

MISSOURI ALUMNUS

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ENGINEERING SECTION

Preckshot Listed In 37th Who's Who

Dr. George W. Preckshot, professor and chairman of chemical engineering on the Columbia campus, has been chosen for inclusion in the 37th edition of Who's Who in America.

This authoritative compilation of notable living men and women currently runs to about 2500 pages and contains more than 60,000 biographical sketches.

Water Oxygen Is Researched

Dr. John J. Cassidy, professor of civil engineering at the University, is principal investigator for a \$10,000 research project, "Reaeration of Water With Turbine Draft-Tube Aspirators." It is funded by the Office of Water Resources of the Department of the Interior.

The objective is to find an efficient way to raise dangerously low oxygen content of water discharged from many multi-purpose reservoirs.

"When the production of electric power is involved," said Cassidy, "water to drive the generator turbines is usually taken from the deepest part of the reservoir where the oxygen content is near zero. This absence of dissolved oxygen has no influence on turbine efficiency, but it seriously endangers the fish downstream.

"Such a critical condition exists right now downstream from a number of dams in Missouri. In fact, the low oxygen content of water released from the Table Rock dam on the White River in southwest Missouri has

already produced serious ecological problems for fish and plant life."

Cassidy pointed out that Missouri dams now under construction, including Stockton Lake and the Harry S. Truman dam and reservoir, can also be expected to release water with low dissolved-oxygen content when they are completed.

Columbia campus researchers will carry out a year-long controlled laboratory study to determine the most effective way to provide a known concentration of life-supporting oxygen in water discharged from multi-purpose reservoirs.

It is expected that this research will be applicable to most hydro-power installations in the United States.

Alumni Pick James Tudor

Highlighting alumni activities during Engineers' Week 1971 was the election of new engineering alumni association officers and board members and a dedication ceremony for the 1882 Edison Dynamo.

Newly-elected president James Tudor, BS EE '48, MS '50, Columbia, said, "I hope to communicate the needs of the College to the alumni and make a significant impact along this line." Among his major goals is to work toward improvement in the physical plant of the College, in conjunction with the Advisory Council's effort in this area.

Other officers and board members elected include: C. H. Zurheide, BS EE '44, Ferguson, Mo., president-elect; Frank V. Ragsdale, BS CE '12, Memphis, Tenn., first vice president; David H. Lillard, BS CE '52, Prairie

Village, Kan., second vice president; and board members Gene H. Rhodes, BS EE '60, Shawnee Mission, Kan.; Edward R. Dabler, BS CE '50, St. Louis; Charles J. Miller, BS Eng '31, Columbia, and Charles C. Willhite, BS EE '44, MS EE '47, San Francisco.

Major goals of the engineering alumni were discussed at the alumni meeting conducted by outgoing president Lester Webb, BS CE '49, Kansas City. Webb stressed more alumni membership and support for the student magazine, "Missouri Shamrock."

According to Webb, only 1700 of the 7500 graduates of the College of Engineering are members of the Alumni Association. Webb stressed benefits to the College through both the alumni organization and through the Columbia campus Development Fund.

Alumni support of the "Shamrock" also is being encouraged. Subscription and renewal procedures must be strengthened, Webb related.

Some 25 alumni attended the meeting, while wives were received at a tea held in the Alumni Lounge. Following the meeting a luncheon was held for some 100 alumni and friends.

Entertainment was provided at the luncheon by members of the University Singers and a program was presented by student leaders in the College of Engineering. Students from the engineering student council and various engineering clubs explained to alumni the differences that have taken place in their areas of concentration, the decreasing student involvement in campus activities, and changes advocated in the engineering curriculum.

Other events scheduled in conjunction with Engineers' Week for the alumni included

the Honor Awards reception and banquet, with Astronaut Edwin E. (Buzz) Aldrin Jr. the featured speaker, and a formal ceremony commemorating the first public demonstration of incandescent lighting in the U. S. west of the Mississippi River. The Edison Dynamo was made possible through a gift to the University by Thomas Edison in 1883 of an electric Dynamo and incandescent lamps of his own manufacture. This same generator, weighing an estimated 1500 pounds and capable of producing about 20,000 watts of electric power, was unveiled in the Electrical Engineering Building, where it will remain on permanent display.

