FAU Sept. 1974

# OKCHE

SCHOOL OF CHEMICAL ENGINEERING AND MATERIALS SCIENCE THE UNIVERSITY OF OKLAHOMA



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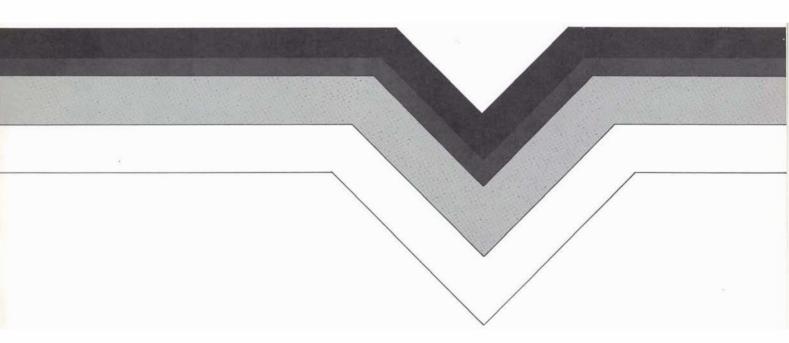
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Co-authors of this issue's featured story on Cheddy Sliepcevich are Billy Ann Brown who has worked with Cheddy since 1962, and Mary Ann Matthews, his administrative assistant at University Engineers. Mrs. Brown is treasurer of University Engineers.







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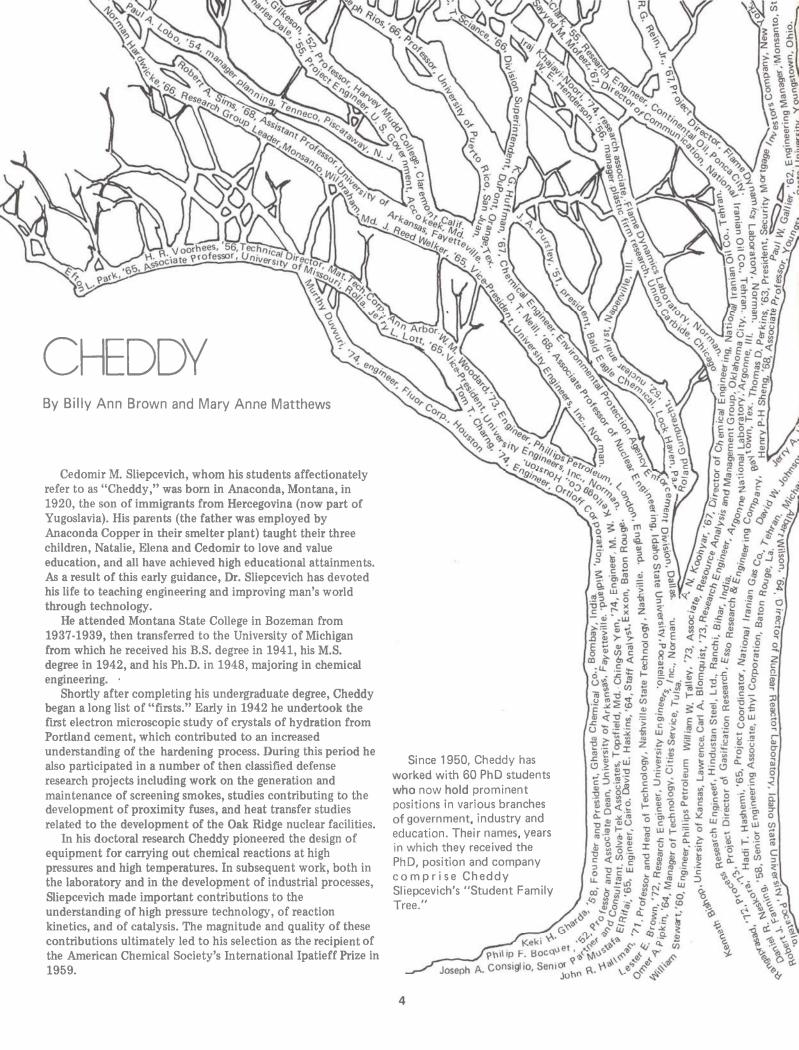
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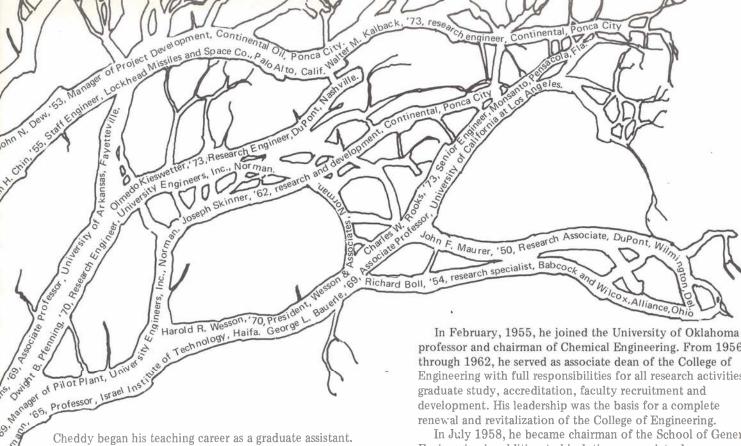
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Cheddy began his teaching career as a graduate assistant. Upon completion of his doctoral work he was appointed assistant professor of Chemical and Metallurgical Engineering at the University of Michigan, 1948. With G. G. Brown he pioneered the development of a generalized system approach to thermodynamics which is widely used today.

