Presentation of the O. E. Meinzer Award to Victor T. Stringfield

Citation by C. L. McGuinness

In what to me is a delightful departure from normal routine, Jim Geraghty has been kind enough to ask me if I would like to present the O. E. Meinzer Award to Vic Stringfield in his place. It is a real pleasure for me to do so. Vic Stringfield broke me in on ground-water field work in the Geological Survey 32 years ago, and he has always been one of my heroes in the Survey. There have been few assignments in my lifetime that I have accepted with more pleasure than I do this one.

Those of you who have heard me present papers or otherwise talk at meetings know that as a speaker I could be improved upon. So I’m not going to make a Penrose presentation out of this, and I’m not going to go through Vic’s life in detail from birth to now. He is a product of the State of Louisiana and of Louisiana State University, plus Washington University at St. Louis where he did graduate work and taught. In addition to the teaching he did at St. Louis, he spent two years at what was then the New Mexico School of Mines at Socorro. While he was there he did summer field work with that distinguished former Chief Geologist of the Geological Survey, Gerald Laughlin, and Arthur Koschmann in the Magdalena mining district, and his name is on the geologic map accompanying Professional Paper 200 which came out of that work.

About that time he saw the light and joined the Federal Survey full time, entering
the then Ground Water Division under its first and foremost Chief, Oscar E. Meinzer, in 1930. (Just before this he also saw the light in a different way and married Jay Hill, planning the nuptials so well that they had to be carried out at Albuquerque's Gretna Green, the little town of Bernalillo, over a weekend because the County Clerk's office at Albuquerque was closed.) He has served the Division, now called a Branch, and the Water Resources Division, then called a Branch, with distinction for these last 40 years.

Vic's career in the Survey can be summed up under four headings—and I'll bet my bottom dollar that Vic himself has been too modest ever to think of his career as embracing all these categories. So sit back, Vic, and let me tell the group what you've done.

In the first place, Vic, along with David G. Thompson and O. E. Meinzer himself, was one of the three principal architects of the cooperative ground-water program of the Geological Survey with the states—one of the oldest and generally most successful of such programs. Vic was almost singlehandedly responsible for starting and getting going the work in all the southeastern and southern states from North Carolina to Florida and on west to Louisiana, plus Arkansas and Tennessee to the north, and he had quite a hand in starting the programs in Kentucky, Indiana, and Michigan. He recognized the vital necessity of working with the state geologists in this endeavor, and thus contributed to what have been among our most pleasant and mutually most profitable cooperative relationships. That's one of Vic's major accomplishments.

Second, Vic has been recognized as one of the most successful trainers of young recruits. He has been responsible for the early training of better than a dozen men who have made their mark in ground-water geology and hydrology from here to the other side of the world—men of the caliber of Hilton Cooper, last year's Meinzer awardee, and Nevin Hoy in Florida, Maurice Mundorff and Harry LeGrand in North Carolina, Johnny Maher in Louisiana, Elliot Cushing and Bob Schneider in Tennessee, Glen Brown in Mississippi, and others—I'd better stop before I try to name them all and embarrass myself by leaving somone out. I can brag about these men without violating my well-known modesty, because I worked directly under Meinzer most of the time, so Vic can't be blamed for my shortcomings—though I'm sure he could tell you what they are.

Third, Vic had a big hand in the radiohydrology program of the Geological Survey. He succeeded the inimitable C. V. Theis in charge of that program, and it was due largely to the criteria established by the two of them that the development of the nuclear age in the United States has been free so far of any unpleasant incidents affecting water resources.

Fourth, and most important of all, both in an absolute sense and in relation to the present occasion, Vic has been a topnotch ground-water geologist and hydrologist. Working largely in the southeastern states, he has become a world authority on artesian aquifers, especially in carbonate rocks. It is largely because of work done or inspired by him that the principal artesian aquifer of Florida and adjacent states is
one of the best known artesian systems in the world. The paper that won him the Meinzer Award is his U.S. Geological Survey Professional Paper 517 on the artesian limestones of the southeastern states. And he hasn’t stopped there. Working in the last few years largely with Harry LeGrand, Vic is continuing his pursuit of knowledge of carbonate-rock phenomena relating to water, extending his observations to the karst regions of Yugoslavia, Jamaica, and Puerto Rico, and even the fabled sea mills of Cephalonia off Greece. He and Harry are now hard at work on a major treatise on carbonate-rock hydrology.

Finally, I am happy to accept Burke Maxey’s suggestion of a fifth string to Stringfield’s bow—his yeoman work on behalf of the establishment and active progress of the Hydrogeology Division itself.

Without further ado, Vic, I take more than ordinary pleasure in presenting you the O. E. Meinzer Award for distinguished contribution to hydrogeology. I know of no better exemplar of the Meinzer tradition of careful field work, careful thinking about it, and careful writing of the conclusions deriving from it, and you have only your own excessive modesty to thank that you are the sixth instead of the first recipient of the award. Congratulations and good luck; may you always have the same curiosity about carbonate-rock phenomena that you have demonstrated so outstandingly up to this point.

