the divining rod

New Mexico Water Resources Research Institute

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John Clark dies at age 58

Leaves legacy of knowledge, concern, love for environment

John W. Clark, former director of the Institute and retired professor of civil engineering at New Mexico State University, died Saturday, October 21, 1978.

He left behind a legacy of caring for the world's assets, which he passed on to untold numbers of students and associates by precept and example. He also left many friends, not just at NMSU and in Las Cruces, but throughout the world.

Professor Clark was a native of Illinois, received his B.S., M.S., and Professional Degrees of civil engineering from the University of Missouri, and joined the NMSU faculty in 1953.

He was the principal investigator on several hundred thousands of dollars worth of grants and awards from such organizations as the National Science Foundation, National Institutes of Health, U.S. Department of Interior, and other State and private groups prior to becoming Institute Director.

Clark organized the first New Mexico Water Sewage Short School in 1955 and directed the first National Science Foundation Summer conference on Water Resources held June 10 to July 3, 1963 on the New Mexico State University Campus. He, long active in Water Control Organizations, was President of the Water Pollution Control Federation - Rocky Mountain Section in 1965,

Prof. John W. Clark

1920-1978

Chairman of the Governor's Advisory Committee on Water Pollution Control from 1956 to 1966, and served as a representative of engineering appointed by the Surgeon General to the Regional Health Advisory Board.

Professor Clark was the author of over 40 publications in technical magazines and journals in the field of water resources and in the health and sanitary engineering fields, including a textbook co-authored by Dr. Warren Viessman and Mark Hammer entitled Water Supply and Pollution Control (3rd Edition, January 1977) which is used in over 200 colleges and Universities.

He is survived by his wife, Jacqueline of Route 1, Box 2168, Las Cruces; two sons, Douglas of Albuquerque and Scott of Las Cruces; a sister, two brothers, and a granddaughter.

Contributions may be made to the J.W. Clark Memorial Fund at New Mexico State University

Directors from two regions meet in N.M.

Water research center directors from ten states in the southwestern U.S. met recently in New Mexico to consider interagency research coordination, joint research among institutes, and the various factors involved in interacting with Federal water resource research agencies.

In a unique joint meeting of the directors from the Southern Plains and Colorado River-Great Basin regions, agreement was reached to develop a proposal for a workshop with a wide focus on saline water, with the objectives of identifying important gaps in research and developing future research priorities. Target date for the workshop is mid-autumn, 1979.

Preliminary planning is already underway, including identification of potential speakers and leaders from throughout the United States and other nations.

Specific emphasis will be given to direct uses of saline waters, ranging from sea water to brackish and saline groundwater.

The directors convened in Roswell, New Mexico on October 17, 1978, where they met with Pete Domenici, U.S. Senator from New Mexico, and received an orientation and tour of the desalination test activites being conducted at the Roswell Test Facility of the Office of Water Research and Technology, U.S. Department of the Interior. The meeting reconvened the next day in Mescalero for further discussions of joint problems and possible future cooperation.

Project approvals announced

The following New Mexico research projects have been approved, subject to final release of funds for this fiscal year.

NMSU - George O'Connor, "Using Saline Water In New Mexico"

NMSU - Eldon Hanson and Theodore Sammis, "Effects of Decreased Watering on Crop Yields"

NMSU - James Botsford, "Effect of Saline and Alkaline Water on Growth and Survival of *Rhizobium Meliloti*"

NMSU - Robert O'Brien, "The Nature of Virus Interactions with Soil in the Groundwater Environment"

NMIMT - Gerardo W. Gross, "Recharge in Semiarid Mountain Environments"

NMIMT - Corale Brierley and James Brierley, "Biological Methods to Remove Selected Pollutants from Uranium Mine Wastewater"

UNM - F. Lee Brown, "Case Studies of Development of New Mexico Water Resource Institutions"

UNM (continuation) - Gordon Johnson and Larry Barton, "Role of Nitrogen, Phosphorus, and Iron in Occurrence of Algal Blooms at Abiquiu and Cochiti Reservoirs"

NMIMT - Lynn Brandvold, Donald Brandvold, and Carl Popp, "Potential Effects of Increased Demand for Nuclear Energy-Transport of Heavy Metals, Nutrients, and Radioactive Species From the Grants Uranium Belt By the Rio San Jose-Rio Puerco Drainage System"

UNM - Thomas Niemczyk and Edward Walters, "A Proposal to Assess the Problems of Water Supply Contamination Due to Underground Coal Gasification"

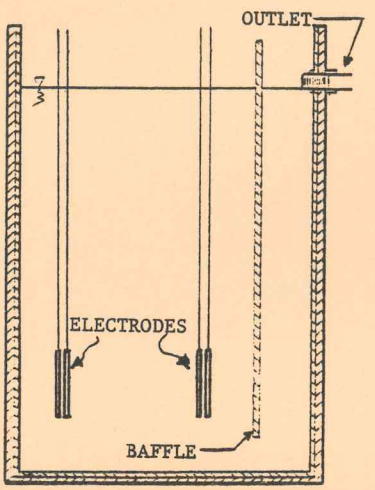
NMSU - Bill A. Melton and Marvin Wilson, "Evaluation of the Potential to Improve Alfalfa for Production under Less than Optimum Moisture Conditions."