While on the faculty of the University of Michigan, he and his graduate students developed the laboratory facilities and programs which permitted them to conduct classical experiments in light and energy scattering. These experiments led to fundamental extensions in the theory of energy scattering and constituted one of the first applications of high-speed computers for non-military, scientific research resulting in three widely acclaimed volumes on the mathematics related to light and energy scattering. This pioneering work was particularly cited in his receiving the American Society for Engineering Education's Curtis McGraw Research Award in 1958.

In the late 1940's Cheddy initiated one of the first research programs in bio-engineering in this country. The principal contributions from this effort were the development of one of the earliest clinical, artificial kidneys and the techniques for using streaming potential to measure blood flow in remote portions of the body.

In 1951 he was promoted to associate professor and chairman of the Graduate Studies committee of the Department of Chemical and Metallurgical Engineering. During 1952-53 he gook a leave of absence from the University of Michigan to work with the Monsanto Chemical Company in East St. Louis. There he succeeded in converting an existing batch process to continuous operation, a task the industry had been attempting to achieve for over a decade. In addition, he made significant contributions resulting in improved productivity and product quality on other Monsanto

During his years at Michigan, Cheddy directed fifteen Ph.D. dissertations.

In February, 1955, he joined the University of Oklahoma as professor and chairman of Chemical Engineering. From 1956 Engineering with full responsibilities for all research activities, renewal and revitalization of the College of Engineering.

In July 1958, he became chairman of the School of General Engineering in addition to his duties as associate dean. Convinced that the traditional engineering disciplinesmechanical engineering, chemical engineering and electrical engineering—had much in common, he implemented a core curriculum concept in the undergraduate program in which approximately 70 per cent of all of the course requirements for all engineering programs were effectively identical. This concept not only gave the student better preparation for coping with rapidly advancing technology but it also permitted optimum use of university resources. The initiation of the core curriculum also led to the development of a flexible curriculum in General Engineering which met the full requirements for ECPD accreditation while allowing the tailoring of individual programs to meet the background and career goals of the students. Through his leadership, the College of Engineering created a graduate program that cuts across disciplines both within and outside the College of Engineering. These contributions to engineering education earned him the ASEE's George Westinghouse Award in 1964.

In January, 1963, Cheddy relinquished all administrative responsibilities to devote full time to teaching and research as a George Lynn Cross Research Professor of Engineering—the youngest person to receive this distinction at the University of Oklahoma.

While at OU he has developed three highly productive laboratories for investigating system identification and process control, chemical and physical phenomena at elevated pressures, and the fundamental behavior of flames. The Flame Dynamics Laboratory has become internationally recognized for its significant contributions to fire research. Recently this laboratory played a major role in evaluating the escape worthiness and occupant survival in automobiles and buses.

