A Formal Remembrance of
George Willard Reid
Great OU Faculty Member from 1950 to 1986

Regents Professor George W. Reid

By

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Background
The School of Civil Engineering and Environmental Science of today owes much of its dynamic existence to the many highly qualified faculty members that have passed this way; many of whom are now deceased. George W. Reid was one of the most colorful and most active faculty members of all time. He was widely known and enjoyed a reputation second to none. This document seeks to recall the well deserved status of a man that had a special glow and charm unique in all of academia. His career, as depicted here, is an example to us all.

Reid was born in 1917 in Indianapolis, Indiana where he graduated from high school in 1934. He received his BSCE degree with distinction from Purdue University in 1942 while also serving in the ROTC program. He was anxious to serve the nation in World War II but could not pass the physical so he pursued a master’s degree in Sanitary Engineering and Industrial Hygiene from Harvard University; graduating in 1943. His career in academia began as an assistant professor at the University of Florida from 1943 to 1944. Subsequently, he served as a sanitary engineer for the Indiana State Board of Health from 1944 to 1945. He joined the Georgia Institute of Technology in 1946 where he served as an associate professor of civil engineering until 1950 when he left to join the civil engineering faculty at the University of Oklahoma as an associate professor. From 1950 – 1957 Reid was the only civil engineering faculty member actively participating in both teaching and research. In 1957 he was appointed director of the School of Civil Engineering and served in that capacity with distinction until the late 1970’s, when he was succeeded by Larry Canter.

With support from College of Engineering Dean W. F. Carson and university president George L. Cross, Reid founded the Bureau of Water and Environmental Resources Research in 1956. He acquired funds and a small budget that was unheard of at that time. He served as its director until he retired in 1986. The bureau was his vehicle to pursue the intensive and extensive research that eventually lead him to national and international fame in all aspects of water and the environment, including legal, health, and engineering projects.

Details of Reid’s Vision and Clairvoyant Path to Fame
When Reid took over as director, his vision far exceeded the exigent program needs that existed before he transformed the role and style of the school into the School of Civil Engineering and Environmental Science. He envisioned a dynamic institution that would cover the traditional aspects of civil engineering and the new and upcoming technological details of environmental controls that permeates many aspects of engineering. In 1962, the new Dean of the College of Engineering, G.M. Nordby, transformed the entire college into the pattern that Reid previously adopted for the school. This was to Reid’s liking, and was consistent with his dreams and hopes.

Reid ‘s strategy was to bring in the new doctoral students that were coming out of the post WWII cadre of academia. He started with Edwin Klehr, environmental chemist; Robert Nelson,
atmospheric scientist; Jimmy Harp, hydromechanic processes; Joakim Laguros, soil mechanics and highway problematics; and Edwin Segner, dynamic structures. Subsequently, he brought in Jim Robertson as an environmental biologist, Andre Corbeau as econometric statistician and importantly, Larry Canter, environmental impact and energy information exigencies.

**Funding - the Great Catalyst of Fame and Fortune**

Reid foresaw productive roles for the school in instruction, research and service. His clairvoyant realization was that existing university funds would never be enough to produce the great school of his dreams. Funds from external research sources were available to those that could attract them to the university. Outside researchers had little chance to participate in this endeavor; universities were the perfect place to conduct research because the appropriate talent was already there.

Such federal sponsors as the National Science Foundation and Health Education and Welfare were tapped while local and state sponsored programs were soon to be available. OU is was not a land grant college, so those restricted funds were not available. However, the Oklahoma Department of Transportation was an important source of funds that were awarded to appropriate faculty members, principally to Joakim Laguros and Jimmy Harp.

Overall, funding from most sources was difficult to obtain because the competition was great, and only projects that were close to the frontier of knowledge, or political intrigue were likely to be funded. Even today research funds are difficult to obtain. Qualified faculty members and well crafted proposals have always been necessary to compete in areas of externally funded research. Reid was a genius at seeking, and finding, funding for appropriate research projects.

