School of Chemical Engineering and Materials Science

OkChE

Fall 1998

OklahomaChemicalEngineer

New dean's mission: Get our products to market

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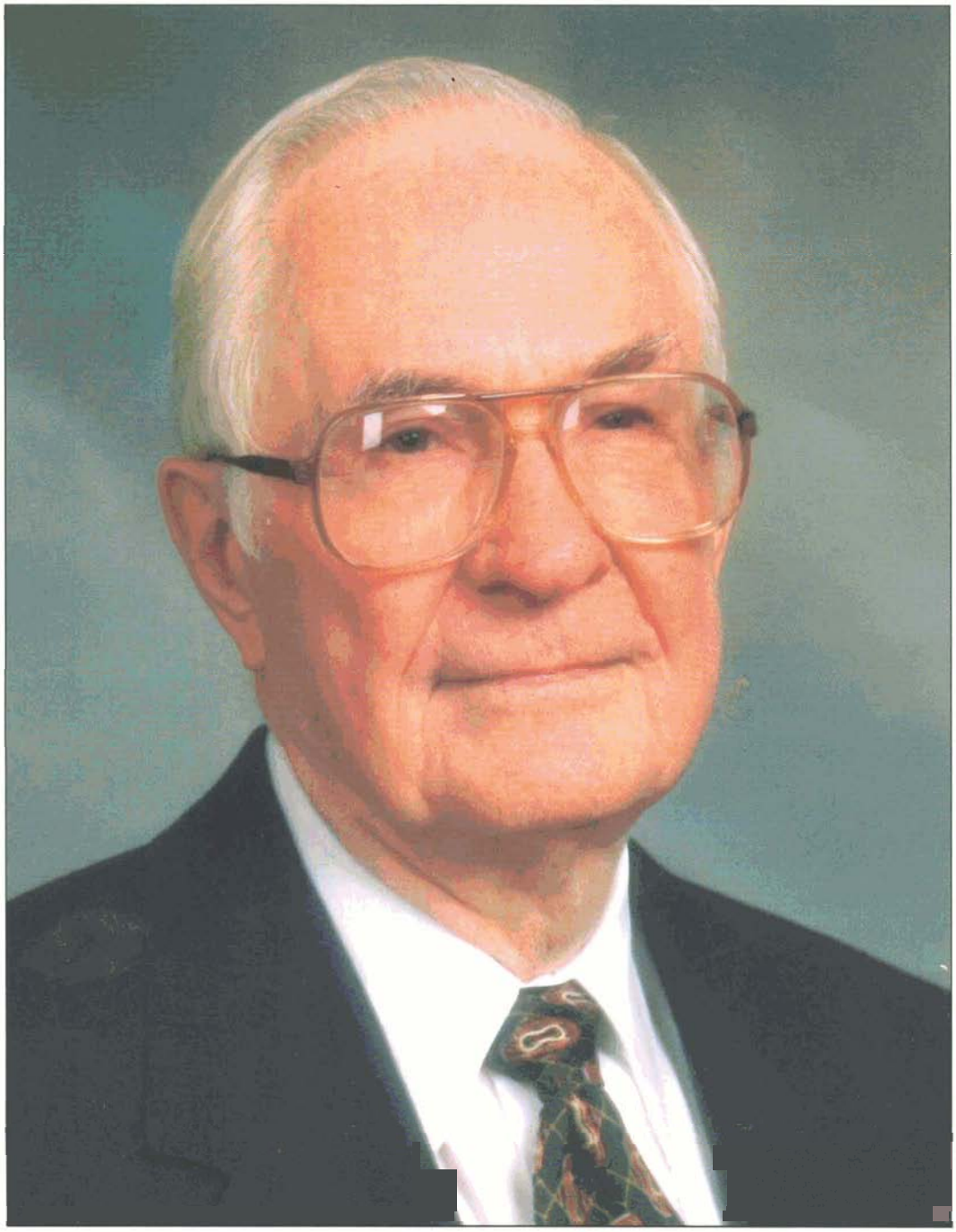
Grad rewarded for environmental excellence

pg 10

CEMS students homecoming royalty

pg 15



Francis Winn: Role model for success

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A Note from the Director

I originally planned to focus this note on CEMS alumnus Francis Winn, whom I met only last spring, and who is the focus of our cover story.

I'll get back to Francis.

I've had to change my plans because of the events of the last 3 weeks. These events mean this will be the last director's notes you'll receive from me. Next spring's director's notes will be provided by the new CEMS Director, Professor Lance Lobban. But then, what else is as constant as change?

The University of Oklahoma and the College of Engineering entered into a period of unprecedented change this summer with the appointment of W.A. "Skip" Porter as the new dean of engineering. Skip succeeds Billy Crynes,who is returning to teaching as a faculty member in CEMS after serving 11 years as dean.

Skip began his career as a physicist, with his degrees from North Texas State. He then worked at Texas Instruments as a collaborator with Jack Kilby, the inventor of the integrated circuit. Skip is an inventor on the basic patents for the first automated manufacturing line for integrated circuits. After his work at Texas Instruments, Skip completed a Ph.D. in electrical engineering at Texas A&M, where he stayed to become a full professor. There he was instrumental in the growth of the Texas Engineering Experiment Station to a world class R&D organization with over $100 M / year in research. He left TEES 15 years ago to be the first president and CEO of the Houston Area Research Center, a new concept, at the time, for facilitating technology transfer from the university environment to industry. During his tenure at HARC numerous high tech companies were spun off, based on research originating at Texas A&M, University of Texas, University of Houston, and Rice.

