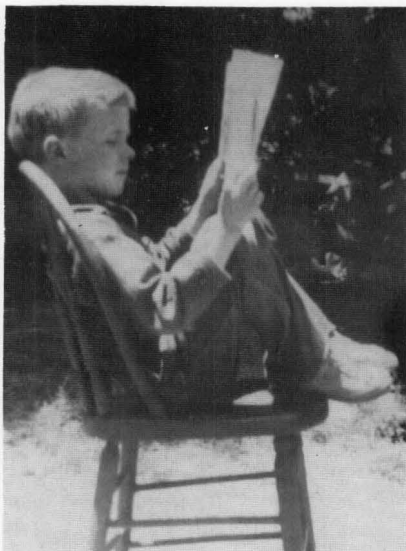


NOEL DE NEVERS



OF UTAH



VICKIE S. JONES
University of Utah
Salt Lake City, UT 48112

A CHEMICAL ENGINEERING professor a "Poet Laureate of Jell-O"? Indeed! Witness the following:

The skinny young lady said "Hello!,
 I'll fill my brassiere up with Jell-O!
 The jiggle and shake
 Will certainly make
 A lure for some gullible fellow!"

Although most of Noel de Nevers' writing is serious and related mainly to chemical engineering, he recently made an exception. His children *dared* him to enter a contest for the title "Poet Laureate of Jell-O" at the Last Annual Jell-O Salad Festival (Jell-O is very big in Utah), sponsored by the Utah Holiday Magazine; he went along with them and won with three limericks and a quatrain. The above is the best of the limericks. He also has three "de Nevers' laws" in the most recent *Murphy's Laws* compilation, of which the best is "de Nevers' law of debate" which

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states, "Two monologues do not make a dialogue."

Noel obtained his BS in chemical engineering in 1954 at Stanford University. Why chemical engineering? Two of his uncles were engineers—one a civil engineer and one an electrical engineer. Noel was fascinated by engineering but was also very interested in chemistry. In looking through the general catalog for Stanford, he discovered the field of chemical engineering and figured it could be a good combination of those two interests. Noel, although very serious about his studies, was moderately active in student affairs at Stanford, including one year as associate editor of the humor magazine, *The Chaparral*.

Noel met Klara Nancy (Klancy) Clark there at Stanford when they were both undergraduates working as "hashers" in the dormitories. Klancy changed her name from Klara Nancy to Klancy when she arrived on campus and discovered there were already three other Nancy Clarks there, and she would have been No. 4 (Klara was a family name which she never used). They were married in 1955 and subsequently produced three offspring: Their son Clark is a chemical engineer working for Hercules, Inc., making rocket motors for intercontinental ballistic missiles; one daughter, Renee, is finishing the PhD program at Col-

umbia University, seeking a career in arms control and disarmament (those two cover both sides of the street!); their other daughter, Nanette, is a senior computer systems analyst for Burroughs/UNISYS. Klancy has an MS degree in mathematics and works for Project Technology Inc., teaching computer software design.

Noel and Klancy like to travel, and if they were to win a lottery that made them rich, the biggest change in their lifestyle would be that they would take more, longer, and more exotic vacation trips. Now that they are through paying for their childrens' educations, they do manage to take vacations to out-of-the-way spots. They have trekked in the Himalayas, the Andes, the Swiss and French Alps, and most recently the Dolomites. In the past few years, Noel has climbed Mt. Kilimanjaro and the Grand Teton. He also enjoys hiking locally; he regularly leads hiking trips for the Wasatch Mountain Club and the Salt Lake Chapter of the Sierra Club. He has hiked extensively in the nearby mountain areas—the Uintahs, Wind Rivers, and Wasatch ranges—and in the deserts of Southern Utah. One of the laws which Noel has submitted for the next edition of *Murphy's Laws* is "de Nevers' law of trail finding" which states, "When you come to an unmarked trail fork, the most heavily travelled fork is the dead end. Everyone who went that way had to come back!"

Noel is also a regular tennis player and skier. He feels he is mediocre in these sports, but that does not prevent him from enjoying them. ("On a scale of 1 to 10, my tennis is about 3; 3s can have a lot of fun and get a lot of exercise playing other 3s.") Each spring Noel and Lamont Tyler, the department chairman, challenge the senior class to a tennis match—not the whole class, but two or four of the students who believe themselves good enough to beat the "old guys." Over the last ten years, the fearsome duo of de Nevers and Tyler has beaten the students *nine* times. The students insist that in spite of their receiving the "Let-the-Old-Men-Win-or-We'll-Never-Graduate" or "Old-Age-and-Treachery-Will-Overcome-Youth-and-Skill" award at the senior luncheon in the spring, they *do* give the tennis match their best shot.

