

Dianne Dorland

Firmly Anchored . . . For Now

Three phases of Dianne (and hair styles): as a young girl in South Dakota; as a graduate student at West Virginia University; and, today, as Dean of Rowan's College of Engineering.

D.A. BARSOTTI

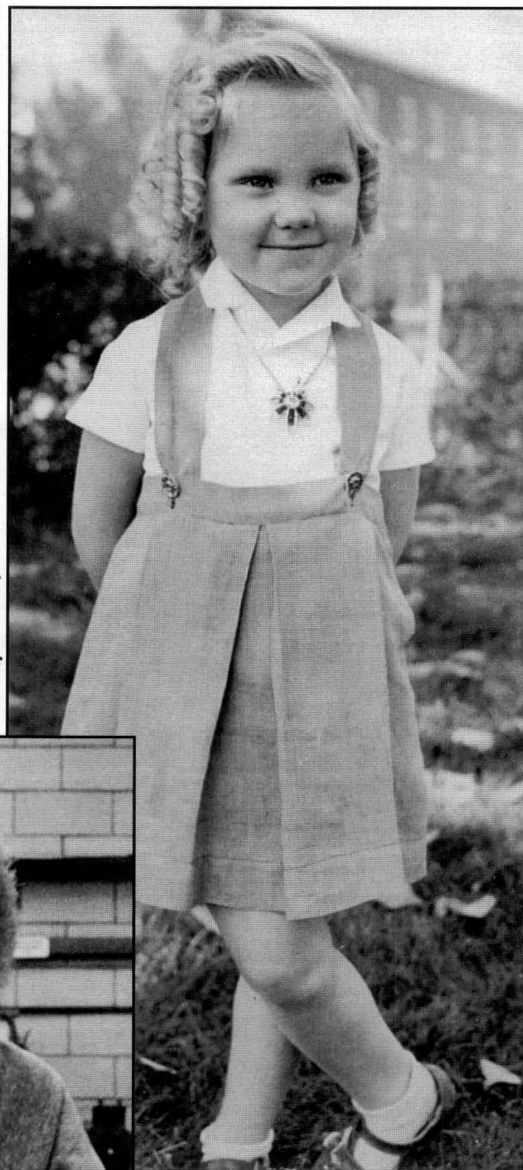
In her undergraduate days at South Dakota School of Mines and Technology, Dianne Dorland worked for the Institute of Atmospheric Sciences, first as the office “go-for” then as an undergraduate technician. She learned plenty about clouds, but even as she soared above, beyond, and through the nebulous matter—seeding clouds, collecting data, or studying nucleation in cloud systems—no one would quip that Dianne had her “head in the clouds.”

Today Dianne Dorland is Dean of Engineering at Rowan University, Glassboro, New Jersey. She is still soaring, still seeding, still seeking—but experiences have sharpened her vision and heightened her dreams. Today, as dean of Rowan’s innovative new engineering program, she is excited about the opportunity to develop and maintain strong links between engineering education programs and industry in a way that will benefit both the students and the region where she has just recently landed.

From drawing weather maps to charting new territory in chemical engineering education, Dianne has accumulated an enormous wealth of experience, both in her professional endeavors and in her personal undertakings. The sum of those experiences is obvious from the very first time you meet her.

THE HANDSHAKE AND THE PIPE WRENCH

When you first shake hands with Dianne Dorland, you know right away that she is a substantial person, says Gary Finley, a member of the Arrowhead Chapter of the



National Society of Professional Engineers in Duluth, Minnesota, where Dianne was an active participant. "She's got a good grip." Finley, who is technically retired from the engineering profession but consults and keeps active in his profession, had a chance to interact with Dianne when she headed the Department of Chemical Engineering at the University of Minnesota, Duluth (UMD). "Dianne is a professional engineer and a professional educator," he says.

But it is that first impression that seems to best capsule what others find in Dianne.