When Skip was first asked to interview for the position of dean of engineering at OU, his response was, "Not interested." After persistent calls his response became, "I would be willing to serve as a consultant in your search for a dean who would facilitate tech transfer at OU." After his visit, however, he was contacted by an alumnus who was the CEO of a Fortune 500 company, by former Senator and OU President David Boren, and by Oklahoma Governor Frank Keating, all urging him to take the position. This unique partnership of industry, government, and the university convinced him that OU, over the next 5 years, will be a place to do something unique: fulfill Skip's vision for a broad-based public/private partnership that creates knowledge and jobs while producing the best trained engineering students in the world.

Skip's mission as dean is focused on creating a unique, University of Oklahoma-based research city, which will facilitate creation of new companies based on OU research and will attract corporate sponsorship of OU research, while creating an opportunity for OU engineering students to study and learn in a fast paced, real-world environment. In order for Skip to focus on this mission, he needed a "Mr. Inside": someone to see that the academic and instructional standards established under Dean Crynes would not be allowed to slip during a time of profound growth and change. You guessed it. I was tapped. My new title is executive associate dean of engineering. I describe my job as keeping the monkeys off of Skip's back. So, this is my last director's notes.

The new chairman in CEMS will be Lance Lobban. Lance has been known to students and alumni for years as one of the best teachers ever to serve on the faculty. Fewer have been aware of his tremendous research productivity in the use of cold plasmas for controlled oxidation of methane and in the use of a transparent photocatalytic titanium dioxide invented in CEMS for indoor air decontamination. Lance was the unanimous choice of the CEMS faculty to succeed me as department chairman. I am confident that Lance will keep you updated on the department's and the college's progress under Skip.

Now back to Francis.

You will read about the remarkable career of Francis W. Winn in the cover story that follows. I met Francis for the first time during a trip to Dallas last April for the national ACS meeting. In

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the company of Engineering Development Director Neil Heeney, I spent a couple of days after the meeting touching base with alumni in the area. Francis was one of those we visited.

What a pleasure it was to meet this Class of '43 graduate, who took his training at OU in chemical engineering, added to it his own drive and lifelong commitment to learning, and created one of the leading technology based companies in the world. I hope you enjoy reading his story as much as Neil and I enjoyed learning it. In so many ways his career embodies the vision, risk taking, ability to think "outside the box," and commitment to keeping his training at the cutting edge of technology which is the modern ideal for the engineer. We want to graduate more chemical engineers like Francis.

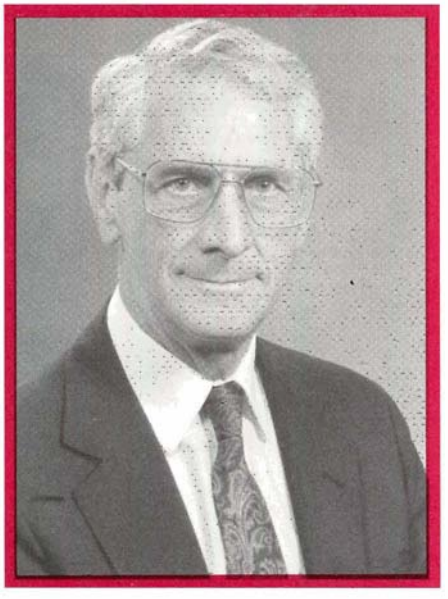
What an amazing coincidence that this is just what Skip Porter has in mind for OU! But I'll leave that story for Lance to tell.

Thanks for your wonderful support over the last 6 years. I have loved this job and am very proud of our faculty, students, and great alumni. I know Lance is going to have fun working with all of you. ■

Jeff

Editor's Note: Lance and Lynette Lobban recently returned from China with a very special gift—their adopted daughter, Mia Taoxia. Baby Mia, 1, joins their other two daughters, Sarah, 7, and Hannah, 5.

Crynes Takes Laptop Use to the Next Level



Billy L. Crynes, Dean and Professor; B.S., Rose-Hulman Institute of Technology (1963); M.S., Purdue University (1966); Ph.D., Purdue University (1967); Development Engineer, E.I. du Pont Nemours, Inc. (1963-64); Oak Ridge National Laboratory, Chemical Technology Division Advisory Board (1984-87); Conoco Corporation National Scholarship Committee (1992-present); Professional Engineer Registration, Oklahoma, Dean of Engineering, University of Oklahoma, (1987-1998).

Dr. Billy Crynes, who served as dean of engineering from 1987-1998, is employing his 3-month sabbatical to continue his crusade to use computer technology for engineering learning and teaching. Crynes pioneered the use of laptops in the classroom, generating the initiative that required all incoming freshmen to have notebook computers by the fall of 1998.

Now, he plans to take computer-enhanced learning to the next level with a controlled experiment to measure the efficiency of laptop technology versus the "old" method of classroom lectures and traditional testing.

His course, ChE 2033, which will be ready in the fall of '99, will deliver instruction via the web and interactive instruction on laptops, with a chatroom available for help and information exchange. Class meetings will be used only in coaching students to develop material, then they can move through the modules at their own pace. Finals will be delivered live with Crynes, and he will still have office hours and require some class attendance.