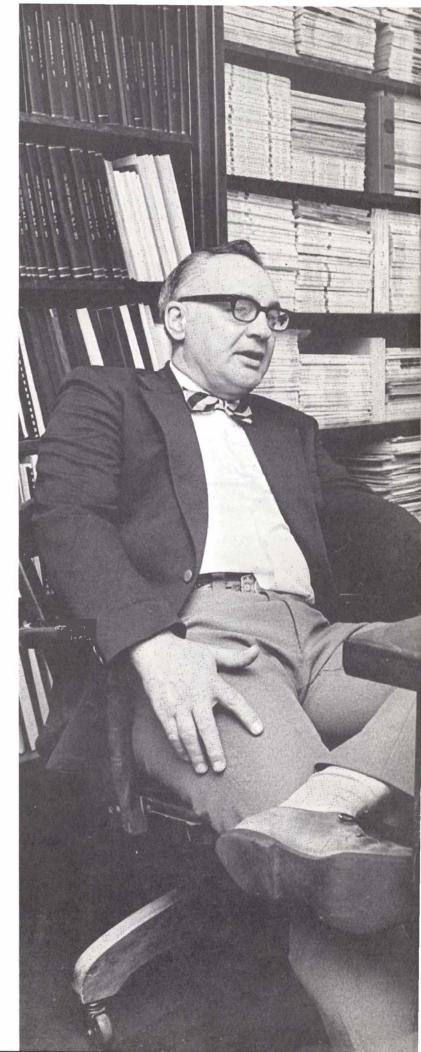
Additionally he has directed the program of 20 master's students, 44 Ph.D. students, one Doctor of Engineering student, and is currently serving as committee chairman for five students. CONTINUED

Cheddy Sliepcevich is a registered professional engineer in Michigan and Oklahoma. He was honored by the Central Oklahoma Section and the Oklahoma Society Professional Engineers as the "Engineer of the Year" for 1973. In 1974 he was named as the "Engineer of the Year" by the National Society of Professional Engineers. He has served as a consultant to the Oklahoma Department for Commerce and Industry, the Oklahoma Water Development Foundation, and as a scientific advisor to the Commanding General of the Oklahoma City Air Materiel Area, and was Oklahoma's representative to the Southern Interstate Nuclear Board. Oklahoma has recently honored the distinguished OU professor by nominating him as 1974 inductee to the Oklahoma Hall of Fame.

Among his other honors are: The University of Michigan's Sesquicentennial Award for distinguished alumni (1967), membership in the National Academy of Engineering (1972), and Peter C. Reilly Lecturer at the University of Notre Dame (1972).

Sliepcevich organized and is President and Chairman of the Board of University Engineers, Inc., a technology based group in Norman that provides commercial implementation of many of the ideas developed through his research program. He is a member of the Board of Directors of Autoclave Engineers, Inc. of Erie, Pennsylvania, and Republic Geothermal of California. He also is Chairman of the Board of two subsidiaries of University Engineers.

Cheddy Sliepcevich was instrumental in getting OU into digital computers before most universities had them. He pioneered the core curriculum system which streamlined and modernized the engineering program at the university.



#### CONTINUED FROM PAGE 5

Cheddy Sliepcevich is credited with the revitalization and rapid expansion of the University of Oklahoma Research Institute which provided a new basis for support of research by graduate students and faculty.

He has published more than 120 technical papers plus a textbook on thermodynamics in three parts; he also has a lengthy list of patents.

In addition to his academic and public service activities, he has maintained an active consulting practice. Through his consulting work with Continental Oil Company in Ponca City, he became affiliated with Constock International Methane, Ltd. (now Conch International Methane, Ltd., London) and became Director of Research and Engineering. He managed and pioneered the research, development, and implementation of the first commercial process for liquefaction and ocean transport of liquefied natural gas. These original efforts became the basis for the current development of a multibillion dollar industry for the processing, transport, and utilization of LNG. His technical leadership in conjunction with this major effort has made Sliepcevich an internationally recognized name. He is regarded by many as the father of LNG technology, and in 1962 his contributions were recognized by designation as a National Sigma Xi Lecturer on the subject of "Liquefied Natural Gas-A New Source of Energy."

