. degree in engineering will be essential. These engineers must have some appreciation and interest in these areas and the basic material with which to work with the ecologist, sociologist, etc.

"In many cases, graduate degrees may be required," he said.

The dean pointed to another recent trend in undergraduate engineering education:

"More of our graduates are using their engineering degrees to give them the wide background they need for entrance into other professions such as law and medicine or as excellent background for managerial positions in industry and government.

"Considering the types of technological and engineering problems we're facing in the world today, it is obvious that engineers are going to be needed to solve problems for a long time to come," Dean Nevins emphasized.

He suggests that alumni and friends of KSU's engineering program do something tangible right now to encourage bright students to consider the profession.

A handy clip-out coupon on the bottom of page four is provided for you to do something right away. Please recommend to us the name of a young man or woman who is or might be interested in knowing more about K-State's quality engineering education programs.

## Bendix Award Aids K-S EE Students

The KSU student branch of the Institute of Electrical and Electronics Engineers (IEEE) has been awarded a \$300 third place check in the 1970-71 Vincent Bendix Award competition.

The KSU branch is using the money to produce a series of color slides to aid instruction of undergraduate electrical engineering students in techniques of making thick film integrated circuits.

First place went to Oklahoma State University, Stillwater, and second to University of British Columbia. Seven awards were made.

The KSU proposal was written by William H. Dawes, Topeka, Kansas, graduate student in electrical engineering. He received guidance from Prof. Melvin C. Cottom, faculty adviser for the student branch, and Dr. Michael S. P. Lucas, professor and director of the KSU Solid State Engineering Laboratory.

"This award was established for the purpose of stimulating the students' professional development and feeling of professional identity," said Prof. Cottom.

"Laboratory demonstrations are presently used but are very time consuming as setting up time is quite long for several of the required processes. The slide series will preclude all blackboard drawings and save much time otherwise spent in laboratory demonstrations," Dawes said.



ROYALTY—Becky Smith (St. Patricia), Ozawkie, Kansas, and Charles Stryker (St. Patrick), Blue Rapids, Kansas, reigned over the 1971 KSU Engineering Open House March 19-20. St. Patrick is the engineers' patron saint and St. Patricia is his lady.

## ASEE Sectional Teaching Honor To Dr. Sprague

A young mechanical engineering professor at KSU who has developed individualized teaching techniques for seniors was given \$1,000 national teaching award in Rolla, Mo., on April 2.

Dr. Clyde H. Sprague, 34, associate professor, won the teaching effectiveness award of the American Society for Engineering Education (ASEE) midwest section at the April 1-2 sectional meeting at the University of Missouri, Rolla. The award is underwritten by the Western Electric Fund.

Sprague's award is one of 18 presented nationally. A native of Kincaid, Kansas, he was the only recipient in ASEE's midwest section comprising 24 engineering colleges in Kansas, Arkansas, Missouri, Nebraska, and Oklahoma. Sprague has been on the KSU faculty since 1963.

This was the second straight year a KSU mechanical engineering faculty member won this award. Robert E. Crank, professor and assistant to the dean of engineering, won it last April.

Purpose of the award is to recognize and honor Sprague and serve as an incentive to him to make further significant contributions to teaching.

"Dr. Sprague has impressed all of us, students and faculty alike with his enthusiasm for teaching, particularly in the use of new teaching techniques. I hope it is infrequent.

"I feel he deserves this recognition which honors the College of Engineering and KSU as well," said Dr. Ralph G. Nevins, engineering dean.

## Donald Hoyt Study Finds Graduates 'Above Average'

The K-State College of Engineering recently checked up on itself to find out how well its graduates were being prepared for engineering jobs.

The study, conducted by Dr. Donald P. Hoyt, director of the university's Office of Educational Research, rated K-State's engineering training as "well above average."

For his study, Hoyt selected the 201 engineering alumni who had enrolled as freshmen during the period 1956-1958 and who later earned bachelor's degrees at KSU.