Sixty students will be admitted to this course, and an additional 20-student control group will take the class the "old" way, with traditional classroom lectures and testing. At the end of the semester, Crynes will analyze the statistical data to determine which method of instruction is more beneficial to students.

Crynes himself has no doubt which method will prove better. "No more boring lectures," he says. ■

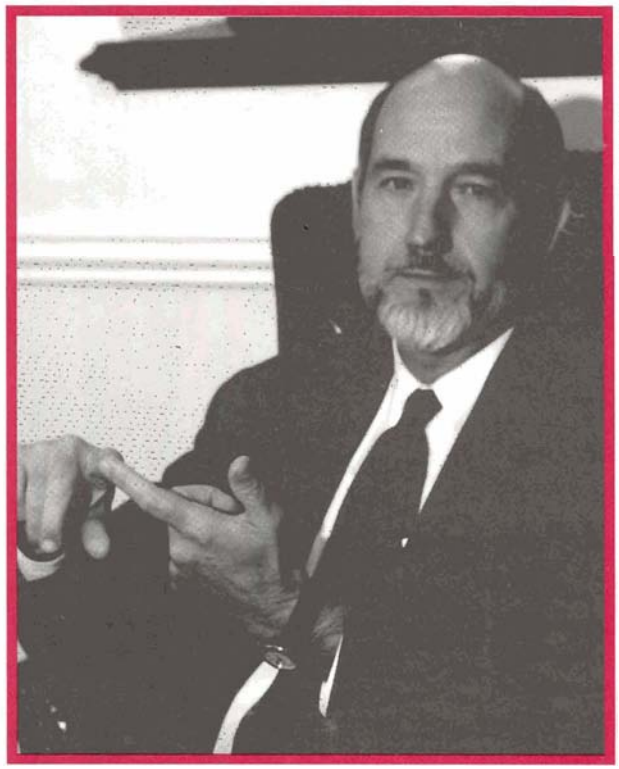
New Dean Seeks to Bring Industry to OU

Walk into W. Arthur "Skip" Porter's office in the College of Engineering, even in its "just moved in" state, and you'll realize that the man has diverse interests. A red stag skull occupies a prominent place in a window, festooned with an Indian dream catcher and a health catcher. A photo of Teddy Roosevelt stands sentry behind his desk. A sense of energy and the marks of an outdoorsman pervade the place.

Porter believes that the real essence of a man is manifested in the way he relates to nature. "There are more deals cut around a campfire than on the golf course or in the boardroom," he says. Give him a choice of a round of golf or an afternoon of quail hunting, and it's no contest. Though he enjoys golf, he's a passionate hunter and sportsman.

This "go for it" attitude carries over to his business and teaching philosophy. "Our role at the university is to teach, to empower our sons and daughters to change the landscape of this state. We don't want them to leave to get jobs. The jobs should be here, or we will create them," he says.

Porter has firsthand knowledge of how to create jobs. For more than two decades he has been recognized as an international authority on technology commercialization and the management of collaborative projects between industry and academia. In 1970 he helped Texas A&M University develop the Institute for Solid State Electronics, where his research there, funded by government and industry, led to numerous publications and patents. He later became director of the Texas Engineering Experiment Station. His expertise helped bring the Microelectronics and Computer Technology Corporation to Austin in 1980, creating a framework where American computer companies and Texas higher education pooled resources, technology and talent to compete with Japan's computer industry. Through his efforts, Texas A&M and the University of Texas became leaders in developing and bringing new technology to the marketplace; today, their university researchers collaborate with such companies as Dell Computer, IBM and Motorola.



Transcript photo by Mike Harmon

One of his jobs as OU's first university vice president for technology development, as well as his role as Governor Keating's secretary of science and technology development, is to be sure such collaborations happen at the University of Oklahoma. "I'm looking for niches for Oklahoma to be a technological leader. I want people to say, 'if you're tops in that area, you've got to be in Oklahoma.'"

Porter contends that Oklahomans need to decide that their state is a good place to be. "One of the things that attracted me was the beauty and quality of life at the university, and in Oklahoma. We have some of the best and brightest people anywhere right here," he says.

Porter recognizes that Oklahoma's university, industry and government sectors are aligned in their commitment to change the economic landscape of the state and its people. "I got the same message from President Boren, Governor Keating, Gene Rainbolt and Frank McPherson: 'We know what we need to do. Show us how to do it.' I find that exciting. I'm a start-up guy, not a maintenance person. The talent, technology, and university commitment are here. We just need to use them," he says.

Skip Porter

The basis of all of Porter's philosophies can be summed up by the contention, set forth in his book "The Knowledge Seekers," that knowledge is today's "coin of the realm." He relates a story passed on by Jack Kilby, the inventor of the integrated circuit and his friend. Kilby tells the story of a farmer who called a mechanic when his tractor broke. The farmer explained the problem to the mechanic, who nodded, then hit the tractor with a ball peen hammer. The farmer started his tractor, and it ran perfectly. "How much do I owe you?" he asked the mechanic.

"Fifty dollars," came the reply.

"Fifty dollars! For hitting my tractor with a hammer?" asked the farmer.

