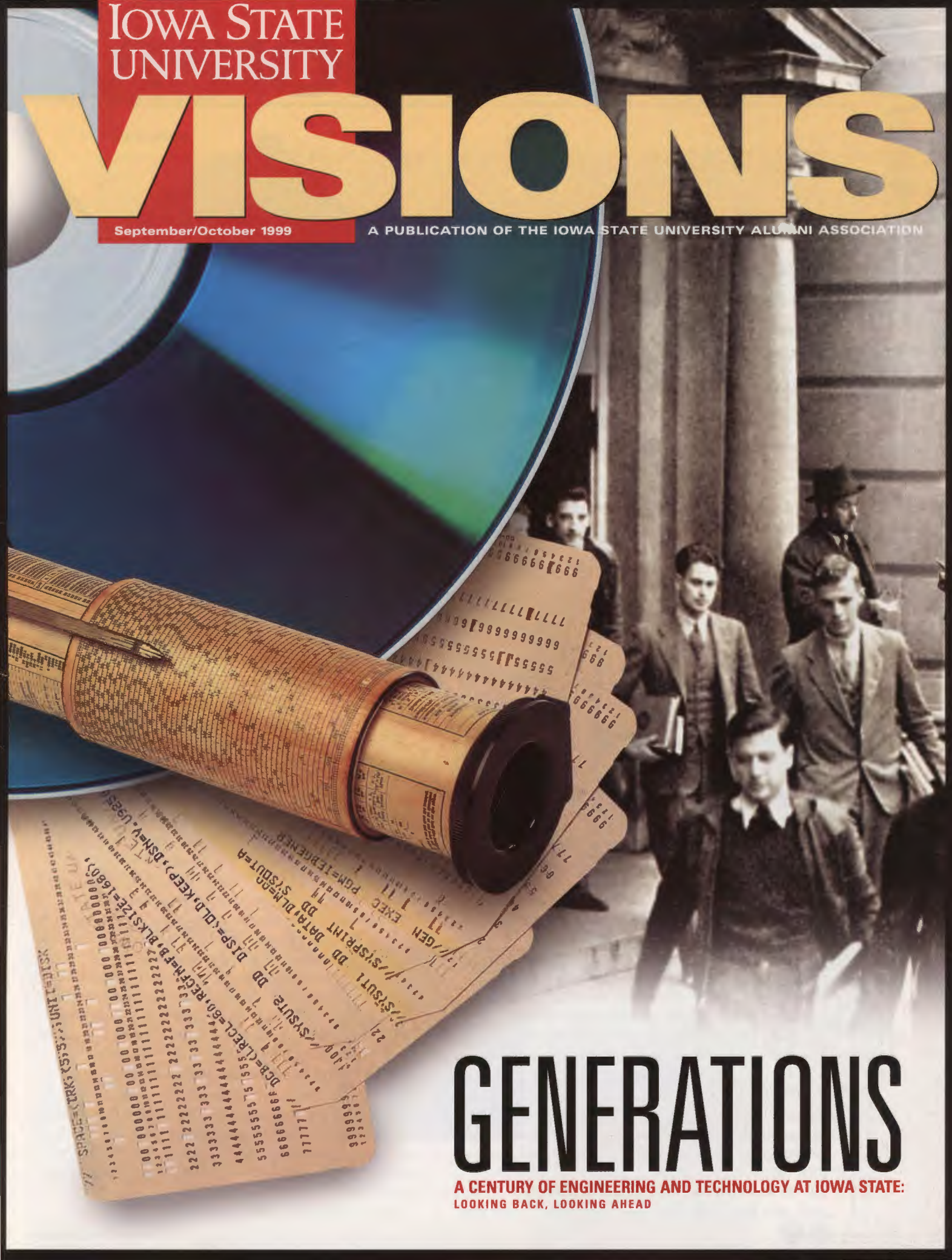
IOWA STATE UNIVERSITY

VISIONS

September/October 1999

A PUBLICATION OF THE IOWA STATE UNIVERSITY ALUMNI ASSOCIATION



GENERATIONS

A CENTURY OF ENGINEERING AND TECHNOLOGY AT IOWA STATE:

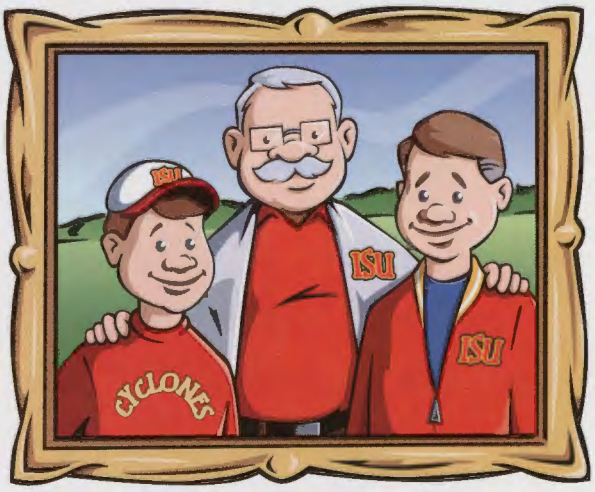
LOOKING BACK, LOOKING AHEAD

by Carole Gieseke

Families... and other stuff

Here are some random thoughts about Iowa State that I'd like to share with you. First, I'm noticing a trend that involves large numbers of family members attending this university, both simultaneously and generation after generation.

This trend keeps cropping up. A little more than two years ago, we ran a story about three sisters–triplets, actually–who had just graduated from Iowa State and who had all competed on the gymnastics squad. In the current issue, we have a story about three brothers competing together on the wrestling squad. OK, so they aren't triplets, but I'm still calling it a trend.



Also in this issue, we feature two brothers, both ISU alumni, who are working together to manufacture a product which comes from a most unusual source. That's all I'm going to tell you; you'll have to read the story to find out what the product is. But my point is that these guys are BROTHERS. Coincidence? I think not.

Several issues ago, we ran a story about Iowa State legacies, and we keep hearing from readers who have amazing statistics for us about their Iowa State connections. Grandparents, parents, aunts, uncles, second cousins, you name it...all attending Iowa State.

The Liggett family, featured in this issue, has one of the longest and most unique ties that we know of. Ian Liggett, a second-year mechanical engineering student, came to Iowa State all the way from Somerville, N.J. where he lives with his younger brother, two large dogs, a bunch of cats, a pair of ferrets, and his parents, John and Shelly, in a big, old rambling house built in the 1800s. His father graduated from Iowa State in 1969, an era when lots of college students were wearing flowers in their hair and changing their names to "Moonbeam." John was a bit more sensible. He was a mechanical engineering major like his father, Jack, who graduated from Iowa State in 1942, soon after the United States became involved in World War II. Jack's dad was a 1917 Iowa State graduate, with a major in–you guessed it–mechanical engineering. He was the first generation of Liggetts to attend Iowa State.

The legacy of this family is woven through our cover feature, called "Generations: A century of engineering and technology at Iowa State." The story helps us kick off Iowa State's year-long celebration of "Advancing Technology: To Become the Best."

A second observation is that I am starting to feel like a true Cyclone. You may recall that I've only been at Iowa State for a short time, but this campus is beginning to feel like home. It became clear to me as I was walking from Oak Hall to the Memorial Union during Alumni Days. I was hustling across campus to get to the next event, and the walkways were covered with fallen leaves, the aftermath of an early morning storm. As I walked beneath an archway, with the fresh smell of the rain still in the air, the carillon bells began to play. It just hit me like a ton of bricks: This is *my* campus, not just a place where other people made their memories and I am just allowed to visit.

Sorta gives you goose bumps, doesn't it?

Anyway, while I'm on the topic of Alumni Days, let me just say that it was an all-around great weekend. Class members dined and danced and reminisced with such enthusiasm that the Alumni Association staff–many of us at least 30 years younger than the reunion attendees–had to go home after it was over and take a nap!

It was an unusually full weekend of activities. Besides the regular reunion events, we commemorated the donation of John V. Atanasoff's papers and memorabilia, dedicated the new Children's Garden, and celebrated Alumni Association Executive Director Jim Hopson's "Last Spirit Rally."

Which brings me to my final observation: With Jim Hopson's retirement after 30 years, the Association is now under new leadership with the addition of Jeffery Johnson to our staff. Jeff comes to us from the University of Illinois at Urbana-Champaign, and he brings a wealth of experience in alumni relations. He ALSO has LOTS of brothers and sisters.

See? I told you it was a trend. ■

ILLUSTRATION: GROUP 3

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September/October 1999
Volume 12 No.3

Features

30
Generations
A century of engineering and technology at Iowa State: Looking back, looking ahead
Four generations of a single family of engineers have embraced an Iowa State University campus that is a microcosm of America.
by Karol Crosbie

Alumni Collection
The Fall/Winter 1999 Alumni Association merchandise catalog.
21

Departments

2 Getting Started
4 Letters
6 On Campus
10 Alumni Profile
12 College Focus
14 Giving
16 Association News
29 Calendar
44 Sports

44

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On the cover:
VISIONS looks at a century of engineering and technology at Iowa State.

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letters

Educators Praised

Thanks for the excellent article on Project Opportunity *(July/Aug 1999)*. I regret that you did not have the space to identify Kathy Connor as the director of and driving force behind Project Opportunity's success.

For the past seven years, it has been through Kathy's foresight, determination, and sheer will that this effort has been sustained. Now, the program is finally receiving its due accolades at Iowa State University and across the country.

— Al Campbell, '94
Ames, Iowa

Good Sports

I read your July/August editorial *(Take me out to the ball game)* with great interest and a good bit of understanding. My orbit is more sports oriented, but my awareness about the finer things in life comes in interesting and unusual ways. Please take in a Homecoming game in person. I think you will marvel at what happens before, during, and after the game. If you are a people watcher, this is prime viewing! In fact, to hell with the game – just enjoy the ambience!

I also wanted to join with Deborah Lust *(Letters)* who complained of the shortsighted advertising you have carried that demeans urban life. I'd bet if you checked your demographics you would find the majority of Iowa State alumni and friends are, in fact, urban dwellers and damn glad to be.

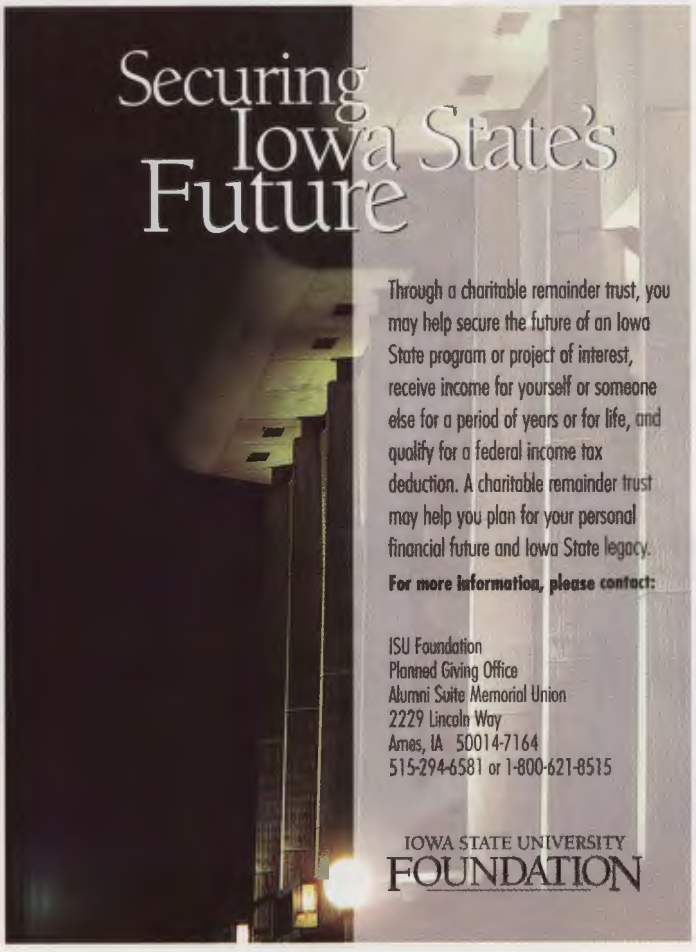
— John Dickinson, '53
Mesa, Arizona

Piece by Piece

Thank you for the wonderful articles on quilters Jane Sassaman and Marti Michell *(July/Aug 1999)*. I am sure there are many Iowa Staters who either have quilting as a vocation or avocation who appreciate your recognition of this art/craft form. These two exceptional quilters represent Iowa State very well. I have been privileged to meet these ladies, hear their lectures and see their work (and share some moments of Iowa State memories). They are inspirations to quilters everywhere they – or their quilts – go.

— Chris Moline, '72
Naperville, Illinois

Send letters to: VISIONS Editor, Alumni Suite, Memorial Union, 2229 Lincoln Way, Ames, IA 50014-7164; fax 515-294-9402, e-mail cgieseke@iastate.edu.



the great Alumni Association giveaway

Enter today!

The Great Alumni Association Giveaway

Here's your chance to win fabulous prizes from the Alumni Association: tickets for Cyclone sports, weekend getaways, premium events parking, theatre tickets, personal invitations to dine with ISU leaders, and more! For the next year, each time we publish VISIONS, we'll have a drawing for a different set of prizes. All YOU have to do is enter (and be a MEMBER)!

Enter by Oct. 10 for a chance to win these fall prizes:

- Four season tickets for ISU women's basketball
- Two skybox seats for the Oct. 30 Homecoming football game, Cyclones vs Texas
- Two tickets to the Oct. 23 Cyclones vs Colorado football game
- Two tickets to the Nov. 13 Cyclones vs Oklahoma football game
- Ten pairs of tickets for selected ISU men's basketball games (10 winners, games TBA)

Winners also receive premium or valet parking for each event!

Remember, only members of the ISU Alumni Association are eligible to win!

To enter, complete and return the postcard included in this issue of VISIONS (or send your name, address, daytime phone, and year of graduation to: Great Alumni Association Giveaway/ Alumni Suite, Memorial Union /2229 Lincoln Way/ Ames, IA 50014-7164). Or enter online at www.alumni.iastate.edu/giveaway.

If you are not a member, simply check the appropriate box on the postcard, return it along with your $45 annual membership payment, and you'll be entered in the drawing!

Fall drawing will be held Oct. 11, 1999. Entries must be received by Oct. 10. ISU External Affairs staff and their immediate families and current Alumni Association Board of Directors and their immediate families are not eligible. Winners determined by random drawing. One entry per person per contest. Prizes cannot be redeemed for cash value.

IOWA STATE UNIVERSITY ALUMNI ASSOCIATION

New provost begins duties

ROLLIN C. RICHMOND, FORMERLY provost and executive vice president for academic affairs and professor of ecology and evolutionary biology at the State University of New York-Stony Brook, is ISU's new provost. He replaces John Kozak, who stepped down in December 1998 to return to teaching and research.

Before his tenure at University of New York-Stony Brook, Richmond was dean of the College of Arts and Sciences at the University of South Florida and chair of the biology department at Indiana University. He received his A.B. in zoology from San Diego State University and a Ph.D. in genetics from Rockefeller University.

The provost is the chief academic officer of the university and oversees Iowa State's eight colleges, ISU Extension, and various research units. ■

Rollin C. Richmond: New ISU Provost

Our garden GROWS

GETTING KIDS HOOKED ON PLANTS – THAT'S THE GOAL OF a new Children's Garden, recently dedicated at ISU's Reiman Gardens. There are plenty of enticements, including a "garden of curiosities," a tunnel hideout built of sod, a prairie garden with a wood maze and gazebo, a covered bridge over a stream, a sculpture garden, butterfly garden, and a scarecrow garden, featuring a 15-foot permanent scarecrow.

With the completion of the Children's Garden, about 5.5 acres of the 14-acre Reiman Gardens are now developed. Named after benefactors Roy and Bobbi Reiman, the gardens have flourished through private gifts provided by friends and family to the ISU Foundation's Campaign Destiny: To Become the Best. The new Children's Garden is expected to increase the number of annual visitors to the garden from about 35,000 to 45,000. ■

Alone Among Friends

A Biography of W. Robert Parks

ALONE AMONG FRIENDS: A BIOGRAPHY OF W. ROBERT PARKS is the first full-scale biography of the eleventh, and longest-serving, president of ISU. Written by Robert Underhill, ISU professor emeritus of English and speech, the book is also the first updating of ISU history since 1942, when Earle D. Ross' *History of Iowa State College of Agriculture and Mechanic Arts,* was published. Underhill's book will be available in October from Iowa State University Press for $39.95.

Among the book's many stories is the one of how Robert Parks met his future wife, Ellen Sorge, at Wisconsin University, told in Parks' own words.

"When I got to Wisconsin, I wasn't sure how things worked, so the first thing I did was to report to the political science department which was in South Hall of an old building. The first person I ran into was a little kid walking about as fast as she could down the hall. She looked like she belonged there, so I introduced myself. She said her name was Ellen Sorge. I figured she must be a secretary because I didn't think a woman like her could be a graduate student, which she turned out to be. So she says, and I usually agree, that I married the first woman I saw at Wisconsin. That wasn't quite true, but almost, and it was the best decision I ever made."