Alan Nelson is a PhD candidate at Michigan Technological University. He had the opportunity to do his undergraduate studies under Professor Dorland's watch. "When I arrived for the first day of class," he recalls, "I quietly selected a seat in the back of the room to avoid unnecessary attention. I pulled my books out of my pack and adjusted my hat in such a way as to prevent eye contact with the instructor." Instead of being an unknown in the back of the room, Nelson found he had captured the attention of the instructor. "Little did I know that she was not particularly fond of hats worn indoors, let alone baseball caps," he says. "She politely asked me to remove my hat," recalling that he did so with reservation. "I sat through the class with my hair protruding out in every direction," he says, but he quickly realized that it didn't matter because the instructor had a genuine interest in her students. "Dr. Dorland involved the students in a discussion—to learn about them and about their expectations for the course," he remembers. "By the end of the class, the instructor had earned my respect; a respect that continues to grow even today."

"Dianne puts her students first," says Ron Visness. Before, and even after, he retired from his position as manager of a research program for the State of Minnesota Minerals Division, Visness frequently worked with Dianne in her capacity as head of UMD's Chemical Engineering Department. Even though Dianne's calendar was full of administrative tasks, he says, she made sure she had time for the students. "She is also industry oriented and has a good feel for what industry wants and needs," he comments, adding that students find that perspective valuable. "Dianne has been where they are going. She knows what happens when things go wrong in a chemical plant—and she knows the working end of a pipe wrench."

A NEW VANTAGE POINT

Business incubator. Technology center. Industrial outreach. Student interaction. As dean of Rowan's College of Engineering, Dianne is melding the experiences she's had in her career to write the next exciting chapter on chemical engineering education. From her office in a state-of-the-art engi-

neering building, she brings a unique vantage point to the chore. Her experiences will allow her to assess the needs of each of the partners—students, industry, and the community—that will be affected by Rowan's innovative new engineering endeavor. "I can't promise to deliver everything that

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everybody wants," Dianne says, "but I have to find out what each of them wants, figure out what we can provide, and then determine what's optimal for us and what's optimal for our relationship."

Several factors attracted Dianne to Rowan University. The engineering program, whose first class of engineers graduated in May 2000, was established with strong industrial interaction. This interaction is the basis for the clinic projects, the "hands-on, minds-on" clinic experiences that offer progressively more involved engineering situations for all four years of the program. In recruiting the faculty, the college sought forward-thinking candidates who had strong backgrounds and the potential to develop relationships within industry. When Founding Dean James Tracey set the course for Rowan's College of Engineering, he was laying a foundation for the kind of engineers who would meet the challenges of the new millennium.

"This is a new educational experience," Dianne admits. "It incorporates interaction between students in the different disciplines of engineering, between students in different class levels, between students in different industrial projects, between students and faculty. At Rowan, the first thing that freshman come to understand is that engineering is a state of mind."

And that seems to be the state of mind where Dianne has taken up permanent residence. Though she has been settled in the dean's office for just a short time, her presence fills the room. . .her hard hat, a congratulatory vase of long-stemmed red roses from a dear friend, and a calendar full of opportunity.

CHEMICAL ENGINEERING EQUALS FLEXIBILITY

Opportunities were not as apparent when Dianne was growing up in her South Dakota hometown of Belle Fourche. Nestled on the northern side of the Black Hills, the rural community of 4000 offered a solid education for its youth, but not many options. "There were few job prospects," Dianne explains. "I could become a rancher's wife or go to college." Because of her aptitude in science and math, and her expo-

sure to engineering through her participation in the Junior Engineering Technology Society during those high school years, it was natural that Dianne chose to enroll in the engineering program at the South Dakota School of Mines and Technology. A strong recruiting effort for chemical engineers set the direction as Dianne began her undergraduate studies.

Dianne's youngest sister, Thais M'Annette Dorland Armstrong, recalls the beginning of Dianne's educational experiences. "I remember that when she went to college," she says, "there were so few women in attendance that she was forced to live off campus because there was no housing for female students."