"No, five dollars for the hammer hit, and forty-five dollars for knowing where to hit it."

"Knowledge has value. Food and products used to be the coin of the realm. Now it's bytes. We need to teach our graduates how society values knowledge; how to apply for a patent, how to sell their products. All graduates must know what the market wants," contends Porter.

To help students learn how to get their products on the market, Porter will team teach a class this spring with Steven Gillon and Rick Cosier. "The Role of Technology in the Wealth of Nations" will cover how technology is created, how our society is now a knowledge-based economy, and how the mind is our greatest asset.

"I'm a start-up guy, not a maintenance person. The talent, technology, and university commitment are here. We just need to use them."

To carry this philosophy to the faculty, he plans to ask members of the College of Engineering's Board of Visitors to mentor engineering directors. In this way, faculty members will get a short course in the needs of corporate boardrooms. His goal is for faculty to sit on the boards of different companies. "Over the next five years, I expect our faculty to be consulting for some of the top industries in the country. It will change the whole landscape of the university and the state," he says.

Porter notes that it takes decades to build partnerships like those in California's Silicon Valley or North Carolina's Research Triangle. "This is very hard. We need to mentally gear up for the grit to play and take the long-term view. Nine women can't make a baby in one month. It always takes one woman nine months. In the same way, to incubate, to deliver change, we have to go through a gestation period. It takes time."

One vehicle for change, according to Porter, lies in bills 680 and 681. Approved by voters in November, these bills change the state constitution, which formerly permitted taxes to be used only for public purposes. "Oklahoma is built on a populist philosophy, which makes us want to make everything available to everyone. This doesn't always translate to an industrial and knowledge economy. What a shame to pay a university to bring top talent which teaches students how to create wonderful technology, then not protect that technology so that it can be patented, used and implemented. Instead we offer it free to the world, where it costs so much money to develop that companies don't take the risk because it's not patented. If we changed this system, discoveries could go from technology to product much more quickly, and the university could retain the economic benefit in terms of royalties and equity. These public/private partnerships would, in turn, reduce the taxes we pay."

Porter says that when Oklahoma was an agrarian society, it built an efficient farm-to-market system. Changing our constitution is the equivalent of setting up a technology-to-market road system. "We must be sure our technology

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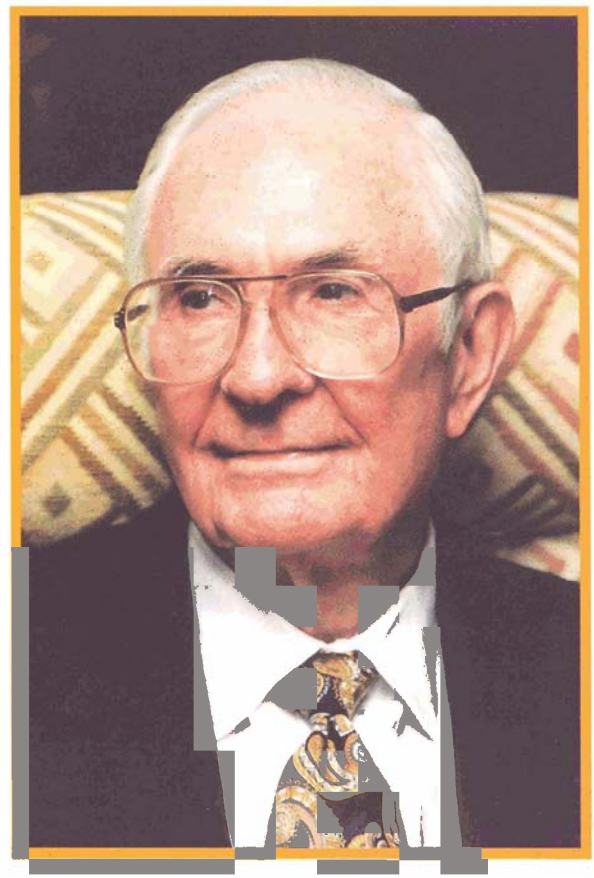
Skip Porter visits with Ronnie Rosenfield, former Secretary of Commerce under Governor Keating.

CEMS alum Francis Winn: *Role model for success*



Francis Winn is one of those people who just can't leave well enough alone. The innovative answers the University of Oklahoma alumnus finds to questions that begin with a simple "What if..?" have attracted the attention of presidents from Franklin Roosevelt to George Bush and guided him as a successful entrepreneur of a billion-dollar computerized tax return business.

Winn, whose quick wit and Southern charm belie his 80 years, can pull names, dates and places out of the hat as if it all happened yesterday. He remembers every turning point in his life with self-effacing humor and photographic clarity.

