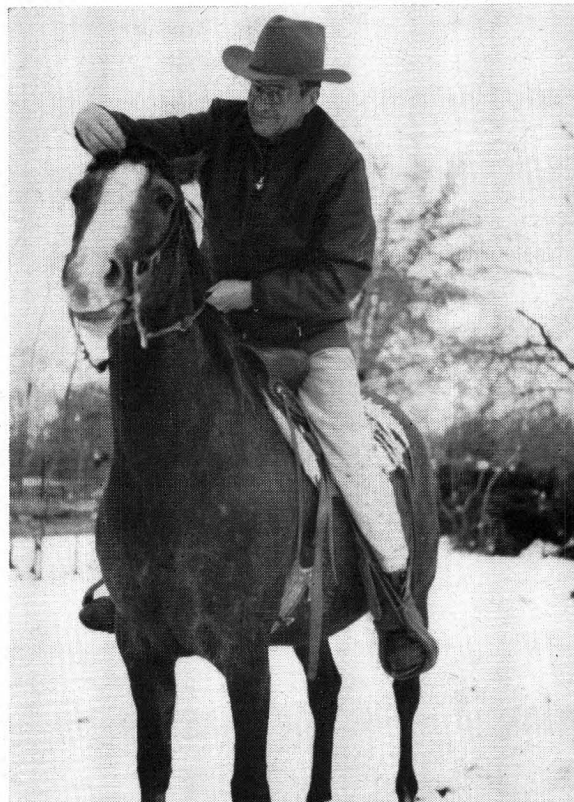


## E. B. CHRISTIANSEN -- HIGH ON HORSES AND IDEALS

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**H**ALF A CENTURY AGO, in a rural community known as Richfield, Utah, "industry" consisted of a bit of mining, some processing of agricultural products, and a *lot* of farming. However, there was a boy who looked in growing wonder at the production of cheese from milk, flour from wheat, and at the beginnings of clay and gypsum processing. The desire thereby kindled in him to be a part of this exciting upgrading of materials led him to enter the geological engineering program at the University of Utah in 1928. Nineteen years later, he was to found the chemical engineering department at that institution; but, in the interim, a budding war, some proud Arabs, and a dynamic teacher were to influence profoundly the life of Ernest Bert Christiansen.

After two years at the University of Utah, Chris deserted student life to serve three years as a missionary in Germany, Switzerland, France, and Alsace-Lorraine, where he witnessed the struggles between the Nazis and the Communists, the rise to power of Adolph Hitler, and the burgeoning of German industry. Before returning to the United States, he and a friend purchased a one-cylinder motorcycle and, riding double, commenced a two-month tour that was to lead them through Italy, Greece, Turkey, Syria, Palestine, and Egypt. One evening, happening upon a British police outpost in the hills north of Nazareth, the two young men were regaled with feats of horsemanship by the Arabs manning the post. Though Chris had ridden farm animals throughout his boyhood, he had never before dreamed how beautiful, intelligent, and responsive a horse could be and vowed he would own an Arabian himself someday. As many as five thoroughbred Arabians at a time have since made their home adjacent to the Christiansen residence, looking upon Chris as their owner, trainer, exerciser, and chief vet.



Chris on Sammara, one of his registered Arabian horses.

His broadening experiences in Europe, Africa, and the Middle East had convinced Chris that geological engineering would not satisfy his indefatigable interest in the industrial upgrading of materials. Accordingly, when he returned to the University of Utah in 1934, he changed his major to chemical engineering, then administered by the Department of Chemistry, with all classes taught by one man. By 1937, Chris had completed the requirements for a BS degree, married Susan Mann, and begun to nurture the idea of becoming an educator. As he pursued MS and PhD degrees at the University of Michigan, the idea grew into a firm decision under a dynamic influence: "I don't believe that anyone could have gone through the graduate program at the University of Michigan and had an experience with G. G. Brown without acquiring an interest in teaching, combined with research and consulting, as he practiced it. . . . Most of us felt we would like to become a G. G. Brown someday."