In the 1960s Cheddy became involved in the development and evaluation of a novel process for removal of water from dilute aqueous solutions. This process uses an exchange crystallization technique to take advantage of some unique thermodynamic properties of ice and water. Several patents have been issued on this process in the United States and foreign countries. Currently he is directing the operation of a 75,000 gallon per day demonstration plant which he and his associates designed, developed, and built in Norman for desalinating sea and brackish water. This privately supported pilot plant appears to provide a substantial cost advantage and energy savings over other desalination techniques. It is expected that the process soon will be available commercially.

It is impossible to reflect the extent and breadth of the Sliepcevich career—both past and present; however, most recently he has collaborated in the development of a theory on the limit of superheat that provides the basis for understanding the physical explosions associated with bulk mixing of cryogens and water; he has participated in the conception and development of a safe, reliable, and economical cryogenic vaporizer which is being commercially produced and is expected to find widespread use in the LNG industry; in 1972-73 he worked with one of his doctoral students in the development of a computerized energy model which quantifies resource availability, efficiencies of conversion, ecological factors, balance of payments, etc.

With all his accomplishments, Cheddy is not satisfied to "rest on past laurels." His commitment to mankind and his environment compels him to continue making his own unique contributions to individuals, institutions and society. As long as there are crises to meet, educational improvements to make, and nature's mysteries to probe, he will view them as personal challenges to be answered with the same vitality, ingenuity and spirit of innovation that have characterized his entire career.



Tom Sciance

"Cheddy's vision and energy have certainly had a profound influence on the progress of OU's Engineering School. But just as important is the impact he has had on his individual graduate students. More than a teacher or research director, Cheddy is a man to admire, to emulate. We can't all be like Cheddy, but we're better for trying."

Tom Sciance DuPont Orange, Texas

A relationship between Cheddy Sliepcovich and Tom Sciance began when Sciance returned to OU's Graduate School after two years of Army service. He had received a NASA Fellowship which satisfied his personal needs, but didn't provide enough financial support for research work. The work he wanted to do did not fit under any existing grants and was not directly in line with any other faculty member's interest.

Sliepcevich, because he has always been eager to support useful research and to back up a student who knows what he wants to do, even if the work isn't in his major field of interest, became adviser and confidant.

Tom is now division superintendent of Nylon Intermediates in the technical department of E. I. DuPont and Company, Orange, Texas. He and his wife Anita, who received a bachelor's degree in Chemical Engineering from OU in 1960, have four children.

Tom and Anita are both active in Boy Scout work and in the Sabine Junior Rifle Club, one of the best in the country. Anita is a statistical officer, and Tom is a coach for the club. He, in addition, is a member of the Orange Community Band (he plays trumpet) and is a participant in local amateur theater musicals.

### ALUMNI NOTES

We're vitally interested in knowing where you are and what you're doing. Please fill out one of the enclosed information cards and send it to us. We will publish the information in our spring newsletter.



### IN MEMORIAM

HARRY G. FAIR, president of the board of directors, OkChE, died July 27 in Houston following surgery for circulatory problems.

Fair, B.S. '39, had been president and a board member of Coastal States for the past three years. He had also been an executive with Phillips Petroleum Co., M. W. Kellogg in New York and Pullman Inc.

He had been a member of the OkChE board of directors since the organization began in 1968, and he was also a Century Club member of the Alumni Development Fund.

He is survived by his wife, Jane Swift Fair, and four children. His son Harry Jr. is a '64 graduate of OU, and another son Robert Ervin is a graduate student of the School of Music.

THOMAS D. BARBOUR, B.S. '51, is president of Allied Materials Corporation in Oklahoma City. He and his wife, Charlene, have two children: Tom Sr., who is a sophomore at Colorado State College, and a daughter who is a graduate student at Colorado College for Women. He is a 1973-74 OkChe Member.

WILLIAM H. BARNES, B.S. '37, is President of the C. Lee Cook Division for Dover Corporation in Louisville. He is a 1973-74 OkChe member.