The Iowa State family recently celebrated the life of Ellen Sorge Parks, who died at her home on May 9. ■

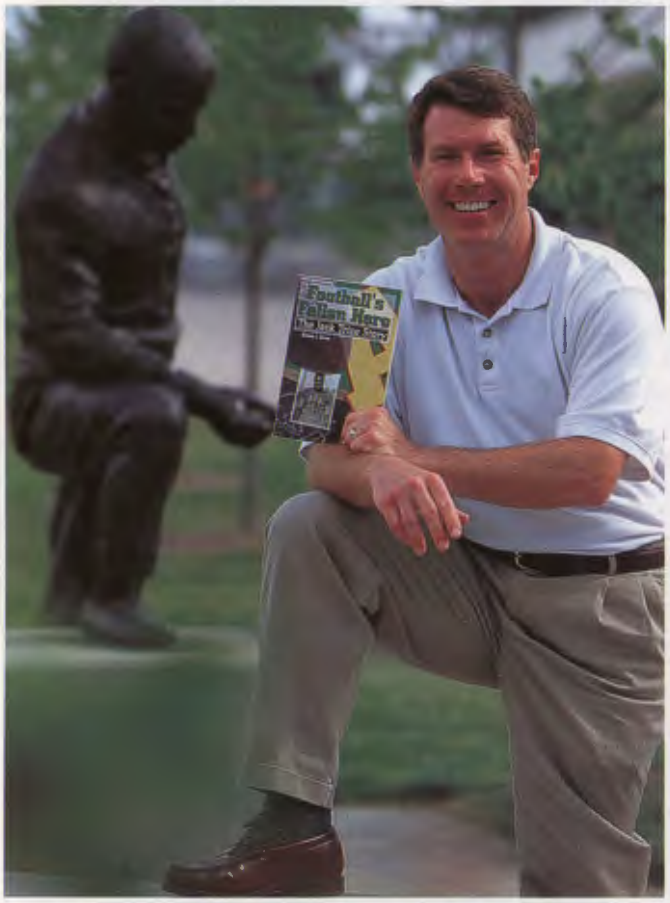
Atanasoff papers, memorabilia donated to ISU

THE LEGACY OF JOHN V. ATANASOFF AT Iowa State has grown even richer, thanks to his family's recent donation of his papers and memorabilia to ISU. As the founding father of modern computing, Atanasoff is one of ISU's most famous alumni. After he received his M.S. in 1926, Atanasoff became a faculty member in the departments of mathematics and physics. While he was on campus, he and a graduate student, Clifford Berry, developed the Atanasoff-Berry Computer. Atanasoff left Iowa State to join the war effort and the computer was never patented, but it has recently been officially recognized as the first electronic digital computer.

Housed in the ISU University Archives, the collection includes papers from the court case that proved Atanasoff was truly the inventor of the first computer, as well as other inventions – a low frequency vibrating device, a method and apparatus for sweeping a mine, plans for a motor-cycle-powered garden tractor, and an egg testing device that grades egg quality.

John V. Atanasoff II was on campus to formally donate his father's papers and memorabilia to ISU.

"The donation of these papers, books, notes, artifacts – and other memorabilia provide an inside glimpse into the life of a man who was a genius of our time," said Iowa State President Martin Jischke. ■



Alumnus Steve Jones has written a children's book about ISU football hero, Jack Trice.

Football's Fallen Hero

***Football's Fallen Hero – The Jack Trice Story,* is a new children's biography about the man for whom ISU's football stadium is named.**

TRICE DIED IN 1923 FROM INJURIES SUFFERED IN ONLY HIS second Iowa State game. The night before the game, Trice wrote himself a note: "The honor of my race, family and self is at stake. Everyone is expecting me to do big things. I will!"

The book's author, Steve Jones,'80 journalism and mass communication, began researching Trice's life five years ago after studying a photo of him in his football uniform. "It was that big smile that really caught my attention. He just looked like a nice guy. He looked like a man I would like to know more about… and a man children would like to know more about."

Football's Fallen Heros, Jones' first book, is available from Perfection Learning Corp. in Des Moines. ■

WOI celebrates 50th birthday, **bids farewell to Doug Brown**

SUMMER 1999 WAS A BITTERSWEET one for ISU's WOI radio staff members, as they celebrated their 50th birthday and said good-bye to an old friend. Birthday festivities included special on-air programs, live concerts, and a one-of-a kind "Doug Brown Day," in which callers could reminisce about Iowa State's long-time broadcaster, who retired after 35 years at WOI. But not even the solemnity of Iowa Gov. Tom Vilsack's proclamation that June 10 was officially "Doug Brown Day" could force seriousness on Brown and his friends.

ILLUSTRATION BY GROUP 3

It was precisely this conversational, warm tone that endeared Brown to thousands of Iowans and made classical music approachable to more than three decades of listeners. But Brown's symphonic skills were no less than his sports savvy. He was the voice of college wrestling for 22 years and also announced volleyball, softball, gymnastics, and swimming.

The only word that correctly describes what Brown has created is "magic," said colleague Karen Bryan. "There is something indefinable; something that makes an instant connection between the listener and the voice. You can't buy it, you can't sell it, you can't steal it, you can't bottle it… it's just there or it isn't."

And for Doug Brown, it was there. ■

ISU research debunks muscle supplement hype

When baseball hero Mark McGwire slugged his way into history last year, he modestly credited some of his success to a dietary muscle-building supplement, called Androstenedione. Sales of the over-the-counter drug soared.

SO WHEN ISU RESEARCHERS SAID "baloney!" (or polite, scientific words to that effect) the national media paid close attention. Health and human performance professors Doug King and Rick Sharp found that not only is the drug ineffective, it is also unsafe. An article by the two researchers, recently published in the *Journal of the American Medical Association*, reported that men who use the drug face increased risks of heart disease and pancreatic cancer and can develop enlarged breasts. ■

A celebration of science and technology

DURING THE 1999-2000 YEAR, IOWA STATE UNIVERSITY will celebrate the role of science and technology with the theme "Advancing Technology: To Become the Best."

The celebration will begin with a laser light show following the Sept. 2 Cyclone football game in Jack Trice Stadium. Other major activities include the dedication of Howe Hall, phase I of the $61 million Engineering Teaching and Research Complex; an announcement of a new Plant Sciences Institute; and lectures on virtual reality, high-tech initiatives in veterinary medicine, on-line education, computer graphics, genetic engineering, information technology, space exploration, and other topics that examine the impact and role of science and technology.

The College of Engineering will be highlighted as it celebrates both the 100th anniversary of Marston Hall and the grand opening of Howe Hall. Engineering Week will be held Sept. 19-28, and engineering alumni events will be held throughout the year in Chicago, San Jose, Dallas, Houston, Des Moines, and Cedar Rapids.

"As we enter the millennium, I can't think of a better time to celebrate what technology has brought us and to recognize how technology will continue to shape our lives in the future," says Iowa State University President Martin Jischke. "Technology is a cornerstone of today's society, and our economy is continually driven by advances made in this area. It is fitting to recognize this and celebrate it." ■

Swine Research Center gets a life

IT WAS BIG, NEW, AND SHINY. IT WAS ALSO VACANT. Since it was completed in 1998, the federally funded 52,000-foot ISU Swine Research Center has sat empty, the victim of an eleventh-hour decision by the federal government to pull the remaining funds needed to equip and staff the project. About the time that the public was beginning to call the $9.6 building a "white elephant," a new plan emerged.

ISU recently signed a 20-year agreement with the Agricultural Research Service to jointly operate the center. Initial work will focus on developing nutritional and microbiological approaches to reducing hog odor while also increasing feed efficiency, hog reproduction, and growth. ■

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by Carole Gieseke

For brothers' unique enterprise, the horse is the source

It's been called a wonder drug. And no wonder: Premarin, an estrogen-replacement medication, controls the unpleasant symptoms of menopause, reduces the risk of coronary heart disease in women, and is effective in the treatment of osteoporosis. Prescribed for more than six million American women, Premarin has become a billion-dollar business. Next year, sales are expected to skyrocket to $3 billion as a whole new generation of baby boomers reaches menopause.

That kind of success begs the question: Why is there no generic equivalent for Premarin? Why is only one pharmaceutical manufacturer reaping the benefit of the most widely prescribed drug in the United States?

"For pharmaceutical companies, the concept of running an agricultural enterprise of this magnitude is really pretty unusual."

It's fairly simple, really. Premarin is derived from an agricultural product. Several drug companies have tried to develop synthetic versions of the estrogen replacement therapy, only to be rejected by the FDA. Premarin's natural ingredient, it seems, is the key to producing a successful drug. And that natural ingredient is horse urine.

Yes, horse urine. The natural source of Premarin is urine from pregnant mares (hence the name Pre-mar-in), which is processed by Wyeth-Ayerst Laboratories of Philadelphia, Pa. But a new "farm to pharmacy" business run by two Iowa State graduates – brothers Steve and David Saveraid – is positioning itself to give the big pharmaceutical company some friendly Midwestern competition.

The brothers co-founded Natural Biologics LLC in 1993, and in 1997 they completed construction on a 30,000-square-foot, $9 million headquarters and processing plant in Albert Lea, Minn. The company is providing farmers in Iowa, Nebraska, Minnesota, Indiana, and North and South Dakota the opportunity to make a profit from what is essentially an on-the-farm waste product.

It's the first time anyone has seriously challenged Wyeth-Ayerst with a natural equivalent for Premarin in the 40 years that the drug has been on the market. Steve Saveraid thinks that's because most pharmaceutical companies think in terms of chemistry and synthetic production when manufacturing a new product. "For pharmaceutical companies, the concept of running an agricultural enterprise of this magnitude is really pretty

JIM HEEMSTRA

Duane Jaeger inspects one of his mares on his farm near Charles City.

JIM HEEMSTRA

Steve and David Saveraid at the Natural Biologics processing plant in Albert Lea, Minn.

unusual," he says.

But for Steve and David, it was a natural combination. The brothers both graduated from Iowa State with degrees in animal science, and Steve says they were "uniquely qualified" to begin such a partnership.

Steve knew how to run a business. David knew about livestock. Their father, Ken, who also attended Iowa State, knew about horses. Plus, the brothers say, the science they were taught at Iowa State provided them with a solid foundation on which to enter a new profession.

"We kind of laugh about it, you know, like we're glad we had the chemistry," says David. "We hadn't used it in twenty years, but it sure came in handy here."

Turning an animal waste product into gold

The Natural Biologics facility sits back from the main road that runs through Albert Lea, just behind the shopping mall. From the outside, the building looks as if it might house a printing plant or a research lab. Inside, after collecting and processing the urine of hundreds of pregnant mares, the state-of-the-art facility most closely resembles a shiny, clean milk processing plant.

The comparison to a dairy facility is no coincidence. According to a fact sheet distributed by the company, the process of collecting the horse urine from regional farms is comparable to collecting bulk milk from dairy farms. Throughout the collection season (October through March), the urine is collected every four days from farms throughout the Midwest and transported in refrigerated, stainless-steel trucks to the processing facility in Albert Lea.

The raw agricultural product is made into a powdered form in Albert Lea. From there, the material is shipped to a second plant, where it is diluted and made into tablets.

For traditional farmers like Duane Jaeger of Charles City, Iowa, collecting pregnant mare urine has become a lucrative agricultural venture. Jaeger, whose older son Troy earned a B.S. in business from Iowa State, was the first to sign on with Natural Biologics five years ago. Jaeger's big, docile Percheron draft horses were perfectly suited for the collection process. So Jaeger converted a cattle shed into a specialized horse barn and learned to manage a completely new operation.

"There's no money in farming," he laments. "I had to find something different to do."

Jaeger now stables 100 pregnant mares, 54 of which are his own. The rest are entrusted to him during the winter months by their owners. In exchange for their boarding, Jaeger is allowed to collect their urine and turn it into a profit.

Natural Biologics requires its producers to maintain a minimum of 50 horses and possess the experience, facilities, and equipment necessary to manage the operation. For their investment, farmers expect to gross at least $85,000 a year.

"You could look at this and say it's easy money, but it's a lot of work," says Jaeger, who manages the operation with his wife and younger son, Mike. "You have to know that going in. But you get out of it what you put into it.

"This is a different branch of ag." ■

Natural Biologics, Inc.

- David Saveraid, ISU '76 animal science, president
- Steve Saveraid, ISU '72 animal science, chief financial officer
- Formed in 1993 to manufacture bulk pharmaceutical products derived from agricultural products
- Based in Albert Lea, Minn.
- Currently awaiting approval from the U.S. Food and Drug Administration to manufacture conjugated estrogen, the first generic version of Premarin estrogen replacement drug (approval expected in 2000)
- Employing more than 30 farmer/producers with a total of more than 2,000 mares

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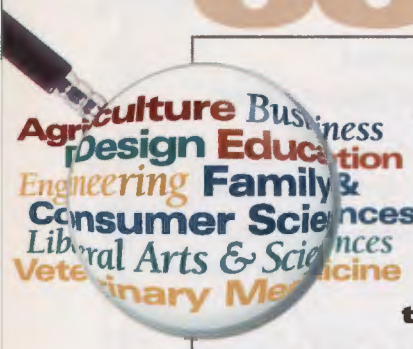


The fact that ISU faculty members edit and author thousands of journal articles and textbooks every year is hardly newsworthy. That's part of their job. But VISIONS readers may be interested in seeing a handful of books that represent the colorful and diverse topics that ISU researchers and teachers have created. (And if one of the books ends up on your bookshelf, don't be shy about stopping in on campus for a personalized inscription from the author!)

Agriculture

American Bamboos

It may seem odd that one of the nation's experts on bamboo is located in the middle of corn country. But Lynn Clark, associate professor of botany, says her book, *American Bamboos*, was a natural product of her love for the plant. "They are wonderful, fascinating plants," she says. "Most people don't even realize we have any native bamboos in the New World."

The book appeals to a variety of audiences: botanists and horticulturists as well as laypersons and gardeners. In addition, the "coffee-table-book crowd" will be drawn to the book's 130 color photographs and 70 line drawings. Recently published by the Smithsonian Institution Press, the book is available from the publisher for about $45, and is available from on-line book dealers for around $30.

Veterinary Medicine

Brucellosis in the Greater Yellowstone Area

When environmentalists came head-to-head with dairy farmers in the Yellowstone area, Norman Cheville, chair of ISU's Department of Veterinary Pathology, was asked to shed academic light on a tough problem. For the first time in the nation's history, brucellosis has been irradicated from domestic cattle. However, the bacterial disease still remains in wild herds of bison and elk, which can transmit the disease to domestic animals. Cheville, who has developed a vaccine for the disease, was asked by the National Research Council to study solutions to the problem, including vaccinating the wild animals. This solution has been criticized by environmentalists, who argue that the procedure could endanger the gene pool of a disappearing species.

Brucellosis in the Greater Yellowstone Area, co-authored by Cheville and two colleagues, sifts through the scientific basis of many conflicting views and summarizes workable solutions, including disease surveillance and monitoring a vaccination program. The book is available for $35 from the National Academic Press in Washington, D.C.

Design

Images of the Illustrious

Numismatics – the study and collection of coins – reveals much about the collector. In *Images of the Illustrious: The Numismatic Presence in the Renaissance*, John Cunnally, associate professor of art and design, focuses on renaissance collectors, who were avid admirers of ancient Greek and Roman coins. According to Cunnally, ancient coins were the most abundant and portable remains of antiquity throughout the renaissance in Europe. "They were collected as treasures, studied as documents, exchanged as gifts, admired as art, venerated as relics, and cherished as talismans of antique virtue," he explains.

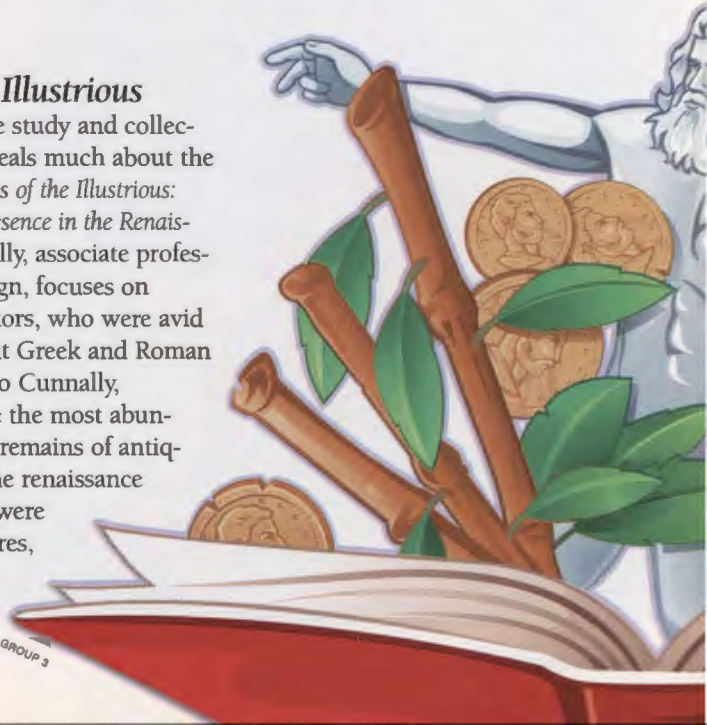
Cunnally's book describes how the presence of these coins in the 16th century made the lost world of the ancients accessible to literate Europeans. The book is available from Princeton University Press and is aimed at a wide audience of historians, archeologists, and coin collectors.

Engineering

Materials in Art and Technology

The artist who created a mold for his sculpture of Zeus 2,000 years ago and today's engineer who designs casts for jet engines use many of the same techniques. Learning from the artists of yesterday and helping today's artists apply modern scientific techniques to their work is the basis for a book by ISU's Rohit Trivedi, Anson Marston distinguished professor in engineering and professor of materials science and engineering.