"Engineering offered me a challenge," Dianne says. "I wasn't sure of the opportunity at the time, yet once on board, I knew it was a good fit for me." Dianne is a licensed professional engineer in the states of West Virginia and Minnesota, and will soon be licensed in New Jersey.

Dianne soon realized that rigors of the chemical engineering curriculum provided additional benefits. "I knew I had to work during my college years," she says, adding that since she knew there would be no financial support from her family, she would be paying her own way. Because of the demands of her studies, she quickly learned valuable skills—time management, communication skills, perseverance, and flexibility. Those same skills helped Dianne find and balance part-time jobs while she carried out her course load.

She had a number of interesting part-time ventures, ranging from bookkeeping to taking in ironing to house painting. "But the best job I had during that time was at the Institute of Atmospheric Sciences," she says. That's where she had a chance to soar into a fair-weather adventure that has endured, trying her hand at everything from drawing weather maps to operating an instrument data-collection package at 10,000 feet.

Because of her position at the Institute while an undergraduate, Dianne was able to take some graduate courses in meteorology. "It was the flexibility of the chemical engineering department that allowed me to use funds from the Institute to complete my graduate studies," she admits, adding that the Department was willing to combine resources and curriculum with the Institute to make it possible for her

to earn her Masters Degree in chemical engineering. Her fascination with clouds prompted her to minor in meteorology. "I am appreciative of the Department and the faculty," Dianne says. "What I owe them goes beyond words." The program at South Dakota is the model for what Dianne sees as a successful engineering program.

MODEL FOR A SUCCESSFUL ENGINEER

Much like the collaboration that takes place in a successful engineering program, so is there collaboration in the molding of an individual. And at this point in her life, Dianne can look upon inherited attributes, life lessons, and character-building moments to gain some perspective. There have been many mentors, friends, and family members who have made an impact on her, professionally and personally.

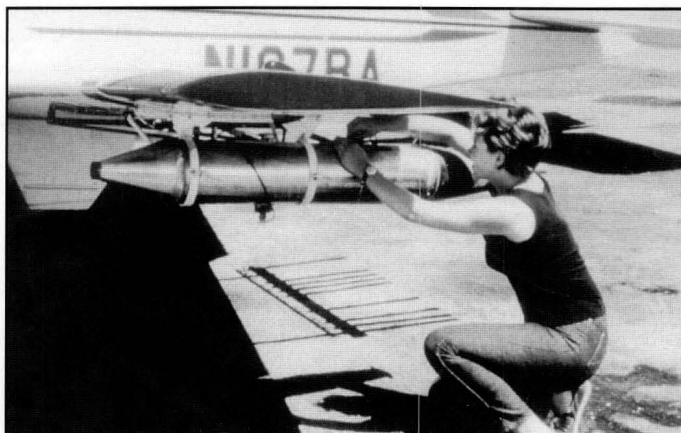
"On my mother's side, grandfather was a farmer who was fascinated with airplanes," Dianne recalls, thinking of her own interest in the

weather and her passion for flying. "My grandmother Dorland lived with us, and when I was ten years old, she taught me to touch type using an instruction book with an 1898 copyright date," Dianne remembers, perhaps explaining her tendency to set goals, look ahead, and be prepared.

Dianne's father was an optometrist, and her mother stayed at home to raise the family. It was her parents' hope that all of their children would do more with their lives educationally. "My mom was the driving force in those efforts," Dianne says, relating one instance when her mom went into school to argue that Dianne be admitted into a drafting class.

Thais recalls Dianne's determination to set out in new directions. "One of my earliest memories in regards to career aspirations was when some friends of my parents were visiting. Being all of four years old, I was privy to their conversation, which turned to the subject of careers. I think the conversation sticks out in my mind because of the distinct shock on their faces when I piped in that I planned to get my masters degree in chemical engineering when I grew up. Of course, my aspirations and awareness were completely formed because of my older sister, Dianne."

