

*Stephen P. Weber*

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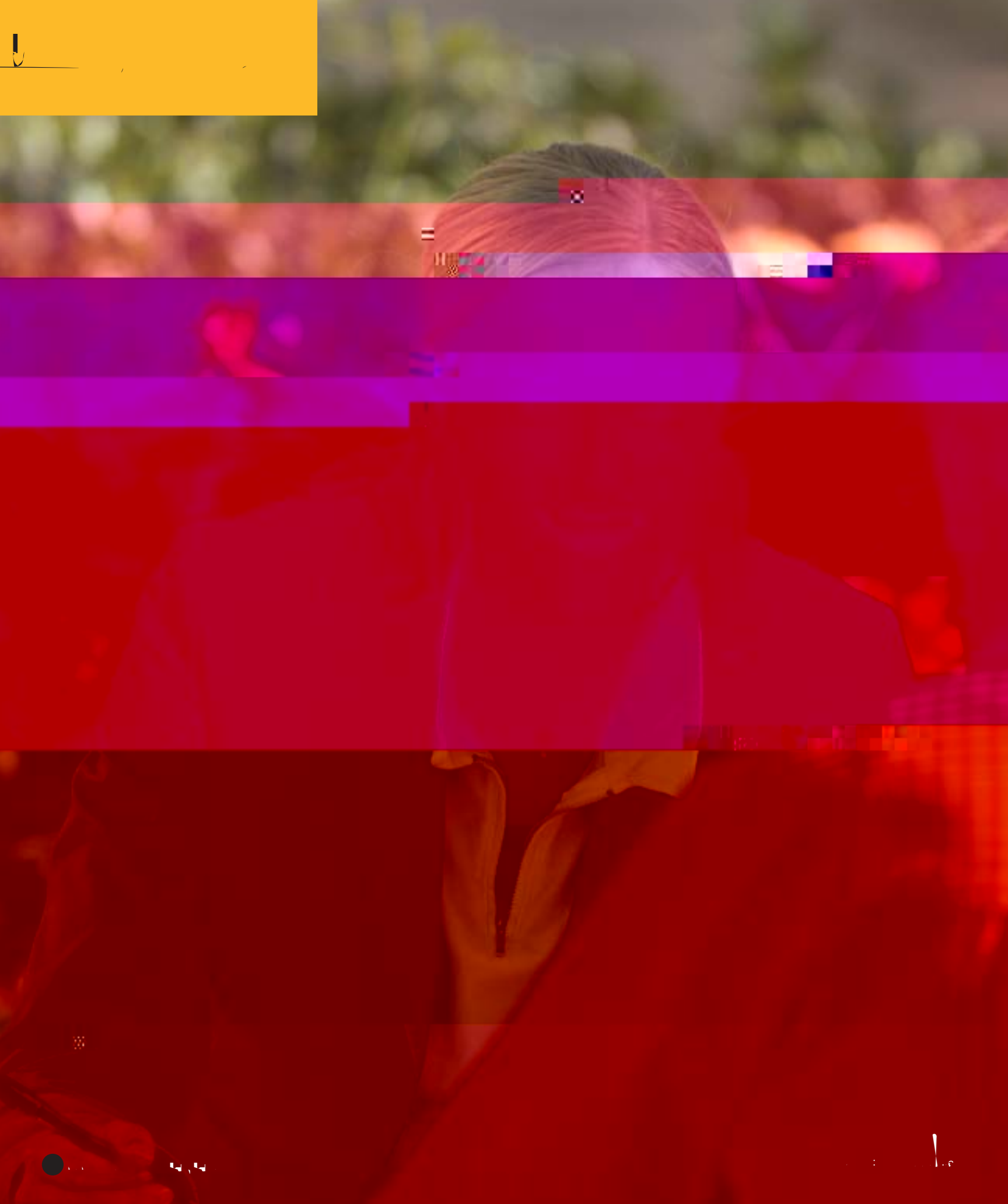
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## No. 2 for Studies Abroad

San Diego State is now No. 2 in the nation among its peer institutions in terms of the number of students studying internationally. The latest Institute of International Education (IIE) rankings moved SDSU up one spot from last year as compared to other campuses classified by the Carnegie Foundation as "doctoral/research-intensive" universities.