Under Reid’s encouragement and stimulation a steady flow of departmental research project awards was the stimulus for a high reputation of greatness. The new faculty members that Reid brought on board could solve any problem. Perfection and high quality output soon enabled expansion to a new level of achievement. Now, new faculty members could be brought on board to seek even more research funding and provide an even higher quality of instruction at all levels. By the early 1960’s, Reid had brought on a cadre of new PhD’s that would and could transform the school into a prominent player on the national and international scene. Reid himself garnered large research grants that provided seed money to ignite his new and forthcoming faculty efforts. He was a master at political maneuvers: his formula and recipe were, perhaps, unique on the academic scene.

**Recognition and Readiness for the Future**

Reid was the principal architect in transforming CEES from a largely undergraduate civil engineering program to the more broadly based school of today. He started with active graduate programs in environmental science, engineering structures, hydromechanics, soil mechanics and
transportation. Possessed with his broad vision of what constitutes a civil engineering education Reid was perhaps a pioneer in adding systems analysis and statistical impetus to the undergraduate and graduate programs. Technological forecasting and demand models were his personal specialty.

By the time of his retirement in 1986, the stage had been set for the advent of the computer revolution. He had already used analog computers, and saw that the future would move to a digital format and associated protocols. The stage was set for the great computer transformation in all of academia, research and service. Overall, during his tenure, Reid transformed the school into a multidisciplinary unit with a broad approach to education and research made possible by the influx of new faculty members with unique specializations and talents in the transformed areas of endeavor.

It is appropriate to mention here that most of the details of this remembrance have been taken from several sources. These were the “CEES Communique of 1986”, the “CEES Communique of 2014”, Reid’s own “Faculty Data Sheets of 1985”, and the “100 Year History of the College of Engineering”, by Tom Love. Finally, details from the memories of those who have contributed to this writing have been heavily drawn upon and presented here. This remembrance document was conceived by Leale Streebin just after his retirement. He put together an ad hoc committee including Joakim Laguros, Jimmy Harp, Jim Robertson and Larry Canter, the only close, local faculty members that were actually available. Streebin died soon after his retirement, Laguros was subsequently involved in a terrible car wreck and Robertson was involved in religious endeavors that took all of his time. By as late as 2010, only Harp was left to lead in the effort to record the achievements of George Reid. Canter, who had retired and moved to Texas to pursue other endeavors, was brought back on board by Harp. Each of these former faculty members participated in one way or another.

**Letters from Various Contributors to the Remembrance of George W. Reid**

Contributions from former students and faculty members have been assembled here to enhance the quality of this document. Responses were received from Stewart Rucker, Chan Khuong, Garland Pendergraf (BSCE, ’64, MSCE ’64), Larry Canter, Jim Robertson, Jimmy Harp, and Don Farris. These remembrances have been imported just as they were received. They are presented here for the enjoyment of all who pass this way.
PROFESSOR GEORGE W. REID, UNIVERSITY OF OKLAHOMA, 1960's MEMORIES

WHEN PROFESSOR REID WAS A YOUNG UNDERGRADUATE (IN INDIANA?), HE WALKED INTO A SHOP WHERE A FELLOW STUDENT WAS PRACTICING WELDING. HE TOLD THE WELDER THE "RAWEST JOKE I KNEW." WHEN THE WELDER FLIPPED THE HELMET UP, GEORGE DISCOVERED SHE WAS NOT THE MALE ENGINEERING STUDENT HE EXPECTED. HE WARNED US AT HIS FIRST LECTURE TO CHOOSE OUR WORDS CAREFULLY.

AT THE BEGINNING OF THE APOLLO PROGRAM, PROFESSOR REID CONSULTED WITH THE NASA SEPTIC WASTE MANAGEMENT TEAM. THE TEAM'S IDEA SEEMED TO BE TO PROVIDE A URINE VACUUM PUMP AND BLOW IT OUT INTO SPACE. PROFESSOR REID AGREED WITH THE TEAM'S PRACTICAL CONCERN OF NEEDING MORE ROCKETS TO LAUNCH EXTRA GALLONS OF DRINKING AND WASHING WATER INTO SPACE. (I THINK HE SAID EXTRA WATER REQUIRED USING MUCH MORE FUEL, TOILETS AND BACKUPS AND OTHER COMPONENTS. THIS COULD POSSIBLY TRIGGER EXTENSIVE REDISIGN.)

PROFESSOR REID ASKED THE ASTRONAUTS IF THEY WOULD DRINK WATER PURIFIED FROM THEIR COLLECTIVE URINE. EACH REPLIED THAT "HE'D ONLY DRINK WATER THAT HAD BEEN RECYCLED FROM HIS OWN URINE." (I DON'T KNOW WHAT WAS DECIDED.)

