IMPACT

Kansas State University College of Engineering

Vol. 24, Number 2 Spring 1989

Snell Named Engineering Alumni Fellow

Virgil Snell

Virgil H. Snell, AE '54, has been selected as the College of Engineering's 1989 Alumni Fellow. He is a partner and manager for the power division of Black & Veatch Engineers-Architects, Kansas City, Mo., and as a manager of engineering, is responsible for carrying out and providing effective technical engineering services in support of engineering projects.

Previously Snell has been head of the civil-structural engineering department, and engineering manager for a 270 MW coal fueled generating unit. He was also project engineer-structural systems for the first 680 MW unit of the three-unit coal fueled Jeffrey Energy Center for KPL Gas Service Company.

Prior to joining Black & Veatch, Snell was an officer with the U.S. Air Force and served as base civil engineer at various radar stations in Alaska.

An honor member of the K-State student chapters of Chi Epsilon, the civil engineering honorary, and Phi Alpha Epsilon, the architectural engineering honorary, Snell is also a fellow in the American Society of Civil Engineers and a member of both the National Society of Professional Engineers and the National Society of Architectural Engineers.

"Virgil Snell has had a very distinguished career as an engineer and as a manager/partner of a major company," commented Don Rathbone, dean of the College of Engineering. "He has contributed much to his profession and has shown considerable leadership in the fields of civil and architectural engineering."

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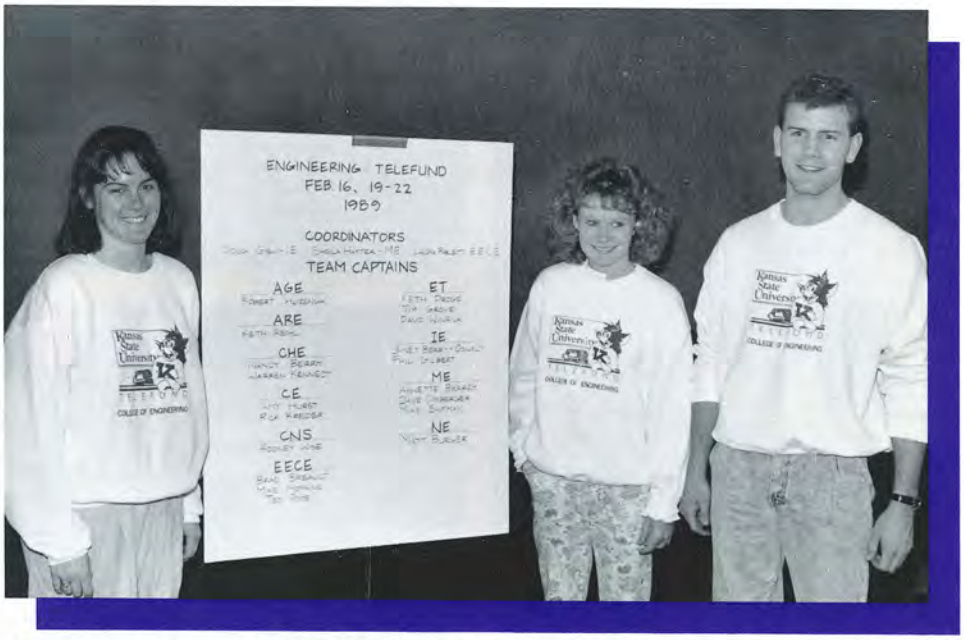
Telefund Drive Huge Success

"Sensational," was the term used by John Dollar, Assistant Dean of the College of Engineering, when describing the results of this year's KSU Foundation Telefund.

"It was a splendid effort on the part of the students," he said, "and we couldn't be more pleased. There was an excellent increase not only in dollars, but in number of people pledging."

For the tenth consecutive year the College of Engineering set a record receiving $104,500 from 2,939 pledges. In 1988 $83,285 from 2,293 pledges was received. Top student caller for the college was Sheila Hayter, junior in ME, who in two sessions raised $3,810 with 74 pledges. Hayter also served as a coordinator for the fund drive. In all, 166 students volunteered time as callers for engineering during the five night drive Feb. 16, and 19-22.



Efforts of coordinators of the 1989 College of Engineering Telefund Drive, (left to right) Sheila Hayter, Jr., ME; Laura Riblett, Jr., EE; and Doug Gish, Jr., IE, helped set a record in dollars pledged for the 10th consecutive year.

Awards, Displays, Crowds Highlight Open House

Competitions, awards and good crowds combined to make the 67th annual College of Engineering Open House a successful event the weekend of March 31–April 1.