Facilities Seen By Journalists

Five Columbia campus journalism students accompanied by Dr. Robert L. Carter, professor of electrical and nuclear engineering, toured the facilities of the Argonne National Laboratory, Argonne, Ill., in April.

The tour is part of a new course being offered on the Columbia campus by the College of Engineering. Entitled "Applications of Nuclear Science for Humanities Students," it is designed to introduce students with little or no technical background to the unfamiliar world of atomic energy and the role of nuclear power in today's environment. Both the benefits of nuclear energy and the risks that accompany its expanded use are examined critically.

To further reinforce their classroom lectures, the students also toured the Dresden Nuclear Power Station in Morris, Ill.

MISSOURI GOVERNOR WARREN HEARNES SIGNS HIS PROCLAMATION RECOGNIZING ENGINEER'S WEEK BEFORE QUEEN, CHRIS KRAMER, HOUSTON, TEX., SECOND FROM LEFT, HER ATTENDANTS AND STUDENT CHAIRMEN



DURING KNIGHTING CEREMONIES, FAR RIGHT, ASTRONAUT COL. EDWIN E. ALDRIN JR., ABOVE, LEFT, AND MISSOURI ATTORNEY GENERAL JOHN C. DANFORTH WERE DESIGNATED KNIGHTS OF ST. PAT. AT RIGHT, FACULTY MEMBERS SHOW TALENT DURING "FACULTY FUN AND FROLICS."



St. Patrick Honored For Engineering Ireland's

On the concrete sides of benches outside the College of Engineering at the University of Missouri-Columbia, are chiseled intaglios of a shamrock. At the north end of the building, the patio's painted shamrock spells a kiss from engineering students for any girl who crosses it during March 13-20.

What's with the shamrocks? St. Patrick was an engineer, of course. The above dates mark St. Pat's Week on the Columbia campus.

It all began on an unseasonable mild day 68 years ago this month, when a

handful of Columbia campus Engineering students found themselves in need of a day's respite from their scholastic endeavors. Since March 17 was close at hand, some inspired soul came forth with the edict that as St. Patrick had engineered the project of getting the snakes out of Ireland, he was, perforce, an engineer and it was more than fitting that his birthday be observed. Especially since the College of Engineering held classes six days a week, while other schools had five-day sessions.