Clark-Maestas project points to solution of age-old septic tank problems

Prof. John W. Clark and Mr. Ernest T. Maestas, an NMSU graduate student, recently published the results of a study that points to a possible solution of some of the septic tank effluent impacts on the environment. Further developed, the method they describe may result in inexpensive, almost trouble-free third stage treatment of home sewage, underground, right in the home owner's yard.

Maestas and Clark took advantage of the biological and chemical changes that take place when the normal oxygen-free septic tank is supplied with tiny bubbles of oxygen. The result is to make the effluent far less harmful to the soil around the tile drain field. Another result was a change in the chemical composition of the waste that enters the drain tiles, keeping the soil porous around the tiles and so keeping the drain field working efficiently.

The problem, then, was to find an inexpensive and low maintenance way to bubble oxygen through the effluent. They tried adding a third compartment to the normal two chamber septic tank, and using electrolysis, running an electric current through the liquid in the new compartment. This separates the water into its components of hydrogen and oxygen gasses. The gasses bubble up through the effluent, and the oxygen triggers chemical and biological changes in the liquid that make it much more acceptable to the environment. All the oxygen is consumed by biological and chemical processes before it ever



Septic Tank Extender

reaches the surface of the effluent. The hydrogen helps mix things up as it bubbles to the top, then escapes harmlessly.

Considerable experimentation was needed to find the right kind of electrodes for the job, because they tend to build up deposits if direct current is allowed to flow in the same direction continuously. To solve the buildup problem, Clark and Maestas simply reversed direction of the current every five minutes. This process, however, raised havoc with most electrode materials, causing pits and holes and making them useless in a short time. After consulting with engineers from the leading companies that build electrodes, the researchers have found one material that appears to have the capability to stand up for at least a year. The material is inexpensive, and if the treatment methods proves practical for home use, it could easily be designed so that the home owner could change the plates annually himself.

The laboratory model results indicate that the cost of electricity to operate the home system would average out to just over $1.50 per person each month.

The research project was supported in part by Federal and State funds provided through the New Mexico Water Resources Research Institute.

Details of the experiments are spelled out in New Mexico Water Resources Research Institute Report Number 096, which may be obtained by writing the Institute at P.O. Box 3167, New Mexico State University, Las Cruces, New Mexico 88003

Conferences and symposia

DATE: November 27-28, 1978
SUBJECT: Groundwater Recharge Symposium
LOCATION: Phoenix, AZ
SPONSOR: Salt River Project
CONTACT: Salt River Project, P.O. Box 1980, Phoenix, Arizona 85001

DATE: November 28-29, 1978
SUBJECT: National Conference on Water Conservation and Municipal Wastewater Flow Reduction
LOCATION: Ramada Inn, Chicago O'Hare Airport
SPONSOR: U.S. Environmental Protection Agency
CONTACT: U.S. Environmental Protection Agency, c/o Environ. Control, Inc., P.O. Box 1687, Rockville, MD 20850, ATTN: Richard E. Tucker (No registration fee required. Conference attendance is limited to 500 people).

DATE: March 25-29, 1978
SUBJECT: International Water Reuse Symposium
THEME: Water Reuse--From Research to Application
LOCATION: Washington, DC
SPONSORS: Office of Water Research and Technology (U.S. Department of the Interior and the U.S. Army Medical Bio-Engineering Research and Development Laboratory
CONTACT: Richard D. Heaton, Conference Organizing Committee, AWWA Research Foundation, 6666 West Quincy Avenue, Denver, CO 80235, phone (303)-794-7711.

DATE: April 18-20, 1979
SUBJECT: First International Symposium on Regulated Streams
LOCATION: Erie, Pennsylvania
SPONSOR: North American Benthological Societ
CONTACT: Dr. James V. Ward, Department of Zoology and Entomology, Colorado State University, Fort Collins, CO 80523, phone (303) 491-5024; or Dr. Jack A. Stanford, Dept. of Biological Sciences, North Texas State University, Denton, Texas 76203, phone (817) 788-2011

The organizers of the Symposium are asking for contributed papers which deal with biological problems in lotic waters downstream from impoundments.

Matching grant deadline named

Proposals for matching grant projects for FY 1980 (Oct. 1,'79 to Sep. 30,'80) are due at WRRI not later than January 1, 1979.

Research emphasis will be placed on water conservation (including uses of saline and brackish water), urban water problems, and water problems of regional significance.

Requests for further information should be directed to Gail Stockton at 646-4337 or 646-1813.

DR. THOMAS BAHR, Director, New Mexico Water Resouces Research Institute; **WINSTON L. COMER**, Editor.

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New Mexico Water Resources Research Institute
Box 3167
Las Cruces, NM 88003