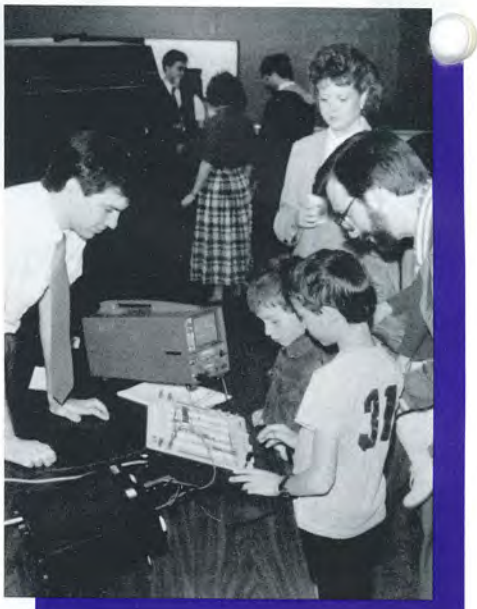
"In the past we've always had 1 or 2 outstanding displays in each department, but this year I believe there were 3 or 4 such displays in each," were the comments of Ray Hightower, faculty advisor of Steel Ring, the engineering honorary that coordinates open house.

"Also the crowds, which I felt were above average in attendance, seemed more interested—wanting to stay longer and really look at and learn from what was exhibited," he added.

The following departments received open house awards:
Yellow Brick—Architectural Engineering
Open Class Display—Construction Science
Limited Class Display—Construction Science
Curriculum Display—Architectural Engineering
Graduate Class Display—Electrical Engineering
Freshman/Sophomore Display—Construction Science
Top Department—Construction Science
Overall Effectiveness—Construction Science

St. Pat and St. Patricia were Damian Gerstner, Frankfort, senior in AE, and Carol DeWeese, Americus, senior in NE, respectively. At the awards banquet that evening, Kenneth J. Shultis, professor of nuclear engineering, was named "Advisor of the Year," and Jim Garrison, junior in AgE, was awarded the Culbertson Scholarship.

Future astronaut (?) checks out NASA display.



Youngsters try "hands-on" approach with EE project.

Dean Rathbone is greeted by an enthusiastic supporter.

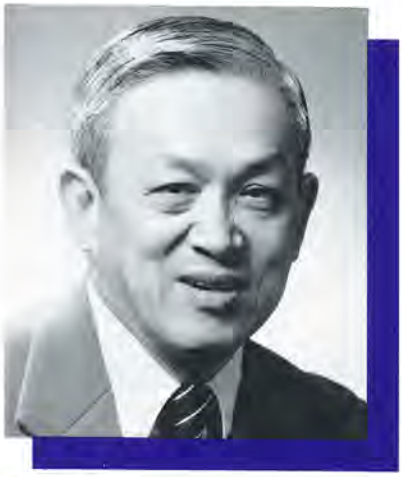
(above) AE students prepare for parade festivities.

(left) St. Pat and St. Patricia candidates await election results.

College of Engineering Department Briefs

Dr. Stanley Clark
Head, AgE

Dr. Robert Dahl
Head, AE & CnS



Dr. L.T. Fan
Head, ChE

Agricultural Engineering

Do Sup Chung received a $10,000 grant from Anheuser-Busch, Inc., for the study of physical properties and utilization of brewers spent grains. He was also invited to present a paper on "Storage and Handling of Soybeans and Soybean Meals" at the Utilization of Soybeans Conference held at Seoul National University, Korea. While there he spent time with many KSU graduates and learned that they are doing well in Korea.

The USDA Federal Grain Inspection Service has contributed $56,751 for continued research on the "Development of a Wheat Hardness Tester" project headed by Dr. Charles K. Spillman.

James Steichen and Phil Barnes received a $103,600 grant from the Pesticide Impact Assessment Program and U.S. Geological Survey. They have also received an $18,000 grant from the USDA-North Central Region Pesticide Assessment Program.

Steve Eckhoff and Joseph Harner received a $14,814 grant from the Kansas Corn and Grain Sorghum Commission.

A new recruitment video has been prepared portraying students making a visit to the AgE Department to learn more about our programs. It is available for viewing by writing or calling the department. The faculty have also produced a video film on Combine Operation Safety for the Case IH Corporation. It features custom combine harvesters and faculty members stressing the importance of safe operating procedures and management in a "high stress" harvesting operation.

Professor John Slocombe received the 1989 Gamma Sigma Delta Outstanding Advising Award.