The IIE ranking is based on the total number of SDSU students – 1,030 – who studied abroad during the 2002-2003 academic year. That tally capped a whopping 517 percent increase in the number of study-abroad participants at SDSU over the past six years. Even more San Diego State students – 1,168 – studied abroad in 2003-2004.

The top 10 most popular destinations for SDSU students for 2002-2003 were Mexico (201 students); Spain (160); the United Kingdom (154); Costa Rica (86); Australia (57); France (53); Italy (44); Chile (33); Germany (32) and Russia (22).  
-A.H.

## CSU Yields Healthy ROI

You probably already know that the 23 campuses of the California State University (CSU) system educate the majority of the state's skilled professionals in critical knowledge-based industries, such as engineering, business, technology, education,

media and computer science. Many argue that such a vital contribution is well worth a healthy investment of California tax dollars, even in the worst of economic times. But did you know that the CSU also yields a healthy return on that investment?

A report released in November estimates that the CSU annually spends \$53 billion, supports 527,000 jobs, and generates \$3.11 billion in state tax revenue. Combined with the enhanced earnings of its graduates and the ripple effects throughout the California economy, the CSU's total annual economic impact exceeds the amount of direct annual support the entire university system receives from the state. San Diego State on its own

returns an economic benefit to California of \$6.57 for every taxpayer dollar invested.

CSU graduates also contribute to the state's economic health through their professional endeavors, by developing innovative solutions in business and industry. Their influence permeates California's social fabric through education and social services, sports and the arts. And thousands donate their time as volunteers in their communities. All told, it's hard to imagine what the Golden State would be like without the campuses and the people of the California State University.

-C.L.G.

"What's past is prologue,  
what to come in yours and  
my discharge."

*William Shakespeare*  
*"The Tempest," Act 2, Scene 1*





much and can be small enough for one person to carry. Plus, it can be used with solid and liquid samples, and it's much more precise.

"This method gives us more information than the mass spectrometry method because it's based on

# Hot Topic

By Sandra Millers Younger

## global warming.

Walt Oechel is a big man. Tall, strapping, with broad shoulders. It's a good thing. He's carrying the weight of the world.

A San Diego State alumnus, biology professor and director of SDSU's Global Change Research Group, Walter C. Oechel, Ph.D., is a top researcher in the field of global ecosystems. For 30 years now, he's traced the scientific effects of human activity on the living planet we all call home, collecting evidence that the earth is rapidly heating up under a blanket of atmospheric pollutants known as "greenhouse gases."

### A dramatic reversal

The eventual consequences of this global warming are unknown, but judging by what's already happening – record heat waves, monster hurricanes, extended drought, catastrophic wildfires – Oechel is worried. Worried that the public

underestimates the problem, that government and industry are avoiding it, that in some circles it's considered politically incorrect even to discuss it. And, most of all, that we're running out of time to respond to a very real threat.

"Global warming isn't a belief system. It's not a perspective," Oechel says. "It's based in scientific fact accepted by the huge, overwhelming majority of scientists in the research area. Very few feel that global warming is not occurring or that human activities don't tend to increase it."

Oechel's own work, which focuses on ecosystem responses to elevated greenhouse gases, has contributed key evidence toward that conclusion. He was the first to discover that the Arctic tundra, previously a "carbon sink," that is, a sponge soaking up greenhouse gases, had instead begun to produce them. This dramatic reversal confirmed

that the planet's climate was indeed changing, and in a big way. Oechel himself was so stunned by the significance of the finding, he was hesitant to publish it.

"I spent years making sure it was right, that it wasn't just a local phenomenon, because it was such an important finding," he says. "It was the first evidence of an ecosystem responding to climate change in a way that would amplify climate change."

### National distinction

Scientists live for such moments, being the first to discover something so important it changes the way people see the world. But Oechel's excitement was muted. "Being in the forefront of discovery is great," he says, "but the message that comes from this research is overpowering. It is so dire it swamps, it supercedes, it overtakes the good feelings."