Response by Victor T. Stringfield

After hearing the kind presentation by Lee McGuinness I’m wondering whether I should add anything except that I am very thankful for this honor which I must share with many colleagues including the Chief and Associate Chief of the Water Resources Division, who have made this possible. It was, of course, a pleasant surprise to learn that the O. E. Meinzer Award Committee had selected one of my hydrogeology papers for the 1970 award. As the paper (U.S. Geological Survey Professional Paper 517, “Artesian Water in Tertiary Limestone in the Southeastern States”), selected by the Committee was conceived while O. E. Meinzer was Geologist-in-Charge of the Ground Water Branch in the Water Resources Division of the U.S. Geological Survey, a few words on the early work leading up to the report might be in order at this time.

My interest in carbonate rocks began as a graduate student at Washington University, St. Louis. At that time I was concerned chiefly with the structural geology of Paleozoic limestones in St. Louis County, Missouri, where I first became interested in karst and its effects on the water-bearing properties of carbonate rocks. Later, as
a geology instructor at Oklahoma A&M College, I had the good fortune of meeting a student, Jessica Hill, who as my wife has been largely responsible for any success that I have had as a hydrogeologist.

As geologist of the New Mexico Bureau of Mines and Assistant Professor at the New Mexico School of Mines, I had an opportunity to study carbonate rocks on investigations of ore deposits in several areas, including the Magdalena mining district, New Mexico. However, my first opportunity to study the hydrology of carbonate rocks was in Florida in 1930 on my first ground-water assignment in the USGS, in cooperation with the Florida Geological Survey. O. E. Meinzer was Geologist-in-Charge of the Ground Water Branch (known in those days as Ground Water Division) and D. G. Thompson was my immediate supervisor. I was indeed fortunate to have Meinzer and Thompson as my supervisors.

Reports were available on the geology, geologic structure, and the artesian water in Florida. Therefore, the principal objective of my job was to make systematic studies of ground water in local areas where there were problems relating to the quantity and the quality of water available for public, industrial, and irrigation supplies, and where there appeared to be danger of salt-water encroachment in the principal artesian aquifer system. One of my first reports was on Sarasota County on the Gulf Coast south of Tampa Bay. Everything seemed to be in order in that report except that the general direction of the lateral movement of the artesian water was not in accord with the general understanding of the circulation of water in the Tertiary artesian system. The reports on the artesian water at that time indicated that the recharge for the entire artesian system in central and southern Florida was on the Ocala uplift in north-central Florida where the aquifer is at or near the surface and is as much as 150 feet above sea level. However, my report on Sarasota County showed that the lateral movement of the artesian water was from east to west indicating a recharge area in south-central Florida where the aquifer is covered by as much as several hundred feet of relatively impervious material which would not be favorable for local recharge. To me, it seemed reasonable to conclude that lakes in the ridge section east of Sarasota County were in sinkholes which had been partially filled by unconsolidated material with enough permeability to permit downward percolation of water to the aquifer. My conclusion convinced me that a regional study of the circulation system in the artesian aquifer in Florida was urgently needed.

Later I was assigned the job of studying and mapping the piezometric surface of the artesian water in Florida. The resulting regional map of the Florida Peninsula, as published in U.S. Geological Survey Water-Supply Paper 773-C, not only confirmed my conclusion regarding the recharge to the aquifer in the lake region in south-central Florida, but also revealed other significant recharge areas as well as the discharge areas which had not been recognized previously. The map was also helpful in the studies of the circulation system and the relation of salt water to fresh water in the artesian aquifer. Subsequent investigations extended the mapping into west Florida and southeastern Georgia to South Carolina. After a few years the rapid
growth of the Ground Water Branch under Meinzer's direction made it necessary for me to devote full time to work in other parts of the country. However, I endeavored to keep in touch with the investigations in the southeast.

On another program, as Chief of the Radiohydrology Section of the Water Resources Division, it was possible to introduce the use of radionuclides in water to aid the studies of the circulation systems and rate of movement of the artesian water. The later work of Bill Rack and Bruce Hanshaw using the carbon-14 method supports the early conclusions regarding recharge areas and the direction and rate of movement of the artesian water.

A few years ago it was possible for me to give further attention to the southeastern states and to prepare the report which is being honored today.

Current studies of the hydrogeology of karst along with other research on carbonate rocks by many investigators are giving a much better understanding not only of the circulation systems, but also the distribution and great range in both lateral and vertical permeability in carbonate rocks. The available information on the hydrogeology now shows that some of the most productive aquifer systems, such as the one in Florida and southeastern Georgia, are due not only to the exposed karst at the surface, but also an extensive buried paleokarst, which accounts in part for the large increase in permeability of some aquifers with depth. The buried paleokarst of late Eocene age underlying all of Florida and southeastern Georgia extends to the edge of the continental shelf. It is one of the most extensive karst surfaces known and many times larger than the present karst surface in that region.

In conclusion, I am very grateful for this award. Recognition of this hydrogeology paper encourages me, and I hope it will encourage others, to continue hydrogeologic research which will give a better understanding of the occurrence, quantity, quality, and circulation of water in all kinds of aquifers.