Architectural Engineering

Graduates of AE and CnS are finding jobs plentiful with salary levels between $25,000 and $30,000 per year. Architectural engineers are being hired in the structural, mechanical and electrical design fields in consultating engineering and architectural/engineering firms. Construction science majors are finding employment in management of primarily general construction jobs.

Building environmental systems depiction and analysis; building energy consumption and mechanical systems commissioning are current research topics in this department.

AE and CnS sponsored the Associated Schools of Construction Regional Meeting last October and will sponsor the Illuminating Engineering Society Midwest Regional Conference at KSU, May 21-23.

Special contributions from industry supporters allowed us to purchase 12 new micro-computers, with peripherals, for our new systems and CADD lab.

Professor Merrill Blackman will retire at the end of the spring '89 semester and our newest faculty member is Steven C. Moser (B.S., KSU, '80, M.S. Colorado Univ., '88) who joined our department in the fall of '88.

Chemical Engineering

KSU's participation in the recently established EPA Hazardous Substance Research Center comprises two parts, research and technology transfer (extension), with emphasis on the former. In fact all research activities are carried out in the Department of Chemical Engineering. The projects and respective principal investigators are:

1) Vadose zone decontamination by air injection—L.A. Glasgow.
2) Adsorption of hazardous substance onto soil constituents—J.R. Schlup.
3) Thermochemical treatment of hazardous wastes—W.P. Walawender and L.T. Fan.
4) Development of in situ biodegradation technology—L.E. Erickson and L.T. Fan.
5) Experimental study of stabililzation/solidification of hazardous substances—L.T. Fan.
6) Computer-aided design and control systems for treatment of hazardous waste and minimization of waste production—L.T. Fan.

AT&T of Lee's Summit, Mo., recently donated a substantial amount of research equipment to the departments of chemical and electrical engineering including two clean benches, Fourier transform spectrometer, acid sink, wire racks, silicon epitaxial reactor, solvent storage cabinet, and miscellaneous valves and tubing. The equipment will be used to support research in processing materials for electronics.

Professor Larry Erickson has been recognized as the outstanding scientist by the KSU Chapter of Sigma Xi.

Civil Engineering

Three new assistant professors will join our department next fall in the following areas:
1) Environmental Engineering—Dr. Kathy Banks, from Duke University where she is

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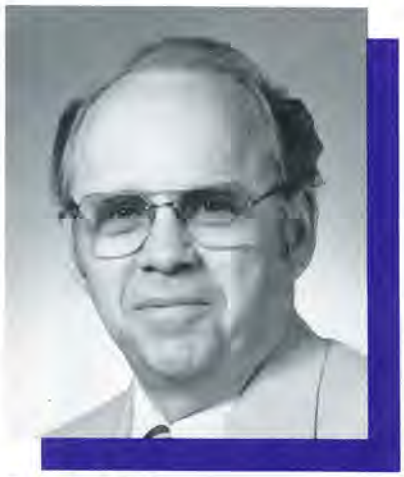
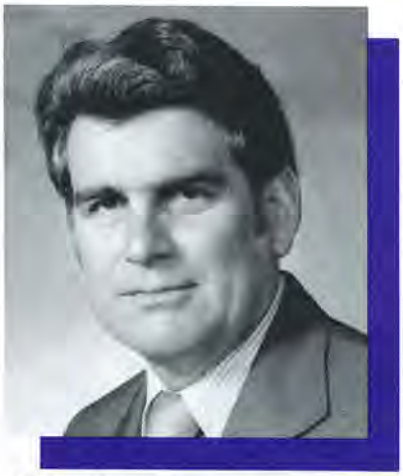


Dr. Robert Snell
Head, CE



Dr. Don Hummels
Head, EE & CompSci

Dr. John Ulrich
Head, ET

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completing her Ph.D. with emphasis in the biological area of water and waste water treatment; 2) Water Resources Engineering—Dr. John Tracy, whose interests are water resources with an emphasis on numerical analysis of groundwater and contaminant flow in aquifers, from the University of California at Davis; and 3) Geotechnical Engineering—Dr. Young J. Mok, who is completing his second year as a postdoctoral research engineer at the University of Texas at Austin, whose interests include situ seismic measurements with emphasis on the development of shear wave sources.

Among established faculty, Dr. B.L. Smith once again directed a successful Kansas Transportation Engineering Conference with over 400 engineers in attendance. He is also preparing a proposal to carry out a $200,000 research effort on Scenic Byways in the states of Kansas, Missouri, Nebraska and Iowa.

Dr. Stuart Swartz was recently named to receive the KSU Chi Epsilon Civil Engineering Teaching Excellence Award for 1988, and he will also receive the F. G. Tatnall Award from S.E.M. for "long and distinguished service to the Society."