Trivedi's book, *Materials in Art and Technology*, evolved from a course he taught for more than 20 years, which began by helping artists meet construction and materials challenges. Creatively shaping ceramics, glass, metals, and polymers depends on a thorough under-



Write On: Campus authors

standing of the properties of the materials, and although the connection between art and science seems obvious, ISU's course has been unique – and taught without a textbook. Although Trivedi's book may be used by other universities to develop a similar course, he believes that non-academic readers will also appreciate the book. The 400-page book includes 200 illustrations and is available from Taylor Knowlton for $59.95.

Family and Consumer Sciences

Vegetable Desserts: Beyond Carrot Cake and Pumpkin Pie

Children of all ages who have been plagued by the parental mantra, "Eat your vegetables and you can have dessert," will want to run, not walk, to the local bookstore to check out a cookbook co-authored by Elisabeth Schafer, ISU professor of food science and human nutrition and extension nutritionist.

Schafer's book, which uses America's love affair with desserts to promote the oft-shunned vegetable, includes dessert recipes that use 24 different kinds of vegetables. Schafer, who tested the recipes on friends and children, said, "People eat these and ask, 'What's in here?' because they can't tell. They ask for a second helping." Camouflaged by delicate spices and creative preparation, mashed potatoes lie hidden in fudge, beets in pie, garlic in ice cream, and cabbage in cookies. "There were a few vegetables we couldn't figure out how to use – like lettuce and asparagus," says Schafer. "The desserts had to taste good – that was our test."

Not only do Schafer's desserts taste good, they're good for you. Higher in fiber and lower in fat and sugar, the desserts also retain the nutritional advantages of the vegetables hiding inside. The book also includes stories and histories of vegetables. The 200-page book, published by Chronimed Publishing and illustrated with color photographs, is available at bookstores for $16.95.

Business

Handbook on Electronic Commerce

The Internet is the world's hottest new marketplace, and a new handbook describing all aspects of the new phenomenon is now available. Co-edited by ISU's Troy Strader, assistant professor of logistics, operations, and management information, the 700-page book is state-of-the-art coverage for academics and professionals interested in Internet business.

Published by Springer-Verlag in Berlin/Heidelberg, Germany, the $140 manual covers digital payment, implications for consumer behavior, culture clashes in Internet marketing, digital libraries, electronic catalogs, the rise of mass customization, the emergence of virtual auctions, privacy and legal issues, information product development, web-based storefront design, and business-to-business networking.

Liberal Arts and Sciences

White Power, White Pride! The White Separatist Movement in the United States

Betty Dobratz, associate professor of sociology, has co-written an award-winning book on American white separatists groups, including the Ku Klux Klan, Skinhead, neo-Nazi, and Christian Identity movements. Dobratz bases her book on extensive archival records, analyses of promotional videotapes, thousands of pages of movement-generated documents, hundreds of hours of direct field observations, and 125 interviews with members of separatist groups. Dobratz's research highlights differences between the groups' ideologies, strategies, and tactics, and also examines counter movement efforts by groups such as the Southern Poverty Law Center, the Anti-Defamation League of B'nai B'rith, and the Coalition for Human Dignity.

The book is available from Twayne/Simon and Schuster Macmillan Publishing in New York.

Education

Toward Acceptance: Sexual Orientation Issues on Campus

Nancy Evans, associate professor of educational leadership and policy studies, and Vernon Wall, assistant dean of students, have edited a book that examines the complex issues that face gay, lesbian, bisexual, and transgendered persons on college campuses. The book builds on their previous book, *Beyond Tolerance: Gays, Lesbians and Bisexuals on Campus*.

Published by the University Press of America for the American College Personnel Association Media Board, the book includes sections on research, institutional issues, interventions in student services, diversity within the lesbian, gay, bisexual, and transgendered community, and campus issues. ■

Campaign Destiny helps ISU look to the future

Perhaps no areas of Iowa State University research and teaching have benefited more from private support than that of engineering and technology. As we begin our year-long celebration of the roles science and technology have played in shaping ISU's past, present, and future, the ISU Foundation commends just a few individuals and companies that have helped Iowa State University become the best.

Helping teachers become their BEST

'Thanks a million'

John Foster wanted to thank a very special mentor, so he made a million dollar gift to honor him. George Burnet, former professor and chair of the Department of Chemical Engineering and Anson Marston distinguished professor in chemical engineering, made a lasting impact on Foster. "George Burnet always took an interest in students," says Foster. "My loyalty and feelings for ISU were engendered in large measure by the fact that Dr. Burnet was very good to me."

Foster's deferred gift will be used to create the George Burnet chair in chemical engineering, which provides an opportunity for an established ISU faculty member to devote time and resources to student-centered activities. The chair holder will strengthen student and faculty interaction; enhance student professional development through summer and co-op employment, international experience, and research participation; counsel, advise, tutor, and mentor students; and develop lectures or short courses that enhance student activities.

Helping students become their BEST

Working with people

LeQuetia Ancar didn't hesitate when Alcoa scholarship administrators asked her to complete an essay about why she wanted to major in ISU's Department of Industrial Technology. She knew it was the major for her. Her technical

JIM HEEMSTRA

LeQuetia Ancar is the first student to receive a $1,000 scholarship from the Alcoa Foundation for industrial technology majors.

JIM HEEMSTRA

Janese O'Brien, a Ph.D. candidate in analytical chemistry, examines a sample to be analyzed by a miniaturized microscope.

aptitude (she had previously majored in civil engineering), combined with her ability to work well with people, prompted her to choose the training and development option offered by the College of Education. Ancar is the first student to receive a $1,000 scholarship funded by a $25,000 grant from the Alcoa Foundation.

"Alcoa understands that a global economy needs a diverse group of minorities and women in professional positions," says Dominick Fazarro, a Ph.D. student in the department who recruits minorities for the Alcoa program. "I visited with hundreds of high school students about a major in industrial education and technology. I asked them, 'Are you an analytical person or a people person?' If they said 'people,' I told them I had the major for them!"

Fazarro hopes to recruit an increasing number of women and minorities through the Alcoa scholarships. "People with cross-disciplinary skills, who can work in a team, are what industries are looking for today," he says.

Hands-on laboratory experience

A recent gift of equipment valued at more than $200,000 from Rockwell Automation will provide Iowa State students in the Department of Electrical and Computer Engineering a competitive edge in the growing field of power electronics. Visiting professor V.V. Sastry from the Indian Institute of Technology in Madras, India, will use the state-of-the-art equipment that is enhancing the Power Electronics and Drives Lab in Coover Hall to teach a new graduate-level course, Power Electronic Systems, this. The lab also is used to teach an undergraduate course, Electronical Machines and Power Electronics.

In the lab, students will work with programmable logic controllers, instruments that control industrial conveyers, automatic guided vehicles, automated storage systems, closed-loop conveyer systems, and robots. This technology is useful to any electrical motor – from an electrical vehicle, to a solar car, to computer hard disk drives, to airplane landing gear, to diesel locomotives.

Helping research pioneers become their BEST

Growing smaller

Forget bigger and better. A $1.2 million grant from the W. M. Keck Foundation of Los Angeles is letting ISU researchers grow smaller and better. A new lab devoted to making scientific instruments incredibly small will be part of ISU's Microanalytical Instrument Center housed within the Institute for Physical Research and Technology. The Keck laboratory, directed by Marc Porter, ISU professor of chemistry, will allow researchers to transform analytical instruments into very small devices. Miniaturizing these devices will allow researchers to explore environments not easily accessible to humans.

For example, one of the research teams is working to develop a micropump no thicker than a strand of human hair. The pump could become a key element in the shrinking of a chromatograph system from the size of a microwave oven to that of a silver dollar. The tiny chromatograph system would play a vital role in the recycling of water from cabin humidity and body wastes, an essential step for long-term space flight.

"Reflecting W. M. Keck's life as a pioneer, innovator and risk taker, the Keck Foundation seeks out research, such as Iowa State's laboratory for the Fabrication of Miniaturized Analytical Instrumentation, because it is opening new directions in science," says Maria Pellegrini, Keck program director. "The foundation is happy to participate in these efforts at Iowa State." ■

Alumni Association and colleges honor ISU alumni

Every year, the Alumni Association sponsors an all-university event that allows each college to recognize alumni who have distinguished themselves through service and professional achievement. In addition, the Association honors alumni, faculty, and staff members. The highest honor we confer is the Distinguished Achievement Citation.

Distinguished Achievement Citation

For extraordinary achievements and preeminent contributions to agriculture, arts, business, education, industry, professions, public service, social welfare, science, or other endeavors

Katharine G. Abraham
B.S. 1976, Economics
Washington, D.C.

As the commissioner of the U.S. Bureau of Labor Statistics, Katharine Abraham holds one of the highest offices in the United States government available to an economist or analyst. Since 1993, Abraham has led an organization that has been called one of the best-run and best-staffed statistical agencies in the country.

Abraham is a highly respected researcher. Prior to joining the Bureau of Labor Statistics, Abraham was on the faculty of the Massachusetts Institute of Technology and the University of Maryland, and on the research staff of the Brookings Institution.

Abraham received the Ph.D. degree from Harvard University in 1982. She was awarded the ISU Alumni Association's Outstanding Young Alumnus award in 1988.

***William R. Brinkley**
Ph.D. 1964, Zoology/Cell Biology
Houston, Texas

One of America's premier scientists, William Brinkley has given the nation and the world an important new tool for detecting early stages of cancer development in human cells and tissues. Brinkley, who is vice president for graduate sciences and dean of the Graduate School of Biomedical Sciences at Baylor College of Medicine, is a world authority on how cells divide (mitosis) and how this process is different in cancer cells. Recently, Brinkley and his co-workers identified and defined a molecule, the STK15 gene product, whose over-expression represents an early event that is responsible for creating genetic instability and the conversion of a normal cell to malignancy.

Brinkley has had a profound impact not only on the fight against cancer, but also on the research of other major diseases. As president of the Federation of American Societies for Experimental Biology, the nation's largest organization of biomedical scientists, Brinkley led the organization's successful advocacy effort to increase the budget of the National Institutes of Health by 14.5 percent, or $1.9 billion dollars in fiscal 1999.

***Vance D. Coffman**
B.S. 1967, Aerospace Engineering
Potomac, Maryland

As chairman and chief executive officer of Lockheed Martin Corporation, Vance Coffman is one of the most influential shapers of the nation's space program. A 32-year veteran of Lockheed, Coffman was formerly president of the Space Systems Division and responsible for the Hubble Space Telescope, the MILSTAR satellite communications program, the Space Based Infrared System, and Iridium, the global cellular phone system.

Coffman's colleagues report that not only is he an exemplary scientist, he is also a highly respected administrator. When Lockheed merged with the Martin Marietta Corporation in 1995, Coffman personally directed the merger of the Space Systems Sector, a process that involved 30,000 people and eight billion dollars in revenue.

Coffman received M.S. and Ph.D. degrees from Stanford University. He has devoted extensive personal effort to support higher education opportunities for inner-city children in the Washington, D.C. area.

***Sarah L. Morgan**
B.S. 1977, Food and Nutrition/Dietetics; Food and Nutrition/Related Sciences
Vestavia Hills, Alabama

Dr. Sarah Morgan, a highly respected scientist, educator, and physician, holds faculty and administrative positions at the University of Alabama at Birmingham. An associate professor of nutrition sciences and medicine and division director of Clinical Nutrition and Dietetics, her research has had a powerful effect on the treatment of rheumatoid arthritis. Although the drug methotrexate can effectively treat autoimmune diseases, its usefulness has been significantly reduced because of its toxicity. Morgan demonstrated that taking methotexate along with a supplement of folic acid substantially reduced the drug's toxic effects. Her ongoing studies are currently supported by a highly competitive grant from the National Institutes of Health.

As medical director of the Osteoporosis Prevention and Treatment Clinic, she has become a national expert on the prevention and treatment of osteoporosis. She has developed a multidisciplinary clinic, which includes patient education, physical therapy, bone densitometry, and medical therapy.

All alumni and friends of ISU are invited to the Alumni Honors and Awards Ceremony, 7:30 p.m. Friday, Oct. 29, Benton Auditorium, Scheman Building, Iowa State Center. People wishing to submit nominations for 2000 awards may do so by calling 1-877-ISU-ALUM (locally, call 294-4762). A nomination form may be accessed on the Association web page at **www.alumni.iastate.edu.** Nominations should be submitted by December 1, 1999.

Alumni Medal
Iowa State University Alumni Association

***Stanley Howe,** BS '46, chairman emeritus, HON Industries, Muscatine.

***Carol Elizabeth Jensen,** BBA '88, EDI business and systems analyst, Motorola Inc., Scottsdale, Ariz.

***Harriet J. Smith,** BS '49, retired home economist, Iowa State University Extension, Newton.

Outstanding Young Alumnus
Iowa State University Alumni Association

***Ann Schweer-Bachman,** BS '86, chairperson, Department of Family and Consumer Sciences, Lisle Community Unit School District #202, Aurora, Ill.

***Heidi Kaisand,** BS '90, editor, *American Patchwork & Quilting*, Melbourne.

Sergio H. Lence, MS '88, PhD '91, associate professor of economics, Iowa State University, Ames.

***Lori M. Reesor,** MS '87, dean of students, Wichita State University, Wichita, Kan.

Wagdy G. Wassef, PhD '91, associate, Modjeski and Masters, Inc., Mechanicsburg, Pa.

Faculty Citation
Iowa State University Alumni Association

Mary Lynn Damhorst, associate professor of textiles and clothing, Cambridge.

John C. Even, Jr., emeritus professor of industrial and manufacturing systems engineering, Ames.

***Dennis C. Johnson,** distinguished professor of liberal arts and sciences, Department of Chemistry, Ames.

Russell N. Laczniak, associate professor of marketing, Ames.

Bruce Edward Smith, professor of art, Ames.

James A. Hopson Alumni Volunteer Award
Iowa State University Alumni Association

***Amy Neece Kahler,** BBA '93, senior accountant, Principal Financial Group, Ankeny.

Superior Service Award
Iowa State University Alumni Association

Lori Kay Bushore, secretary, Industrial and Manufacturing Systems Engineering, Jewell.

***Jane Galyon,** BS '82, MS '87, program coordinator, Institute for International Cooperation in Animal Biologics, Ames.

***Paul Kassel,** BS '78, MS '81, field specialist/crops, Iowa State University Extension, Spencer.

Virgene L. Monthei, secretary, College of Design administration, Stanhope.

***Jen Peters,** administrative specialist, Department of Psychology, Ames.

Pauline R. Smith, secretary, Department of Music, Ames.

***David A. Tesdall,** retired payroll manager, Huxley.

Alumni Merit Award
ISU Club of Chicago

***Winnifred Cannon Jardine,** BS '41, retired food editor, *Deseret News*, Salt Lake City, Utah.

Floyd Andre Award
College of Agriculture

***Willard J. (Bill) Latham,** BS '63, president, Latham Seed Company, Alexander.

Henry A. Wallace Award
College of Agriculture

***Billy N. Day,** PhD '58, Fred F. McKenzie distinguished professor of animal science, University of Missouri-Columbia.

Citation of Achievement
College of Business

***Craig Petermeier,** BS '78, president/CEO, Jacobson Companies, Des Moines.

Kenneth L. Thome, BS '69, senior vice president, financial operations, General Mills, Minneapolis, Minn.

Christian Petersen Design Award
College of Design

Elizabeth S. Miller, emeritus distinguished professor of art and design, Iowa State University, Des Moines.

Design Achievement Award
College of Design

Eugene L. Rauch, BA '85, art director, Meredith Corporation, Des Moines.

James L. Sipes, MLA '84, senior associate, Jones & Jones Architects and Landscape Architects, Seattle, Wash.

Dennis Stacy, BArch '69, president, Stacy Architects, Dallas, Texas.

Virgil Lagomarcino Laureate Award
College of Education

Barbara Crittenden, MS '86, PhD '97, president, Southwestern Community College, Creston.

***Richard M. Foster,** BS '72, MS '74, PhD '78, vice president for programs, W. K. Kellogg Foundation, Richland, Mich.

***Les Omotani,** PhD '92, superintendent, West Des Moines Schools, West Des Moines.

Alumni Achievement Award
College of Education

James H. Skogsbergh, BS '80, president, Central Iowa Health System, and senior vice president, Iowa Health System, Clive.

Marston Medal
College of Engineering

James F. Watson, BS '58, MS '60, president, TwinStar Semiconductor Inc., Plano, Texas.

Professional Achievement Citation in Engineering
College of Engineering

Don P. Clausing, BS '52, Xerox fellow in competitive product development, Massachusetts Institute of Technology, Waltham, Mass.

*** Alumni Association Member**

Alumni Association and colleges honor ISU alumni

continued

John D. Foster, BS '65, counsel, Leydig, Voit and Mayer, LTD; and chief patent counsel, Pall Corporation, NYC, Evergreen, Colo.

Joseph T. Sullivan, BS '62, Joseph H. Collie Professor of Chemical Engineering, Virginia Polytechnic Institute and State University, Blacksburg, Va.

***David A. Van Winkle,** BS '73, director, Data Converter Products Group, Texas Instruments, Allen, Texas.

Professional Achievement Award in Family and Consumer Sciences

College of Family and Consumer Sciences

***Barbara King,** BS '68, president, Landscape Structures, Inc., Maple Plain, Minn.

Susan J. Kontos, BS '80, professor of developmental studies and early childhood education, Purdue University, West Lafayette, Ind.