DOUGLAS J. BOURNE, B.S. '43, lives in Houston and is executive vice president for Duval Corporation. He is a 1973-74 OkChe member.

LYNDON D. BOYER, M.S. '58, Ph.D. '61, is research group leader for Continental Oil Company in Ponca City. He is a 1973-74 OkChe member.

JOHN MICHAEL CAIN, B.S. '72, lives in Creve Coeur, Mo., and works for Monsanto Chemical Company in St. Louis.

BYRON CAPITO, B.S. '60, lives in Glenview, Ill. and is manager, light oils supply of Amoco Oil in Chicago.

JOHN R. COOPER, B.S. '31, is retired and lives in El Dorado, Kansas. He is a 1973-74 OkChe member.

TOBY L. CASTEEL, B.S. '70, is a process engineer with Continental Oil Company in Westlake, La. He and his wife, Marilyn, became parents of a daughter, Rebecca Noel, on January 8, 1974.

DEAN B. CUNNINGHAM, B.S. '63, is a project engineer for Anvil Corporation in Ferndale, Wash. He spent nine years with Universal Oil Products Company prior to joining Anvil. He is a 1973-74 OkChe member.

JIM EVANS, B.S. '49, M.S. '50, lives in Downers Grove, Ill. and is director of Asphalt Technical Service for Amoco Oil Company. He is a 1973-74 OkChe member.

SHARON L. FORRESTER, B.S. '51, is manager of material services for The Upjohn Company in Laporte, Texas.

CHUCK GILMORE, B.S. '70, is a project engineer with Trend Construction Corporation in Oklahoma City. He and his wife, Shirley, have a daughter, Amy, 1 year old. He is a 1973-74 OkChe member.

LARRY E. GLASGOW, B.S. '58, is an engineer with Howe-Baker Engineers, Inc. in Tyler, Texas. He and his wife, Ruth Ann, have three children, ages 16, 13, and 10. He is a 1973-74 OkChe member.

ROBERT G. GOINS, B.S. '58, is assistant director of manufacturing for International Paper in Panama City, Fla.

BOB GRAY, B.S. '69, works for Commercial Solvents Corporation in Terre Haute, Ind. He is a 1973-74 OkChe member.

FREDERIC HALL, B.S. '71, is an instrument engineer with Universal Oil Products Company in Des Plaines, Ill. He is a 1973-74 OkChe member.

ROGER G. HARRISON, JR., B.S. '67, is presently working on his Ph.D. degree in the Chemical Engineering Department at the University of Wisconsin in Madison. He hopes to finish by December 1974. He is a 1973-74 OkChe member.

J. SCOTT HELLER, B.S. '72, is assistant to manager, technical services, with General American Transportation Corporation in Chicago.

MICHAEL C. HEWITT, B.S. '65, is fund manager for Putnam Voyager Fund with Putnam Management Company in Boston, Mass. He and his wife have three children, Chris, 7, Katherine, 5, and Michael, 5 mo. He is a 1973-74 OkChe member.

LOY G. HORN, B.S. '23, is a retired engineer from Chevron Research Company, Standard Oil of California. He and his wife live in Los Angeles. They have two daughters and five grandchildren. He is a 1973-74 OkChe member.

JACK W. KLINGER, B.S. '72, is a chemical engineer working in Water Treatment Section of the Power Department for Brown and Root, Inc. in Houston.

MICHAEL KOPPLIN, B.S. '69, lives in Houston and is a project engineer with the Engineered Products Division of Black, Sivalls and Bryson.

WILSON LEE, M.S. '68, is a chemical engineer with Hoffmann-LaRoche, Inc. in Nutley, N. J. He and his wife live in Woodside, N. Y.

E.E. McREYNOLDS, B.S. '43, is director of engineering and construction for Polymer Chemicals Division of The Upjohn Company in LaPorte, Texas.

V. J. O'BRIG, B.S. '43, lives in Hurst, Texas and is foundry technical director for American Manufacturing Company of Texas.