ONCE HE TOLD US ABOUT AN AMERICAN AGENCY'S BUILDING A TERTIARY SEWAGE TREATMENT PLANT IN A DEVELOPING COUNTRY. HE TOLD US IT WAS DIFFICULT TO FIND LOCAL PEOPLE TO DO THE WORK: MANAGERS, CRAFTSMEN, LABORERS, ETC. ENGINEERS TO DIRECT, EXPLAIN AND INSPECT THE WORK WERE SCARCE, TOO. MR. REID NOTED THAT MANY AMERICAN CITIES DIDN'T PROVIDE TERTIARY TREATMENT.

ONCE HE TOLD US ABOUT GOVERNMENT POLICIES THAT ALLOWED AGRICULTURAL INTERESTS TO OVERGRAZE LAND, AND URBAN DEVELOPERS TO INCREASE HYDRAULIC CHANGES DOWNSTREAM. PERMIABLE SURFACES ERODED FASTER. PAVEMENT AND ROOFS CONCENTRATED RUNOFF AND LED TO NEW FLOODING AND HIGH PUBLIC DRAINAGE COSTS. THESE POLICIES DRAMATICALLY EFFECTED EROSION AND SILTATION, TOO. FURTHER PAVING OF DRAINAGE CHANNELS LED TO MORE PROBLEMS.

HE TOLD ME THAT A VISITING GRADUATE TOLD MR. REID THAT HE HAD STARTED A BUSINESS. HE KIND OF MUTTERED "I DON'T KNOW IF THAT'S TRUE, OR NOT."

HE MENTIONED THAT HE WANTED TO MENTOR SOMEONE SPECIAL. I REPLIED THAT "SOMEONE ELSE MAY BE THIS GUY'S MENTOR, WHILE YOU MENTOR OTHER PEOPLE'S KIDS HERE. IT'S A TRADE-OFF." HE LOOKED SCEPTICAL, AND DIDN'T REPLY.

Stuart Kupper
September 13, 3014

Jim F. Harp, Ph.D., Professor Emeritus
3217 Cotswold Square
Norman, OK 73072-4700

Re: Communiqué, Summer 2014
Prof. George Reid, Remembrance

Dear Professor Harp:

I saw your article in Communiqué and thought I would write a short letter concerning my fond memories of George Reid. I enrolled in the Engineering School at OU in 1958 and received a BS and MS in Civil Engineering in 1963 and 1964. Of course, Prof. Reid was the chair of the CE School during my entire college career. I think I had one Environmental course under him. I mainly concentrated in the highway and structures area.

In 1963, as I was preparing to graduate and marry, my wife and I talked and thought that I should get a Master's and that I could if I was able to get some financial aid, preferably a teaching assistantship. So in the spring of 1963 I went to Prof. Reid, whom I barely knew, and asked him for an assistantship. He said he had two, one a teaching and the other a research assistantship. I said I would like the teaching one, but he wanted me to take the research assistantship. He had a Federal Grant studying the "Removal of Heavy Metals from Air Force Generated Industrial Waste". As I said, I had taken one Environmental course in my entire college career. This involved a study to remove liquid heavy metals, mainly chrome, from the industrial waste generated in the maintenance of jet engines at Tinker AFB. At that time the industrial and sanitary sewer wastes at Tinker were being combined and processed through the Sanitary Sewer plant at the NE side of Tinker. The little plant was being somewhat unsuccessful with the industrial waste.

Prof. Reid must have seen something in me for he hired me as a research assistant. I began about June 1, 1963 at $400 per month for full time summer work and $200 per month for the fall and following spring semester. He was a wonderful director of the project and directed me in academic research as well as actual physical research in both the lab at OU and a lab at the Tinker plant. He pushed me and we finished the research project in the spring of 1964. With very few modifications, I was able to incorporate the research project into my Thesis and obtain my Master's Degree in one year. He was an excellent mentor and director. I have forever been grateful for his help, guidance and mentoring.

