

ALUMNI NEWSLETTER
DEPARTMENT OF HYDROLOGY AND WATER RESOURCES
University of Arizona Tucson, Arizona, 85721

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TO ALL OUR ALUMNI: GREETINGS

The Department of Hydrology and Water Resource was founded 25 years ago, come August, 1986. It was then, and still is (to the best of our knowledge), the only department in the United States that treats hydrology and water resources as a unified discipline. It is, therefore, fitting that we provide you with a notion of how we came to be, where we are now in terms of faculty and their activities, and where we hope to be in the future. Missing from this newsletter is its most important part: **NEWS OF OUR ALUMNI**. This information must come from you, our alumni. By means of this newsletter we open lines of communication. The success of future issues will depend on how well we communicate.

Enclosed with this newsletter you will find a roster of all our alumni of record. For some, we have a name but no address. If any of you can supply the missing data, please send same to Mrs. Augusta Davis.

AN INFORMAL ACCOUNT OF THE DEPARTMENT OF HYDROLOGY
AND WATER RESOURCES, FROM ITS CONCEPTION
TO THE PRESENT TIME

(Preliminary and subject to later revision)

Consumption of alcoholic beverages is prohibited on the premises of the University of Arizona, yet the demon was present at at least two momentous events: (1) In 1885, by the donation of 40 acres of land as a site for the newly established University of Arizona by two gamblers and a saloon keeper and, (2) in 1960, by the planting of the seed that grew to be the Department of Hydrology and Water Resources, at a bar in the Denver airport. It was at that bar that Professors John W. Harshbarger (Big John as he was affectionately referred to by his students), then chairman of the Geology Department, and T.L.Smiley, then director of the Laboratory of Geochronology, sat with several colleagues from the U.S.Geological Survey, waiting for a plane. The U.S.G.S. colleagues included, among others, Luna Leopold, then chief hydrologist of the Water Resources Division, and Walter Langbein

and Nick Matalas, research hydrologists. History does not record what they drank nor where they were going, but we do know what they discussed (here freely paraphrased). "This country needs", said one of the Survey men, "a university program in hydrology that will teach groundwater and surface water as an integrated discipline, and the University of Arizona is the place to do it". "I agree", John replied, "but we'll need the cooperation of the Survey". "You got it", said Luna. Then and there a tentative program was outlined (probably on the back of an envelope taken from one of John's pockets).

Following that fateful meeting in Denver, little time was lost. In the fall of 1961, the University of Arizona established the first comprehensive curricula leading to the degree of Bachelor of Science in Hydrology, and the Master of Science, and Doctor of Philosophy degrees with a major in Hydrology. In the beginning, the undergraduate program was administered by the Department of Geology, then part of the former College of Mines, whereas the graduate program was placed under the direction of an interdisciplinary committee comprised of representatives from departments having an interest in water, and operating under the aegis of the dean of the Graduate College (in later years under the University vice-president for research). The first hydrology committee consisted of Professors J.W. Harshbarger (Geology), chairman; A.R.Kassander (Meteorology); E.M.Laursen (Civil Engineering); M.M.Kelso (Agricultural Economics); T.L.Smiley (Geochronology); D.M.Anderson (Agricultural Chemistry and Soils); S.D.Resnick (Institute of Water Utilization); and J.G.Ferris (Hydrology). Jay Lehr, who was to become the first recipient of the Ph.D. degree in hydrology, was employed as an instructor, and Herb Skibitski of the U.S.G.S. was loaned to the program as a lecturer. Herb, by the way, commuted between Phoenix and Tucson in his private plane. Jay Lehr, after completing his degree, left Tucson and is now the well-known director of the National Water Well Association and editor of Groundwater. John Ferris actually was with the U.S.G.S. He was given temporary faculty status to teach aquifer mechanics and to organize short courses for U.S.G.S. (more on this later). Other Survey personnel that did part-time teaching during the first few years included: Alfonso Wilson (surface water), Nick Matalas (Statistical Hydrology), Jose DaCosta (who filled in when Herb couldn't make it), and Tom Maddock, Jr. At that time the Hydrology Program was housed in the Geology Building, as were the district offices of the U.S.G.S.

The National Science Foundation, through its office of Special Projects in Science Education, provided much needed monetary assistance to help the program get started. The money was used for student stipends, for portions of faculty salaries, for equipment, and for the construction of a laboratory (room 207) between the Mines building and the Geology building. In 1971, that laboratory was lost to Hydrology in the move (mentioned below) to the Douglass building. However, Hydrology will recapture the lab in this summer's move (also mentioned below), back to the Geology building.

The U.S.G.S. - U.of A. cooperation served the double purpose of initiating the academic programs just mentioned, and of providing a home for the training of U.S.G.S. professional personnel. John Ferris was the "dean" of the short course. Between 1962 and 1970, the short courses were offered once or twice each year. Each course was attended by about 30 professionals of the Water Resources Division of U.S.G.S., selected from all parts of the country, and by some foreign participants. An attempt was made to cram a year's work into seven (later reduced to four) weeks. The participants ate, drank, and slept short-course. John Ferris lectured hour after hour; his deep voice still echoes through the corridors of the Geology Building. Other lectures were given by U.of A. faculty and by U.S.G.S. experts who were flown in for a few days each.