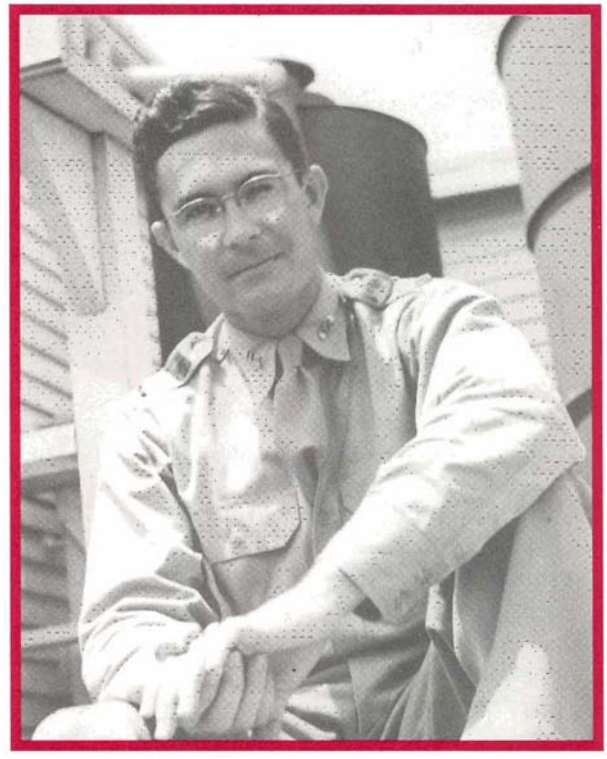
The year was 1936, and the country was in the midst of the Great Depression. No place felt the despair as much as Texas and Oklahoma, where farmers watched their land crack to gritty pieces and blow away in reddish-brown clouds. In Weleetka, Oklahoma, Kathryn and Warren Winn were struggling through the Dust Bowl with five children. That spring, their oldest son, Francis, had just graduated from high school as valedictorian and had won a statewide competition in algebra. One hot summer day, a traveling salesman approached the farmhouse and tried to sell Kathryn on the idea of a correspondence course in accounting for Francis. But her decision was dictated by family finances. "I don't have any money," she told the man.

Times were hard for the salesman, too. Being a shrewd businessman, he glanced toward the barn and nodded to Kathryn. "How about that calf?" he asked.

"My mother said 'OK, I'll trade you the calf for the accounting course'," Winn recalls. "The salesman put the calf in the back seat of his Model-A Ford and drove off. And I got the basics in accounting vital to the startup of my company 30 years later."

In the fall, Winn hitchhiked to Norman with empty pockets and high hopes. "Oklahoma A&M had offered me a scholarship, but I'd already made up my mind if I were going to go to college, I was going to OU." he said. At the rooming house where he stayed temporarily, Winn asked several students, "What's the toughest course around?" They all said, "Chemical engineering. Stay away from chemical engineering."

"So I said, 'That's what I want,' 'cause I figured it probably paid a little better. (Richard Lee) 'Doc' Huntington was the Dean of Engineering at that time."



Francis Winn during the 1940s.

Winn started his freshman year working as a gardener and chauffeur for a Norman woman in exchange for the use of her garage apartment. His sister paid for his books and lab fees. In order to buy meals, Winn worked on campus as a groundskeeper for 25 cents an hour. Later, he found a better paying job in the math department, grading papers for 35 cents an hour. Winn told the professor, "It takes time to solve each problem before I can grade the student's work." The professor said, "Don't worry about it. You're doing a great job and besides, you're learning a bunch."

> Winn asked several students, "What's the toughest course around?" They all said, "Chemical Engineering. Stay away from chemical engineering."

During the summers, Winn would return to Weleetka to help out on the farm, harvesting watermelons, then hauling them to the northern states. "One year," Winn recalls, "we brought potatoes back from North Dakota. I took a ton of them back to school and traded them for a year's worth of meals at the student co-op. That way, I could use my 35 cents an hour for spending money."

Winn felt like a wealthy man. He bought a bicycle so he could more easily travel between his apartment and campus. "I even dated on that bicycle," Winn recalls wistfully.

While an undergraduate, Winn devised a triangular chart for presentation of data for one of his engineering classes. "Professor Donaldson and another professor thought enough of it to ask me if they could publish it," said Winn. "I said 'sure.'" Winn never dreamed that this chart might one day save his life.

After he received his degree in chemical engineering from OU in 1940, Winn went to work for PanAm Petroleum Corporation in Texas City, Texas. Winn remembers playing golf with friends one beautiful Sunday morning in early December. By the time they got to the ninth hole, the radio was blaring news about Pearl Harbor. Within 24 hours after the surprise attack, the young engineer, who had gone through ROTC training at OU, received his orders and entered the service as a second lieutenant in the Second Combat Chemical Battalion.

During artillery training at Fort Bragg, North Carolina, Winn noticed the gun sights on the 4.2" chemical mortars were practically useless. "The mortars they were using were great mortars, but they had World War I gun sights and could not be used for accurate targeting," Winn said. "I devised a gun sight similar to those used in field artillery, and I was out-shooting

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Alumni Notes

Garrison honored

Charles M. Garrison, who received his Ph.D. in Chemical Engineering in 1972 at OU, has been honored with one of the Procter and Gamble Company's highest awards. The PRISM (Professional Recognition for Individual Sustained Mastery) award is given to employees who demonstrate a long-term history of technical contributions to the company, and who serve as role models and resources for aspiring engineers. This year, eleven people were chosen from more than 2,000 engineers worldwide to receive the award.

Garrison, a 26-year employee, was recognized at a ceremony May 21 for improving P&G's business results in foods, soap and paper. He recently developed three new snack products which led to a 25% improvement in Pringles rate, a dollar impact of $100MM.

Kendrick weds

David Carlan Kendrick, OU, BS ChemE, '95, and Christina Elizabeth Gilbert were married on September 26 at Westminster Presbyterian Church in Oklahoma City. The bride is a graduate of Harvard University. After a honeymoon in St. Lucia, the couple returned to Oklahoma City, where both are medical students at the OU College of Medicine.