Helen LeBaron Hilton Recognition

College of Family and Consumer Sciences

***Alice Van Wert Murray,** BS '34, retired teacher and manager of family farm, Ames.

***Mary S. Pickett,** PhD '58, emeritus professor of human development and family studies, Iowa State University, Ames.

Citation of Merit

College of Liberal Arts and Sciences

Frederick B. Rudolph, PhD '71, professor of biochemistry, Rice University, Houston, Texas.

***Larry G. Schnack,** BS '58, PhD '65, chancellor, University of Wisconsin-Eau Claire.

Distinguished Service Award

College of Liberal Arts and Sciences

***Dale P. Anderson,** M.D., MBA '95, medical director, McFarland Clinic, Ames.

John M. Dobson, dean, College of Arts and Sciences, Oklahoma State University, Stillwater, Okla.

***Ronald H. Peters,** professor of psychology, Iowa State University, Ames.

Stange Award for Meritorious Service

College of Veterinary Medicine

***Kenneth E. Bartels,** DVM '73, professor of surgery and Cohn chair in veterinary medicine and surgery, Oklahoma State University, Stillwater, Okla.

***Joseph W. Sexton,** DVM '42, MS '70, retired large animal practitioner; former associate professor in clinical sciences and field services, Iowa State University, Tripoli.

***Kenneth M. Wilcke,** DVM '60, veterinary practitioner, Walcott Clinic, past president, Iowa Veterinary Medical Association, Walcott.

William P. Switzer Award in Veterinary Medicine

College of Veterinary Medicine

William C. Wagner, national program leader, veterinary microbiology and pathology, USDA Cooperative State Research, Education, and Extension Service, Sterling, Va.

Note: Only ISU degrees are listed

* **Alumni Association Member**

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The ISU Alumni Association – it works for a lifetime

The ISU Alumni Association welcomes the following new lifetime members who joined April through June 1999. If you would like to convert your membership from annual to lifetime, and receive a complimentary gift, call 1-877-ISU-ALUM (or 294-2648 locally).

Elaine L. Bailey
Donald Bandow
John E. Beal
Terry J. Berger
John R. and Kim C. Boeke
Monica R. Booe
Janis M. Brownlee
Jeffrey and Annette R. Busbee
Mark A. Chatterton
Lip-Jen Chew
Tony and Ching C. Chiu
Nancy L. Clifford
John and Ann M. Conklin
Scott D. Damge
Lynn J. and Sandra L. Davis
Matthew L. Dinslage
Daryl L. Drake
Mary E. Feroe
Michael D. Gaunt
Michael G. and Nadyne Grubbs
Steven J. Harris
Gregory J. and Denise L. Hester
Keven P. and Kelly Highland
Laverne H. Hines
James R. Hochstetler
Matthew R. and Margaret Hodges
James and Elaine Houck
Craig A. Johnson
Julie A. Johnston
Rameshwar S. and Anjana Kanwar
Thomas B. and Bonnie J. Lapke
Brian K. Lepley
Steven L. Mallicoat
Mark W. and Michelle L. McGarigle
Angela M. McRell
Christopher J. Merriman
Kendall B. and Barbara K. Messer
Curtis Morgan
Steven A. and Colleen Noth
Katrina R. O'Brien
Gbekeloluwa and M.O. Oguntimein
Tasha S. Orr
Kellene M. Parra
John L. and Marie Quinn
Dana E. Rand
Doug Reimann
Scott Rohlf
Bryan J. Runyan
Thomas J. Ruzicka
Mike Shedenhelm
Teddy and Karen S. Siefkas
Caroline C. Sievers
Denise Smith
Sean D. Smith and Kerri Gildsig-Smith
Raymond E. and Jane A. Stanley
Kenneth J. and Alice Sufka
Bart and Carmen R. Van Voorhis
Julie Vardaman
Mark A. Villanueva and Emily A. Goodvin-Villanueva
Ruth M. Vogel
Sang D. Vu
Carey N. Walden
Kyle D. Wendt
Larry G. and Christy Wirth
Brent C. and Maggie Wynja
Edwon Yedlik

Career Insights

by Bev Madden
Director, ISU Career Services

Today's job market continues to be excellent for ISU graduates. Annually, 1,200 organizations participate in ISU's 10 annual career or job fairs. More than 19,000 students take advantage of these opportunities to explore career options, identify internships, and pursue full-time positions after graduation.

Both engineering and business/liberal arts and sciences career days are now held in Hilton Coliseum, having outgrown the Memorial Union's Great Hall. With 226 participating employers, engineering's event is now the second largest engineering career fair in the nation and No. 1 in indoor career fairs. "I've done a number of career fairs over the years at a number of schools and this one is first class," said Tony Gabel, human resources manager and corporate recruiter for USG Corporation, Cloquet, Minn.

The Career Service offices will host the following career events, which are open to all students and alumni (Hilton Coliseum in Ames = Hilton; ISU Memorial Union = MU):

Sept. 21 - Engineering Career Day, Hilton
Sept. 22 - Business/Liberal Arts & Sciences Career Day, Hilton
Sept. 24 - International Opportunities Fair, MU
Sept. 29 - Family and Consumer Sciences Career Day, MU
Oct. 13 - Graduate and Professional School Information Day, MU
Nov. 9 - Agriculture Career Day, MU
Jan. 7 - Regents Universities Central Iowa Job Fair, Polk County Convention Complex, Des Moines
Feb. 16 - Business/LAS Spring Career Day, MU
Feb. 17 - ISU Summer Job Fair, MU

Each of the college-based career services offices offers a variety of career and job-search services for students and ISU alumni. For details about their services, explore the career services web sites: www.iastate.edu/~career_info/

Career Insights is a regular feature in Association News. Its purpose is to provide you with career-related information and let you know what tools are available through Iowa State and the Alumni Association. Visit the Association's career page: www.alumni.iastate.edu/programs_services/career

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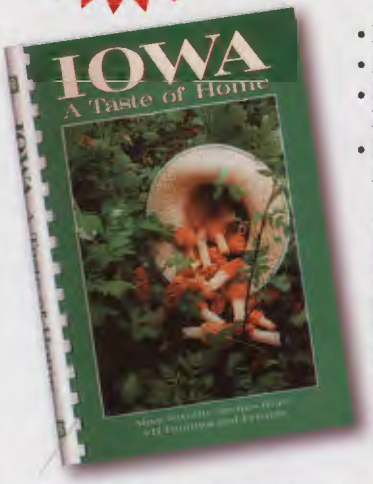

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Johnson named executive director

Jeffery W. Johnson, vice president of alumni relations for the University of Illinois Alumni Association at Urbana-Champaign, has been named the new executive director of the ISU Alumni Association.

Johnson has more than 16 years of higher education experience in the areas of alumni management, administration, human resources, membership development, fiscal management, volunteer supervision, public relations, event planning, legislative relations, admissions, and fundraising.

From 1993 to 1996, Johnson was senior vice president for external affairs and membership development for the University of Kansas Alumni Association.

Johnson holds a master of higher education administration from the University of Kansas and a B.S. in computer science from the University of Southern Mississippi.

HOMECOMING 1999

Come back to campus for Homecoming 1999

Homecoming 1999, with the theme "Inventing Our Tomorrows," includes the following highlights for alumni:

Sunday, Oct. 24

- Alumni Golf Tournament, Veenker Memorial Golf Course, 9 a.m. shotgun start, $32 per person, registration required, 1-877-ISU-ALUM (or 294-0198)

Oct. 29-31

- Hotel, Restaurant, and Institution Management Department's 75th anniversary – high tea at the Knoll, tailgate/football, formal banquet, and Sunday brunch. Call 515-294-1730.

Friday, Oct. 29

- Scholars and Mentors Luncheon
- Alumni Honors and Awards Ceremony
- All-University pep rally under the Campanile

Saturday, Oct. 30:

- Alumni Association Member Appreciation Day and All-Alumni Tailgate. Free tailgate lunch for members (limit two free per member household). Non-member tailgate is $8. Combined tailgate/discounted game ticket is $18 for members, limit two (includes postage & handling); $26 for non-members. Tailgate begins two hours prior to kickoff. Call the Alumni Association toll-free, 1-877-ISU-ALUM (294-4557) for tickets or more information. Deadline for tickets is Oct. 26.
- Football: Cyclones vs. Texas, Jack Trice Stadium

New benefits add value to Alumni Association membership

Benefits for members of the ISU Alumni Association have recently expanded to include members-only online services and prize drawings.

Online services

Online services will include an online directory; permanent email forwarding; and an email newsletter featuring campus news, sports, and upcoming events. The online directory, the benefit most requested by alumni, will be similar to the printed and CD-ROM directories currently in production, but will be updated monthly and will be available at no cost to members of the Association.

Members may sign up for these new benefits through the Alumni Association's online community at www.alumni.iastate.edu/register.

Prize Drawings

"The Great Alumni Association Giveaway" gives members the chance to win tickets to athletic events and cultural activities, weekend getaways, and more. The drawing for the first series of giveaways will be held Oct. 11.

To enter, complete and return the card enclosed in this issue of VISIONS. For more details, visit our web site at www.alumni.iastate.edu.) Watch for future giveaways in upcoming issues of VISIONS.

1999-2000 Season at Stephens

David Sanborn
Thursday, Sept. 9 • 7:30 p.m.

Smokey Joe's Cafe
Thursday, Sept. 23 • 7:30 p.m.

Hubbard Street Dance Company
Sunday, Oct. 10 • 3 p.m.

National Symphony Orchestra
Leonard Slatkin, Music Director
Tuesday, Oct. 19 • 7:30 p.m.

Nadja Salerno-Sonnenberg
Sunday, Nov. 7 • 3 p.m.

BeauSoleil avec Michael Doucet
Saturday, Nov. 13 • 7:30 p.m.

Camelot
Friday, Dec. 3 • 7:30 p.m.

Moscow Chamber Orchestra
Wednesday, Jan. 19 • 7:30 p.m.

STOMP
Tues.-Wed., Jan. 25-26 • 7:30 p.m.

Ballet de l'Opera de Bordeaux
presents *Romeo & Juliet*
Tuesday, Feb. 1 • 7:30 p.m.

The Chieftains
Wednesday, Feb. 9 • 7:30 p.m.

The Flying Karamazov Brothers
Saturday, Feb. 12 • 2 p.m.

Victor/Victoria
Tuesday, Feb. 29 • 7:30 p.m.

The Carnegie Hall Jazz Band
Jon Faddis, Music Director
Carnegie Hall is a trademark and Service Mark of the Carnegie Hall Corporation
Thursday, March 2 • 7:30 p.m.

New York City Opera National Company presents Rossini's *The Barber of Seville*
Wednesday, March 8 • 7:30 p.m.

Sergio and Odair Assad
Thursday, April 6 • 7:30 p.m.

Fred Garbo Inflatable Theater
Saturday, April 22 • 2 p.m.

Annie
Thursday, April 27 • 7:30 p.m.

Cirque Eloize
Saturday, May 20 • 2 p.m.

1-877-THE-CENTER for more information or a season brochure.

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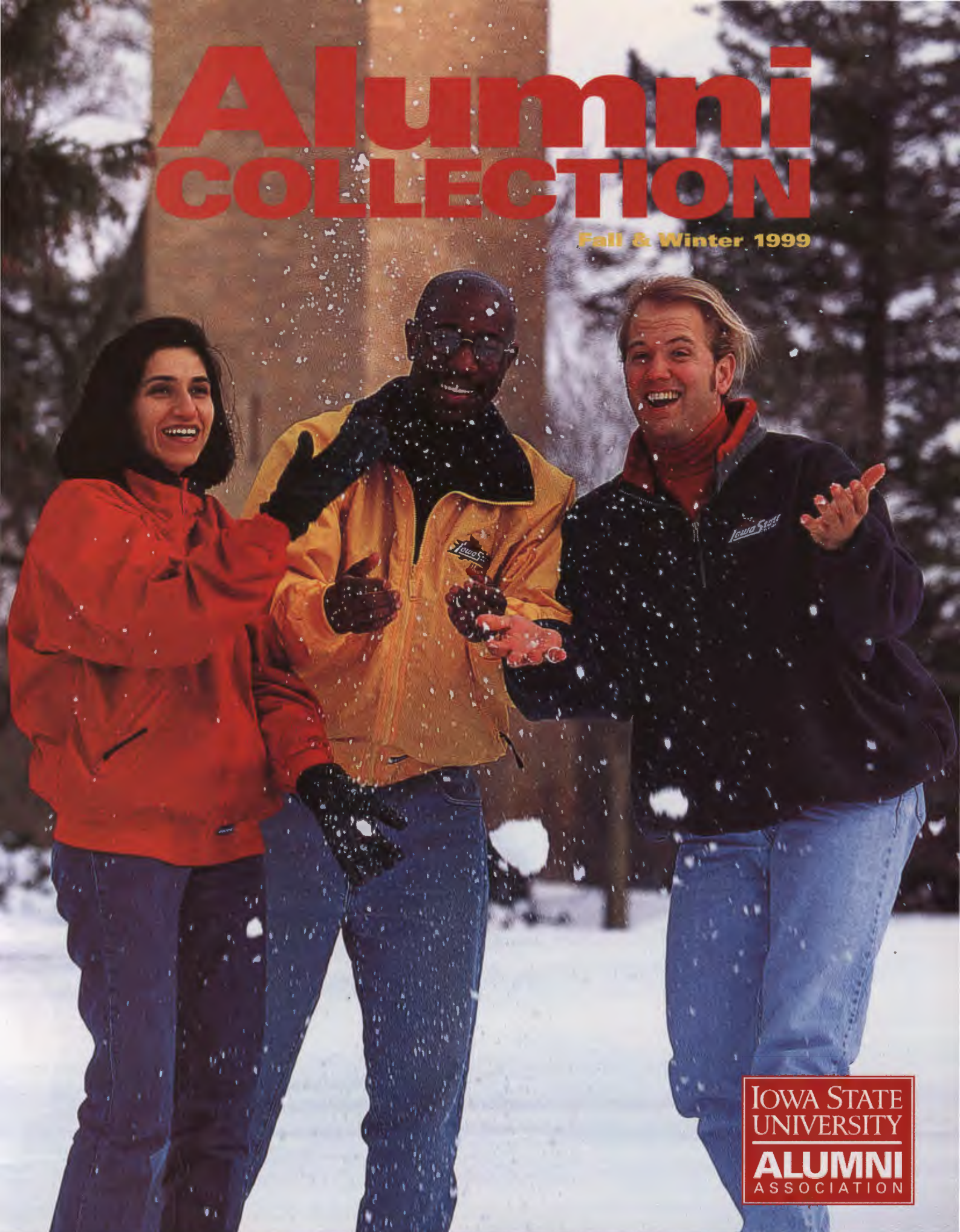
Fall & Winter 1999



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New!

Nylon Squall Jacket

Windproof and water-resistant, our fleece-lined nylon jacket lets you laugh at the weather! In your choice of red or yellow, the squall jacket features an embroidered Cyclone design. Available with or without embroidered "Alumni" insignia. Please note preference on order form.

#AP050

Sizes S-XL $79 *Member price $69*

Size XXL $81 *Member price $71*

Prices in this catalog are good through June 30, 2000.

Sweatshirt

Our classic sweatshirt takes you from the big game to the back-yard barbecue. In red, navy, and gray heather. 90% cotton/10% polyester, with an embroidered Cyclone design. Available with or without embroidered "Alumni" insignia. Please note preference on order form.

#AP021

Sizes S-XL $33 *Member price $28*

Sizes XXL-3X $38 *Member price $33*

Tanya Ryan

Order these products: • on-line at www.alumni.iastate.edu • by calling toll-free 1-877-ISU-ALUM

From our cover

New!

Fleece Pullover

You won't believe how warm and wonderful our fleece half-zip pullover feels on a cold winter day! This soft, anti-pill fleece jacket is available in red, yellow, and navy and features contrast twill tape on neck and zipper and an embroidered Cyclone design. Available with or without "Alumni" insignia. Please note preference on order form.

#AP051

Sizes S-XL $69 *Member price $63*
Size XXL $72 *Member price $66*
Size 3X $75 *Member price $69*

Let it snow! Our nylon squall jackets and fleece pullovers give Creighton Gaynor, Bindu Aryea, and Stan Dahl all the comfort and warmth they need for outdoor fun!

(locally 294-2648) • by mailing the order form

New!

Brass Campanile Ornament

Celebrate the 100th anniversary of the ISU Campanile with this 24k gold-finished brass, collectible ornament. Presented in an elegant gift box.

#CO120 $22 *Member price $19*

Pewter Holiday Ornament

Our pewter ornament series continues with this depiction of the recently-renovated Carrie Chapman Catt Hall ("Old Botany"). Dated 1999. To order this item, call the manufacturer directly at 1-800-338-4059.

$15.99 *Member price $14.99*

Attention collectors: There is also a limited stock of past ISU ornaments (1989-1998). Call the manufacturer for availability.

New!

Cat's Meow Ornament

Cat's Meow collectors will love this holiday ornament featuring the ISU Campanile. What a great way to celebrate the Campanile's 100th anniversary! Just $1 shipping per Cat's Meow ornament!

#CO108 $10.90 *Member price $8.90*

Glen and Mary Jo Mente are home for the holidays in our V-neck and crew-neck sweaters.