Dr. Eugene Russell received a $79,000 increase in a research contract with NHTSA related to developing a data base of headlight safety data.

Three faculty members from Civil Engineering, James Koelliker, Cecil Best and Albert Lin, working cooperatively with the Kansas Office of the Soil Conservation Service, have designed and built a portable inspection system which is self-propelled and carries a video camcorder through pipes as small as 15-inches in diameter. The projected life of the pipe can then be estimated by studying a tape showing its interior. The technique was used on 38 watershed dams in Kansas last year and more are expected to be studied this summer. Other uses include inspections of storm sewers and road culverts.

Manhattan businessmen Chris Curtin and Ron Bowman recently donated an estimated $100,000 in equipment to the college of engineering with civil and agricultural receiving a large portion of the materials including five fume heads, two stills and several hundred linear feet of laboratory cabinets and countertops.

Electrical Engineering

At the end of the academic year, I will be resigning my position as department head. This is my seventh year and I am anxious to return to a more active roll in teaching and research. I am pleased with our progress as a department and I am looking forward to many more years at Kansas State.

Our graduates continue to be in good demand by employers and starting salaries are among the highest offered to new college graduates. Our growth at the undergraduate level appears to have stabilized at around 735 which amounts to about 30 percent of the College of Engineering. The graduate program has taken a jump recently and we currently have 58 MS students and 10 PhD students.

Our laboratories are modern and relatively well-equipped. The basics needed to support our program are in place, due in large part to the gifts we receive from our friends in industry. Over the past two years, we have received some major equipment grants from AT&T and Hewlett Packard.

The faculty continue to be active researchers and there are numerous sponsored projects in the department including those from the National Science Foundation, Motorola, Inc., Boeing Military Airplane Co., Sandia National Laboratories, Lawrence Livermore National Laboratory, The Kansas Electric Utilities Research Program and others.

Professor Everett Haft will be retiring at the end of the spring semester. He has been at Kansas State since 1961 and has been in the Department of Electrical and Computer Engineering since 1975. Dr. Haft has been a major contributor to our computer engineering program and will be hard to replace. We wish him a long and enjoyable retirement.

Engineering Technology

The emphasis this academic year has be[en] on restructuring both the EET and MET [cur]ricula. The purpose is two-fold: 1) to provide a better interface with community and junior college technology programs, and 2) to offer departmental courses at an earlier stage in the program. The latter will help the student to become better acquainted with the faculty and their chosen profession early in their college careers. The goal is to stimulate their interest and to develop feelings of pride and success in their work.

Curriculum revisions in EET will include: 1) the addition of new coursework in electronic manufacturing, 2) increased emphasis on the use of various CAD software packages, and 3) a two-semester senior design sequence. To support these changes, a multi-year plan for the purchase of equipment for the electronic laboratories is in place. For the fall '89 semester, the new equipment will include a microprocessor development system for the digital electronics laboratory and a transistor curve-tracer for the electronic devices laboratory. Two new 80386 microchip computers have already been purchased and are now being used with CAD software. The MET curriculum change will include an additional machine design course, which will make use of AutoCAD or CADkey software.

Professor William Dawes recently received an SBIR contract from the U.S. Army to develop thick film hybrid circuit technology. He will be released half time from his teaching

Dr. R. Michael Harnett
Head, IE

Dr. Allen Cogley
Head, ME

Dr. N. Dean Eckhoff
Head, NE

duties for the next two years to conduct this research.

Professor James DeVault and David Delker are conducting applied research for Hay & Forage Industries (Hesston). They are developing an electronic control system for a continuous round baler. Dr. Steven Young (AgE) is the project team leader and Ralph Turnquist (ME) is studying the hydraulic system.

Industrial Engineering

The K-State student chapter of IIE again won an Award of Excellence from IIE for its activities in the 1987-88 academic year. This was the sixth consecutive year that the chapter has won this award.

The Accreditation Board for Engineering and Technology (ABET) visited the department last year to review both of our B.S. programs in IE—the general option and the manufacturing option. Both programs were accredited, giving us one of six accredited undergraduate programs in manufacturing engineering in the U.S.

New courses are being developed in two areas. Steve Konz, Paul McCright and Steve Galiltzer (Assistant University Industrial Hygienist and adjunct faculty in IE) are developing a course in Safety Engineering. Brad Kramer, Paul McCright and David Andrus (Professor of Marketing) have submitted an application to the U.S. Department of Education for $135,000 to support the development of a course which integrates marketing and manufacturing strategies and examines their interactions.