Rockstraw wins environmental award

From left: Reyad Shawabkeh, David Rockstraw and Ron Bhada.

The American Academy of Environmental Engineers recently awarded David Rockstraw, OU ChemE, Ph.D., the 1998 Superior Achievement Award for Environmental Engineering Excellence. Rockstraw, a ChemE professor at New Mexico State University, shared honors with former NMSU student, Reyad Shawabkeh, and Ron Bhada, director of NMSU's Waste-Management Education and Research Consortium.

The award stems from the thesis work of Shawabkeh, a graduate student of Rockstraw's, who developed a process by which pecan shells can be converted chemically to activated carbon. The activated carbon can subsequently be used to clean toxins from liquid and gas streams in mining and industry.

Rockstraw said patent application is being made on the process, which uses very little heat, instead relying on a one-step chemical process to convert the pecan shells to activated carbon. The process also allows the toxin-rich carbon to be cleaned easily after each use for subsequent applications.

In granting the award for excellence, the judges from the American Academy of Environmental Engineers cited the quality, originality and innovation of the research, the complexity of the problem at hand, the integration of the approach and the contribution to social and economic advancement.

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everybody. Some officers from Washington came down to have a look at it and later put it on all 4.2" mortars."

The resourceful 2nd lieutenant was not monetarily compensated for his invention, but he did get a timely promotion. "My company was training in amphibious landings, and we were getting ready to invade Europe. I got a telegram from Washington asking if I would be willing to serve in D.C. instead of going overseas. I fired back an acceptance telegram immediately, "Yes I am willing. REPEAT I am willing!"

Winn did not realize at the time that the triangular chart he had given to the two OU professors a couple of years before had earned him a valuable recommendation. Winn recalls the chain of events that allowed him to be one of only 13 engineers chosen for war duty in the nation's capital.

"The story goes that Franklin Roosevelt had a cabinet meeting," said Winn, "and when he had finished, he looked around the table and said 'Any of you guys have any problems?' The Secretary of the Interior said, 'Yeah, the Army and Navy have all the chemical engineers and I don't have any for the PAW (Petroleum Administration for War). So Roosevelt said 'Boys, fix him up.'"

Word went down the chain of command, and the search for chemical engineers was on. A PAW representative put in a call to Chalmer Kirkbride, Winn's boss at Pan American Petroleum and later president of the AIChE (American Institute of Chemical Engineers). Kirkbride heartily recommended Winn. "So I got one check mark by my name," said Winn. "Then they called OU, and thanks to that little old triangular chart I gave to Professor Donaldson, I got another check mark. That second mark helped me make the short list. Without it I might not be here today."

Nancy Winn, Francis Winn and daughter, Carol, at a fund-raiser in 1996.

Winn spent the last three years of the war working in production of aviation gasoline for PAW, where he met his wife Nancy. "She would bring a newspaper into work and I would borrow that newspaper, just so I could sit and watch her," he said. It was a quick romance. The couple had about three dates before Winn asked Nancy to marry him. "She said 'WHAT?' like she was shocked," recalls Winn, "and then quickly added 'Okay, I will.'"

After the war Winn brought his wife back to Norman so she could meet Professor Leonard and Nancy Good. "Leonard was an OU art professor at the time, and Nancy Good was my housemother at OU," said Winn. "It was Nancy Good who instilled in me thoughts about the free enterprise, entrepreneurial way of getting ahead."

> "I fired back an acceptance telegram immediately, 'Yes I am willing. REPEAT I am willing!"

After the war Winn took a job with Mobil Oil in Paulsboro, New Jersey. One of his first assignments was to prepare a data book on physical properties of hydrocarbons. Much of the work culminated with the presentation of related properties using nomographs. One such nomograph showed the relationship between the SAE designations of lubricating oil with viscosity and other properties.

A curious aspect of the presentation indicated that one particular petroleum fraction had multiple SAE designations. "I doubted my own work when this occurred," said Winn. "But what I had found was SAE/10/W/40. This was a significant discovery, but I didn't have the marketing savvy to realize it at the time." Also at Mobil, Winn developed a vapor-liquid equilibrium nomograph. This was published in the Petroleum Refiner and is widely used today.

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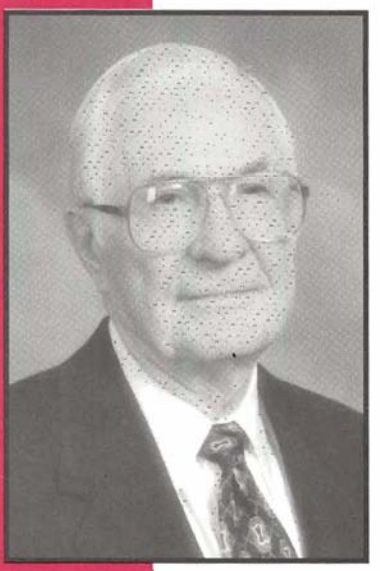
Winn, *continued from page 11*

It was at Mobil, too, where Winn was introduced to the world of computers. "A physicist on staff said he was using a computer to solve simultaneous equations. Vaguely aware of what a computer was, I asked him 'How many unknowns?' He said 19. I was impressed. So I said, 'I'd like to see this thing.'" He took Winn over to the Accounting Department and showed him the IBM 402a, which was a mechanical gear driven computer with card input, output and a printer. Winn was soon using the computer to solve distillation problems. "If you looked inside, you could see the gears spinning," said Winn. "The board for programming had wires and you had maybe 20 statements. That's it. You could add and subtract, multiply and divide, compare and branch. Even with that limitation, you could solve very complex chemical engineering problems."