Alumni Association Sweaters

Crew-neck Sweater

Snuggle up! Our 100% cotton crew-neck sweater, featuring a shadow box pattern, is the perfect choice for winter warm-ups. In red, natural, and navy. Embroidered Cyclone design. Available with or without embroidered "Alumni" insignia. Please note preference on order form.

#AP040

Sizes S-XL $54 *Member price $49*

Sizes XXL-3X $59 *Member price $54*

New!

V-neck Sweater

Bring on the cold! You'll love our new 100% cotton V-neck sweater. Available in red, natural, and navy, this sweater features a jersey stitch pattern and embroidered "Iowa State University" lettering. Available with or without embroidered "Alumni" insignia. Please note preference on order form.

#AP041

Size S-XL $54 *Member price $49*

Size XXL $56 *Member price $51*

Size 3X $58 *Member price $53*

The Alumni Collection is your holiday gift-buying connection!

Oak Bench

The ultimate gift! Our beautiful oak bench is custom designed by Family Tree Furniture in Albia, Iowa. Only 75 numbered benches were produced for this limited Alumni Association item. Personalized brass plaque; your choice of stain. Please call to discuss custom details.

#FN001 $749 *$699 member price*

Campanile Poster

Bring back cherished memories with this 24"x 36" poster by award-winning photographer Jim Heemstra. The twilight hues of evening and a waxing moon add drama to an ISU landmark that is celebrating its 100th anniversary. Fits perfectly in widely-available poster frames.

#AC016 $20

Member price $16

Cy Watch

There's always time for Cy! This Cyclone watch comes with a lifetime warranty, is water-resistant, and features Seiko watch movement.

#JE001 Men's style
#JE002 Women's style
$41 *Member price $36*

Seiko Quartz Watch

This beautiful timepiece combines distinguished styling and precision Seiko quartz movement. Available with a black leather strap or two-tone bracelet, and features the ISU Campanile on the watch face. In 14K gold. Men's or women's style.

With leather strap $230
With two-tone bracelet $260

Order this product directly from the manufacturer. Call 1-800-523-0124 and request operator 300SF.

Campus Prints

Art-quality lithograph prints of watercolor paintings by ISU alumnus Bradd Brown. (Frames, matting not included.)

Carrie Chapman Catt Hall ("Old Botany")
Signed, numbered, and limited to 500 prints.
Trim size 24"x18", image size 18"x15"
#AC011 $75 *$65 member price*

Campanile
Trim size 18"x24", image size 8"x21"
#AC010 $40
$35 member price

New!

Marston Hall
Trim size 24"x18", image size 20"x9 1/2"
#AC012 $40 *Member price $35*

Cat's Meow Collectibles *Also available: Campanile holiday ornament (see facing page)*

Authentic hand-crafted wooden miniatures of ISU landmarks.

Farm House Museum
#CO101 $15.90
$13.90 member price

Beardshear Hall
#CO104 $15.90
$13.90 member price

Campanile
#CO102 $15.90
$13.90 member price

Catt Hall
#CO105 $15.90
$13.90 member price

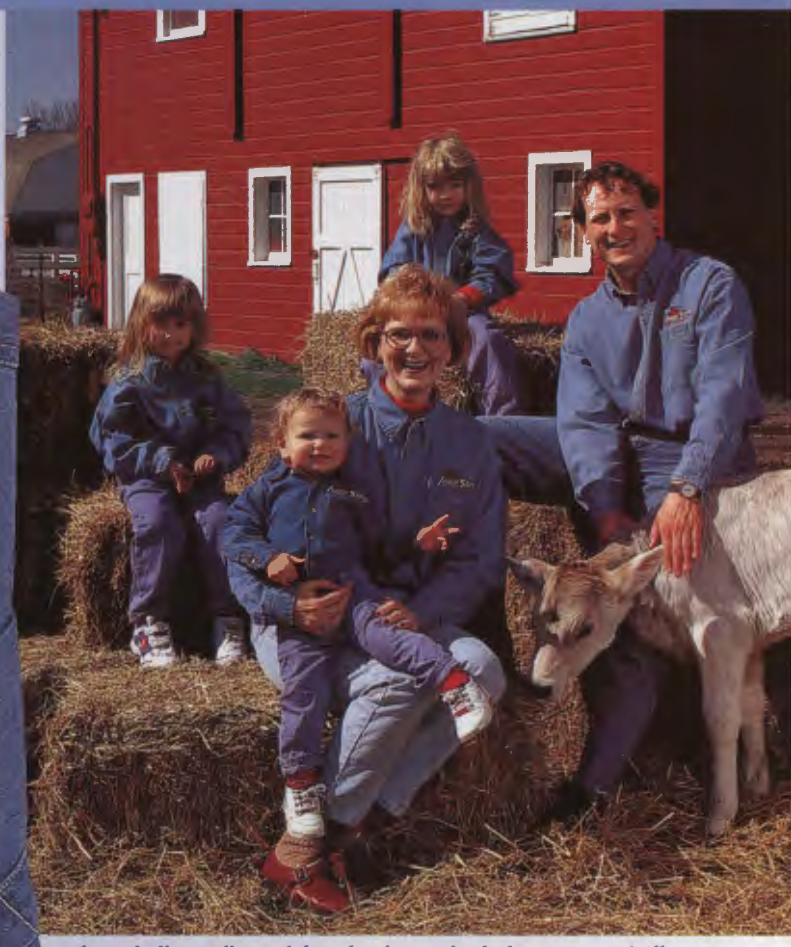
Memorial Union
#CO103 $15.90
$13.90 member price

Fountain of the Four Seasons
#CO106 $11.90
$9.90 member price

New!

Morrill Hall
#CO107 $15.90
$13.90 member price

Cyclone Denim - Perfect for the entire family!



John and Ellen Mullen and their daughters, Elizabeth, Leanna, and Allison.

Denim Shirt

This is destined to become your favorite shirt! Ideal for work or weekend, our mid-weight, 100% denim cotton shirt is sized to fit every member of your family. Embroidered Cyclone design. Adult sizes are available with or without embroidered "Alumni" insignia. Please note preference on order form.

Adult **#AP001**
Sizes S-XL $44 *$39 member price*
Size XXL $48 *$43 member price*
Sizes 3X-4X $50 *$45 member price*
Youth **#AP002**
Sizes S(6-8), M(10-12), L(14-16) $33 *$29 member price*
Toddler **#AP002**
Sizes 2, 4, 5-6 $29 *$25 member price*

New!
Denim Overalls

You won't find a more adorable outfit anywhere for your favorite little Cyclone! These 100% denim cotton overalls, available in both infant and toddler sizes, feature inseam snaps and our popular embroidered Cyclone design.

Toddler **#AP003**
Sizes 2, 4, 5-6 $29
Member price $34
Infant **#AP003**
Sizes 6 mo., 12 mo., 18 mos. $29
Member price $34

Sam Ovrom, 1-year-old son of Paul Ovrom and Stephenie Elliott Ovrom.

Cotton Piqué Polo Shirt

Our standard polo, this shirt is 100% cotton with an embroidered Iowa State Cyclone design. In red, navy, and white, as shown below. Available with or without embroidered "Alumni" insignia. Please note preference on order form.

#AP010
Sizes S-XL $40
Member price $36
Sizes XXL-3X $43
Member price $39

Sidine Sidy

Jeff Breitman

New! Egyptian Cotton Polo Shirt

A recent addition to our product line is this heavy-weight, 100% combed Egyptian cotton polo in red with navy trim. Embroidered with "Iowa State University" in navy. Available with or without embroidered "College of (your college) Alumni" insignia ($5 extra). Please note preference on order form.

#AP011
Sizes S-XL $44
Member price $39
Size XXL $46
Member price $41

Exclusive! ISU Alumni Letterman's Hat

Our letterman's hat is designed by Tailgate® Clothing, Co. The 100% cotton twill hat features a weathered wash and exclusive "Alumni" insignia. Adjustable back.

#AP030 $22
Member price $18

Old School Sweatshirt

Designed by Tailgate® Clothing, Co., this sweatshirt features an oversized fit, relaxed bottom and cuffs, and felt embroidery. 13.5 oz. heavy fleece, 90% cotton, 10% polyester, pre-shrunk.

#AP020
Sizes S-3X $69.50
Member price $59.50

Fred Hoiberg

Return Address Labels

"CY" CYCLONE
MEMORIAL UNION
2229 LINCOLN WAY
AMES, IOWA 50014-7164

Our most popular product! Self-adhesive labels, with up to 4 lines of personalization (see order form). There is no shipping and handling charge on this item.

#AC030
2 sheets (90 labels) $7 *$6 member price*
4 sheets (180 labels) $12 *$10 member price*
10 sheets (450 labels) $25 *$20 member price*

Signet Ring

The official ISU alumni signet ring features a richly detailed recreation of the Campanile in bas-relief.

Men's 10K gold $360
Men's 14K gold $430
Women's 10K gold $280
Women's 14K gold $330

Order this product directly from the manufacturer. Call 1-800-523-0124 and request operator 300SF.

Screen Saver

Over 100 new images of the ISU campus. Features a new pop-up appointment reminder system. Developed for Windows 95, Windows 98, and Windows NT 4.0 by ISU MIS Club.

#AC020 $25
$20 member price

Diploma Replica

A brass replica of your ISU diploma adds a touch of class to any office!
9"x12" brass on walnut
#AC001 $79.95 *Member price $69.95*

11"x14" Glass 'n Brass with gold frame and choice of red or black mat. Please note color preference on order form.
#AC002 $119.95 *Member price $99.95*

Note: Please send a good-quality photocopy of diploma with your order. Other documents may also be replicated.

Order form

Ordered by:

Name _____

Address _____

_____
CITY STATE ZIP

Daytime phone: (____) _____

Ship to (if different):

Name _____

Address _____

_____
CITY STATE ZIP

I am a current member of the Alumni Association. ❑ Yes ❑ No

ITEM NO.	PRODUCT NAME/DESCRIPTION	SIZE	COLOR	"ALUMNI" EMBROIDERY?	QTY	UNIT PRICE	TOTAL PRICE
Egyptian Polo only (optional college personalization – add $5 to order) "College of… Alumni" ❑ Agriculture ❑ Design ❑ Education ❑ Engineering ❑ F&CS ❑ LAS ❑ Vet Med ❑ Business							

Method of payment:

❑ Check enclosed, payable to ISU Alumni Association
❑ Charge to: ❑ MasterCard or ❑ Visa

No. _____

Exp. date _____

Signature _____

To order return address labels, please print up to four lines:

_____
_____
_____
_____

Shipping and handling*
(U.S. only. Call for overseas charges.)

If you order:	Add:
1 item	$5.00
2 items	$7.50
3 items	$10.00

(For each additional item, add $2.50 additional shipping and handling)

* Postage and handling is INCLUDED in the price of return address labels. For oak bench, add $40 shipping and handling. Cat's Meow Ornament shipping is $1 per ornament.

With credit card, FAX to **515-294-9402** or call toll-free **1-877-ISU-ALUM** (877-478-2586) 8 a.m.-5 p.m. Mon.-Fri. (Central time). Locally, call 294-2648.

Please allow 4-6 weeks for delivery. Items ordered together may arrive in separate shipments.

Merchandise Total	
Shipping & Handling*	
Alumni Association Annual Membership $45	
TOTAL	

CP-99

To order by mail, send form with full payment to:
ISU Alumni Association
Alumni Suite, Memorial Union
2229 Lincoln Way
Ames, IA 50014-7164

Thank you!

IOWA STATE UNIVERSITY ALUMNI ASSOCIATION

Here's a sampling of upcoming events on the ISU campus and of alumni events across the country and around the world. Events are subject to change. For more information, visit the Alumni Association web site: www.alumni.iastate.edu or call toll-free 1-877-ISU-ALUM.

September

2 Livestock Infectious Disease Isolation Facility dedication
2 "Advancing Technology to Become the Best" celebration kick-off
2 Cyclone Football vs Indiana State
3 Legacy Migration
9 Des Moines Breakfast Club
9 David Sanborn (Stephens)
11 Cyclone Football vs Iowa (game watches in Los Angeles, St. Louis, Phoenix, Tallahassee, and San Francisco)
11 ISU Club of Chicago, football road trip to Ames
15 Minneapolis Breakfast Club
15 Cyclone Artifacts and Memories exhibit (Parks Library, through July 2000)
17 College of Business Golf Tournament

17-18 ISU Football Weekend in Las Vegas, alumni spirit rally tailgate, Cyclones vs UNLV

18 Alumni Travel: Waterways of Russia (through Sept. 29)
19 ISU Club of Chicago Bike Ride
19-28 Engineers Week
21 Engineering Career Day
22 Business/LAS Career Day
23 Letterwinners Hall of Fame banquet
23 *Smokey Joe's Cafe* (Stephens)
24 Athletic Hall of Fame induction
24-25 Vet Med Class of '74, 25-year reunion

24-26 Family Weekend

25 Cyclone Football vs Kansas State
25 Educators' Day
29 Alumni Travel: Walking Tour of Italy (through Oct. 6)
29 Family & Consumer Sciences Career Day

October

9 Cyclone Football at Nebraska
10 Hubbard Street Dance (Stephens)
14 Des Moines Breakfast Club
16 Cyclone Football at Missouri
19 National Symphony Orchestra (Stephens)
20 Minneapolis Breakfast Club
20 Biotechnology Career Day
22 ISU Foundation Board of Directors meeting
22 ISU Foundation Governors meeting
22 Order of the Knoll Gala
23 Cyclone Football vs Colorado
23 Alumni Travel: Village Life in Germany (through Oct. 31)
23 Howe Hall dedication
29 Alumni Association Board of Directors meeting
29 Scholars and Mentors luncheon
29 Alumni Honors and Awards Ceremony
29-31 Hotel, Restaurant & Institutional Management 75th anniversary celebration

30 Homecoming

30 Alumni Association Member Appreciation Day and All-Alumni Tailgate
30 Cyclone Football vs Texas
30 College of Veterinary Medicine: Stange Honorees Breakfast, Retirees Breakfast, Pre-Game Alumni Barbecue (contact the college for more information)
30 Kocimski Auditorium dedication, College of Design
30 Alumni Travel: Lost Cities of the World (through Nov. 23)

November

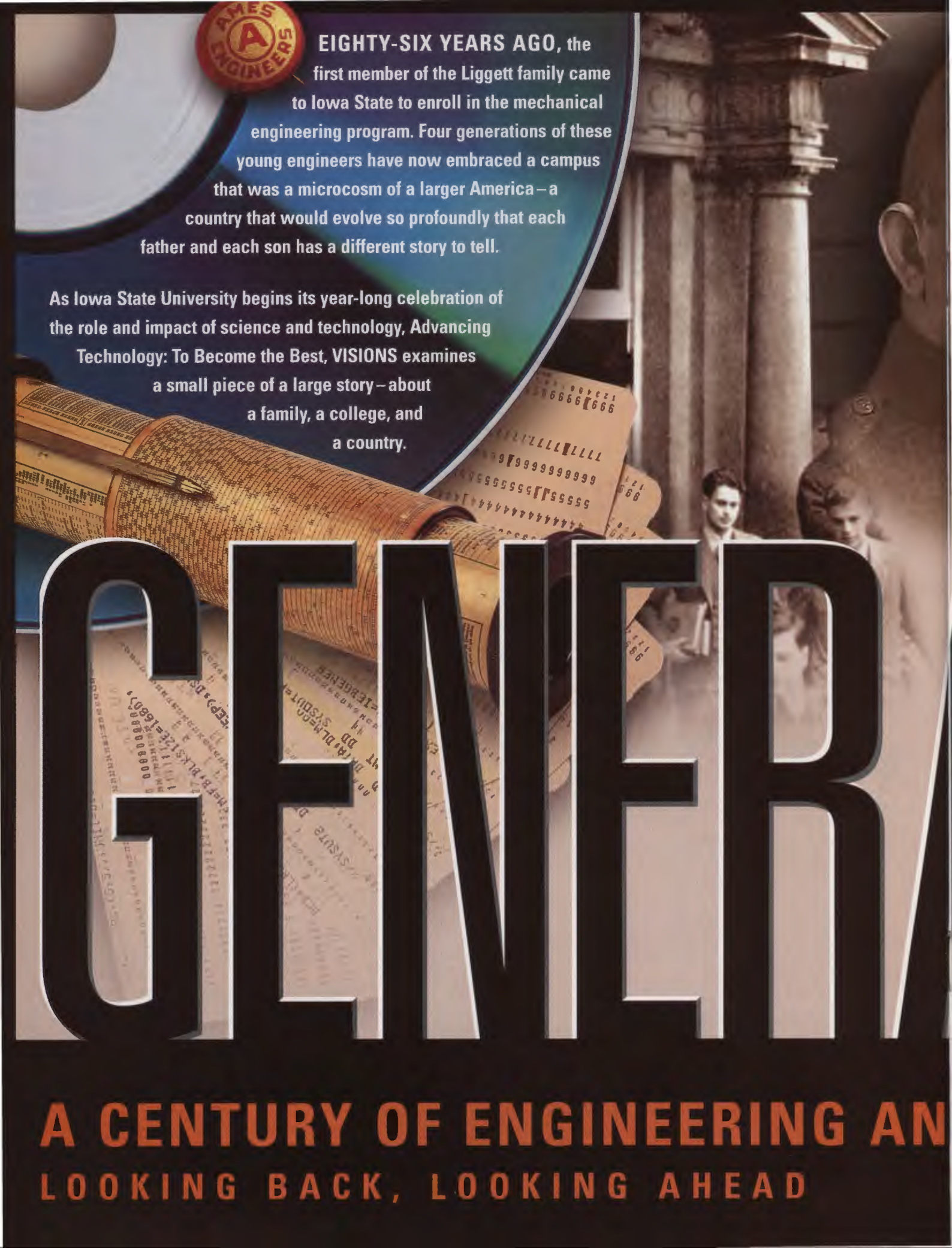
7 Nadja Salerno-Sonnenberg, violinist (Stephens)
11 Des Moines Breakfast Club
13 BeauSoleil avec Michael Doucet (Stephens)
13 Cyclone Football vs Oklahoma
17 Minneapolis Breakfast Club
22-26 Thanksgiving recess

December

3 *Camelot* (Stephens)
4 ISU Holiday Festival
10 ISU Foundation Board of Directors meeting
10-12 *The Nutcracker Ballet* (Stephens)
13-17 Final Exams
17 Graduate Commencement
17 Fall Semester Ends
18 Commencement
18 Alumni Association Commencement Lunch

January

7 Regents Universities Job Fair, Des Moines
10 Spring semester classes begin
15-16 Madrigal Dinner
19 Moscow Chamber Orchestra (Stephens)
22 Alumni Travel: Amazon Exploration (through Jan. 29)
25-26 STOMP (Stephens)



EIGHTY-SIX YEARS AGO, the first member of the Liggett family came to Iowa State to enroll in the mechanical engineering program. Four generations of these young engineers have now embraced a campus that was a microcosm of a larger America – a country that would evolve so profoundly that each father and each son has a different story to tell.