It's tempting at this point to change the channel on Walt Oechel. But he's just too well respected in his field. His work is so frequently referenced that his name appears on the Institute for Scientific Information's list of "Highly Cited Researchers," a distinction reserved for less than 0.5 percent of publishing scientists. And last June, he was one of only eight scientists to receive the National Science Foundation's (NSF) top honor, the 2004 Director's Award for Distinguished Teaching Scholars.

### Hands-on science

The label fits. Oechel is as passionate about teaching as he is about research. And his commitment extends beyond university students, all the way to grade schoolers. The interest is more than professional. Oechel is literally pinning his hopes for the future on the generation who will inherit it.

"I am deeply committed to increasing the level of math and science education in the U.S.," Oechel says. "We need a scientifically and technically literate population if we want to solve the complex environmental problems that face the world today."

In 1998, with that goal in mind, Oechel and colleagues Nancy Taylor and Cheryl Mason launched Partnerships Involving the Scientific Community in Elementary Schools (PISCES). Funded by NSF and private donors, PISCES has paired graduate students and undergraduate science majors with more than 200 K-8 teachers in over 40

schools in Barrow, Alaska, San Diego and La Paz, Mexico. A similar program serves schools in San Diego, Tijuana and Ensenada. Teachers Experiencing Antarctica and the Arctic (TEA), another of Oechel's activities, actually involves K-8 teachers in polar field research, an adventure they take back to their classes.

Access to university-level science enables these teachers to develop real-life, hands-on science projects and curricula that include online monitoring of far-flung study sites and communication with front-line researchers. The approach appeals to young students, Oechel says, because "inquiry-based self-discovery is more powerful than textbook lessons."



1. **Transportation tips** C

2. **Energy options** F

3. **Climate control begins at home.**

4. **Smart appliances.**

5. **Light switch.**

6. **Cool your jets.** 120 F. D

7. **Plant a tree.**

8. **Recycle.** F A

9. **Speak up.**

10. **Get involved.**

Another of Oechel's key audiences is government leaders. Hoping to contribute to informed policy-making, he's testified before Congress and European ruling bodies, as well as regional and local groups.

The potential for global warming was actually postulated more than a century ago, Oechel tells them, at the beginning of the industrial age. Since then, atmospheric greenhouse gases, a byproduct of clearing forests and burning fossil fuels, have risen almost 25 percent. At the same time, the planet's average temperature has climbed by 1.1 degrees, a trend that continues. The 10 warmest years on record have occurred since 1990, with 2004 the warmest year yet.

It's no coincidence, Oechel says. "What we know and there's no doubt about is that greenhouse gases – like CO2 (carbon dioxide), methane and nitrous oxide – trap heat in the atmosphere and cause warming. There's extremely strong correlation in the geologic record between levels of greenhouse trace gases and temperature.

**Unexpected consequences**

"Another thing that's felt very strongly," he continues, "is that as the planet warms and there's more energy in the weather system, we're going to have more extremes in weather. With warming, there's an overall tendency for many regions to dry, causing deeper droughts.

"But we'll also have more heavy rains, more hurricanes and even more heavy winter snowfalls, because a warm ocean surface puts more water vapor in the atmosphere. People might think, oh, all this talk about global warming, and now we have an unusual cold



snap. Well, that's totally consistent with the expectation."

What's not known, Oechel says, is just how hot – or cold – things might get, and what that might mean for the planet and its inhabitants. Hollywood toyed with these questions in last year's "The Day After Tomorrow," a disaster epic that suggested cataclysmic climate change could occur almost overnight. Although he's dubious about the compressed timeline, Oechel applauds the film for grabbing the public's attention.

"There was a lot of truth in it," he says. "One thing it pointed out was the probability of unexpected consequences. We really don't know the full range of the impacts of global warming."

We also don't know the planet's maximum capacity, Oechel notes, that is, how many people and how much development it can handle. "We're adding a billion people every 13-14 years," he says. "That would be bad enough. It's clearly not sustainable. But it's compounded by the fact that many third-world countries are increasing their energy and resource use – and their expectations.