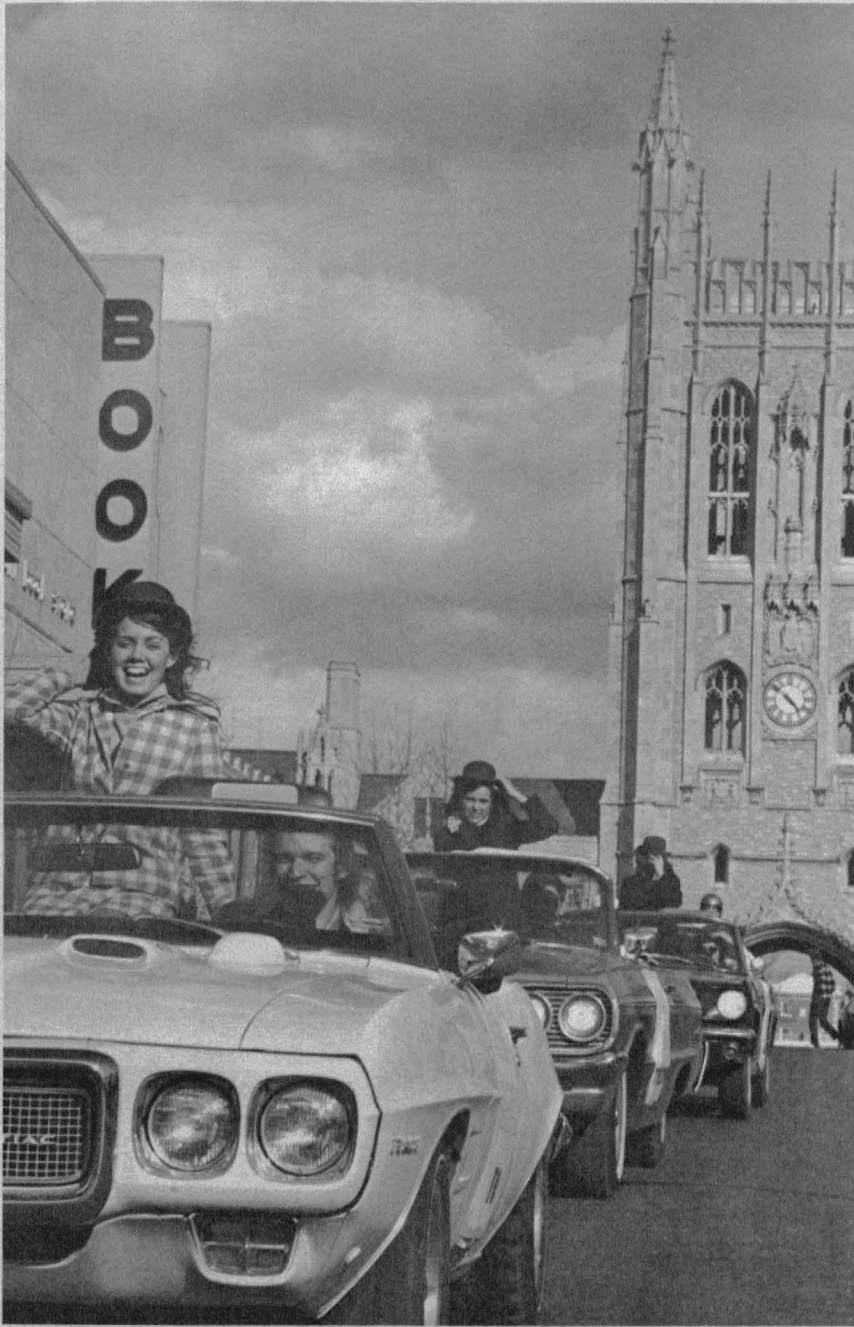
The illegal holiday won favor,

of course, and in 1905 certain features were introduced which have become traditional: the Blarney Stone, the Gran Kowtow, the knighting Ceremony, and the St. Patrick Song. Successive years have seen the expansion of the original celebration into a full week of festivities which honors outstanding engineers and creates a fraternal spirit among engineering students and alumni. Its eager adoption by other engineering colleges has spread the Columbia campus St. Patrick tradition nationwide.

But what of that first St. Pat's

Day? Testimony gathered from alumni who were eyewitnesses is sometimes contradictory. An unsigned "Shamrock," first issued in March 1906, statement is confirmed in part by Omer Denny, BS ME '04, who writes, "On a warm spring day in 1903, a small group of students of 1903 '04 were in the engineering library, ostensibly for the purpose of study. It was the time of year for spring fever and in this group it had reached epidemic stage."

Two members of the class of 1904 say that the idea of cutting classes on March 17, 1903, was



First Snake-Removal Project

a reaction against the hard work of Professor Green's classes.

It can be concluded that the idea of class cutting developed almost simultaneously by several groups of students. It has been said that "the idea was in the air."