As Iowa State University begins its year-long celebration of the role and impact of science and technology, Advancing Technology: To Become the Best, VISIONS examines a small piece of a large story – about a family, a college, and a country.

GENER

A CENTURY OF ENGINEERING AN

LOOKING BACK, LOOKING AHEAD

ATIONS

D TECHNOLOGY AT IOWA STATE:

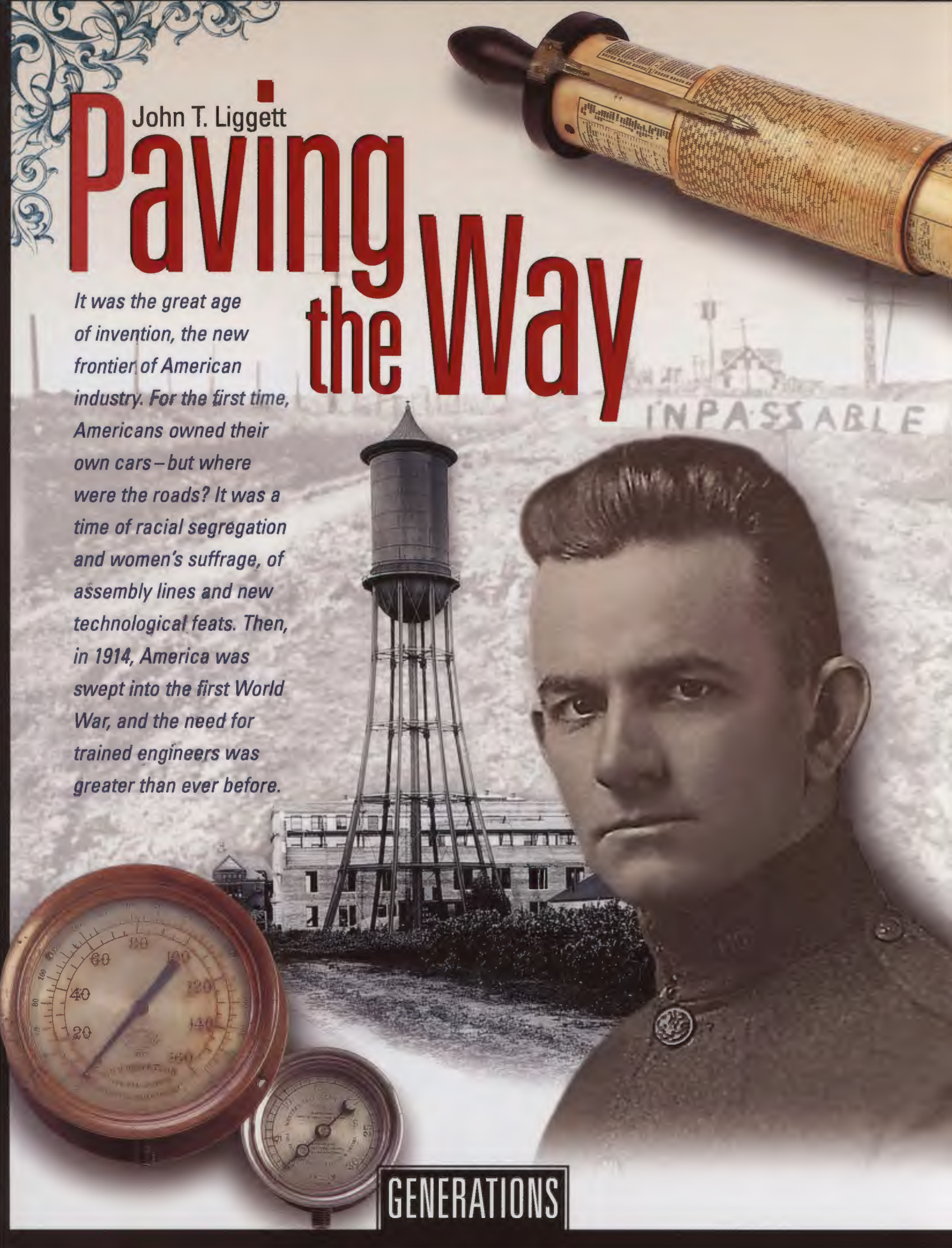
By Karol Crosbie, Photos by Jim Heemstra

Historical photos courtesy of Iowa State University Library/University Archives

John T. Liggett

Paving the Way

It was the great age of invention, the new frontier of American industry. For the first time, Americans owned their own cars – but where were the roads? It was a time of racial segregation and women's suffrage, of assembly lines and new technological feats. Then, in 1914, America was swept into the first World War, and the need for trained engineers was greater than ever before.



GENERATIONS

IF JOHN T. LIGGETT was like most freshmen, he was oblivious to the cultural changes that swirled around him when he arrived on the Iowa State College campus in 1913. The son of a tailor and interior decorator, John had set his sights on one thing: to become an engineer.

He left his rooming house, headed toward campus, and took his seat in Engineering Hall (now called Marston Hall) to be welcomed by one of the most influential engineers and educators in the country – Anson Marston. "I extend to you a welcome from your chosen Alma Mater," Marston told the collected freshmen. "You are strong in numbers... You must be tested and perfected in many a fiery furnace of experience before attaining the complete, all-around engineering strength essential to the real engineer."

Although we don't know the exact nature of all the "fiery furnaces" young John Liggett would face, we do know that one of them was calculus. By the end of his sophomore year he had flunked calculus, and spent the following summer taking a cram course on differential equations. "For six weeks I didn't get back to Des Moines," he plaintively reported in his memoirs. "When I did get back, I phoned Beulah for a date, and found she was dating another fellow."

America comes of age

As John Liggett struggled to create his own personal foundations for a career in mechanical engineering, his country was undergoing a similar struggle. When John arrived on campus, Americans were almost uniformly united in their resistance to entering the war, which was beginning to boil in Europe. *I Didn't Raise My Son to Be a Soldier,* was a popular song; Henry Ford, a colorful and vocal personality, was an avowed pacifist.

The United States was as unprepared technologically to enter the war as it was emotionally. Ironically, although Orville and Wilbur Wright had achieved the first successful flight in 1903, Americans lagged far behind Europe in aircraft development. When John was a freshman, the U.S. military owned only six aircraft.

By the time he was a junior, both the technological and sentimental tides had turned. College students were an important target in the propaganda that first declared "I want you!" and posters that showed Germans with spiked helmets and bloody mouths. The military now owned 411 aircraft. In two years, the numbers would explode to 8,000 training planes and 12,400 fighters.

The birth of the military's air defense had significant effects on engineering and technology and on land grant colleges, which were vital training centers. Precision engineering, high tensile steel, the creation of fiber glass and plastic adhesives, new lubricants, high-quality fuels, and powder metallurgy were developed. The United States had historically depended on Europe for the bulk of organic chemicals; the organic chemical industry came of age, as for the first time, chemicals were needed for munitions.

> **"Our ancestors plowed with crooked sticks, traveled in ox carts and signaled their neighbors with fire and smoke. Our successors will farm with mechanically driven automatic machinery, travel through the air at high rates of speed with motive power unknown to us, and signal distant lands by lightning flashes. This will come through individual effort and originality, persistent concentration of mind and general business sense."**
>
> *—From a 1917* Iowa Engineer *(an Iowa State publication authored by students and alumni)*

Digging out the Hupmobile

John's parents, Joseph and Effa, owned a 1913 Hupmobile – one of only about 1.7 million cars registered in the United States. But driving the Hupmobile to many rural areas in Iowa was an adventure in mud. Because the automobile industry was in its infancy (Ford began using assembly lines for production when John was a freshman), there were fewer then 20 miles of paved roads in the state.

Few institutions and men were as significant players in the war against mud as Iowa State College and Anson Marston. Iowa State was ne of 13 colleges in the nation commissioned by state governments to oversee road construction. Staffed by Marston and his students, the road commission tested construction materials and drainage techniques and built experimental roadways. The Iowa commission quickly became the training school for other states' engineers, which helped standardize rural road construction nationwide. Marston became known as the man who "lifted Iowa out of the mud."

But if cars were mired in mud, buildings were rising far above it. The skyscraper was born. In 1916, the New York building code was revised to allow skyscraper construction to unlimited height. Engineers were challenged by the new specifications of buildings that were sturdier, lighter, and taller. Steel, which weighed less than half as much as masonry or stone, possessed greater tension and compression strength than the older building materials.

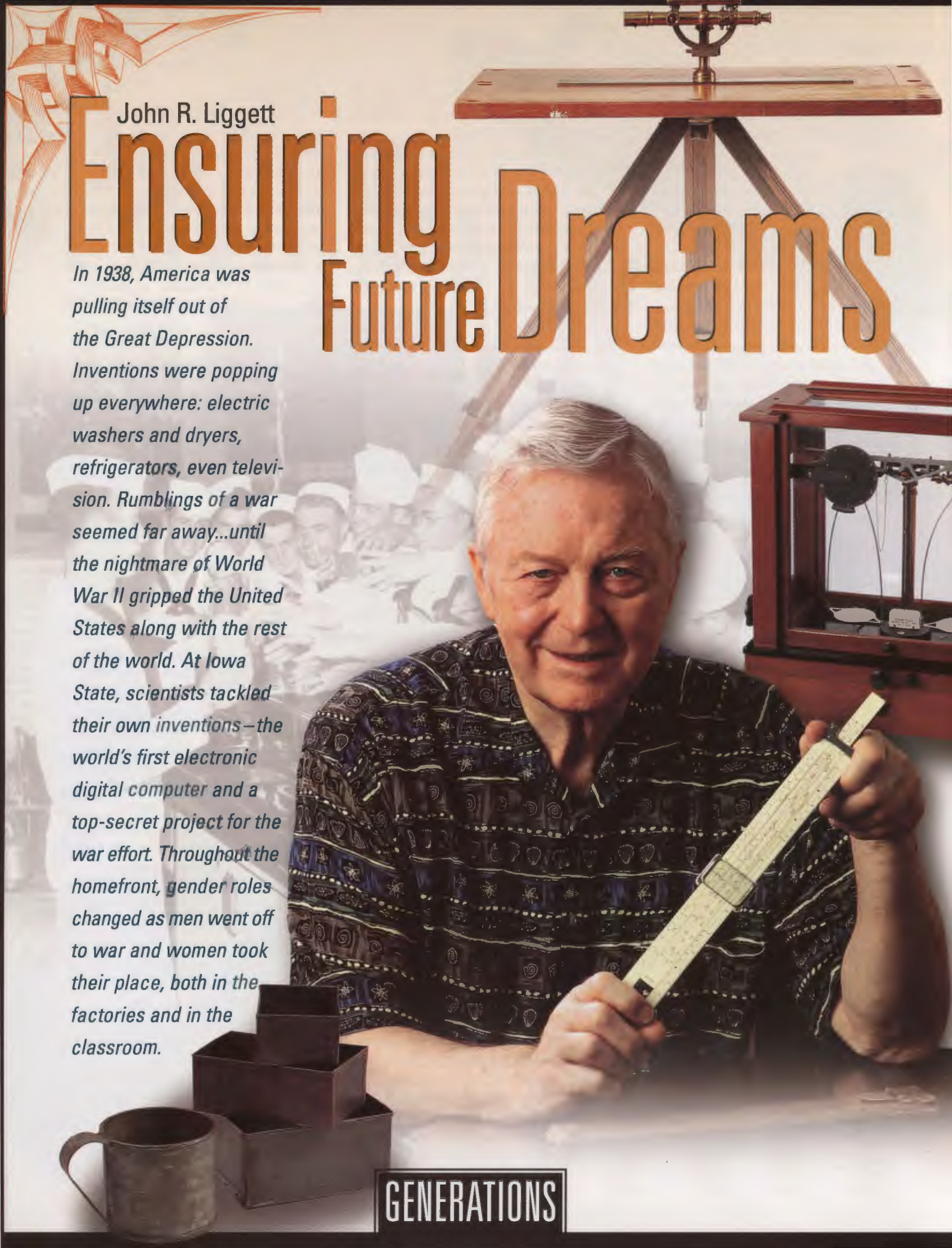
By the time John was a senior, he had passed calculus, the United States had declared war, and his dad had traded in the 1913 Hupp for a 1916 Model N Hupp. Just a month before John graduated, military conscription began. His Iowa State commencement speaker was former president Taft, who spoke on the sacrifices that the war would require.

John would serve in the Army for one year. In 1919, he married Ethel, and on April 10, 1920, John R., the second generation of Liggett engineers, was born.

John R. Liggett

Ensuring Future Dreams

In 1938, America was pulling itself out of the Great Depression. Inventions were popping up everywhere: electric washers and dryers, refrigerators, even television. Rumblings of a war seemed far away...until the nightmare of World War II gripped the United States along with the rest of the world. At Iowa State, scientists tackled their own inventions—the world's first electronic digital computer and a top-secret project for the war effort. Throughout the homefront, gender roles changed as men went off to war and women took their place, both in the factories and in the classroom.



GENERATIONS

JOHN R. (JACK) LIGGETT staunchly maintains that his father did not pressure him to become the second generation of Liggetts to graduate in mechanical engineering from Iowa State. "As a kid, I was always mechanically inclined," he says.

As his father did before him, Jack entered Iowa State with a world war brewing–a war that would shape technology, careers, and lives. But unlike his father's freshman experience, in 1938 there was no ambivalence about the United State's role in the war. When Jack was a sophomore, the conscription bill passed, and all freshman and sophomores were required to take ROTC. "People who were not in the service had to explain," remembers Jack.

Iowa State was at the forefront of preparation for the war. Because land grant colleges had highly developed programs of technological instruction, they were strategically available as war training centers. In the summer after Jack's sophomore year, Iowa State president Charles Friley announced that the college would be in "full cooperation in measures looking toward national defense."

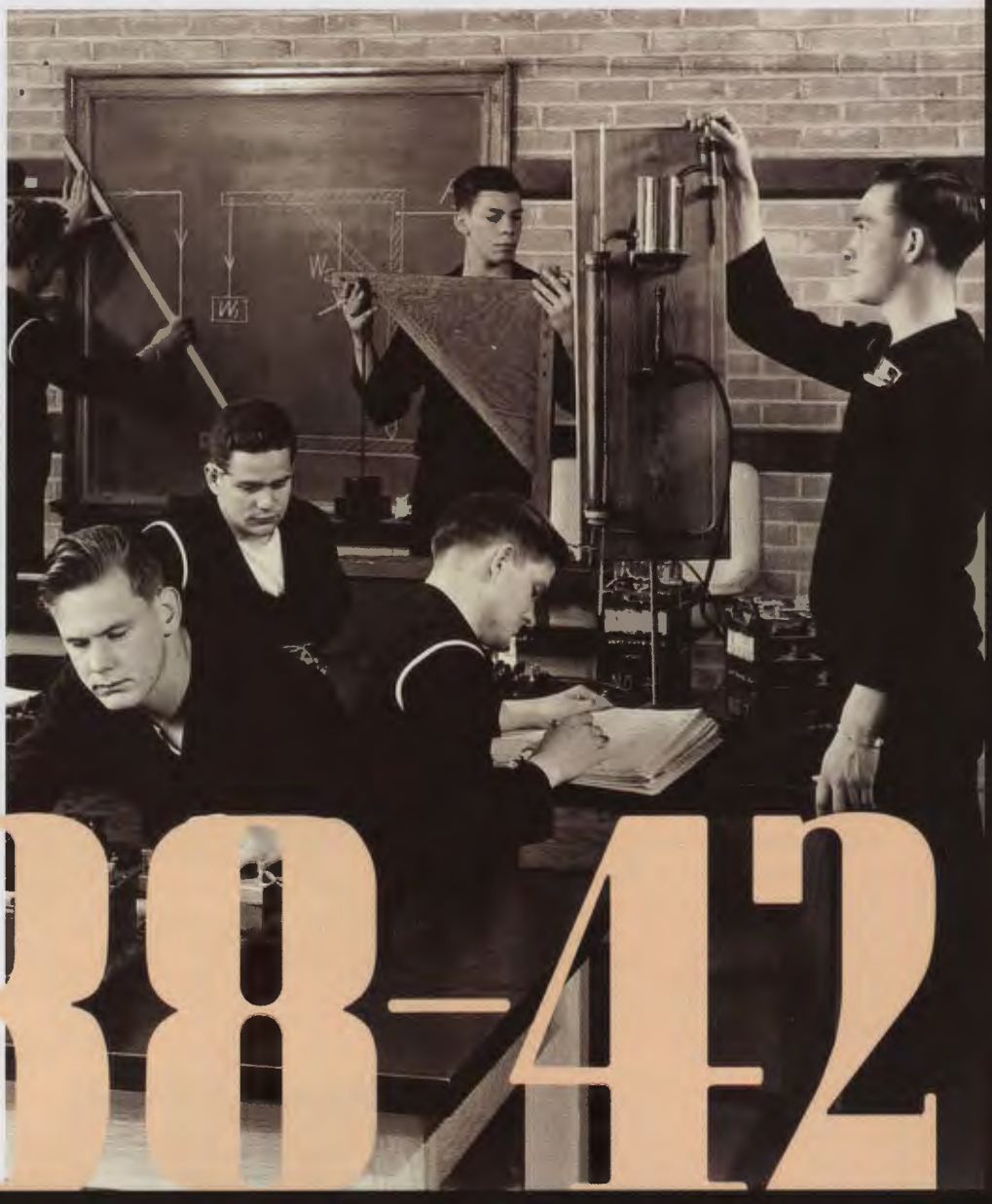
By 1940, it was clear that the country's colleges could not produce enough engineering and science graduates to meet the critical needs of the national defense. The federal government, collaborating with engineering departments, initiated short, intensive courses that would train students to perform specific industrial jobs. The 227 colleges that participated in the program, including Iowa State, offered more than 31,000 engineering courses to more than 1.3 million people.