**Searching for solutions**

"China's goal, for example, is to reach 30 percent of U.S. resource use within two decades," Oechel continues. "It's hard to tell someone who uses 1/20 the resources you do that they should not develop any further, and yet, if the rest of the world went to 1/3

of the resource use of the U.S., it could be devastating.

"So we have a population increase that is not sustainable, and we have development occurring that's not sustainable, and we have an almost total lack of leadership on the part of the U.S. in increasing efficiency and developing renewable resources."

Clearly, Walt Oechel does have a lot to worry about. But he's determined not to give up. "I'm working with intelligent, innovative, bright people here and around the world, who also recognize the problem, and also don't know the solution, but are committed to trying to come up with one," he says. "By nature I'm just optimistic, I guess."



n 1931, Marscia Helen Genet  
was among 1,365 students to





## Student Snapshot

The campus isn't the only thing that's changed since San Diego State moved to the Mesa nearly 75 years ago.

The typical SDSU student no longer matches the profile drawn in the early 1930s of a young Caucasian woman living at home and headed for a teaching career.

Today's students are a diverse group. About 40 percent are male; 60 percent, female. More than 40 percent of undergraduates and 25 percent of master's candidates are persons of color.

SDSU students contribute

1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994

the last 50. The bold new blueprint, which will be reviewed in July by California State University trustees, calls for adding flagship buildings for the colleges of Education, Arts and Letters, and Health and Human Services, as well as new space to facilitate faculty research and collaborative ventures with regional industries.

Graduate students will make up a larger proportion of the student populace than ever before, attracted by SDSU's outstanding facilities and research opportunities, and by the reputation of its faculty.

The San Diego Trolley will serve campus via a sleek new underground station opening

this year on the south edge of campus between Aztec Center and the Adams Humanities building. Construction of new housing for faculty and graduate students, both on campus and in private developments nearby, will accommodate the university's housing needs for years to come, transforming SDSU into a more complete residential community.

All of these changes will no doubt enhance that unique sense of Aztec pride shared by generations of faculty, staff, students and alumni, past and present. And as always, San Diego State University will continue to pursue knowledge, to educate and to serve.

# Class Notes

'34: **Marscia Genet Menvielle** ★ (education) and her husband, John, were honored recently for 53 years of leadership in the 4-H youth program. They live and farm near Calexico, Calif.

'54: **Mary Ellen Riedel** (psychology, philosophy, English) is retired and has written two novels and three mystery stories. She lives in Shady Cove, Ore.

'65: **Patrick A. Long** (English), a founding partner of the Santa Ana-based law firm, Long, Williamson & Delis, has been appointed first vice president of DRI-The Voice of the Defense Bar, a national organization of defense trial lawyers and corporate counsel. He will advance to president of DRI in 2006-07.

'71: **Debbie Collis Metcalf** (fine arts, social sciences; '74, M.A., education) has been awarded the 2004 Clarissa Hug Teacher of the Year Award by the national Council for Exceptional Children for more than 30 years of dedication to students with learning disabilities. Metcalf is a teacher-in-residence in the College of Education at East Carolina University in Greenville, N.C. and also teaches in two Pitt County public schools.

'72: **Thaddeus "Tad" Jankowski** (political science; '74, M.A., English) has been promoted to senior vice president of National Amusements Inc. in Dedham, Mass.

'73: **James F. Smith** (accounting) has been named vice president-towable operations for Fleetwood Enterprises, Inc., which specializes in recreational vehicle sales and manufactured housing.

'75: **Victor Manuel Perez** (art) is artistic director of The Combined Organizations for the Visual Arts (COVA) in San Diego. He also serves on the boards of the Mojalet Dance Collective and the KIPP Adelante Preparatory Academy Charter School.

'78: **Daniel J. Sullivan** (accounting/accountancy) has been appointed CFO of SkyLynx Communications, a data wireless services provider. **Ron Yukelson** (journalism) has been appointed director of business development at St. Vincent Medical Center in Los Angeles.