Sincerely,
Garland Pendergraf, PE
BS (CE) 63, MS (CE) 64
“By the time I came on the scene in August 1963, Reid had already worked up to full professor and enthusiastic departmental chairman. I had just come to OU from a three-year stint at the University of Arizona on a Ford Foundation Fellowship. George had offered me a faculty position as assistant professor to begin in the Fall 1963 semester. My specialization was in both hydrology and hydraulics. I was eager to be a part of Reid’s organizational team.

Reid had confided to me early-on that financial support would be available which would be applicable to Oklahoma pursuits. Most of the external support was influenced by political zeal and enterprising faculty efforts. Reid’s recipe for success was to find access to the supremacy and strength that would lead to success. So, by the early sixties, all of the routine, easy projects had long since been tapped-out. The recipe from here to the end of the rainbow would have to be different.

With this recipe in mind, we would proceed immediately to the new dynamic technological achievement protocol that was already being defined. This new activation, or direction, would be the glow that would be necessary to achieve the power and greatness that filled his head. The road to success was aligned so that the old traditional methods were already used up, and the new visionary thinking would be the way, the only way, to solve new academic pursuits. Perhaps Reid’s legacy would be that “nothing succeeds like success”. If so, then how do we even get there from where we are since there are not even any roads?

By the decade of the sixties, anyone who thought that someone’s old methodologies were the tool for tomorrow’s new successes was doomed. Reid said that “anything traditional would not be a long trip, or last very long”. He believed that the furtherance of any traditional, problematic solution techniques would be what most of the civil engineering profession would follow naturally, and slowly, to ease the pain of revolutionary efforts which would follow. The old guard would see to this. But Reid was interested only in the new profundities that would transform and revolutionize academia and thus the profession itself. He was clairvoyant and able to move in the right direction and proper avenues that stimulated all of the young faculty members in CEES. His dynamic prowess was beyond anything that I had expected when I came to OU.

I had just come from Arizona, where the head of the Department had been Gene Nordby. Nordby had suggested that I come with him to OU as soon as I could finish my work there. Because of Nordby, I hold the minor distinction of being awarded the very first PhD granted by the University of Arizona Civil Engineering Department. It was a great move for me to have followed Nordby to OU. Nordby inspired Reid and Reid inspired me. Thence, it was my delight to inspire the students. Reid used his new PhD faculty to solve new problems. He realized that academic power was anchored in both political and dynamic zeal. He saw that new technologies and new methodologies would be on the horizon as fast as we could get there.

For example the old Theoretical Hydraulics course, that had been on the books for decades, was replaced by Hydromechanic Processes in Civil Engineering. Hydrology, an old hydrologic
course would be enjoined with meteorology and statistics to anticipate the new computer assistance. By this time, the university had acquired a new IBM 650 that was housed in Adams Hall. This would quickly evolve, dynamically, in CEES. We had just moved from the slide-rule to hand calculators to analog computers, and were on the brink of embracing the new computer assistance that Reid said would change the world, and it might just as well be here in Civil Engineering.

Reid’s fertile mind would lead us all to the brink of the exigencies and great dynamics of the next century. He foresaw the new methodologies and would be at the frontier of knowledge. I was very fortunate to have come to OU. My family and friends felt the same way. We have all prospered here. I owe my thanks to George W. Reid, friend and confidant.”

George W. Reid
Don G. Farris (BSCE ’79)

“I had known George Reid for most of my life. His daughter was my brother's age and his son was a year younger than me. My first encounters with him at OU began in the fall of 1967 when I first had classes in the School of Civil Engineering. He was Chairman of the Department at that time. George was very involved in research during this period. He did not like to waste time on anything. I was in the CE office one day and George had the office staff looking for a letter he had written several months before. They had spent quite awhile searching the file cabinets with no luck. Right then he made a rule that all correspondence would be filed in triplicate. One copy was to be filed under the name of the author, one copy filed under the name of the recipient and the last was to be filed under the topic. The office staff was not real thrilled with this but they were able to find things when he wanted them immediately.

In the fall of 1969 I had George for CE 221, which was a class in water supply and sewerage design. He was traveling quite a bit at this time and would occasionally miss class but he always had someone to fill in for him. One time he had arrived in town late the night before and showed up for our morning class a little late. He plopped his notes down on the table and began his lecture. After a couple of minutes we began to look at each other wondering what was going on. Finally one brave soul raised his hand. "Professor Reid" he said, "what are you talking about?" George replied, "the same thing I have been talking about all semester." The student said "well I've never heard this before." George stood there with a quizzical look on his face, looked at his notes and said "this is CE 1217 (or some graduate level class number) is it not?" "No sir", the student replied, "this is CE 221." Professor Reid looked at us and said "well you guys need to hear this anyway" and continued to lecture from those notes for the rest of the hour. We assumed he did not want to waste any time by walking down to his office and getting the correct lecture notes.