Noel was born and raised in San Francisco and lived in the Bay Area (except for his years at school) until he was thirty. He was raised to believe that civilization extended from the Golden Gate to the crest of the Sierra Nevada Mountains; after that, all was void and waste until one got to Paris. Noel does not like to visit San Francisco these days because he remembers how beautiful the Bay Area was when he was growing up and the population was a third of what

it is now.

In 1954 and 1955, Noel had an opportunity to observe that civilization does exist beyond the Sierra; he journeyed to Germany to study as a Fulbright exchange student at the Technical Institute in Karlsruhe. Since he elected to hitchhike from San Francisco to New York (after a brief stop in Aberdeen, Washington, to bid a temporary farewell to the girlfriend who later became his wife), Noel saw A LOT of the United States. He further discovered that there is civilization even in the Mid-West as a graduate student at the University of Michigan from



Noel, entering into the spirit of things in Chincheros, Peru.

1955 to 1958 where he received the MS and PhD in chemical engineering under the supervision of the late Professor Joseph Martin.

In 1958, Noel returned to the Bay Area and worked for the research subsidiary of what is now the Chevron Oil Company (then Standard Oil Co. of California) in process development, process design, and secondary recovery of petroleum, at Richmond and in La Habra, California, until 1963.

In 1963, Noel felt the time was ripe to make the move to academia. The only academic opening in chemical engineering in the Western US (where Noel and Klancy preferred to remain) was at Utah, so he applied, and in the fall of 1963, he became a faculty member at the University of Utah in Salt Lake City. Except for three summers and one year on leave, Noel has been a full-time faculty member in the department ever since, making the normal progression from Assistant to Associate to Full Professor. For two years he was the Associate Dean of the College of Engineering. That stint as Associate Dean proved to be an effective immunization against further academic administration; Noel finds the life of a non-administering profes-

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sor more enjoyable and rewarding than that of an academic administrator.

In the summer of 1964 he worked at the Atomic Energy site (officially "National Reactor Testing Station") west of Idaho Falls, Idaho, doing research on technical problems concerned with reprocessing of spent nuclear reactor fuels. And in the summer of 1968 he worked at a US Army research lab in Washington, D.C., on a special weapons problem (apparently still classified).

In the spring of 1971, for various reasons, Noel thought it was a good time for him and his family to get away for a year. He thought he had a Fulbright lined up, but it fell through at the last minute. So he wrote to all sorts of people looking for a one-year job. One of his letters found its way to the Air Pollution Technical Office of the EPA in Durham, NC. Noel later found out that they had a long debate on the topic, "Question: Can you get any useful work out of a professor?" They concluded that the answer was "No." But they were against their manpower ceiling (although not their budget ceiling) so if they hired him as a one-year temporary employee, it would help them spend their budget so they could get more money next year, which is absolutely necessary for federal bureaucrats. The folks at EPA rationalized that even if Noel just sat in a corner and twiddled his thumbs for the year, they were better off than if he didn't come and they had to turn back, unspent, the equivalent of his salary.

When Noel arrived at EPA, they had little idea of what to do with a professor, so they indeed sat him in a corner with some reports to read. However, when the boss asked him a simple technical question and Noel replied with a two-page memo with the answer, the boss was electrified: "Professors write *memos!*" In the Federal Government, memos are important. So for the rest of the year, when something came in the door that no one had any idea what to do about, they said, "Noel, write a position paper on this." It was an exceedingly interesting and stimulating year in which he delved into a wide variety of subtopics in air pollution. Subsequently, he has written and consulted on air pollution topics and has served for twelve years on Utah's state air pollution control board (officially, the "Utah State Air Conservation Committee").

In addition to air pollution, Noel's research in-

terests are in fluid mechanics, thermodynamics, and process safety and accident investigations. He has authored two widely used textbooks, *Fluid Mechanics* and *Technology and Society*, and has prepared widely used teaching films entitled *Phase Behavior*. In addition to his academic work, he is regularly involved in environmental regulation, and in 1988 he served on a Utah Legislative Hazardous Waste Task Force.

In the summer of 1974, Noel was awarded a Fulbright faculty fellowship to teach air pollution at the Universidad del Valle, in Cali, Colombia. He and his family drove from Salt Lake City to Panama (which one would have a hard time doing now) in a 1969 Dodge station wagon, which was then shipped to Colombia where they travelled as widely as they could. He developed his Spanish to a level at which he could give suitable lectures in Spanish. The host diplomatically said those lectures were "understandable, if not grammatical." The de Nevers' family was able to travel a great deal while Noel lectured, and Klancy learned to act dumb (to lapse into garbled "Spanglish") when asked for the appropriate papers on the car because they had been dated incorrectly upon their arrival in Cali.