The military was a visible presence on campus. Military courses took up residence at Friley Hall and other dormitories, and fraternities housed "non-Greeks," including 220 veterinary students. The Engineering Extension Service conducted short courses on safety, civilian defense, conservation, and war production.

On Dec. 7, 1941 the Japanese bombed Pearl Harbor, and the next day the United States formally declared war. The days were uneasy ones for Iowa State students, who didn't know when they might be called to serve. Classes were held continuously, through weekends and holidays.

The war machine of Jack's era bore little resemblance to that of his father's. A military that had only six planes at the beginning of World War I now had 296,000. In one day, Allied forces used as much petroleum as they had used for the entire previous war. Engineers and engineering education responded to the needs of the war with new research and new applications. More sophisticated electronics gave birth to radar and navigation systems. Aeronautical and mechanical fields researched high speed aerodynamic structures, gas turbine engines, new fuels and lubricants, and new ways to forge, press, and test high-tension metals.

There was much speculation among the students as to the exact nature of the research being conducted at the modest building just east of what is now Hamilton Hall. The building (which looked a little like the old Pammel Court temporary housing units) was used to research and produce pure uranium, to be used for the atomic bomb. The magnesium used in the refining process caused frequent explosions and small fires. Most of these were minor–causing the building to glow and appear to expand. Part of the famous Manhattan Project, Iowa State was, for a time, the nation's leading producer of uranium and would be named as one of the four outstanding university atomic bomb projects in a report by the Secretary of War.



1938-42

Ensuring Future Dreams/continued

In spite of the dark times, Jack's memories are of the camaraderie of his TKE fraternity brothers, football, and the sounds of the big band. The Glenn Miller Orchestra was the music craze of the time, and people gathered around their radios on Tuesday, Wednesday, and Thursday evenings to hear the orchestra's music.

New dreams

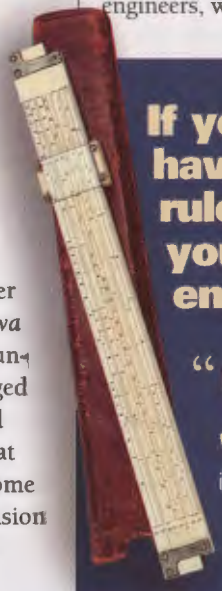
"How soon will we have television in our homes?" asks a writer in the May 1940 edition of the *Iowa Engineer.* By the time Jack was a junior, television's pictures had changed from black and green to black and white, and students speculated that "a new art has blossomed out...Some day an 'angel' will buy some television time to advertise his product; the art will find itself and become a paying industry."

To help the dream along, Iowa State's Electrical Engineering Department constructed a television laboratory in 1940 to teach students the mechanics of the new communication device. The laboratory would blossom into a full-fledged television studio and transmitter building in 1949.

In 1939, an ISU physics professor named John Atanasoff began work on a revolutionary machine. Frustrated at the time it took to solve algebraic equations, Atanasoff created a machine the size of a small desk, using 300 vacuum tubes, rotating drums, and cards. It would be 58 years before the world fully credited the Iowa State professor with inventing the first digital electronic computer.

Jack Liggett was inducted into the Army on June 1, four days before he was to graduate. "I had to report to Fort Des Moines every day before noon," he remembers. "When I asked my officers for time off to graduate–when I said the least we could do was allow my parents to watch me walk across the stage–they agreed."

For the next two years, Jack used the applied mechanics he had learned at Iowa State to develop tanks for combat landing. He married Betty on July 8, 1943. On July 15, 1947, John M., the third generation of Liggett Iowa State engineers, was born.



If you don't have a slide rule, are you still an engineer?

"Slide rules inducted!" moaned an article in the January 1942 issue of the *Iowa Engineer* (Iowa State's monthly magazine written by engineering students and alumni). So many slide rules were being used by the military effort that students and other civilians were left empty handed.

"Because of the lack of rules," the article reads, "many students entering engineering problems courses for the first time this quarter are faced with the possibility of taking a slide rule course minus a slide rule."

► Engineering students of the early and mid-1900s worked in the machine shop and the foundry to cast metal items. The manhole covers the students made were used throughout the campus, and some of them are still used today.

The war calls women to engineering

For months, the *Daily Student* had speculated on the nature of these strange birds – young women who would soon arrive on campus for a crash course in aeronautical engineering. And then on Feb. 15, 1942, 100 Curtiss-Wright cadettes swarmed into the Memorial Union, where they would live for the next 10 months.

Iowa State was one of seven colleges to participate in a program created by the Curtiss-Wright Airplane Company. World War II was draining men from the work force at exactly the time when trained engineers were needed to keep factories operating. Assembly lines that cranked out planes, tanks, and weapons were critically short-handed.

Curtiss-Wright recruited and paid all expenses for 700 young women to receive intensive training that would prepare them to work in airplane factories. At Iowa State, the women represented the third largest group trained as part of the war program. The 40-hour-per-week program was rigorous, and the problems the students tackled were related to real data from current production operations.

"It is hard to believe that we are part of the war effort, as we still lead a normal college life and enjoy a care-free existence," wrote Cadette Jean Louise Ritter in her memoirs. "However...we learned it has been impossible for Curtiss-Wright to hire the usual quota of men for their engineering department, so we are being trained to take their places. We did not realize that the situation is so acute, that we are to be the aero engineers of the year."

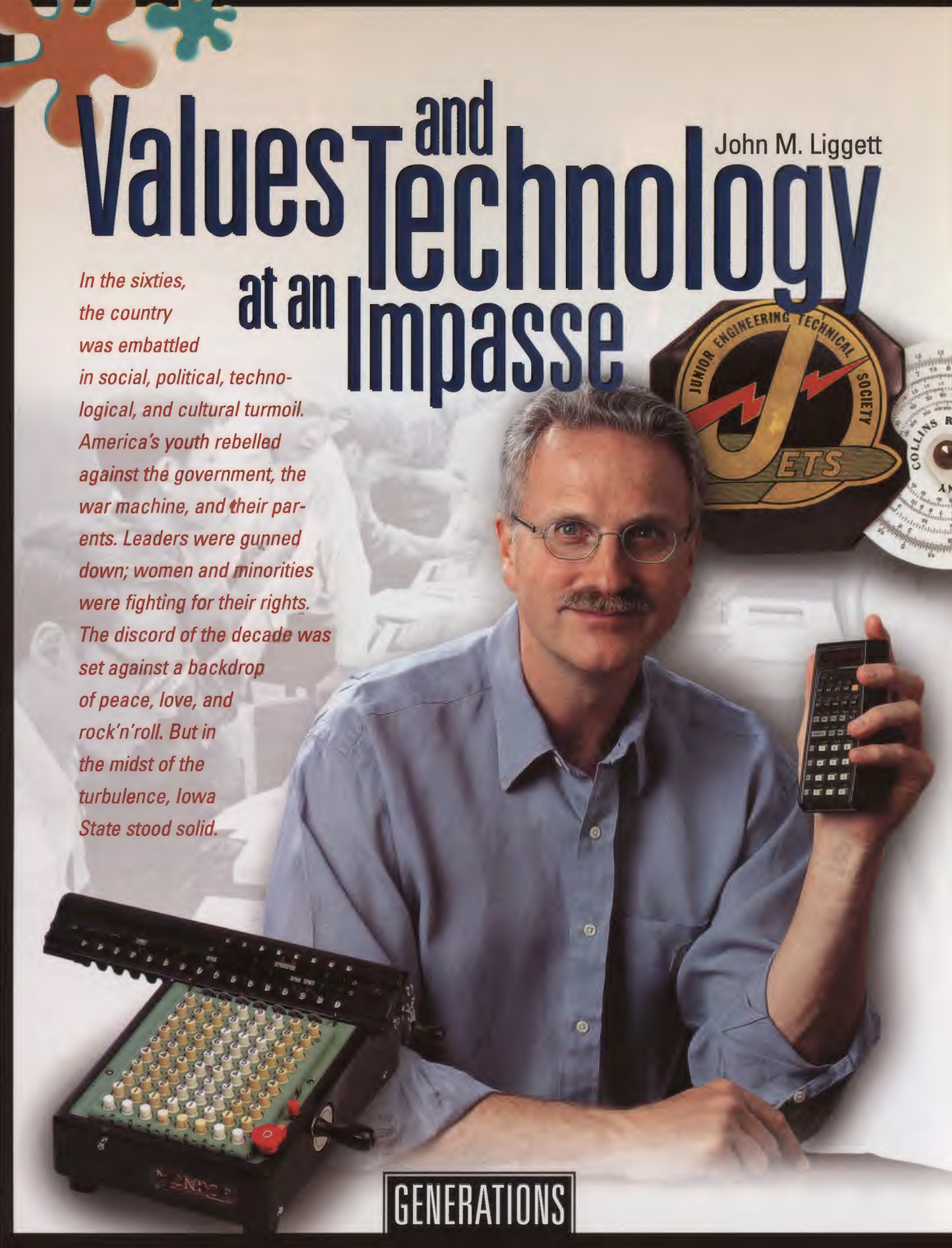
The cadettes at Iowa State and the other colleges became national media darlings, with numerous local reports and a feature story in *Life* magazine. Although it was to be many years before women gained permanent respect in the engineering field, their brief sojourn at Iowa State College in 1942 was positive and necessary.

A note to readers: Would any ISU alumni who were Curtiss-Wright cadettes please contact Dr. Amy Sue Bix, ISU assistant professor of history, who is researching the topic? She is interested in memories and experiences and can be reached at 515-294-7266, abix@iastate.edu, or at 603 Ross Hall, Iowa State University, Ames, IA 50011.

Values and Technology at an Impasse

John M. Liggett

In the sixties, the country was embattled in social, political, technological, and cultural turmoil. America's youth rebelled against the government, the war machine, and their parents. Leaders were gunned down; women and minorities were fighting for their rights. The discord of the decade was set against a backdrop of peace, love, and rock'n'roll. But in the midst of the turbulence, Iowa State stood solid.



GENERATIONS

DID JOHN M. LIGGETT choose to come to Iowa State and major in mechanical engineering so that he could become the third generation of his family to do so? Well, not exactly. He came, he says, because Iowa State had such a rotten football team. He wanted to play football, knew he wasn't a top-notch player, and thought he might have a chance to play with Coach Clay Stapleton's losing Cyclones.

Like his father and grandfather before him, John Liggett's Iowa State years were at a time when the country was embroiled in war. When John arrived in 1965, the country was in turmoil over its undeclared war in Vietnam. The throng of students that arrived on campus in the '60s was the largest in history, and the college student had become the icon of the century. America now had more college students than farmers.

At a time when many other campuses were burning with anti-military and anti-establishment passion, John Liggett's Iowa State was relatively calm. The students' response to Martin Luther King's assassination in 1968 was a silent vigil, and demonstrations against the war were few and far between. "ISU was not on the leading edge of protest," remembers John.

John joined with the largest student body in ISU's history to participate in a GSB student election, electing the rebellious, long-haired, Don Smith as student body president. "People treated his election kind of like Minnesotans do their governor today. It was a way to step out of the main stream and do something mildly anti-system," he says. But not all students appreciated Smith's leadership style, and on one occasion he was dubbed "betrayer" and hung in effigy at Beardshear Hall.

Unlike his father and grandfather, John did not join ROTC. "I didn't like button polishing, and I had too many other things to do," he remembers. Although John decided not to go out for football after all, he joined both the varsity basketball and tennis teams. He sang in Cardinal Keynotes, and like

'65-'69

his father and grandfather, pledged TKE. Leaving *We Shall Overcome* and *Blowing in the Wind* to other groups, John played string bass in an 11-piece dance band that cranked out the cheerful, brassy music of his father's day–big band.

An address by ISU president Robert Parks, now in his third year at Iowa State, called for a "new humanism" on campus. Charging that there was a division in science and culture, he said, "Science dominates our cosmology, but it is not a part of it...We must adopt a cosmology which will permit intelligent social decisions on the consequences of...modern warfare, industrial use of nuclear power, and automation..."

Military industrial complex

Parks' call for a science that "permits intelligent social decisions" reflected the era's disillusionment with technological growth. The "military industrial complex," which was seen as saving the country in John's father's time, was now perceived as threatening personal freedoms and was seen as a stock phrase for what ailed America. The moon walk in 1969, rather than being considered the beginning of an era, was viewed as the end of one–the climax of space research.

Was it possible that only one generation ago, television advertisers of the future were dubbed "angels" who would save the fledgling new television industry? Television and its ubiquitous advertisers were now seen as potent social forces–and not very good ones. Churches and parents formed groups to monitor the violence and sex on TV; minorities began researching and publicizing television's negative stereotypes.

Nuclear power had also fallen into disfavor, and public protests and demonstrations frequently accompanied new reactor openings. But once again, ISU seemed immune. Ahead of its time, in 1959 Iowa State had installed one of the first university-operated reactors in the country. For 10 years, the reactor had quietly served as a teaching and research laboratory for engineering

▶ "Most of an engineer's calculations can now be done on computers, so students must learn how to use them."
—1969 *BOMB*

students, who measured power output and conducted radiation experiments. The reactor's 30-year tenure at ISU would be a peaceful one.

In an attempt to make engineers and scientists more responsive to social needs, engineering schools like Iowa State now required that students take broad, general education classes, in addition to specialized, technical subjects. In fact, the numbers of classes that mechanical engineering students were required to take had escalated so much that it now (unofficially) took five, instead of four years to graduate. John Liggett recalls that in 1969, he was only one of a handful of mechanical engineers in his class of 200 to graduate in four years.

Students who, in John's father's time, had forged gears and manhole covers were now seldom required to "get their hands dirty." "I remember the curriculum being intensely theoretical," recalls John.

Shirt pocket power

When John was a freshman, an ISU graduate by the name of Thomas Whitney–a young engineer working for Hewlett Packard–developed a new device that displaced the slide rule as the engineering student's constant companion. First called the "pocket electronic calculator-slide rule" and quickly shortened to "pocket calculator," the invention took colleges by storm. The manual that accompanied it informed the user that he was in possession of something extraordinary. Under the section labeled Shirt Pocket Power, the manual read, "Our object in developing the HP-35 was to give you a high precision portable electronic slide rule. We thought you'd like to have something only fictional heroes like James Bond, Walter Mitty, or Dick Tracy are supposed to own."