Professor Reid was an interesting man, a knowledgeable professor, and a person that did not like to waste time.
George W. Reid
J.M. Robertson Professor Emeritus (CEES Faculty Member, 1971–2008)

“Professor Reid was involved in a conglomeration of research projects. He, and some graduate students developed an electric toilet for the NASA space program, and was eager to test its performance. So he built a lake cabin at Eufaula and installed a prototype unit there. He had greater visions of using the space toilet for private use at recreational centers, cabins: boldly in both zero and non-zero gravity applications.

Early cabin users, myself included, were anxious to test the unit. Immediately adjacent to the cabin was the lake itself. We had all taken an opportunity to fish that day, and were in a boat that Reid had rented, with the cabin in view. We were appalled to look back and see the cabin in flames, and subsequently destroyed! George took the insurance money and never went back to the lake again.”

A REMEMBRANCE OF PROFESSOR GEORGE REID
Larry W. Canter, CEES Chairman, 1971-1979
February 10, 2015

I want to briefly describe how I managed to join the faculty in 1969 to work with George. I graduated from The University of Texas in 1967, and then spent two years on the faculty at Tulane University. My wife grew up in western Oklahoma, and, with two young sons, we decided to pursue a possible faculty position in the School of Civil Engineering and Environmental Science at OU.

I began to gather information about CEES in the spring of 1969. I soon learned that George was the director of CEES, and that he had established several new graduate and undergraduate programs. I also learned of several environmental engineering and science publications by George. I contacted him in the spring of 1969, and was interviewed soon thereafter.

In August, 1969, I joined the faculty in CEES. I retired from OU in August, 2000. My career at OU lasted 31 years. My teaching and research interests ranged from water and wastewater treatment, to solid waste management, air pollution control, and environmental impact assessment. From 1969 to 1985 (when George retired), we routinely worked together on planning research projects, preparing papers and reports for publication, and advising graduate students.

Some things that I learned about George include:

- He developed the Sanitary Science and Public Health program in the mid-1950s; this program was coupled with the Civil Engineering program. He also led the school in establishing both undergraduate and graduate curricula. In the late 1960s, the school became the School of Civil Engineering and Environmental Science.

- George’s emphasis on an environmental science curriculum was a pioneering endeavor in the USA.
• He founded the Bureau of Water and Environmental Resources Research in 1956; and he was instrumental in generating research reports and studies which were used throughout many continents. One example from the mid-1970s was a report sponsored by the U.S. Agency for International Development. George also conducted many other studies under the sponsorship of the Pan-American Health Organization.

• He was a “big picture person”; that is, he was always interested in large-scale studies related to water supplies, wastewater treatment, and environmental systems. Further, he enjoyed working on projects with individuals from other departments or schools. For example, he worked with economists, microbiologists, hydrologists, and many others on specific projects.

In 1971, George retired as director of CEES, and I was appointed to take over this assignment. I continued as director until 1979. As you can imagine, George and I were always debating about subjects of importance within the school. We often met for debates, and often expressed differing viewpoints. However, we remained friends and continued to work together on a variety of research projects. Our typical meeting consisted of discussions, debates, writing on a chalk board, more debates, etc. As the years went by, George became an advisor to me on many projects. I generally assembled our notes and would seek his feedback.

As I conclude my remembrances, I decided to mention a few things that I think were unique characteristics of George's personality. They include:

• George liked to argue and debate with many administrators at OU – there were often disagreements on policies with the dean’s office, the provost’s office, and the president’s office. He did not always win, but he always defended his CEES colleagues.

• One memory that I have about George is that he always wanted to start a debate. He reminded me of a person who would always “slap” still water in a 55-gallon drum just to stir things up for a while.

To summarize these memories, I realize that George was a “mentor” for me for over 15 years. He was encouraging and was always looking for new projects that we might explore together. I miss you my friend.
Professor George W. Reid was my professor, academic advisor, sponsor, and mentor.