MICHAEL N. PATTISON, B.S. '73, lives in Clute, Texas and is a R&D engineer with Dow Chemical Company, U.S.A., Texas Division in Freeport, Texas. He is a 1973-74 OkChe member.

FRANK O. REUDELHUBER, B.S. '48, is an energy consultant and owner of proprietary school for Sales and Management, Human Relations and Communication in Dallas. He is a 1973-74 Century Club member of OkChe.

ALAN D. ROBERTSON, B.S. '58, is a process superintendent with E. I. DuPont in Chattanooga, Tenn. He is married to the former Ann Cowen, B.S. '58, and they have three children, Kathy 13, David 10 and Bryan 6. He is a 1973-74 OkChe member.

GEORGE A. SAMARA, B.S. '58, is department manager of the Physical Research Department with Sandia Laboratories in Albuquerque.' He is also the winner of 1974 Ipatief Prize, American Chemical Society. He is a 1973-74 OkChe member.

RONALD L. SENN, B.S. '52, is engineering specialist of the Nuclear Division of Union Carbide in Oak Ridge, Tenn. He is married to the former Dorothy J. Sartin, B.S. Journalism '53, and they have three children Mark 18, David 16 and Stephen 12. He is a 1973-74 OkChe member.

CARL D. SPANGLER, B.S. '50, is director of the refining division, process engineering department at Continental Oil Company in Ponca City. He and his wife have two sons, Mike and Paul, both studying chemical engineering at O.U., a daughter, Sharon, at OSU in Nuclear Technology and a daughter, Nancy, high school freshman. He is a 1973-74 OkChe member.

DAVID H. STORMONT, B.S. '34, is director of Public Information for Fluor Corporation in Los Angeles. He is a 1973-74 OkChe member.

DONALD J. STOVER, B.S. '37, was formerly group process superintendent (Product Handling) for Cities Service Oil Company in East Chicago, Ind. He retired March 1, 1973 and now resides in Roswell, N. M.

DAVID J. SURBEY, B.S. '69, lives in Tulsa and is a sales engineer for John Zink Company in Tulsa. He is a 1973-74 OkChe member.

PAUL F. TAPP, B.S. '40, lives in Houston. He is a 1973-74 OkChe member.

EDWARD WEBER, JR., B.S. '47, is manager of manpower services for Bechtel Corporation in San Francisco. He and his wife, Mary, live in Alamo, Calif., and they have two children, Bruce, 12, and Sandi, 7. He is a 1973-74 Century Club member of OkChe.

LARRY WEINTRAUB, B.S. '63, is general agent with American United Life in Atlanta, Ga. He is married and has three children. He is a 1973-74 OkChe member.

WOODROW W. WILLIAMS, B.S. '33, is account manager of Corporate Marketing with Shell Chemical Company in Cleveland.

SAM A. WILSON, B.S. '53, is president of Wilson Oxygen and Supply Company in Austin. He is a 1973-74 Century Club Member of OkChe.

M. F. WIRGES, B.S. '44, M.S. '46, is vice president of Cities Service Company in New York. He resides in Summit, N. J. and is a 1973-74 OkChe member.

JOHN T. WOODSON, B.S. '57, is a salesman with Rexene Polymers Company. He is married to the former Lynda L. Wolfinger, B.S., Michigan State '62, M.A., Wayne State '66; and they have two children, Samuel Allen, 4, and Kathrine Lyn, 2. He is a 1973-74 OkChe member.

WILLIAM C. ZIEGENHAIN, B.S. '49, is senior research engineer with Continental Oil Company in Ponca City. He is married and has two children, Charles, who is a senior in School of Business at OSU, and Mary Kay, a junior in high school.

### CEMS NOTES

Two visiting professors and a visiting lecturer have joined the CEMS faculty for 1974-75.

MOHAMED MIDHAT MOUNIR EL-KAISSY will serve as an assistant professor. He comes to OU from Stanford where he received M.S. and Ph.D. degrees in chemical engineering. He also served as a research and teaching assistant at Stanford. Born in Cairo, Egypt, his research area is hydrodynamic stability in liquid fluidized beds. He has co-authored a number of publications.

