

Memorial to Gordon Walter Prescott (1912–2006)

ALLEN W. HATHEWAY

*Professor of Geological Engineering (Retired), "Missouri School of Mines,"
and COL, Corps of Engineers, Army of the United States (Retired)*

TERRY R. WEST

Professor of Engineering Geology, Purdue University

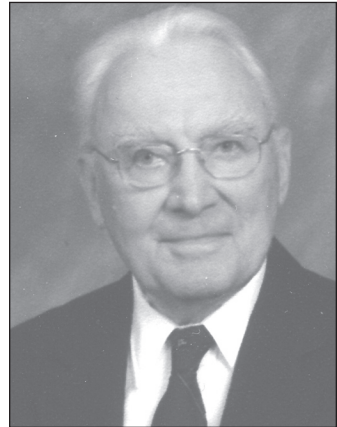
BRIAN H. GREENE

*District Geologist & Adjunct Professor of Geology, Pittsburgh District,
U.S. Army Corps of Engineers*

For the past 60 years, Gordon W. Prescott, practicing engineering geologist and educator, has been a moving and major force in our profession, sometimes quietly and sometimes not, but always facing forward and a wake of positive improvements in the way we conduct our professional work. It is fortunate indeed that this man's capacities were manifested in so many ways related to leadership affecting our profession.

Gordon exuded a personal philosophy which was geared to meeting and overcoming adversity. He was born to the dry-farming high-prairie at Cummings, North Dakota, honed by the Great Depression. Blending his well-known love of learning with the practicality of the times (no formal work available), Gordon earned a teaching Certificate (1933) at Minot Teachers College and then was accepted for graduate studies in geology (1935–1936) at Washington University, St. Louis. After about a year of work on an M.S. degree, Gordon's guardian uncle died, forcing the youth to return to the family farm in North Dakota. With improvement of the farm situation, Gordon found his first geologic employment as a research assistant with the Illinois Geological Survey (Urbana; 1937–1939). He was soon noticed by Halliburton Oil Well Cementation Co. and joined them to become district geologist at Duncan, Oklahoma (1939–1941). With the clouds of war gathering, the Army then called him to active duty in the Ordnance Corps under his earlier Army R.O.T.C. commission. Gordon spent a long time in uniform during the war (1941–1946), and later in the Army Reserve (28 years). His wartime duties were mainly related to training troops, and, as he did later as a professor, he accomplished this with enthusiasm, reason, and by example. With the Ordnance Corps, Gordon rounded up average Americans and made them highly efficient in supply, repairing weapons and vehicles, and in keeping the supply of ammunition and vehicle parts moving to points of need. Gordon retired from the Army Reserve in 1964 as a lieutenant colonel of ordnance.

At war's end, Gordon returned to the practice of geology with the Illinois Geological Survey (1946–1948), then joined the great expectations of the Corps of Engineers Civil Works program (1948–1979) by serving first as district geologist at the Garrison Engineer District, North Dakota (1948–1955).



Gordon was then lured back to Illinois by Carl A. Bays & Associates, of Springfield, Illinois, on groundwater exploration (1955–1957). It was from the Bays Company that the Corps offered him the role of assistant chief of the Geology Branch, in Chief Geologist Edward B. Burwell's office in Washington, D.C. (1957–1969). Following this 12 years, Gordon was named chief geologist (from 1969 to 1974), then topped off his post-retirement professional career as a full professor of geology in 1975 at Purdue University, teaching geologists and engineers. In 1977 at age 65, he retired from formal teaching, but continued as an adjunct professor until 2002.

To know Gordon was to stand before a high-energy, electric-arc personality. His early university training at the North Dakota State University included drama studies, and these skills projected him into working with people in dynamic situations. In fact, some of us suspect that Gordon worked in sufficient drama to energize all of his geologic work, personal and supervised.

A central and prominent feature of Gordon's remarkable career was his five years of duty as the third chief geologist of the U.S. Army Corps of Engineers. In March 1938, the embankment of the great Fort Peck (Montana) Dam failed during its construction out of the geotechnically treacherous Cretaceous-aged Bear Paw Shale. The position of "chief" was created immediately after the failure, as a result of a short "on-the-carpet" discussion between President Franklin D. Roosevelt and the then chief of engineers, Major General Julian Larcombe Schley. The discussion is said to have gone something like this: "General, why is it that we don't have one experienced geologist at Headquarters who can keep disasters like this from happening?"