Francis Winn, left, a portrait of the successful entrepreneur, and during his early days as a chemical engineer.

At an AIChE meeting in the late '40s, Winn ran into his old boss, Chalmer Kirkbride, and asked him whether he knew anyone who needed a chemical engineer. Through Kirkbride, Winn heard of an opening at Catalytic Construction Company. For the next two years he helped the firm build the FMPC (Feed Material Preparation Center), a uranium metal processing plant. Winn said a problem developed because small amounts of chlorides in nitric acid would eat through the stainless steel at temperatures inherent in the concentration of nitric acid. The chlorides would not go out the top of the tower because they were soluble in water. They would not go out the bottom of the tower because of their high volatility in concentrated nitric acid. They just accumulated in the middle and started a rapid corrosion of the stainless steel fractionation tower.

"I remembered some of my chemistry and decided that ozone could be used to convert the chlorides to chlorine. We did some lab work to be sure and then changed the design by pulling off a side stream and feeding it to the top of a vessel. Ozone was injected in the bottom of the vessel." The design worked, and the War Department received a patent on the idea in Winn's name.

When the FMPC project was completed, Winn again made inquiries through his AIChE contacts and was referred to a job with Fractionation Research, Inc. in Pasadena, California, for the next five years.

Winn came to Dallas in 1960 and began working for Fritz W. Glitch and Sons, fabricators of distillation towers. There he noticed that considerable amounts of stainless steel, left over from punching out valve trays, were being junked. He came up with the idea of utilizing this scrap as "Glitch Grid" to support wire mesh and as a baffle in fractionating towers. Again, a Winn design was patented. The grid remains a practical and economical use of scrap metal, still used some 40 years later.

While working for Glitch, Winn started using computers to design distillation towers for internal pressure and external forces like gale winds and earthquakes. Using the computer, Winn could optimize the thickness of metal at various elevations, giving the company an edge in competitive bidding. Although Winn had discovered a great cost-cutting tool, the computer often crashed while he tried to execute his complicated programs. "I finally said, 'Look, you've got to get another computer in here.' They brought in an IBM 1620, which had core memory, and was really one of the first 'modern-type' computers," Winn explained.

The love affair with the new IBM computer was short-lived, however. Winn began to realize the FORTRAN compiler and operating system were inefficient for his purpose. "It had only 60K memory and half of that was used by the operating system," said Winn. "When I got into pressure vessel design I ran out of memory right away. By looking at the object code IBM was generating, I could see some ways to do things more efficiently. I found I could consolidate COMPARE and BRANCH statements, so I started patching those programs.

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Winn, *continued from page 12*

"And, by the way, mechanically patching a paper tape is no mean feat," Winn added with a wry smile. "Then I wrote a little program to patch the object code itself after it was placed into memory and that sped things up a little bit."

Still Winn was unsatisfied. "Finally, I said, "What the heck, I'll just rewrite their FORTRAN compiler and make it a little faster." His decision lead to the development of a new language Winn called Cleartran, which was much easier to use. "It took only 20K of memory," Winn said. "I added a few new commands, like ZIP, shortened the object code and sped things up ten-fold over IBM." Winn had such confidence in the superiority of Cleartran that at the age of 46, with a son starting college, the independent entrepreneur quit his job and went into business for himself, ready to tackle IBM head-on.

Winn set up shop in a warehouse in downtown Dallas, trading the use of his compiler and operating system to a company in exchange for time on its computer system while he perfected his software. But for once his timing was off. IBM came out with a new series of computers that made the 1620 and therefore Winn's Cleartran language unmarketable. Then an innocent question from a secretary dramatically changed the course of his life. "Why don't you figure out a way to do tax returns?" she asked. The wheels began humming in Winn's head. "I did a little market research, which consisted of about 20 seconds of my thinking, 'Man, there are a lot of tax returns out there.' I decided to give it a try, using my own operating system and the Cleartran language," said Winn. "Steve, my son, home that summer from his electrical engineering courses, started bugging me for something to do. I said 'Program page one of my 1964 tax return'."

In a day or so Steve was ready for page two. When that was finished, Winn asked his son to do the computations. "He had programmed enough information to make it work, and that's how FAST-TAX got its start," Winn said.

"I started calling on the accounting firms. One of them asked me if I had seen Computax. I was so naive, I didn't even know I had a competitor," said Winn. "I knew if I were to survive I would have to have a better, more professional product. So I took a good look at the competition. They had only a one-pass operation. I developed a two-pass operation which allowed us to print lists and schedules on the form itself. It was a vast improvement."

But Fast-Tax was hardly an overnight success. " I sold to only a few clients that first year," Winn recalled. "I was not drawing a paycheck at the time, so my wife went to work to help support the family."