Thais' relationship with Dianne has bloomed from sisterhood to best friend. "I admire Dianne for her strength, her ability to focus, her sense of clarity, and her desire to have fun in the process." Thais, who is a full-time artist, birdwatcher, and world traveler, says she is constantly aware



In her work with IAS, Diane spent time in the clouds. Here she is pictured filling the plane's AgI-Acetone Generator for cloud seeding.



▲ *Dianne visited her sister Thais in the Amazonian Basin and is pictured here with Thais, Thais' husband, and their Ecuadorian guide and his nephew.*

◀ *Dianne, an enthusiastic scuba diver, shown here on a dive in the Caribbean.*

▶ *Dianne is shown here just before firing a blast at a taconite mine in 1999.*



of the full emotional support of her oldest sister.

Those moments of family love weren't always as obvious as the Dorland siblings were growing up. The second eldest of six children, Dianne found plenty of opportunity to practice conflict resolution, learning when it was wise to let go and when it was time to give in, when it was good to win and when it was okay to lose.

Dianne's mother had quite an influence on her. Her mother read to the family and provided games for them to play. "We didn't have a TV in our house," Dianne says, adding that they did live next door to the library—"my second home."

"My mother had an adventuresome spirit," Dianne says. "I remember one time when she took a cigar box full of silver dollars, loaded us into the car, put the cigar box under the front seat, and headed out to have an adventure. When the box was half empty, we started the journey back home." Her mother arranged many such journeys . . . to visit cousins, to go exploring, or to drive toward a sunrise. "She planted that spirit of adventure in me," Dianne professes. "I learned to be to be spontaneous and flexible."

NEW TERRITORIES - NEW ADVENTURES

It wasn't long before Dianne had a chance to test her flexibility. Following an on-campus interview with Union Carbide in 1969, Dianne left South Dakota to

join the company's R&D department in South Charleston, West Virginia. Unfortunately, her job evaporated before she even arrived, due to a shift in the company's economic situation. "I floated between several different departments," Dianne remembers. "It was fascinating. I was exposed to a myriad of projects, and I began to see how flexible an engineer must be to survive on the job." For a while, Dianne worked on a process for insulating the hulls of ships used to transport liquefied gases. She learned about problems with certain insulating materials and became aware of the health and safety issues that exist in the chemical industry.

After several other projects at Union Carbide, Dianne had a chance to move from textbook learning into the real world. "I worked on assessment of a butane oxidation process facility," she explains. "This was the nasty core application of everything you learn in undergraduate school. It was no longer a simple problem, but a multi-component one—with all the by-products that occur in the commercial world."

Another dose of reality hit when a company lay-off left Dianne out of work. Part of the lay-off targeted female spouses. Dianne, who, by then, had married a co-worker, was affected. Not wanting

to dwell on this, she summoned her energies and worked to get another job. She found success at a DuPont facility in Belle, West Virginia. She was hired as a process engineer, and provided technical support for operations in the plant. “I worked with Para Amino Cyclohexyl Methane (PACM), the chemical precursor to the fiber Qiana Nylon,” she says. “It was an exciting time to be working at DuPont. The business was expanding and I got to work on the design and expansion of the process and to offer technical support during the start-up of the new equipment.” Dianne was also responsible for providing quality control and dealing with the technical issues that were involved in the process.

Fortunately, there weren’t too many issues with the fact that Dianne was the first full-time female chemical engineer at the site. “There was a period of adjustment for me and the plant,” Dianne recalls, “but my supervisor, Dick Sherman, was more interested in my engineering talents than in my gender.” A genuine bond developed between Dianne and her colleagues. A few years later, when Dianne took maternity leave for the birth of her first child, the plant operators found a special baby shower present for her. “They gave me a gift—prophylactics, with the admonition that I learn how to use them,” Dianne says with a grin. “It was quite a compliment to know that they wanted me to come back to work—and not leave again.”