OPINIONS ON "PROFESSORSHIP"

Noel feels that the permanent challenge in the professor business is to be broad without being shallow, and to be deep without being narrow. The ideal professor should be broad, but quite deep, in one or two areas. Compared to the ideal, he feels he is broader than most but maybe not deep enough in specific technical areas, although his current consulting and research work in propane fires and explosions is making him quite deep in that area.

Noel is considered an unconventional teacher; if he had his way, lectures would be banished outright from universities. He never lectures if he can help it. "Lecturing is a sop to the ego of the faculty and the laziness of the student. If I were dictator, I would forbid it outright and fire any faculty member who regularly did it." Putting five hundred freshmen in an auditorium and having some professor tell them what it says in the textbook is very inexpensive, but poor education, according to Noel's philosophy. "The best thing we can do for the students is to help them become self-teachers and lifelong learners." The best

way to do that, he feels, is to tell them to read the book and then to pose questions or problems based on that reading and discuss them in class. This allows the students to do their own intellectual work instead of relying on the faculty to do it for them. It is easy to teach that way in small engineering classes.

In Noel's courses, the class hour begins with several students writing on the board their solutions to the assigned homework problems, and the rest of the class period consists of a discussion of those solutions. When some of the students try unsuccessfully to work the problems, there are lots of questions, and through the discussion they find out why they had trouble. If the students can all work the assigned problems, then Noel changes the problems to more difficult ones and sees if the students can figure them out on the spot. It is harder to use this ("Socratic") procedure in humanities and harder with big classes, but, in Noel's opinion, it can be done. "It is like the ancient Chinese proverb, 'If you give a man a fish, you have given him a meal. If you teach him how to fish, you have given him a way to get his meals for the rest of his life.' Making students into self-teachers is like teaching them to fish.

"I believe that learning is an active process. One more ancient Chinese proverb (why are proverbs always ancient *Chinese*? Are we not making up any new proverbs today?): 'Tell me, and I will forget. Show me, and I will remember. Involve me, and I will understand.'

"Similarly, I think that learning goes on in the following way: 'From the known to the unknown, from the simple to the complex, one step at a time.' I heard that in a course for ski instructors, but I think it applies equally well to learning engineering or anything else."

COLLEAGUES

"Noel is a big-city guy who fell in love with the great outdoors," says one of his colleagues. Others consider him the designated traveler for the department. Shortly after returning from his excursions, Noel prepares a slide presentation to share with interested persons who can then experience his travels vicariously. The slides are generally very good and the narrative always lively. If he is interested in a particular subject, in any of several fields, *i.e.*, travel, history, geography, religion, he endeavors to learn enough about it to be conversant, if not an expert, on the subject. Noel also keeps well informed on politics. Utah is practically a small city-state so that anyone interested in politics can easily get to know all the elected and party officials. His politics are about "cen-

trist," which in Utah passes for liberal. He regularly wins election bets because most of his colleagues and friends are not as interested in politics as he is, and they will bet on what they think *ought* to happen, against what Noel thinks *will* happen. "When Noel serves on the University Senate, we can rest assured that the opinions of the College of Engineering will be heard." He is not one to sit quietly and let things slide by.

Of himself, Noel says: "I have, alas, passed the age at which I can be considered a child prodigy, or even a promising young man. Two years ago, in the middle of a University budget crisis, a special committee was elected to represent the interests of the entire University faculty. By a coin toss following a tie vote, I became its chairman. It seems clear that my colleagues consider me an elder statesman. I still don't think of myself that way." □

ChE book reviews

SCIENCE, ENGINEERING, AND ETHICS: State of the Art and Future Directions

Report on a AAAS Workshop and Symposium, (February 1988)

Mark S. Frankel, Editor

American Association for the Advancement of Science, Washington, DC (1988)

Reviewed by

Mark E. Orazem

University of Florida

There is a growing awareness in our profession of the need to expose students to the types of ethical or moral decisions that they may face as professional engineers. Our approach to introducing ethics at the University of Florida has been to make use of a series of case studies published in *Chemical Engineering*.^{*} We are always on the lookout for new material, and for this reason I agreed to review this report on an AAAS workshop on ethics.

This book provides a report of a workshop, supported by the National Science Foundation, held on the

Continued on page 74.

*Philip M. Kohn and Roy V. Hughson, "Perplexing Problems in Engineering Ethics," *Chemical Engineering*, May 5, 1980; 97

*Roy V. Hughson and Philip M. Kohn, "Ethics," *Chemical Engineering*, September 22, 1980; 132

*Jay Matley and Richard Greene, "Ethics of Health, Safety, and Environment: What's 'Right'?" *Chemical Engineering*, March 2, 1987; 40

*Jay Matley, Richard Greene, and Celeste McCauley, "Health, Safety, and Environment: CE Readers Say What's 'Right'," *Chemical Engineering*, September 28, 1987; 108