The celebration itself made up in spontaneity and enthusiasm for what it lacked in organization and polish. Inasmuch as St. Patrick was to be the engineers' Patron Saint most of them went to Chapel, which at that time was held in the library every morning. "That was the first time most

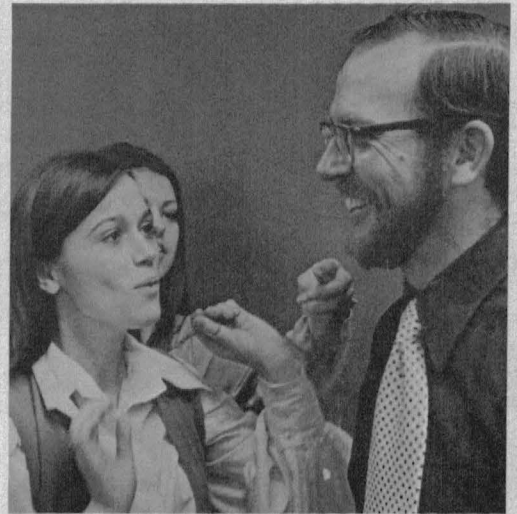
of them went," said L. E. A. Kelso, BS EE '07. Then those playing hookey tried to persuade others to do the same.

Unlike most of the engineering professors and instructors, President Jesse did not consider the unscheduled activity a joking matter. Veit Hain writes, "... President Jesse came charging down the steps from the President's House and declared that the holiday was illegal and the students participating would be disciplined. President Jesse ended his harangue by stating that gentlemen would return to

their classes and rowdies would follow the students in the band. Most of the students followed the band..."

There were no serious repercussions from the first St. Pat's Day. Only Professor A. M. Green Jr., appeared to take the cut as a personal affront; he was not opposed to the observance but felt faculty permission should be given first. The next year he stated that he would flunk anyone who cut his classes that day. Since some seniors were taking mechanics under Green for the second time, they could not afford a flunk.

Spirits may have been dampened somewhat during the 1904 observance, but such was not the case in succeeding celebrations. It is interesting to note that on March 17, 1907, Professor Green (who had become a junior dean) was made the first Honorary Knight of St. Patrick, summa cum laude. The future was secure for the College of Engineering's St. Patrick's Day.



ENGINEERING QUEEN CANDIDATES PLAY A MAJOR ROLE IN THE WEEK'S FESTIVITIES. ABOVE, TWO CANDIDATES JUDGE FOR THE BEARD CONTEST WHILE, AT LEFT, A PARADE TAKES THE GIRLS THROUGH CAMPUS.



Teeth Studied

If you're one of the 112 million Americans whose teeth have an average of 5½ amalgam fillings, you can expect that almost 30 percent of them will fail and have to be replaced.

Most people blame a broken filling on their biting down on something unexpectedly hard. . . a tiny stone in the baked beans, a kernel of corn that didn't pop. This isn't an altogether unreasonable assumption. Even though modern dental amalgams have a tensile strength ranging from 2500 to 7500 pounds per square inch, they still fail from stresses encountered in normal service.

However, researchers in the College of Engineering, believe that the poor fracture resistance of these fillings is caused by the presence of trace impurities in dental amalgams.

Drs. David A. Hansen and Charles A. Stevens, both faculty members of the department of mechanical aerospace engineering, are conducting research aimed at developing dental amalgams that are three to four times stronger than the ones now in use.

"If you look at the environment in which the dentist works," said Hansen, "you'll see many opportunities for the introduction of small amounts of impurities during the mixing and curing of amalgams. For example, the presence of water in the patient's mouth while the amalgam is curing is almost certain to have a detrimental effect."

"Our initial research effort," said Hansen, "will be concerned with the effect of impurities on the tensile strength and fracture toughness of today's dental amalgams. We then hope to go on to the development of high-strength amalgams and, eventually, to the design of instrumentation that will minimize contamination of the amalgam during its preparation by the dentist."

According to Stevens, Columbia campus engineers will compare the tensile strength, fracture toughness, and diffraction patterns of a variety of dental amalgams prepared under close

laboratory control. They'll use many of the sophisticated measuring instruments available on the campus, including an electron microprobe analyzer, X-ray diffractometer, scanning electron microprobe, and various other instruments for conducting composition analyses.