KING TSE MO will also serve as a visiting assistant professor. Born in China, she received a B.S. degree from National Taiwan University and a Ph.D. from the University of Maryland where she taught and was a research assistant for the Institute of Fluid Dynamics and Applied Mathematics. She was a post doctoral fellow of chemical engineering and physics at the University of Florida.

LARRY FISH will be a visiting lecturer for 1974-75. He is a graduate of the University of Nebraska and has served as teaching fellow (1971) at the University of British Columbia, Vancouver, Canada, and research associate (1973). He is the co-author of four published papers on liquid-liquid equilibrium and extraction.

ARTHUR W. ALDAG JR., assistant professor, is on a one-year leave of absence, working with Phillips Petroleum Co. in Bartlesville.

FRANK B. CANFIELD, professor and former director, CEMS, is on a one-year leave of absence. He is vice president of ChemShare Corp., Houston.

JAMES H. CHRISTENSEN, associate professor, is on sabbatical leave. He is working on a final draft of modularized texts in chemical engineering and is studying Chinese, Greek and Arabic medieval and pre-medieval alchemy.

BILL MARTINSEN, former assistant professor, has joined the staff of University Engineers in Norman.

KENNETH E. STARLING, new director of the School, has received a \$20,000 grant from the American Gas Association for a three-year study on Self-Consistent Correlation of Thermodynamic and Transport Properties.

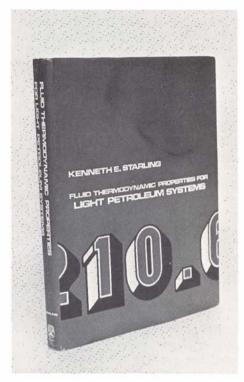
C. PHILLIP COLVER, professor and director of the School until last June, has been named associate dean of the College of Engineering. Dr. William Upthegrove is dean of the College.

RAYMOND D. DANIELS has been named director of the Office of Research Administration for the University

CARL E. LOCKE has received an \$8,500 grant (National Science Foundation) to be matched by the University for study on equipment to be used in laboratory work, polymer properties and processes. Locke worked at Phillips Petroleum Co., Bartlesville, in the research and development this past summer.

JERRIS H. PEAVEY is continuing post doctoral research on studies designed to develop a superconductor which has a higher transition temperature and is capable of carrying higher currents than superconductors now available.

SAM S. SOFER has joined the teaching staff as assistant professor. He has a BS from the University of Utah, MA from Texas A&M, and PhD from the University of Texas. His post doctoral work was in drug metabolism for the Clayton Foundation's Bio-Chemistry Institute. Sofer is a member of Phi Beta Kappa and Tau Beta Pi and is co-author of a number of publications.



Engineers in the petrochemical industry will find very interesting a new book by the new director of CEMS. (See opposite page.) The book is Fluid Thermodynamic Properties for Light Petroleum Systems and it represents a prediction system that gives consistent results for all thermodynamic properties over the whole range of interests in conditions, compounds and mixtures. It represents also a landmark for the hydrocarbon processing industry.

Ken Starling's years of experience in the petrochemical field are evident in the thoroughness with which he explains how thermodynamic properties for constituents of light petroleum systems can be determined by the three most popular methods: tabulations, diagrams, and computer programs.

The book is made up in part of articles from Hydrocarbon Processing. Numerous comparisons with experimental data for density, enphalpy and equilibrium phase

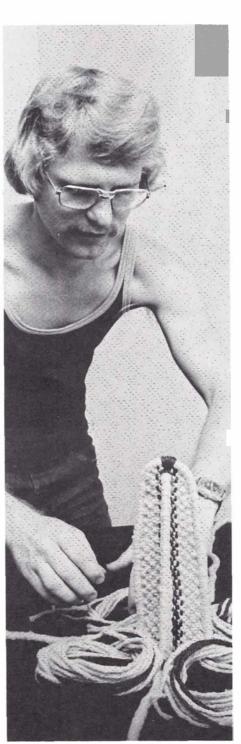
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compositions are presented to demonstrate the wide range of validity of correlation predictions. Applications of the correlation discussed include: natural gas processing, low temperature absorber calculations, nitrogen and helium separations from natural gas, mixed refrigerant calculations, and low temperature separations and processing of light naphthas.