DIAPERS AND DECISIONS

In 1975, Dianne resigned from DuPont and gave birth to her son Brad. Two years later, her daughter Decker was born. During their early years, Dianne stayed at home with Brad, who is now a PhD candidate in cell biology at Oregon State University, and Decker, who recently landed a full-time position as Program Assistant for the Greater Minneapolis Metro Housing Corporation.

While she was at home with her children, Dianne took an active interest in the community. She also found a part-time position in chemical equipment sales. In 1981, a teaching opportunity at West Virginia Institute of Technology became available and Dianne was hired to teach evening classes. She was eventually offered a full-time position as assistant professor. At some point during that time frame, Dianne realized that she wanted to pursue her PhD, and in the spring of '83, she headed to West Virginia University.

A grant for non-West Virginia undergraduates that was available through the Department of Energy took Dianne down new paths. She worked with Al Stiller on a novel method for processing coal. “I took note of Al’s interactions with government agencies and of the political involvement in funding,” Dianne says. Not only did she find the process of coal extraction quite interesting, but she also became aware of the intersection between academics and politics.

“I attended graduate school with Dianne from 1983-1985,” says David Bernemann (now Engineering and Math Instruc-

tor at North Iowa Area Community College) “and have maintained my friendship with her since that time. I think of Dianne as one of the smartest people I know.” Bernemann acknowledges that Dianne has reached a high mark academically, but he is more impressed that she knows what is really happening in the world.

Phillip Kneisl is another of Dianne’s friends from graduate school. He is currently a Senior Chemical Engineer at the Schlumberger Reservoir Completions Center in Rosharon, Texas. From his experiences, he feels that a strong academic background is only part of the formula for a good engineer. “Dianne knows her technical limits,” Kneisl says. “She is on good terms with everyone. She practices good politics. And she is always positive.” Bernemann continues, “Dianne seems to be extremely effective at facilitating other people to do their best. This means that she is able to provide those around her with the resources to accomplish their goals. I think she gains personal satisfaction in assisting others with their accomplishments.”

DOWN TIME

As friends, Bernemann and Kneisl shared in some of Dianne’s non-academic pursuits. Kneisl remembers that Dianne’s house was always the center of non-academic activities for chemical engineering graduate students in Morgantown. “There were many memorable parties, weekend brunches, lunches and dinners—and general bull sessions,” he says.

Bernemann reveals another side of Dianne. “When we were in grad school, Dianne had a private pilot’s license and her own airplane—a Cessna 172,” he says. Bernemann was one of the grad students that went flying with her, and he recalls one instance that showed Dianne’s ingenuity. “The carburetor heat cable on Dianne’s plane broke. (She did many of her own repairs on the plane.) She was going to buy a new cable but found out it cost something like \$120,” Bernemann says. To Dianne, the cable looked like a lawn mower throttle cable. “So she decided to replace it with a lawn mower throttle cable,” he continues. “She asked me to help her with the repair. First we went to a local auto parts store and bought the lawn mower cable, then we went to the airport to make the repair.” Bernemann admits that a Cessna 172 is a pretty simple machine, so the repair was pretty straightforward. He knew that the lawn mower cable was the same as the carburetor heat cable—without the large markup. What surprised him was Dianne’s insistence that since he helped with the repair, he should take the first flight with her. Bernemann was not surprised at Dianne’s love of adventure, but he found it impressive that she wanted to encourage that sense of adventure in others.

Dianne completed her PhD in chemical engineering in the fall of '85. It had been a fairly tough haul, including an emphasis in environmental engineering. She felt she needed

an escape. Leaving her Cessna behind, she turned to her scuba diving and discovered a passion for the underwater world. She spent some time diving in the Red Sea and then toured the exotic lands of the Near East.