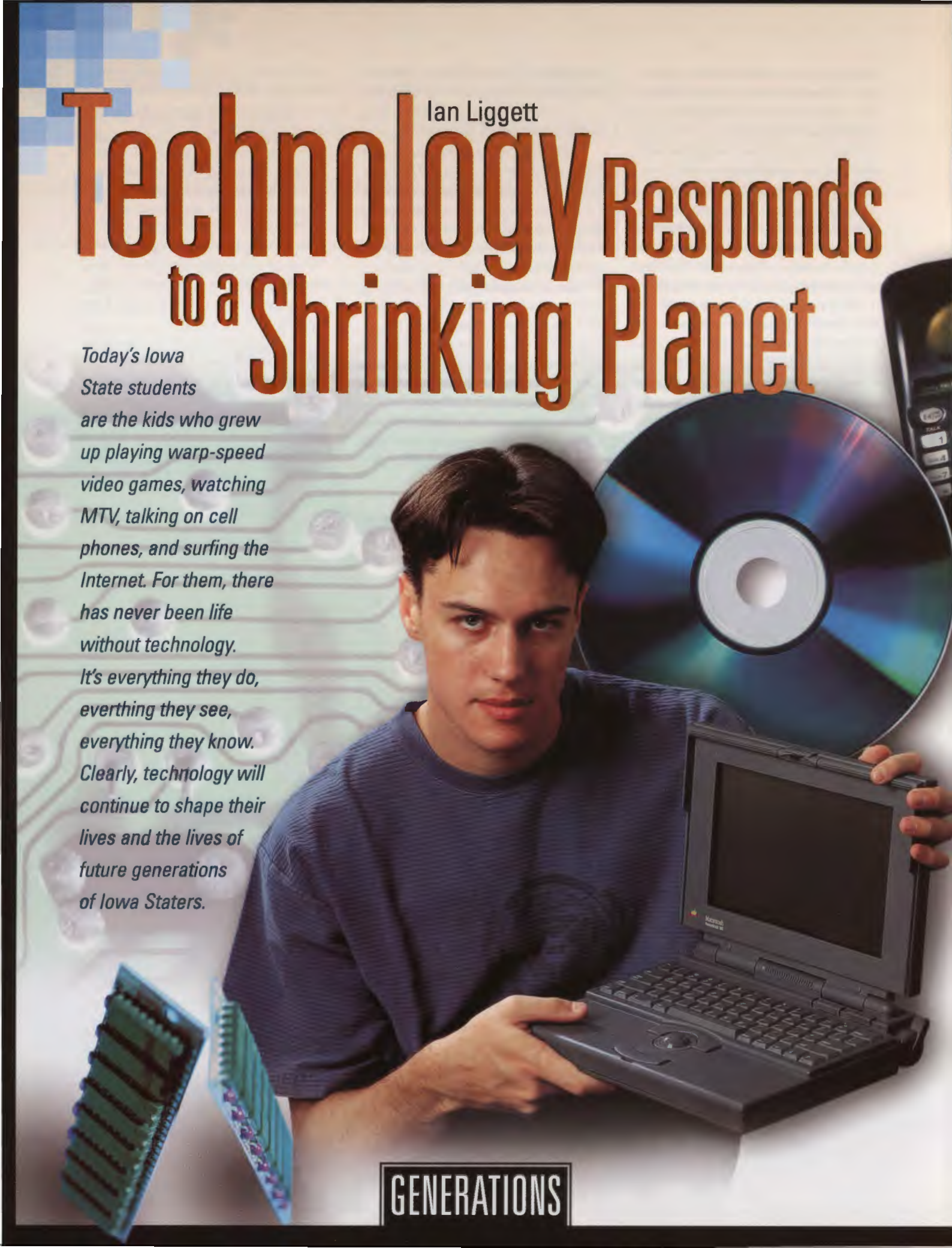
It was the dawn of computer-assisted machine design, and John Liggett was among the group of graduates to enter the job market with knowledge of FORTRAN and the ability to use the computer to solve machine design problems. "It was an interesting time; when I went into the job market, I had more knowledge of computers than the people I was working for."

The summer between his junior and senior year, John and his new wife, Shelly, moved to Pammel Court. John was drafted shortly after he graduated, but high blood pressure earned him a deferment. Ian, the fourth generation of ISU engineers, was born June 23, 1980.

Ian Liggett

Technology Responds to a Shrinking Planet

Today's Iowa State students are the kids who grew up playing warp-speed video games, watching MTV, talking on cell phones, and surfing the Internet. For them, there has never been life without technology. It's everything they do, everthing they see, everything they know. Clearly, technology will continue to shape their lives and the lives of future generations of Iowa Staters.



IAN LIGGETT could have chosen just about any place to go to college. A National Merit Scholar, he was wooed by both Ivy League schools and state universities. So why Iowa State? Like the generations before him, he independently denies that he was carrying on a family legacy. A young man of few words, Ian uses just two to summarize his feelings about ISU: "Good people."

Of the four generations of Liggetts at ISU, the educational experience of Ian and of his father represent the greatest differences. If his father was just learning to use the computer, Ian can not imagine life without it. Stern instructions to yesterday's consumers to not "fold, spindle, or mutilate" delicate computer punch card are meaningless to today's cyber-savvy student. Students today who can register for classes with a few keystrokes, shake their heads in disbelief at photographs of their parents, waiting to register for classes in a mile-long lines that snaked their way from a packed State Gym.

Iowa Staters on line

The student of 1999 may begin his day by using his personal computer to check the weather forecast. Good chance of rain? No problem. Today, he need never leave his dorm room. He returns an e-mail message to a friend, listens to a hot new tune over the net, and plays a game of Tomb Raider III. After a jelly doughnut, he begins his day in earnest. He listens to and watches his thermodynamics instructor deliver his most recent lecture via the computer. He is baffled by one of the problems, and e-mails a question. Next stop is to his biology instructor, who has posted the results of yesterday's test on the Web. Hopefully, he checks his English class syllabus, to see if there has been a last-minute class cancellation.

After a Mountain Dew, he visits his own personal web page. He adjusts an item on his resume, and posts an invitation to friends to come to a weekend party.

Technology is no longer something to be switched on or off; it is the very landscape in which daily lives are lived.

New realities

The one-dimensional computer images of today's student may some day be as anachronistic as computer punch cards. Iowa State is a leader in developing three-dimensional virtual reality computer laboratories that simulate real-life interaction and experiences. ISU's C2 virtual reality room projects images on the floor and three walls. User control devices allow students and faculty to wander through the columns of the Parthenon, work on a tractor design simultaneously with colleagues across the world, or construct and observe a multi-dimensional dataset.

New challenges

But as old boundaries disappear, new limitations evolve. Today's engineer works with an awareness that thousands of strands connect the global web of a shrinking planet. The ripples of technological triumphs and defeats are felt worldwide. Fuels are limited. Pollution threatens. Food is scarce.

ISU engineering education and research are responding in ways that cross disciplines. Building materials are made from animal wastes, human vaccinations are produced from the proteins found in genetically altered grain. If yesterday's student measured the heat generated from the resident nuclear plant, today's student measures the heat produced from switchgrass and corn. "Biodiesel," a word unknown in Ian's father's day, may be tomorrow's fuel solution. Iowa State is a world leader in researching this renewable, nontoxic, and biodegradable fuel, which is produced from soybean oil and animal fats.

Yesterday's technologies that constructed weapons of destruction are today being deconstructed. ISU, once a leader in producing nuclear energy fuel, is today a leader in diffusing it. Don Bullen, ISU associated professor of mechanical engineering, was recently appointed by President Clinton to serve on a review board to dismantle nuclear weapons and safely dispose of nuclear energy by-products.

In Ian's father's day, students interviewing for engineering jobs were often asked if they had any objection to working for a company whose technology might be used for weapons or defense. Issues of weapons research and defense were heavily debated in the press and on campus. "Today, many defense-related industries have diversified their businesses and turned to other domestic production, and graduates are finding jobs in other areas," says Howard Shapiro, professor of mechanical engineering and vice provost for undergraduate programs.

▲ Virtual farmer: ISU's Gary Lindahl, assistant scientist at the Virtual Reality Application Center, simulates tractor design.

As the fourth generation of Liggetts finishes his first year at ISU, the country is deeply mired in another undeclared war. And how does Ian feel about the United States' use of sophisticated air weaponry to bomb Kosovo? He doesn't have an opinion, he says. Isn't sure.

He knows only that his future is bright. The world can't get enough engineers. When it comes time to enter the job market, dozens of companies will come calling. The future is his.

by Clint Roberts

Brothers demonstrate strength in numbers

It was the most difficult decision of his life. When Cody Sanderson included Iowa State at the top of his list of prospective colleges, it was not without trepidation. Sanderson was a senior in high school and was on his way to becoming a four-time state wrestling champion. But Sanderson's decision didn't just concern his own best interests. There was his entire family to consider.

Athletics, academics, and family values are a winning combination for Cyclone wrestlers Cody, Cole, and Cael Sanderson.

The oldest of Debbie and Steve Sanderson's four sons, Cody was the natural leader. And the family's No. 1 passion was wrestling. Cody and his younger brothers, Cole and Cael, wrestled for their father, the coach at Wasatch High School in Heber City, Utah. (Their youngest brother, Cyler, is a seventh-grader.)

Cody, Cole, and Cael were used to spending every minute together – on the mat or off. What some might describe as "rough-housing in the living room" was merely considered "home wrestling practice" at their house. After all, they lived with the coach.

Cody said wrestling was always encouraged in his family. And it wasn't just Dad doing the encouraging. The boys' mother, a petite 5' 3" tall, was just as involved.

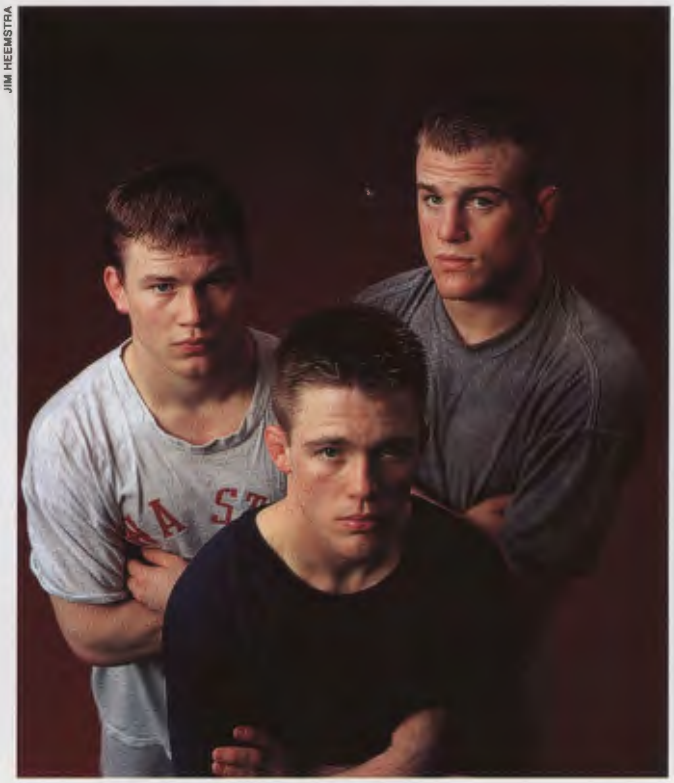
"I can remember the first time I beat my mom in wrestling," Cody said. "That was huge."

Above all else, the Sandersons were a close-knit group. Raising a strong Mormon family was important to Steve and Debbie, and they insisted their boys be dedicated and focused in everything they did.

Dedication led to success. And success led Iowa State head wrestling coach Bobby Douglas to Cody. When Douglas called the oldest Sanderson brother, he knew what he was after.

"I knew about Cody because he wrestled in our camps," Douglas said. "Cody is dedicated and disciplined in whatever he does. All of [the brothers] have the positives necessary to be successful."

JIM HEEMSTRA



The Sanderson brothers are dedicated to wrestling, but more importantly, to each other. This dedication made Cody's college decision that much harder.

"I knew that I was basically making the decision for my family," Cody said. "I knew if I chose Iowa State that Cole and Cael would probably choose Iowa State also. My decision had to have their best interests in mind."

For Coach Douglas, having Cole and Cael follow Cody's lead would be a dream come true. The three brothers would finish their high school years compiling 11 individual state championships, an assortment of Cadet National and Junior National titles, and a national championship for Cael.

Cody felt the pressure. But the more he talked to Douglas, the more he liked him. He knew Douglas was an international wrestling icon and a former head coach for Team USA in the 1992 Olympics. Douglas was also a world champion four times over. Cody also liked Iowa State because of its tradition in academics and athletics. Iowa State became his No. 1 choice.

Cody came to ISU in the fall of 1995. He was a long

way from home, but he wasted no time getting acclimated on the mat and in the classroom. He redshirted for the Cyclones and began excelling in his pre-medicine/psychology curriculum.

When it came time for Cole Sanderson to decide which college to attend, it wasn't too difficult.

"I was trying to make my own decision, but when I looked around, I couldn't convince myself not to go with Cody," Cole said.

A dietetics major, Cole redshirted in his first year, while Cody finished third in the Big 12 Conference championships and qualified for the NCAA championships.

At the same time, Cael was back home winning his fourth state championship. With Cody and Cole pulling Cael toward Iowa State, it was an easy recruiting job for Douglas. The third Sanderson brother entered Iowa State as a graphic design major in 1998.

In his first year, Cael redshirted, while Cole and Cody wrestled on an Iowa State team that was a staple in the top-10 national rankings. It was a team that was building for a championship but was still a couple of years – and wrestlers – away.

Cael was one of those wrestlers. After he soared to a 10-1 record in various open tournaments in his redshirt year, he jumped to the varsity squad for the 1998-99 season. He would help make the Cyclones a national championship contender in his first year.

The Sandersons' performances helped the Cyclones climb to success. For just the second time in Iowa State wrestling history, the ISU team won 20 duals in a season, finishing with a 20-5-1 record. Douglas' squad was again ranked in the top 10, and at one point climbed as high as No. 3.

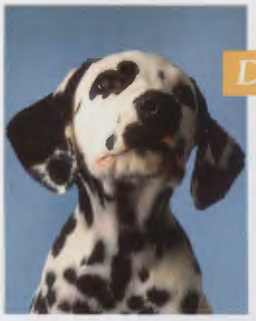
The media took notice of the brothers' novelty. While their names were splashed across newspapers and wrestling magazines across the country, the brothers never lost focus of the goal – a national championship.

Cael had yet to lose as he prepared for his first Big 12 Conference Championships. Totally dominating his opponents, he won the conference crown at 184 pounds. Cody finished second at 133, and Cole finished third at 149. The trio qualified for the NCAA Championships in State College, Pa., last spring.

The championships would prove to be bittersweet. Each of the brothers started off strong and won their first matches, but Cole lost his second match in sudden death overtime after his opponent escaped with one second remaining.

Cole took a seat in the stands and cheered along with the rest of his family. They had a lot to cheer for. Cael, a No.1 seed, and Cody, a No. 2 seed, continued to cruise.

They cruised all the way to the championship match.



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But there would be different outcomes. Cody lost to three-time national champion Eric Guerrero of Oklahoma State in overtime, but Cael beat Minnesota's Brandon Eggum to finish the season 38-0 and become the first freshman national champion in the history of Iowa State wrestling. Cael was named the NCAA Championship's "Most Outstanding Wrestler," the first time that honor was bestowed on a freshman.

The Sandersons were all named to the academic All-Big 12 Conference. All three were also named academic All-Americans.

The three have their sights set on the 1999-2000 season in what promises to be a special year. With Cody in his last year of eligibility, it could be the last time the three are teammates.

"I am not going to dwell on it, but it will be a special season." said Cody. "I will use it as a source of inspiration."

After this season, being separated from his brothers will be a difficult adjustment, Cody said, but the special bond will always be strong.

"We will always be close," Cody said. "My dad always said when we were growing up that we better not fight too much because we are going to end up being best friends. He was right – I consider Cole and Cael my best friends." ■

Sports Shorts

Hall of Famers announced

Nine former Cyclones have been named to the 1999 class of the ISU Athletic Hall of Fame. They are: Matt Blair, football; Harry Burrell, sports information director; Ray Conger, track & field/ cross country; Jeff Grayer, basketball; Jeff Hornacek, basketball; Johnny Majors, football coach; Dwight Nichols, football; Chris Taylor, wrestling; Debbie Vetter Skeen, track & field/ cross country.

An induction ceremony is scheduled for Friday, Sept. 24.

Another year, another coach

Linda Grensing has returned to ISU as the new head volleyball coach. Grensing served as assistant to former Cyclone coach Vicki Mealer from 1988-1990. The Davenport native comes to ISU after four years at Duke University.

Grensing is the third ISU head volleyball coach in as many years. She replaces Kerry Miller, who resigned in April after it was discovered that she falsified her academic record and job history. Miller led the 1998 Cyclones to a disappointing 3-27 season.

"We came for the lifestyle and discovered the culture."

"Katie and I loved going out for Thai food and the symphony when we lived in Chicago. We thought we'd have to give that up when we moved our family back to Cedar Rapids. It turned out the only thing we gave up were the big city hassles. Moving back was the best thing we ever did for our kids and ourselves."
- Tim Hill
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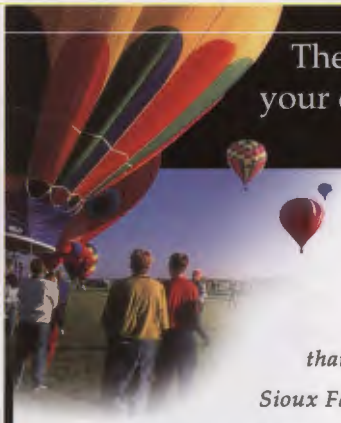

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The Iowa State University Foundation salutes Juli and Jon Ellis for helping to make Campaign Destiny: To Become the Best the most successful fund-raising effort in Iowa State history. Both 1985 Iowa State graduates, the Lee's Summit, Missouri, couple made a gift helping to expand Reiman Gardens. In addition, Juli was recently elected a Foundation Governor. Their support and leadership are helping Campaign Destiny toward unprecedented success when it concludes in June 2000.

To find out how you can become involved with Campaign Destiny, call 515-294-4607.

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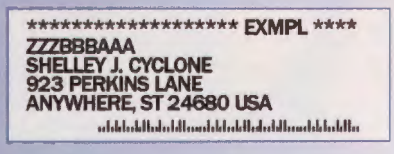

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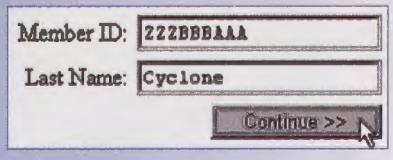

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