If the College of Engineering researchers are successful, future encounters with the stone in the baked beans or the kernel of corn that didn't pop won't necessarily send you to the dentist with a broken amalgam filling. Today's 112 million Americans with their 616 million fracture-prone amalgam fillings can therefore take heart.

Computer Workshop

In the spring, a young Missourian's fancy lightly turns to thoughts of. . . engineering and computers?

True, at least in the case of young Missourians attending the sixth annual summer workshop in engineering and computers at the College of Engineering. Chosen on the basis of academic ability and a demonstrated interest in engineering and computers, 150 high school students will be introduced to these fields during June and July.

For two busy weeks, the students will get a firsthand look at student life. They'll attend regularly scheduled lecture and laboratory sessions, and live and have their meals in campus dormitories. There will be tours of engineering laboratories, the nuclear reactor and the Medical Center. Informal coke and coffee sessions will provide exchange of information between faculty members, visiting engineers from industry and the students.

The workshop is also open to high school mathematics and science teachers. In the past five years, 93 have participated. Because of industrial support for the program, the College of Engineering is able to pay their full tuition, room and board.

Approximately 50 students will be accepted for each of

these two-week periods: June 20-July 2, July 5-July 16, and July 18-July 30. Applicants who will graduate in June 1972 will be given preference. However, sophomores in accelerated programs who have a year and a half of algebra will also be considered. Students must be recommended by their high school principal or counselor and one of their teachers.

During each two-week program, students will learn FORTRAN IV, today's most widely used programming language. They will use it to solve engineering problems on the IBM 360-50 computer in the College of Engineering's computer center. This is an "open shop" center where students can feed cards into the computer and get results immediately from a high speed on-line printer.

The program will be directed by Dr. Richard M. Angus, assistant professor of chemical engineering, who teaches courses in chemical process analysis and control and computer programming. College students familiar with practical applications of computers will assist, and movies will be shown to illustrate current applications of computers.

Students who complete the summer program will have the use of the College's computer facilities for solving problems during the students' senior year in high school; that is, students may send completed programs for processing by the College's computer center. The resulting calculations will be returned by mail.

Statistics show that of the 649 college bound students who participated in the College of Engineering's summer program, 48 percent later went into engineering and a total of 75 percent chose engineering, mathematics, or science as their major discipline.

Application forms for this workshop are obtainable through high school counselors. Applications will be accepted as long as there is available space.

Polish Teacher Visits Campus

Professor Bodhan Lewicki of Warsaw, Poland, an internationally recognized

authority on industrialized building methods, was a visiting professor of civil engineering during the spring semester.

He is the author of several technical books, the best known of which, "Building With Large Prefabricates," has been printed in six languages. He used it as a text for the graduate-level course he's taught at the College of Engineering.

Lewicki earned his MS degree in 1946 and his DSc degree in 1951, both from the Warsaw Technical University. His dissertation was entitled, "No-fines Concrete, Its Properties and Manufacture."

The term No-fines describes a special lightweight concrete made of relatively heavy and coarse aggregates. It uses no fine aggregates, such as sand.

"In the first years after World War Two," said Professor Lewicki, "there was a severe shortage of building materials in Poland. On the other hand, our war-damaged towns were littered with the debris of ruined buildings, mostly of brickwall construction. We found that crushed bricks, used as coarse aggregates in No-fines concrete, once again became a valuable building material.

"No-fines concrete, because of its porous infrastructure, is lighter than either a dense brick concrete or even a masonry wall, yet its resistance is about the same as that of a brick wall.

"We rebuilt much of Warsaw, Danzig, Breslau and other Polish cities with this material."

Lewicki has devoted the past twenty years to studying the structural problems associated with the use of lightweight concrete for industrialized building. After four years as a professor of civil engineering at the Silesian Technical University in Gliwice, Poland, he was appointed head of the Department of Concrete Structures, and Industrialized Building Techniques of the Institute of Building Techniques (ITB) in Warsaw, a position he still holds.

He is responsible for approving all new Polish industrialized building systems that use a combination of prefabrication techniques and a systems approach to site erection.