General Schley brought Edward B. Burwell Jr. over from the Tennessee Valley Authority and named him as the Corps' first chief geologist. It was Burwell who directed that Gordon (late at the Garrison District) be rehired and made assistant chief. Gordon then became assistant to Burwell's successor, Robert H. Nesbitt, and, on Nesbitt's retirement in 1969, Gordon became chief geologist and stayed on until his own retirement in 1975, acting in the "moving and shaking" fashion of Burwell.

At the Office of the Chief of Engineers, Gordon's self-admitted practice was to gain the personal confidence of each successive commander (chief of engineers, a general officer on four-year duty assignments) and to act as a close advisor, thus gaining not only the imprimatur but the inside track on carrying out corrections and improvements. With Bob Nesbitt's concurrence, Gordon also began to establish the special relationship between the chief of engineers and his geologists while he was assistant to Nesbitt.

Functioning as the chief's emissary, and filling Burwell's "shoes" by example, Gordon spent 17 years at the chief's office, visiting the sites of the most geologically complex of the Corps' civil and military works projects, starting during exploration (site characterization) and extending through construction. Gordon was mindful that construction oversight is essential in verifying the design-related projections made as a result of site characterization, lest the two efforts not match and therefore escalate the impacts of "busts" in design assumptions or detail, along with the potential for contractor-oriented mistakes. Gordon's record of field travel was extensive and necessary in order for him to stay abreast of the many projects under construction during his tenure as chief geologist. Over the years, Mr. Roosevelt's concern for on-site exploration and construction visits by the chief geologist has lamentably waned, as constrained by ever-more-limited travel funds for latter-day chief geologists. We must also remember that the construction role authorized by the Congress has also declined since the dawn of the "environmental era" even as far back as 1969.

Many a retired Corps geologist still winces at the memory of Gordon-grillings—at the outcrop, drill rig, in the exploration trench, at the cut-off trench, or on the embankment, all about penetrating questions and bantering with thought-provoking commentary. "What about this?" and "What about that?" Some of the younger geologists, who were confronted by Gordon were also

mentored by him and later became chief geologists themselves. His influence on a generation of geologists coming up within the Corps at the peak of its dam building era is incalculable.

Of the mentoring, retired successor Corps Chief Geologist F. Wayne Swartz, previously of the Nashville District, fondly recalled for us that there was a hot spot of mentoring at the Lake Cumberland project. As young geologists, the late Marvin Simons and Swartz were brought into the fold during the emergency remedial exploration at Wolf Creek Dam in March 1968. Development of deep “sinkholes” appeared in random fill on the downstream face of the dam, and the Nashville District proclaimed an emergency contemporaneously with undertaking an exploratory drilling program, with subsequent lowering of what was the largest reservoir east of the Mississippi River.

Marvin, later Nashville district geologist, and Wayne, later to be selected as the seventh chief geologist in January 1992, were both on hand to screen, scrutinize, evaluate, and interpret the incoming results of the exploratory drilling. Simmons directed the drill crews and Swartz set up a field office in the powerhouse and developed the geologic framework from the incoming exploratory data. Wayne recalls many nights at the Lake Cumberland Lodge when Gordon would draw the two younger on-site geologists further into the deliberations than had been accomplished after dinner and into the night, long after the usual bedtime for most of the crew. Even with the daily after-dinner recapitulation at hand, Gordon would delve deeper and deeper into possibilities, always employing the doctrine of multiple working hypotheses (“what if...?”). In later reflections, Wayne recalls his awakening to the realm of “higher responsibilities” resulting from Gordon’s “dramatic” teaching. Ultimately, these emergency engineering geologic field explorations resulted in the design and installation of the remedial grout lines proposed by Gordon, which Wayne Swartz notes were later recognized to have saved the dam from some sort of calamitous failure.

The Prescott contributions were mainly linked to his ability to rapidly assess situations and then to organize his immediate human resources and set them on charged pathways to timely solutions. It comes to this observer that Gordon never micromanaged. He matched, paired, pushed, and cajoled those under his supervision. He was not beyond “applying” the same enthusiasm to his own supervisors as well. Gordon’s selfless side was his whole personality. He led by example, dedication, tenacity, and perseverance; all that the Army expects of its best commissioned officers.