The U.S.G.S. gradually withdrew its participation in the program. In 1963 Professor D.D.Evans joined the faculty with a split appointment in the Department of Agriculture and Soils. In 1964 he replaced Duwayne Anderson as a member of the hydrology committee. In 1963, Professor E.S.Simpson joined the faculty fulltime. Simpson began by teaching the courses developed by Skibitski (Hydrology 280a & 280b, now 480 and 481, much changed over the years), and in 1964, when Ferris returned to Washington, D.C., Simpson began teaching Aquifer Mechanics as well. The year 1963 also saw the arrival of Visiting Professor Simon Ince. Ince was "visiting" because he taught only during the spring semesters, thereby escaping the winters of Ottawa, Canada, where he headed the Canadian National Research Council's program in hydraulics. Several years later Ince was given the choice either to stay in Canada the year round, or come to Tucson full time. He chose Tucson. In 1964 Assistant Professor J.J.Wright was appointed to teach Hydrogeology (now Hydrology 435), and to organize and direct the Hydrology summer field course. Also, in 1964, Congress passed the Water Resources Act that, among other things, resulted in the establishment of a Water Resources Research Center at a selected university in each State. Resnick was appointed director of the Arizona Center, and Professor Martin Fogel was given a part-time appointment.

In 1966 Professor Chester Kisiel joined the faculty to develop and teach courses in systems hydrology. A few years afterwards, he obtained a split appointment with the Department of Systems Engineering and, in return, Professor Lucien Duckstein was given a split appointment in Hydrology. In 1967, Professor D.D.Evans assumed the duties of coordinator of instruction in hydrology.

In 1967, the graduate curriculum was expanded to include M.S. and Ph.D. degrees in Water Resources Administration. Associate Professor Ted Roefs was recruited in 1969 to teach courses in WRA; he was instrumental in obtaining a substantial grant from the Ford Foundation to institute the innovative Civil Decision Quantification program. Associate Professors Russ Gum and Ted Downing were recruited to help. The CDQ program sought to bring

together graduate students from various disciplines to work together on a specific major problem in water resources development. It was intended to produce a single report, from which the individual students would extract their contributions to write their theses and dissertations. During its lifetime, the CDQ program focused on three major issues: (1) a water supply and management program for a large basin in the Philippines, (2) environmental impact of energy production in the southern Colorado Plateau, and (3) test of a planning inquiry system. CDQ no longer is offered. (Roefs resigned in 1974 and is now with the Bureau of Reclamation; Downing transferred to the Department of Anthropology about a year after he came on, and Assistant (now Associate) Professor Michael Bradley was recruited to replace him; Gum resigned and is now with the USDA and is Adjunct Professor in the Department of Agricultural Economics.) Dr. Ince supervised the "wind-down" of CDQ.

In July, 1967, Harshbarger went on sabbatical leave; Evans took over as acting chairman of the Hydrology Committee. In 1968, when Harshbarger returned, he resigned as chairman, and Evans took his place. During the summer of 1968 both men moved to offices in the Douglass Building (then called Old Psychology).

A major reorganization of the program occurred in 1971. A School of Earth Sciences that had been created in 1967 within the College of Mines, became the College of Earth Sciences. On July 1, 1971, the Department of Hydrology and Water Resources was formed, and was one of four units within the new college. The three other units were the Department of Geosciences, the Laboratory of Tree Ring Research, and the Office of Arid Lands Studies. Dr. James H. Zumberge was appointed Dean. He resigned in 1971(?) and was replaced by Hugh Odishaw. About two years later, the Office of Arid Lands Studies became a separate entity and was replaced in the College by the Water Resources Research Center. The hoped-for growth of the college, by addition of other departments related to earth sciences, never materialized. In 1983 the College of Earth Sciences was dissolved. The Department of Hydrology and Water Resources and the Water Resources Research Center were placed within the College of Engineering. The other two units were placed in the newly formed College of Arts and Sciences. In July, 1985, the College of Engineering and the College of Mines combined to become the College of Engineering and Mines, under the deanship of Dr. Richard A. Swalin. It should be emphasized that the move into Engineering and Mines did not in any way alter either the basic scientific emphasis of the hydrology curriculum, nor the socio-economic emphasis in the WRA program. Both continue under the control of the departmental faculty.

When the Department of Hydrology and Water Resources was formed in 1971, it became a full-fledged academic department, having equal status with other departments in the College and in the University. Dr. D.D.Evans was its first head. The Committee on

Hydrology was renamed Committee on Hydrology and Water Resources, and Evans continued as chairman. By 1971 the membership of the committee had increased from eight (in 1961) to thirteen, but, following the formation of the department, its function became purely advisory. Dr. Harshbarger, because of his increased consulting practice, changed to part-time status. He continued to teach his ever-popular course in Development of Groundwater Resources (Hydrology 536) until 1981, when he retired and became Professor Emeritus.