**Chris believes that a student must be taught the essence of engineering — problem solving . . . "Engineering is the engine of social change; . . . the engineer must be prepared to participate more strongly in the steering as well as the mechanism". . .**

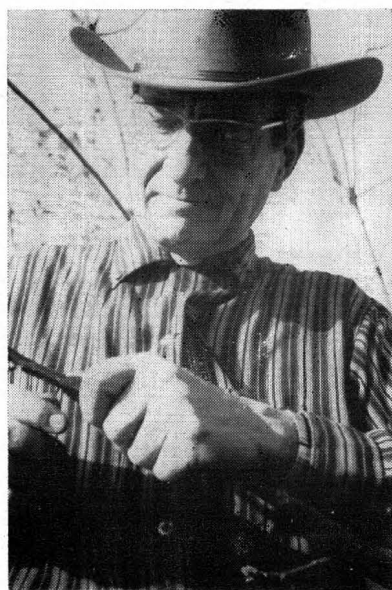
However, Chris felt strongly that all chemical-engineering faculty should have industrial experience so that they could present engineering to the students realistically and could outline with first-hand knowledge the requirements for success in industry. Such a person, Chris felt, could speak more competently and, thus, be far more effective than someone who had not had a responsible industrial experience. Therefore, upon completing his PhD in 1941, Christ accepted a position with the du Pont Company's rayon division in Buffalo, New York, at a starting salary of \$225 per month! (Chris: "This was somewhat less than offered by some of the other corporations; but the innovations of du Pont in many areas, such as nylon, had caught my fancy." Sue: "I had been working on the Michigan campus for \$80 a month; \$225 sounded like a fortune!") In a succession of assignments, he developed and designed equipment for producing an electrolytic bleach solution to be used in the spin-bath concentration of viscose rayon; designed the process and equipment for producing a special wartime nylon polymer to be used in "bullet-proof" fuel tanks for aircraft; and, as a member of the du Pont team working on the Manhattan District Project, solved problems relating to the production of plutonium.

Because he had become so engrossed in working out solutions to important industrial prob-

lems, Chris had almost set aside his earlier ambition to become a teacher. However, when he was offered the position of professor of chemical engineering at the University of Idaho in 1946, his latent interest was stirred; and he returned to the West. A year later, he became the first (and, thus far, the only) chairman of the Department of Chemical Engineering at the University of Utah, with the charge to develop a full-fledged department to replace the previous one-man operation in Chemistry. He did so with wisdom, his first major decision being to place the department in the College of Engineering rather than in a second college of applied science.

**F**ACULTY DEVELOPMENT has been wise, also. Of the ten faculty appointees (all holding earned doctorates), only one has left to take another position. Such a stable roster of energetic and productive people is rare. The attributes for which Chris has looked in prospective faculty members are a strong desire to contribute to the growth of young people; a deep commitment to the service of society; potential ability to motivate students to achieve the utmost possible; and, perhaps most important, the intellectual capacity to contribute to the fund of knowledge. Furthermore, he has considered only men who have had industrial experience in addition to their academic preparation. Finally, in recruiting faculty, Chris has avoided hiring only Mormons and local graduates, who were the immediately available applicants. Of the nine he has recruited, only three are of the locally dominant religious faith; and only two hold doctorates from the University of Utah. Chris has thus ensured that the collective experience of the faculty is broad — socially and academically.

Chris has long been concerned with developing in bright young people an interest in chemical engineering, believing that it is necessary to provide a means for junior-high and senior-high students to identify with the profession. This, he feels, can be accomplished by stimulating contact between the students and practicing professional engineers and educators and by developing positive attitudes toward the chemical-engineering profession in high-school teachers of chemistry, physics, and other sciences. Toward these ends, he has encouraged his faculty to participate



For many years Chris has been trying to develop a late-blooming (to miss Utah's late spring frosts) English walnut.