Some of these individuals could not be located; some were in jobs unrelated to engineering; and a few did not choose to participate. But Hoyt eventually received replies from a representative sample of 81 of these graduates, as well as ratings of the alumni by their supervisors.

Supervisors rated the K-State graduates at 4.12 for "quality" of work and at 4.04 for "quantity" of work on a scale where 5 was "exceptional," 4 was "above average" and 3 was "average."

The supervisors rated the K-State graduates on 12 factors believed correlated with success in engineering occupations. They ranked the K-Staters best for "interpersonal competence" and high for "managerial skill."

In turn, the K-State graduates thought they had been best prepared in terms of scientific-technical knowledge, understanding engineering problem solving methodology, and precision-care.

Both K-State alumni and their supervisors believed that "practical judgment" was the most important single factor in a person's success. The two groups ranked "interpersonal competence" second and rated "oral communication" and "managerial skill" high.

The K-State graduates, who have been on the job anywhere from 5 to 10 years, now wish they had had more courses with practical applications; more occupational orientation; and more supporting courses in business, communications, and interpersonal relations.

## Service Awards Given

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20, again was well received. An estimated 60 persons, including alumni, members of the Engineering Advisory Council, and faculty, took part.

A new feature of the open house weekend this year was a Saturday noon luncheon held following the alumni symposium. Eighty-one attended this function. There were no speakers.

The awards to Van Doren and Dean Durland were given at the fourth annual Engineering Open House Awards Banquet Saturday evening. Attendance was 180. An outstanding half-hour program was presented by the Manhattan High School Pops Choir under the direction of Darrell Buzan.



**WARD HALL ADDITION**—Construction on the addition to Ward Hall (Nuclear Engineering) valued at nearly \$1 million continues "right on schedule." The building is slated for occupancy next fall. Another \$100,000 is needed from alumni and friends of the College to match federal monies for the building. Your generous contribution is urgently solicited as soon as possible. A coupon is provided below at the right.

## Three Engineering Profs Get Research Contracts

The KSU College of Engineering, through the Engineering Experiment Station, has recently been awarded two contracts totaling \$87,029, one from the National Science Foundation, the other from the U. S. Environmental Protection Agency.

Dr. Stuart E. Swartz, assistant professor of civil engineering, received a two-year, \$53,812 contract from NSF to begin on June 1. This research will deal with buckling of rectangular concrete panels varying in thickness from an inch to an inch and a half.

The second contract, awarded in the amount of \$33,217 to Dr. Benjamin G. Kyle, professor of chemical engineering, and Dr. N. Dean Eckhoff, assistant professor of nuclear engineering, is to study "Odor Removal from Air by Absorption on Charcoal."

Swartz pointed out that the objectives of his research for NSF are to "experimentally and analytically determine the buckling strength of rectangular concrete panels." He will determine the effect of different reinforcement percentages on the strength. Initially, 24 plates will be tested.

"Plates of this type are typically used for walls in low cost and mass produced housing. They are also used as components in box girder bridge beams and plate roof structures.

"There are presently no provisions in the building code of the American Concrete Institute for buckling of this type of plate due to a lack of experimental evidence," Swartz said.

"Very few tests have been done on concrete plates in the past in this country. It is felt that work in this field may have been done in the U.S.S.R. because of the thin wall plates they are capable of using in their mass housing program," Swartz said.

Kyle speculates that results of odor removal research should be of considerable interest to smaller manufacturers who cannot afford to design their own pollution

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### MATCHING FUNDS FOR WARD HALL ADDITION (Nuclear Engineering)

Dean Ralph G. Nevins:

— I will be able to help match the \$375,000 National Science Foundation Award for construction of the addition to Ward Hall.

— I pledge \$\_\_\_\_\_. Bill me (quarterly) (semi-annually) (annually) for (one) (two) (three) years.

— A check for \_\_\_\_\_ is enclosed.