Another event of note in 1971 was the relocation of the faculty from the Geology Building to the Douglass Building. (As mentioned above, Harshbarger and Evans already were there.) At that time laboratory space in the Douglass Building was exactly nil; besides, nearly half of the space was occupied by Student Counseling and other miscellaneous departments. Dr. Evans continued as department head until July, 1974, when he resigned to assume full-time duties in teaching and research. Dr. S.N. Davis was recruited to replace him, but wasn't able to start until July, 1975. In the intervening year, Dr. Simpson filled in as acting head. In the meantime, the outside units gradually vacated their space in the Douglass Building. The last to vacate (in 1980) was the photo lab of the Department of Journalism that had occupied what is now our basement lab. We now share the building only with the Water Resources Research Center.

November 5, 1973, was a day of sorrow. Professor Chester C. Kisiel, one of our most respected faculty members, suffered a massive heart attack and died. During the seven years he was with the department, he established an international reputation in systems hydrology and in time-series analysis. Our reading room was named in his memory, and in 1982 the Kisiel Memorial Lecture Series was inaugurated, in which an outstanding hydrologist is invited each year to deliver a general-interest lecture in hydrology. The latest was given by Professor James Dooge of University College, Dublin.

In years between 1975 and 1982 the graduate student population nearly doubled, from about 70 to about 120. Since then it has remained at about 120 students, possibly because 120 is the maximum number of photographs that can be accommodated on the bulletin board. The undergraduate population has been fluctuating between 40 and 60, almost from the inception of the program. The growth of the graduate population coincided with the arrivals of three new professors: S.N. Davis, who came as department head in 1975, S.P. Neuman, who arrived the same year, and Thomas Maddock III, who started in 1977. Other faculty arriving during that period were Assistant Professors Glenn Thompson, Judith Dworkin, and Donald R. Davis. Dr. Thompson resigned in 1984 to enter private practice, and Dr. Dworkin resigned in 1983 to enroll in Law College at A.S.U. Don Davis, now a full professor, teaches courses in statistical hydrology and in water resources administration.

According to a Gilbert and Sullivan lyric (slightly modified), the lot of a department 'ead is not an 'appy one. Dr. Stanley Davis had agreed to serve two years as head. When two stretched to four and little was done to recruit a new head, he decided, in 1979, to step down. Simpson again agreed to serve as acting head for a year, but that year became two, before a new head was recruited. In 1981 the department attracted Dr. Nathan Buras for the job. At this writing, Dr. Buras is completing his 5th year as head, and going strong. In the period from 1981 to the present, the following new faculty came on board: Associate Professor Soroosh Sorooshian, and Assistant Professors Roger Bales, Chris Nunn, and T-C. Jim Yeh. In 1984, Sol Resnick retired as director of the Water Resources Research Center and is now emeritus. He was replaced by William B. Lord who also, as was the case with Resnick, became a member of the H. & W.R. faculty. In 1985, Simpson retired; he is now emeritus. The current faculty are listed elsewhere in this newsletter, with a short statement by each of their activities and interests.

Finally, we must make mention of the stream of distinguished scientists who come to participate in the research of the the department. Professor Jacques Avias, of the University of Montpellier, France, was here in 1968/69. Dr R. Allan Freeze, of the University of British Columbia, spent sabbatical years here in 1978/79 and in 1984/85; Dr. Ghislain de Marsily, of the University of Paris, was here in 1979; Gerry Grisak, then with the National Hydrology Research Institute, Canada, came in 1980/81; Manzoor Bokhari, Pakistan, in 1974. Walter Garstka, retired from the Bureau of Reclamation and formerly professor of Civil Engineering at Colorado State University, taught courses in hydrology and WRA in 1974/75. Others include: Lingen Cai (China), 1984/85; T.G. Chapman (Australia), 1983; Mordechai Diskin (Israel), 1983/84; R.N. Hawkins (Utah State Univ.), 1985; John Holmes (Australia), 1981/82; Vijay Kumar (India), 1984/85; Changming Liu (China), 1982/83; Ba Gen (China-Inner Mongolia), 1983/85; Emanuel Mazor (Israel), 1981/82; Ron North (Univ. of Georgia), 1983/84; Kuniyoshi Takeuchi (Japan), 1984; Peter Todorovic (Canada), 1983/84; and Yu-gun Xue (China), 1982/84. Dr. John E. Hubbard (S.U.N.Y.) currently is in residence.

Drs. Harold Bentley, senior partner of Hydro Geo Chem in Tucson; Robert A. Clark, retired director of the Office of Hydrology of the National Weather Service; and David A. Woolhiser, of the Aridland Watershed Mgt. Research Unit, U.S.D.A., all are adjunct professors of the department. Thomas Maddock, Jr., after a long career in the U.S.G.S., has been distinguished associate in the department since 1978. And Tom Jr. is the father of Tom III.

Here ends our brief history. By this time next year we shall have moved into the Geology Building (which, no doubt, will be renamed). Geosciences currently is moving into the newly completed Gould-Simpson Building. As time goes on, future issues of the newsletter will chronicle the activities of the department, its faculty, and its students.