**Chris sees a bright future for ChE in water and food supplies and environmental pollution . . .**

actively in student tours, Career Day presentations, and science-club lectures and has sponsored annual dinners and tours for local high-school science teachers.

The future Chris sees for chemical engineering is bright. In fact, he feels that the chemical engineer is beginning to have his "day" because of his unique potential to solve such problems as the depletion of the world's food and water supplies, as well as the varied and currently alarming aspects of environmental pollution. His intense interest in chemical engineering has influenced all four of his sons. Magazines concerned with science and engineering have always been around the house, readily available for the growing children to read and examine; dinner-table conversations have frequently turned toward creative developments in chemical engineering aimed at solving the problems of modern society; and Chris has often taken his sons to professional meetings so that they could have a first-hand experience with active scientists and engineers. The results of this immersion in a science-oriented atmosphere cannot be disputed—two chemists and two more chemical engineers bear the name Christiansen!

**A**MONG THE MOST rewarding experiences during his many years as an educator have been Chris' opportunities to review the progress of the many graduates of the University of Utah Chemical Engineering Department. Many have become important contributors to industrial progress, and a number have become educators themselves. Indeed, Chris' influence on chemical engineering in Utah has been felt primarily through the activities of graduates from the department he founded. His influence, both locally and nationally, has also been felt through his outstanding service to the chemical-engineering profession, summarized in the accompanying table.

Chris has developed a philosophy of education that is, perhaps, an outgrowth of his earlier industrial experience. He believes that a student must be taught the *essence* of engineering; namely, problem solving. In spite of many claims to the contrary, Chris knows of no procedure more effective than the use of a variety of experiences in the solution of challenging, relevant problems. He has also been a strong advocate of the need for engineers to take courses in the hu-

manities, stating, "Engineering is the engine of social change; but, from here on, the engineer must be prepared to participate more strongly in the steering as well as the mechanism." Easy for Chris to say; throughout his entire professional career, he has been dynamically active in both.

**—National AIChE**

- Director, 1966-68.
- Chairman: Technical Program, 38th National Meeting; Humanities and Education Area Committee; ten symposia on basic chemical engineering, chemical-engineering education, and humanities at national meetings.
- Member: Nominating, Education and Accreditation, Advanced Seminars, Research, Ethics (ad hoc), Awards Policy (ad hoc), Environmental Project (ad hoc) Committees.
- Council Liaison: Professional Development Committee, Organizing Committee for Agricultural Chemicals Division, Information Systems Committee, five local sections.
- Member-at-large for liaison with Great Salt Lake, Idaho, and Southern Nevada Sections.
- Official AIChE delegate, symposium chairman, and lecturer at III International Congress of Chemical Engineering, Chemical Equipment, Construction, and Automation (CHISA '69), Mariánské Lázně, Czechoslovakia.

**—Great Salt Lake Section, AIChE**

- Chairman: Organizing Committee, 1954; Section, 1956.
- Liaison, 1966 to present.
- Chairman or member of many section committees.

**—ASEE**

- Chairman: Chemical Engineering Department Heads' Program Committee, 1959 and 1969.
- Member: Nominating, Utah Relations with Industry Committees.

**—Other**

- Chairman, Local Arrangements Committee, 1971 Winter Meeting of the Society of Rheology.
- Member, University of Utah Subcommittee, XIII International Symposium on Combustion.
- Member, Utah Governor's Committee on Technical Education.
- Member, Professional Standards and Utah Relations with Industry Committees, Utah Engineering Council.
- Chairman or member of many local and regional ACS meetings and symposia.
- Chairman, Salt Lake Chapter, Tau Beta Pi.
- Consultant to the National Science Foundation, the U.S. Office of Education, the Artificial Organs Institute of the University of Utah Medical College, the Heart Test Facility of Bio-Logics, Inc., and several industrial concerns.