EDUCATION—REDESIGNING THE PROCESS

When Dianne returned, she worked for the Department of Energy while she looked for an academic position. In 1986, she heard of a new program being initiated at the University of Minnesota, Duluth (UMD). She remembers thinking that her varied background could be an asset to this new program. At UMD, Dianne was able to both teach and initially work as an environmental engineer for Sea Grant, an extension program at the university.

In the following years, Dianne worked her way through the ranks at UMD, becoming a full professor and head of the chemical engineering program. She had an immediate impact on the new department. Linda Deneen (currently Director of Information technology at UMD) first met Dianne when she became the head of the Department of Chemical Engineering. She adds her observations about one of her closest friends: "Dianne is a professional collaborator and team builder. She's the one who brings groups of researchers together and paves the way for them to be successful as a team. She is also an excellent teacher."

Dianne left UMD with a very strong Chemical Engineering Department, one that was ranked second in *US News and World Report* this year. Dianne is proud of the program's success. "I credit the wonderful people who gravitated to our program," she says.

Richard Davis, Associate Professor in the UMD Department of Chemical Engineering, comments that much of that credit reflects Dianne's goals for engineering education. "She was able to see the big picture," he says, noting that Dianne wanted to move the department forward as a group of faculty—instead of as individuals. "She constantly looked for ways to share her contacts, research projects, funding opportunities, and professional development experiences."

Gary Finley cites more evidence of Dianne's positive impact on the students and the region: "In the past five years, 95% of UMD's chemical engineering students took and passed the fundamentals test. When the national average is 70%, it speaks volumes about Dianne's effectiveness in challenging those students."

"Dianne brings out the professionalism in her students," Finley observes. "Industries in the region are tickled with her students. They come in ready to go to work. Twenty-five percent never leave the Arrowhead, and twenty-five percent

never leave Minnesota. The local folks appreciate that."

That local impact, and that professional quality in Dianne and in her students, made her an impressive candidate for Rowan's Dean of Engineering. According to Ralph Dusseau (Professor and Chair of Civil Engineering), Dianne was highly regarded by the Search Committee, by Rowan University President Donald Farish, and by Henry Rowan, the man who made the school of engineering a reality with the establishment of a \$100 million endowment. "Dianne definitely had the best industry background and the greatest potential for establishing effective industry contacts for the College of Engineering," continues Dusseau. "To use a sports analogy, Dianne hit a grand slam."

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CHARM AND WIT AND A MISSION

That professional quality hasn't gone unnoticed by Ted Schoen, Dean of Rowan's Business School. "Dianne is really willing to reach out, to make sure that our ideas for a proposed business incubator are right for our university," he says. He has been traveling around the region with Dianne, visiting other incubators to learn how they operate. "Dianne has a way to get us thinking about the issues," he says. "She is willing to share her expertise, she has a lot of energy, and she has a great sense of humor."

Dianne brings a wide range of expertise to her new position. An array of published works and presentations illustrates her commitment to the environment (pollution prevention and industrial waste management), her dedication to the education of twentieth-century engineers (curriculum topics and student outreach proposals), and her knowledge of the role of engineers in industry. Her affiliation with professional societies like the AIChE, ASEE, and SWE is underscored by her prominent and active leadership positions.

"This is the fastest growing region in the state," says Stewart Slater (Professor and Chair of Chemical Engineering at Rowan). He surmises that as Dean, Dianne will be able to have an important impact on the advancement of industry in the area. But it is Dianne's mission in chemical engineering education that really interests Slater and the other members of the engineering faculty. They feel that her focus on students, on the links with industry, and on the intersection of the classroom and the real world will advance chemical engineering education at Rowan University.

Dianne Dorland has come to the Garden State. She zips around her eight-acre rural tract on her little green garden tractor, wearing a wide-brimmed garden hat and earplugs. She tends to the blueberries and studies nature at the edge of her pond. She plants the seeds and waits for the harvest. The life is bountiful and rewarding. □