I was not informed of Professor Reid’s passing away in 1987 and could not be present at his funeral. When I learned that sad news from a friend, my wife and I went back to Norman in the summer of 1988, visiting professor Streebin who was then director of CEES. Professor Streebin accompanied me and my wife to visit professor Reid’s resting place. We respectfully placed a flower wreath at the cemetery and bowed our heads. I felt very sad at the thought “life is short”.

I first met professor Reid in June 1965. I was then a civil engineer from Viet Nam on a non-degree training course at the University of Oklahoma in the summer and fall of 1965. My training program was coordinated by the US Agency for International Development and the Vietnamese Ministry of Public Works. I was scheduled to return to my country after I completed the fall semester at OU. Professor Reid wrote a letter to the AID on my behalf recommending my program be extended one semester to complete my master’s degree in civil engineering. I graduated as scheduled and returned to Viet Nam in the summer of 1966.

We lost the war to the communists in April 1975 and I returned to the US as a refugee in May 1975. Professor Reid visited me while my family and I were in the refugee camp at Fort Chafee, Arkansas. He became our official sponsor in our settlement in Norman in June 1975, in time for me to take summer courses. He championed the philosophy “Small is Beautiful”, as evidenced by his two seater Fiat and his motor scooter that he gave me, which I respectfully declined because I needed a bigger means of transportation for my family of seven people. Thereafter, professor Jim F. Harp who was professor Reid’s friend in CEES helped me acquire an excellent pre owned Ford Galaxie - big enough for my needs - that ran very well for many years.

In those years the ideology “Small is Beautiful” was quite in vogue and popular following the Club of Rome’s founding and the publication of Professor Shumacher’s book “Small is Beautiful” and Professor Meadows’ book “The Limits to Growth”.

I worked for professor Reid in a research project focused on conservation through reduction of refuse (source reduction). Since my civil engineering graduation (Ky Su Cong Chanh) in Viet Nam in 1962 I worked in the field of drinking water supply for 13 years until I immigrated to the US in 1975. I felt that my experience in the public sector was long enough for me. The private sector or academics seemed definitely more interesting to me. In the summer of 1979 my wife graduated with her master’s degree in accounting from OPU and was recruited on campus by Shell Oil Company. She accepted the job in Houston and never left Shell until she retired 31 years later.

Moving to Houston, I changed my field of work, enrolled at Texas A&M University at College Station majoring in petroleum engineering (BSPetE), and (MSPetE). I ended up working for Amoco Production Company as a production engineer and reservoir engineer. Thus instead of conserving energy, I produced oil and gas.
Due to my association with professor Reid, my second son Chau Q. Khuong was born at the Oklahoma City hospital in 1976. He graduated from Yale University in New Haven and has been working for the biotechnology company Orbimed since 2003. He is now a private equity partner at Orbimed.

I have always felt grateful and indebted to Professor George W. Reid in many respects.
Pictures to Enhance and Compliment
the Remembrance Document Presented Here

What follows are pictures, mostly snapshots, which were solicited from various sources. We apologize for the poor quality of some of these photographs, but these were the only ones available.

Figure 1 - A familiar view of George Reid at his desk after normal working hours (circa 1984).

Figure 2 - A picture of George at his retirement dinner in 1986 (taken with a Brownie camera).

Figure 3 - George Reid in Felgar Hall laboratory with student using testing apparatus (circa 1968).
Figure 4 - Reid at his retirement dinner with Dorothy and Jim Harp and Bettie Reid.

Figure 5 – Retirement dinner with friends wishing him well.
Figure 6 - Martin Jischke, former Dean, saying a few words at Reid’s retirement dinner.

Figure 7 – l-r JoAnn Streebin, Leale Streebin, Jim and Dorothy Harp (circa 1983)
Figure 8 - Some of Reid’s colleagues at a departmental party; l-r Robertson, Harp, and Laguros (circa 1981).

Figure 9 – Jim Laguros and Jim Harp at their own retirement party (circa 1984).
Figure 10 – Oklahoma Daily, University of Oklahoma, Norman, Okla., Saturday, March 16, 1963
Resident named Oklahoma Water Pioneer

Norman resident and longtime university professor George W. Reid was recognized for his dedication to the development of Oklahoma's water resources by Gov. George Nigh recently.