A multi-purpose computer program using the generalized correlation is presented as an appendix. Densities, enthalpies, entropies and vapor-liquid equilibrium are figured by the program in a number of useful engineering calculations.

The computer program, especially, is a valuable tool for the practicing engineer. The book is a long-awaited reference book of depth and scope for students and professionals, up-to-date, concise and complete.



Kevin Goin

Tying his work in knots is Kevin Goin, Mustang graduate student in Chemical Engineering, whose hobby is macrame, the art of creative knot tying.

"I am a wall hanging specialist," says Goin. And to prove it he produces a hanging lamp, plant hangers, decorative bottle covers, belts and jewelry.

Jewelry is his most commercial endeavor. He has sold several sets of macrame earrings knotted from colored copper wire to the Talisman Gift Shop in Norman.

Besides crafting items, Goin teaches macrame in the Community Extracurriculum. His class is one of several offered free by the Center for Student Development to students, faculty, staff and their immediate families. The macrame artist is also an outstanding student. In 1973, he was the first student from the School of Chemical Engineering and Materials Science to graduate in the honors program. He had a 3.69 grade point average in his undergraduate work and presently has a 4.0 in graduate school.

While the hobby of macrame may seem unusual for an engineer, Goin sees no disparity. "I've always worked with string," he says, remembering a grandmother who taught him to crochet when he was seven. He also has always been interested in science and notes that he used his mechanical drawing skills to make pictures of the knots for his classes.

## CALENDAR OF EVENTS THE UNIVERSITY OF OKLAHOMA 1974-75

### UNIVERSITY THEATRE

Sept. 26-Oct. 5 Life With Father

Performances held in Rupel Jones Theatre. For tickets call 405/325-4101.

Oct. 31-Nov. 9	1776 (Musical)	
Dec. 5-14	Look Homeward Angel	
Feb. 6-15	Theatre '75	
Mar. 27-Apr. 5	Antigone	
Apr. 24-May 3	Ballet Gala	
Feb. 20-22	Edward II, The Time of Your Life and Taming of the Shrew (special presentation by N.Y. City Center Acting Company in Residence)	
FOOTBALL * Sept. 14 Baylo	SOONER SCANDALS	

FOOTBALL		SOONER SCANDALS
* Sept. 14	Baylor	April 10-12
* Sept. 28	Utah State	
* Oct. 5	Wake Forest (Band Day)	MOMS DAY
Oct. 12	Texas at Dallas	April 12
Oct. 19	Colorado	
* Oct. 26	Kansas State (Dads' Day)	COMMENCEMENT
Nov. 2	Iowa State	May 11
* Nov. 9	Missouri (Homecoming)	
Nov. 16	Kansas	
Nov. 23	Nebraska	
* Nov. 30	Oklahoma State	
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#### BASKETBALL

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Nov. 29	Tulsa University	*	Jan. 22	Nebraska
* Dec. 2	Northeast Missouri		Jan. 25	Kansas State
* Dec. 7	South Carolina	*	Jan. 29	Missouri
Dec. 11	Jacksonville		Feb. 1	Oklahoma State
* Dec. 14	Furman .		Feb. 5	Iowa State
* Dec. 21	Wichita State	*	Feb. 8	Kansas
Dec. 26-27-	Big Eight Tournament		Feb. 12	Nebraska
28-30		*	Feb. 15	Kansas State
Jan. 2	San Diego State		Feb. 19	Colorado
Jan. 4	UCLA	*	Feb. 22	Oklahoma State
Jan. 6	California (Santa Barbara)		Mar. 1	Missouri
* Jan. 13	Athletes in Action	*	Mar. 5	Iowa State
* Jan. 18	Colorado		Mar. 8	Kansas

\* home games

This calendar is published to provide you with an up-to-date schedule of theatre, athletic and other campus events of interest to alumni and friends. Drama productions listed represent only a portion of the total fine arts offerings throughout the year.

At press time schedules were available only for football and basketball in intercollegiate sports.