Gordon was Socratic, but the heat of Socrates’ kitchen could be intense. Nothing personal, just a bright mind “perking” along at high speed and fed by penetrating eyes and a fast march around the site. In addition to his orchestrations of cast, learned in his early drama studies, prior to his switch to a geology major, Gordon employed negotiated “deliverables” from the people he was supervising, making of them enthusiastic “givers” to the cause at hand.

Ever mindful of the advantages of postgraduate studies, Gordon is generally credited with creating and bringing forth the first of three of the Corps’ short-term graduate training programs, an intensive engineering geology course conducted in 1974 by the then–Geological Engineering Department under the direction of Professor Charles Fairhurst at the University of Minnesota. Gordon’s other major, lasting achievement at the chief’s office was launching the string of *Engineer Technical Letters* codifying, for the first, and yet only instance, of such critical engineering geology work product as fact mapping, tunnel peripheral mapping, lineament studies, and rock-mass classification for underground construction. The *Engineer Technical Letters* were largely prosecuted by Gordon’s successor chief, Lloyd B. (“Spike”) Underwood, his long-time Missouri River Division colleague and understudy and eventual successor in 1975.

Purdue University had set its own precedence in reaching for excellence to recruit a senior adjunct full professor-from-practice in 1966, when William (“Bill”) Judd (of Krynine &

Judd, 1957 textbook) was appointed as professor of rock mechanics in civil engineering after a distinguished career at the U.S. Bureau of Reclamation and the government-sponsored RAND Corporation. Bill Judd retired from Purdue in 1987 at age 70. Gordon was recruited by Purdue in the Judd mold in 1975 and moved his practice from the nation's capital to the campus when he was named a professor in the Department of Geosciences. His technique of counseling senior management then shifted from lieutenant generals of the Army to the sitting president of Purdue, and Gordon played a little golf and managed a lot of troubleshooting for the president. He taught several recurring courses and had a friendly open-door policy for mentoring students.

Gordon taught geology for Engineers I, a junior level course for civil engineering students. He continued to teach this course for the next two years. He also taught an advanced engineering geology course working with a team of other geology faculty including Terry West. At the age of 65, in 1977, Professor Prescott was required to retire from active teaching and was named professor emeritus. In this role, Gordon continued to serve on advisory committees for graduate students in engineering geology, and was a guest lecturer in a number of courses. Always active in the department and the university, Gordon kept regular hours while maintaining an office in the department. He came to campus daily, greeting people in his friendly fashion, joking and cajoling everyone he met.

Gordon was also elected to Honorary Membership of the Association of Engineering Geologists in 1987 and served as chair of the GSA Engineering Geology Division in 1973. In 2002, following his 90th birthday, Gordon and wife, Margaret, moved to North Carolina to be near their son, Robert, a retiree from the U.S. Geological Survey in Reston, Virginia. Margaret, married to Gordon for 63 years, preceded him in death in 2003.

Gordon's positive provocations came to light in 1983 when he lectured in Hatheway's classes at the School of Mines (Rolla, Missouri). He terrified one large class (about 35 geological and mining engineers and a few geologists) with his personal question of, "Are you here for a degree or an education?" Gordon was obviously still grandly affected by his own interrupted professional education.

That was Gordon Prescott in a nutshell. His own formal education ended with a bachelor's degree in geology, and his informal education was on the "stage of life," in which he was a self-propelled juggernaut for whom we should be forever indebted and of whom we should not lose memory. Gordon's "paper trail" of publications largely were not his own, but were written by various members of his staff in response to Gordon's negotiated orders to clear up recurring discrepancies and shortcomings in practice. Many of these survive in the form of *Engineer Technical Letters* which are still a source of sound and straightforward procedural protocols for the practice of engineering geology.

Gordon was a giant, and we liked him that way!

ACKNOWLEDGMENTS

The authors gratefully acknowledge the cooperation of Prescott's son Robert and daughter-in-law Mary in providing the portrait and some of the essential non-geologic details, and to retired Corps Chief Geologist F. Wayne Swartz and retired Seattle District Geologist Richard W. Galster (GSA Engineering Geology Division chairman, 1978) for helpful firsthand clarifications and a final proofreading.