'79: **Patricia Carey Floren** (English) is international vice president-membership of the Alpha Gamma Delta Fraternity, a national women's organization dedicated to

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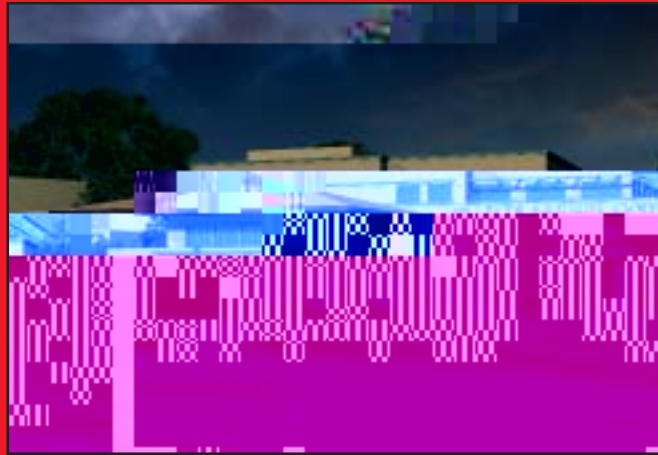


## Alumni

- 1926: May Atherton, Hazel Taylor Hohanshelt, Hazel Margaret Peet
- 1927: Murray S. Holloway
- 1928: Karl P. Busch, Lila Forbes Everson
- 1932: Walter Hickley Dunn, Eleanore M. Newton
- 1934: Elliott L. Cushman, Donald Armand Luscomb
- 1935: Norman Phillip Grand
- 1936: Virginia K. Scott, Henry Watson Woods, Elizabeth Linforth Worthington
- 1938: Jeanne E. Colley, John K. Williams
- 1939: Hewes Alexander Bell, Emily Ann Clay, Ruth Hawley Kabler, Charles S. Rowe, L. Marie Stucki
- 1940: Otilie Burrow, James A. Frame, Doris Jean Hearne, Oliver John Horkey, Elizabeth Dorothea Meyer
- 1941: Kent Bush, Monte Isham, Richard Cullen Noonan, Edward T. Preisler, Lester G. Wahrenbrock
- 1942: Emily VanDusen VanVechten
- 1943: Gene M. Cornell, Robert F. Gain, John Cornish Swift
- 1945: Leo L. Novak
- 1946: Jess Rodarte
- 1947: Lewis William Fry, Wendell Ralph Lipscomb, Walter F. Marshall, Frank Porter Smith
- 1948: Willard Ericson, Edgar Truett Newbrough, Grant L. Nielsen, Leonard Sherr
- 1949: Robert F. Case, Corinne V. Hubka
- 1950: Charles Seller Jones, William K. Tisdale
- 1951: Joann Brassey, Patricia Ann Finch, William T. Maxwell, Willis Albert Seely, Robert Lory Smith
- 1952: Rodney S. Guest, Cleve Leonard Vest
- 1953: Helen Eileen Harris, Eulogia Martha Layman, Lawrence R. Potter, Wanda Huffman Wagner
- 1954: Raymond D. Dahlin, Catherine E. Ewers
- 1955: Ann Hammond Blackwell, Frederick T. Foster, Ralph J. Pearson
- 1957: Ada Caryl Britz, Pauline Lulu Sines
- 1958: James E. Neff, Loney H. Peacock Jr.
- 1960: Sarah Jean Buncom, Jack Wayne Dray, Floyd R. Moore
- 1961: Richard F. Barlow, Albert Thomas Boost, Glen Raymond Dunn, William W. Lowrey Jr., Peter O. Solomonsen
- 1964: Mary Lou Newbold Bach, Paul Randall Brunning, Stephen S. Billings, Harry Newell Perry, Vinton Claude Vint
- 1966: Erle Clifton Cowgill III
- 1967: Richard Deane Manary, Paula Marie Myers, Donald M. Waters
- 1968: Lantson C. Eldred, Lynn Clair Evans, Kirsti Linnea Lodge, Edward Michael Meagher III
- 1970: Edward Michael Meagher Mar8 562.433 ,18:

SDSU

SDSU A: PAVILION CONTEST  
G... SDSU.



O... SDSU A: PAVILION CONTEST  
P... T... (In addition, the names of all houses that participate in this contest will be displayed in the Pavilion's Ring of Honor.)

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