— Please phone me at Area Code \_\_\_\_\_ . I need more information.

Signed: \_\_\_\_\_

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Clip out and mail to: R. G. Nevins, KSU College of Engineering, Manhattan, Kansas 66502.

# Newsorthy Notes

A \$1,000 university-wide mathematics scholarship has been presented to Gregory E. McKinley, Topeka, Kan., a freshman in civil engineering. He has been selected as the best Kansas student in the 1970 National High School mathematics competition who is enrolled at KSU.

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Dr. P. M. Naghdi, professor of engineering science at the University of California, Berkeley, lectured March 18 at a joint colloquium of the departments of applied mechanics and mechanical engineering. His topic: "On Thermodynamics, Rate of Work and Thermo-Mechanical Constraints."

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Stanford E. Siemens, 21, senior in chemical engineering, has been named the recipient of a scholastic achievement awarded by the KSU student chapter of the American Institute of Chemical Engineers. The award is for maintaining the highest scholastic rating during his freshman and sophomore years and consists of a certificate, two-year subscription to "AIChE Journal" and a membership pin.

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Dr. Stephan A. Konz, professor of industrial engineering, is spending 1971 in Johannesburg, South Africa, studying localized and individualized cooling. A member of the KSU faculty since 1964, he is working at the Human Science Laboratory of South Africa's Bureau of Mines. Dr. Konz is on a year's leave-of-absence.

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Dr. Walter Meyer, professor of nuclear engineering, has been named to the Kansas Nuclear Energy Council by Gov. Robert Docking. Dr. Meyer succeeds Jim Elgaard, Wichita, who resigned with a year remaining on his appointment. Dr. Curtis G. Chezem, professor and head of nuclear engineering at KSU, has been reappointed to the council for three years.

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An estimated 500 state, county and city engineers plus consulting engineers, Federal Highway Administration engineers took part in the March 25-26 annual Kansas Highway Engineering Conference in Manhattan, reported Dr. Bob L. Smith of the KSU department of civil engineering conference director.

## Dean Nevins Offers Goals for College At 1st Convocation

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Dean Nevins proposed several goals for the College:

—Greater involvement of undergraduate and graduate students in the actual design of 'what never has been.'

—Maintenance of technical competence, but with less rigidity and greater participation by students in planning their individual programs.

—Experience in establishment of broad-based criteria for expenditure of limited resources.

—Reassessment by faculty of priorities for use of student time and effort.

—Interpretation of our technological society to non-engineers.

The dean added, "Achieving these goals is not without pitfalls and therefore requires a carefully balanced endeavor by the faculty and students with the help of our alumni and friends in industry and campus colleagues.

"The 'teaching' or 'coaching' of design courses with little regard to maintenance of technical competence and intellectual curiosity can result in an education in history rather than preparation for a career in a rapidly changing profession. A balance must exist between meeting today's needs and preparing for the future."

## Swartz, Kyle, Eckhoff Get Research Contracts

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control systems. "This is because they do not have the staff of engineers needed to make the designs," he said.

Object of the work by Kyle and Eckhoff is to study the thermodynamics and rate of the adsorption process at extremely low concentrations of malodorous compounds.

This work should enable Kyle and Eckhoff to find out if the standard designs for charcoal adsorbers are applicable. "They may not be applicable because of the extremely low concentrations involved," Kyle said.

Radioactive tracer techniques will be employed for monitoring these low concentrations.

### RECOMMEND A PROSPECTIVE STUDENT

Alumni and friends! Do you know a high school, junior college or college student who is considering an engineering career? If so, why not interest him in K-State quality engineering educational program! Just fill out the blank below and return it to: KSU College of Engineering, Seaton Hall, Manhattan, Kan. 66502

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

His or Her Age \_\_\_\_\_ Year in School \_\_\_\_\_

Your Name \_\_\_\_\_ Full Address \_\_\_\_\_

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