The occasion for Reid's "Oklahoma Water Pioneer" award was the Seventh Annual Governor's Water Conference in Oklahoma City Oct. 23.

Reid was one of 11 recognized at the conference for significant contributions in the management, planning, development and conservation of the state's water resources. The awards were initiated by Gov. Nigh and conference sponsors in 1985.

The Governor's Water Conference, sponsored by the Oklahoma Water Resources Board, annually brings together hundreds of citizens, water experts, national speakers and officials of cities, towns, industries and rural water districts.

Gov. Nigh congratulates George W. Reid for his Oklahoma Water Pioneer award recently.

Graduate and research programs.

The governor also honored Reid for his founding of the Bureau of Water and Environmental Resources Research in 1955 and his service as director of BWERR until his retirement in 1983. Reid also had served on the Governor's Long Range Water Resources and Environmental Council.

Other 1986 Water Pioneers honored at the conference were Marvin T. Edmison of Stillwater, Clarence Bate of Geary, James H. Irwin of Oklahoma City, James "Buster" Holt of Artesia, Colo., Francis J. Wilson of Tulsa and Lt. Gov. Spencer Bernard of Rush Springs. Also honored were the late Orville E. Saunders of Altus, A.A. Sewell of Hugo and W.R. Holway and Early H. Cass of Tulsa.
OU Engineer Projects Water Usage of City

Norman will use considerably more water, if the Little River reservoir is constructed, than even the most liberal reports so far published have indicated, a University water authority said today.

George W. Reid, professor of civil engineering and director of the Bureau of Water Resources Research, termed as conservative figures by engineers John Rea and C. H. Guernsey, both of whom have made feasibility studies of the proposed reservoir.

Rea estimated the city's consumption of water in 1900 at 5.8 million gallons a day and in 2010 at 10 million gallons. Guernsey's figures were 5.5 million gallons and 12.3 million for the two periods.

Reid's estimate is 8.6 million gallons a day in 1980 and 18.3 million gallons in 2010.

Reid said Rea's estimates do not include water used by the University and Central State Hospital, which at present account for 52 per cent of the total pumped in Norman. The present daily consumption is 2.6 million gallons by the city alone but 3.9 million gallons with the University and hospital added, Reid said.

And neither researcher, he added, took into sufficient account the expansion in industrial development that can be expected to occur with the availability of a plentiful water supply. This would increase usage by another 30 to 40 per cent, Reid said.

GEORGE W. REID

Reid and Dr. W. N. Peach, professor of economics, based their prediction of total consumption on two main factors: the anticipated increases in population and in per-capita water usage.

They forecast a population of 69,000 in 1980 and 100,000 in 2010.

"These figures, I understand," Reid said, "were used by engineer Guernsey and are in agreement with those developed by Rea." Reid added, "For the same period, using 210 gallons per capita per day (gcd) as an estimated maximum in the year 2005, Norman's unit use would be 125 gcd in 1980 and 180 gcd in 2010." (The present per-capita use in Norman, including OU and the hospital, is 118 gallons a day, he added.)

Combining the per-capita use and the population growth gives the estimated annual average requirements.

In a paper given at the Oklahoma Water Conference in Muskogee in February, Reid went into more detail in "Municipal Water for Our Expanding Population," the title of his address.

Reid served with the Senate Select Committee on Water Resources in 1950, and in his talk he cited some of the conclusions of that group. One of the committee's comments was: "Provision of plentiful water supplies in cities in arid regions, which now have limited supplies, could have a stimulating effect on industrial growth, which in turn could stimulate greater demands for water. Thus, when talking of future water development, the promotional impact of the development itself must be considered, especially as metropolitan concentrations in the East and Northeast become saturated.

"Migration of excess people to the Southwest, with attendant increase in industrial growth, could result in a substantial increase in average per-capita water consumption."

Speaking of water use in Oklahoma as a whole, Reid's paper said:

"Future municipal water requirements are estimated from the product of population and (See Page 3, Column B)."
Projected Water Usage
Studied by OU Engineer

(Continued From Page 1)

per-capita use. I have suggested
181 gpd against a Public Health
Service estimate of 138 gpd in
(year) 2000. At the present
time about 132 gpd is being used
municipally in Oklahoma; the
nation uses 147 gpd, and over
the nation the values range
from 100 to 250 gallons per
day....