One morning, an impatient partner with one of the Big-Six accounting firms gave Winn his first big break. He said the tax service he was using was taking six weeks to get the job done, an unacceptable delay. " I took him a set of forms and he filled them out right away," Winn said. "That night we keypunched all his information, fed it to the computer, checked and rechecked the results, and the next morning at 8 a.m., when he stepped off the elevator, I handed him the completed tax return."

> Winn had such confidence in the superiority of Cleartran that at the age of 46, with a son starting college, the independent entrepreneur quit his job and went into business for himself, ready to tackle IBM head-on.

Winn made quite an impression. The partner handed him 200 more returns. "One of our primary marketing tools was our more professional product and we could process faster," said Winn. "Technologically, we have always been about four years ahead of the competition."

In its first year, 1966, Winn's company, Computer Language Research, Inc. (CLR) grossed $25,000. The business grew, and revenue doubled and tripled annually. Each year, it was like starting a new company. The firm needed more space, more employees, more equipment. "By our sixth year, we were making $2 million," Winn said. "In the late 70s we were building a 40,000 square-foot space in Farmer's Branch.

"We had to move into the building before we had a driveway or parking lot. We had to carry computers, stacks of cards, all our equipment through the mud, but we were in a hurry to get set up. We had programmers working in the hallways," Winn recalled. "We had just gotten up and going when the fire marshal came in and said 'You're out of here. You don't have a driveway. We couldn't get trucks in if you had a fire.' I told the fire marshal, 'Look, you can hook up the hose in the lobby and I'll pay to have a fireman stand there with the nozzle in his hands just in case.' Eventually, we got things taken care of to meet the demands of the fire marshal and make him happy."

Before long, CLR fully occupied its new building and had to rent space nearby. The company moved into its present 400,000 square-foot location in Carrollton, Texas in 1983, the same year

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Winn, *continued from page 13*

revenue reached $80 million. "That's when we went public," Winn said. "We had enjoyed a 12-year spurt of 40% growth per year." During tax season CLR's nearly 1200 employees process around 10,000 tax returns each day.

Over the years, Winn has learned that the broader one's education, the better one is able to recognize opportunities when they come along. "In addition to being a chemical engineer, one needs some background in accounting, marketing, law, math and other fields," he said. "Finally, you need to be able to present your findings in words others can understand."

At a reporter's request, Winn perused through a stack of mementos, which included a photo with then President Bush, a letter from Ronald Reagan, newspaper clippings of banquets honoring him along with Bill Gates and Ted Turner, and numerous national awards. Winn chuckled over a plaque he received from his company on his 67th birthday. "I believe everyone thought I would be retiring or maybe going to the big sleep," he said. "I surprised everyone, including myself, because I'm 80 and still going strong."

Winn not only goes to the office every day, he is still the driving force behind new and innovative software. After a recent lawsuit with a landscape architect with whom he was dissatisfied, Winn perceived the need for a system to help lawyers organize deposition information. He set about writing a program called Fast-Law and is getting ready to introduce the product on the market later this year.

Winn's greatest asset is, and has always been, his ability to recognize a need and respond to it in the marketplace. It is his ingenuity and carpe diem attitude that have catapulted this Weleetka farm boy into a place among entrepreneurial giants of the 20th century. If this inventive octogenarian continues at his present level of productivity, Bill and Ted could have some serious catch-up work to do. ■

(Editor's note: Shortly before press time, Mr. Winn's beloved wife Nancy passed away. The ChemE faculty and staff extend their deepest sympathy to Mr. Winn and his family.)

Scholars, *continued from page 15*

Preston S. Soell
Norman, Oklahoma
W. D. Owsley Scholar

Bee-Wooi Soo
Malaysia
Kendall Carrol Purgason Scholar

Wooi Aun Tan
Malaysia
W. D. Owsley Scholar

Brian T. Torgerson
Norman, Oklahoma
Mobil Corporation Scholar

John T. Vernon
Edmond, Oklahoma
Mobil Corporation Scholar

Dustin C. Walker
Oklahoma City, Oklahoma
Billy and Mary Crynes Scholar

James K. Wilson
Houston, Texas
National Achievement Scholar
Richard L. Huntington/Richard G. Askew Scholar

Matthew R. Wilson
Tulsa, Oklahoma
Mobil Corporation Scholar

Matthew Yarrison
Parker, Colorado
National Merit Scholar
Phillips Petroleum Co. Scholar

Alumni, *continued from page 10*

In Memory

Yen Shelley died Aug 12 from injuries incurred in a vehicular accident. Born in Saigon, Shelley graduated as valedictorian of her class from Northwest High School in Oklahoma City. She earned a bachelor's degree in chemical engineering from the University of Oklahoma.

Shelley joined Texas Eastman in 1986 as a chemical engineer in Research & Development. She held positions of increasing responsibility through the years. At the time of her death, she was serving as staff assistant in Worldwide Manufacturing in Kingsport, Texas.

Hall retires

Ralph Hall, BS in ChemE, 1964, has retired after 31 years with Exxon. Hall spent his first three years with Exxon Co, USA at Baytown and Bayonne, La. For the next 20 years, he worked for Exxon Research & Engineering Co. out of Florham Park, New Jersey, on projects all over the world, with three years at ER&E office in Singapore. Hall spent the past three years with Exxon in Baton Rouge. Hall worked in process engineering and computer modeling of Exxon's lube oil processes.