Brad Kramer received a prestigious Ralph R. Teetor Outstanding Engineering Educator Award for 1988 from the Society for the Advancement of Engineering. He also received the 1988 James Hollis Award for Excellence in Undergraduate Teaching in the College of Engineering at Kansas State University.

Doris Grosh has written a textbook entitled *A Primer of Reliability Theory*, which is to be published in January, 1989. The book is an outgrowth of lecture notes from five years teaching a course in reliability engineering.

Ken Currie is initiating research into the use in manufacturing systems control of neural networks emulating some of the rudimentary functioning of central nervous systems.

Mechanical Engineering

The undergraduates put on an outstanding Open House display this year with the department's new chapter of the Society of Automotive Engineers (SAE) being active participants.

The faculty and students have worked together to introduce an ME Seminar into the curriculum starting in the fall of '89. This will allow better communication between the department and students at different levels. External speakers discussing opportunities in the engineering profession are also planned.

Computer based graphics were introduced in the spring of '88 and now nearly all engineering students are starting computer work early in their curricula. While a department effort, Professor Eggeman had administered all the course offerings.

Undergraduate laboratories have received a good deal of attention and plans and programs are underway to introduce computer aided experiments throughout the department. Dr. Walker is teaching a new course in composite materials that contains a laboratory and is very popular with the students. Dr. Fenton acquired a new GM Quad Four Engine for the IC Engine Lab.

External research funding has increased substantially in the graduate program as has the faculty's production of research proposals. Professor Miller is working on room air diffusers with EPRI, Professor Swenson has projects with NSF, Boeing and Sandia, Professor Krishnaswami is working with a Michigan company on software development and Professor Fenton has an ASHRAE project on the safe handling of ammonia.

The department just received NSF funding for a universal testing machine. Professor Jones is busy on work for the Army on heating of large facilities and Professor Ball is cooling buildings with his work for ASHRAE on absorption dehumidifiers. Professor Appl has recently received NSF funding for his project on rock drilling with diamond bits.

Professor Gorton will be honored by ASHRAE at the summer meeting in Vancouver with a Distinguished Service Award. Dr. John Lindholm received the Dedicated Service Award from ASME for his years of leadership in both local and national offices. John retired from the department in January 1989.

Nuclear Engineering

Job opportunities are very good for nuclear engineering graduates in a number of fields. Salary levels are average to above for all engineers.

Our research areas now include power utility problems, dosimetry, combustion of coal, system modeling, shielding and numerical analysis.

We have developed a series of courses by video tape and are preparing a simulation laboratory. We have developed a new method of presenting FORTRAN programming material. We hope to hire a new faculty

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member this year to replace Gale Simons who accepted the position of Director of the Engineering Experiment Station, continue development of the video courses and continue development of computer methods in all courses.

Research is being carried out jointly between NE and EECE as well as between NE and Physics and Chemistry. We support work being carried out in many departments throughout the campus and on other campuses throughout the Plains and Midwest areas by our Reactor and Neutron Activation Analysis laboratories.

Frankenhoffs Endow College

The Kansas State University Foundation has received $846,000 to benefit the KSU College of Engineering.

The gift, which will be divided to support three new programs within the college, was provided through a planned gift established by the late Charles and Nona Frankenhoff of Scarsdale, N.Y. Charles Frankenhoff, honored in 1979 with the College of Engineering's Distinguished Teaching Award, was a 1918 KSU mechanical engineering graduate and former president of Davis Filtration.

The Charles and Nona Frankenhoff Chair in Engineering has been funded with a $500,000 endowment. Annual investment income from the endowment will supplement the University's regular salary and help the college attract an outstanding engineering faculty member.

The Charles and Nona Frankenhoff Scholarship Program in Engineering was endowed with $250,000. The scholarship will provide full tuition and books to outstanding freshmen. Recipients will be selected by the dean of the College of Engineering and the KSU General Scholarship Committee.

The Frankenhoff Outstanding Research Award will benefit faculty members and is a tribute to Frankenhoff's life-long interest in research.

"Mr. Frankenhoff was a great friend of the college," said Don Rathbone, dean of the college. "He was always thankful for the education that he received here and wanted to repay, at least in part, the University for what it had given him. He had an outstanding career in industry and was a recognized authority on diatomaceous earth and other industrial minerals."

KSU
KANSAS STATE UNIVERSITY

College of Engineering
Durland Hall
Manhattan, KS 66506

Address Correction Requested

DR. DONALD E. RATHBONE, DEAN
COLLEGE OF ENGINEERING
DURLAND HALL
K S U

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Dean of the College
Donald E. Rathbone
Acting Director, Engineering Experiment Station
Dr. Gale Simons