"Regardless of whether...our
total population increases markedly,
urbanization will increase
and our cities will grow larger
with more industrialization and
a higher per-capita use.

"Temperature is important...
for example, areas with less
than 15 inches per year rainfall
average 210 gpd at present.

"Studies show an increase in
per-capita use with higher family
income. Oklahoma is in
comparatively good shape in this
respect. Urbanization is
important; the highest per-capita
consumption is not in the lowest
or highest urbanization areas
but in the medium — at present,
are (with) 60 per cent
urbanization....

"Finally, consider industriali-
ization. It not only accounts for
an increasing share...as cities
grow, but still another factor
which could boost per-capita wa-
ter consumption is the tendency
of industries to abandon their
own sources of supply and to
purchase water in increasing
amounts from municipal sys-
tems.

"As wells and other sources
available to them become pol-
luted or destroyed, industries
will, for economic reasons, seek
more and more to connect with
public systems. It is also antici-
pated that some of the larger
industrial users will have to
conserve their requirements and
shift from their direct supplies
to municipal supplies. This is
particularly true of areas in
which ground water supplies
are rapidly being depleted.

"To these factors should be
added the increased use of wa-
ter-consuming equipment. To il-
lustrate this point, consider two
water-using utilities...which are
growing in demand and can be
anticipated to increase in use:
(automatic) washing machines
and disposal units.

"We have data demonstrating
an increase of 120,000 per year
in the sales of washing ma-
achines (which can be expected
to use 300 per cent more water
than is normally used to wash
clothes...The disposal unit ge-
nerally causes an increase of 1
to 2 per cent in water consump-
tion. At present 3 per cent of
the households have disposal
units."

Reid expressed strong dis-
agreement with national studies
that predict Oklahoma will be
far behind the rest of the na-
tion in the rate of population
increase and urbanization.

"Of all the technical informa-
tion...none is tied in with the wa-
ter potential," he said. The studies
he has made, in collaboration
with other engineers, assume a
major increase in the state's
available water supply and
show "that our urban growth
rate, urbanization and popula-
tion could be expected to follow
the same general pattern they
have followed in well watered
areas..."

"I believe Oklahoma can
grow, with the development of
her resources; also I believe
she will use more water per
capita, namely 181 gpd, against
their (Health Service) pro-
cision of 138 gpd, as she
grows."

Of the Norman project speci-
fically, Reid said that for Nor-
man "to be a dormitory town,
as well as a city with addi-
tional industrial development,
this water need is real. In fact,
this growth simply will not oc-
cur without water."
Epilogue
There were many stories, activities, and clichés about the career of George W. Reid: most notably his long list of publications and meetings that have lasted for his entire life. It has been our great pleasure to have participated in this brief remembrance document and epistle conglomerate. An incomplete bibliography including 200 or so publications and notable works is available from Reid’s own files and is contained in the vita that follows. A partial list of his career history has been presented here. The content of this biographical record is presented here as an honor to George Reid’s magnificent endeavors. Newer publications and descriptions were not available. The newspaper clippings included above are testimony to his fame and fortune. His efforts to serve the university, the greater community, as well as the worlds of research and professional consulting, represent a brilliant career.
SEARCH INC.

SYSTEMS ENGINEERING AND RESEARCH

ENVIRONMENTAL DESIGN AND SYSTEMS ANALYSIS • INDUSTRIAL WASTE MANAGEMENT
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VICE PRESIDENT

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B.S.C.E., Civil Engineering (Distinction), Purdue University, 1942
S.M., Sanitary Engineering and Industrial Hygiene, Harvard University, 1943
C.E., Purdue University, 1952
Graduate Work, Johns Hopkins University, 1948-49

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Director, Bureau of Water & Environmental Resources Research,
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Vice-President of SEARCH, INC.

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Instructor, Civil Engineering, Purdue University, 1942
(5 months) R. Wiley, Head, Department of Civil Engineering,
West Lafayette, Indiana, Assistant to Hydraulics Lab.
Sanitary Inspector, Harvard University, 1942-43, M. C. Whipple,
Harvard University, l/c inspector of kitchens, swimming pools,
etc., as well as reports and lab analyses.
PUBLICATIONS:


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