

Arthur J. McNair

Memorial Address*

Almost thirty years ago, a young foreign student, knocked on the door of a professor's office in Hollister Hall, the Civil Engineering Building of Cornell University. When told to "come in," I came face to face with the one man who was to influence my life in a measure second only to that of my parents. He sat there behind his desk with bright eyes and smiling face, totally abandoning what he was doing, and giving me complete and undivided attention. Although I was somewhat tense with expectation, within a few minutes he was able to put me completely at ease, mixing advice with praise; kind, reassuring, and yet firm in his approach. You felt as if you were the single most important graduate student he had. He worked with you, gently probing to find your strengths and weaknesses and guided you to select those subjects which would provide you with the most suitable training. He cared, not only about your education, but also about you personally. He made sure that you had suitable accommodations, and that your personal needs were met. He personally took you around the building to meet everyone, secretaries, professors, assistants, students, and introduced you to the School Head. In short, he did everything he could to make you feel that you belonged within the shortest time. He was remarkable!

So, who was he? Arthur James McNair was Professor of Civil Engineering and Head of its Surveying and Mapping Area. He was, at that time, one of the most active professors, who diligently worked to further the advance of the young science of photogrammetry. Those of us who have been active in this society for the past three or four decades cannot deny the very significant contribution made by him in training so many able and competent photogrammetrists. Each of these, individually and/or through others, have continued to propagate photogrammetric knowledge over the years leading to the current strong and vibrant society.

It is worth reflecting on Art's life and the factors in his development which helped produce such a dedicated and successful educator. He was one of the few people born in the United States on palace grounds. He was born on the site of the famous Leadville, Colorado, Ice Palace of 1895-96.

Art's father was a leading mining engineer and surveyor in



Professor McNair when I met him, President of ASPRS

Colorado and his mother was a noted teacher in the Leadville public school system. When Art was a young boy his father was an inspiration and instilled a high degree of professional responsibility in him.

His first opportunity to accompany his father and really "assist" in making a survey occurred when a zinc smelter had to install a long flue pipe for cooling stack gasses. During the summer, when he was age 14, Art was taken by his father to experience what a lode claim patent survey was like, and for 28 days the party lived in a miner's log cabin. The regular chainman got sick and young Arthur learned how to become an axman, rodman, and chainman.

Art attended Leadville High School and the University of Colorado. He was elected to Tau Beta Pi and Chi Epsilon Societies. He was awarded a University of Colorado Fellowship,



Art at age six



Art as a Senior at the University of Colorado

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Professor McNair in a photogrammetry lab.

which encouraged him to continue for his M.S. degree, majoring in civil engineering. At this point, his professor of surveying retired and Art was appointed Instructor of Civil Engineering, with emphasis on surveying. Since that time, and for the rest of his professional life, he was a teacher of surveying, photogrammetry, geodesy, and other related areas.

Art first taught a university level course on photogrammetry in 1938, which is only four years after our society was founded, and continued doing so regularly until his second retirement. Our new young instructor decided he should affiliate with some of the professional associations in his field. He joined the American Society of Civil Engineers (ASCE) and the American Society for Engineering Education (ASEE). During this period, Art also joined the Colorado Mountain Club and was one of the charter directors of the Rocky Mountain Rescue Group, which saved many lives, searched for downed aircraft, recovered drowned or broken bodies, and found lost persons.

In recollections of her father, here is what Adrienne McNair said:

There is no doubt in my mind that the most influential person in his life was his father—a United States Deputy Mineral Surveyor and a man of impeccably high standards in everything he did—particularly high moral standards. Neither is there any doubt about my father's choice of career. I do not recall him ever mentioning that he considered doing anything but Civil Engineering.

He took his career very seriously, and he worked all the time. He never took what most of us would call a "vacation," but that didn't mean that we did not have fun growing up with my father. In fact, my brother, Fred, and I were always out with him every weekend, hiking the mountains with the University of Colorado Hiking Club for which he was a Faculty Advisor for years. And we spent summers in Leadville, tagging along on surveying



Altmetry party at Twin Lakes. Mt. Elbert in background

expeditions. I remember hiking through Alpine meadows and drinking from streams of glacial-melt water.

At that time I remember being deeply impressed by his stories of dramatic life-saving rescues resulting from his work on the Rocky Mountain Rescue Group, of which he was a founding member. When hikers fell or planes fell in the mountains, the phone rang and he left the house to return with some pretty hair-raising stories.

We can see that he was quite a mountaineer; he also cared for and respected nature. His son Fred said:

I would like to share some of the moments that I have had with him up on the mountain, because I have had the privilege of being up on the mountain with him every summer for the last fifteen years (of his life). And there are some notable things that I have observed, and I'd like to share some of those with you.

We need to digress for a moment to try and explain a little bit of what it was like up there. The place we went was about ten miles from town—that was about seven miles of county toad which was well maintained, then about three miles of country road which was not maintained, and averaged probably about a twenty percent grade, and then there was our road (about three miles long) which we built and maintained ourselves. But, I also had this little vehicle for getting up these rugged little roads, and it had room for two people in the front, and there was an open deck in the back. And innumerable times there was difficulty in getting up these steep roads—and he would jump out and push the vehicle up the hill, so that we could ride the rest of the way. And on one occasion when it seemed that we were getting stuck in the same place every day, I said, "Well, should I spend a half-day to really try and fix this road so we can drive by it?" and he said "Noooo, I don't mind pushing every morning." And so, for the remainder of the season, every morning, on the way to work, he would jump out and push the vehicle up the hill, so we could go to work.

And sometimes on the way home (and we usually came home late), there might be an errant hiker out there who had gone maybe a little further, or didn't understand the altitude, and we would be driving down the road, and he would say, "O, Gee! That fellow looks awfully tired; Why don't we stop and give him a ride, and he would get out of the vehicle and go and sit in the open back so that the hitch-hiker could have the seat inside.

He always loved the nature up there. I can remember many times walking from one place to another—which is what you do up there, and we would come along a little mountain stream, and he'd stop and get down on his hands and knees and take a big sip of water, and stand up and say, "Boy, there's really nothing like fresh, mountain water!"—and he's right! He also felt very strongly about the flowers up there. There is a unique little flower that grows up in the alpine meadows—it is the Alpine Forget-Me-Not. And any time he would come across a batch of these, he would have to get down on his hands and knees to sniff (like Ferdinand, the Bull), so as to just really absorb all that aroma.

At other times, in driving home, we would drive across a beautiful meadow of flowers, and he'd say, "Oh, let's stop and get some flowers and take them home. I'll bet your wife would really appreciate that." So we'd stop and we'd get out of the car, and he'd say, "But, not here. If we pick the flowers here, then the people driving along the road won't be able to see them. Let's walk over the hill there, where the people from the road won't be able to see the flowers, and we'll get those flowers." So, he was what I would call a "common sense" conservationist.

At times up there, I might point out and say, "How high is that mountain over there?"; and he'd say, "Well, I can't tell exactly which one you're pointing to, but you notice that the mountains are all in ranges, and if you're pointing to the third range over, and the fourth mountain in, then

that is Mt.____ (and he'd give me the name, and he'd give me the elevation, and then he'd give me the elevation of the one next to it, and the one next to that, and I'd say, "How is it you happen to know all of those mountain elevations to five significant places?", and he would say "Oh, that's because I've been up there, and I've measured them, and I'm the one that corrected the maps, because nobody knew what the real height was until I went up there and measured them)."

Art McNair must have always wanted to be an educator. Immediately after getting his Masters and Professional Degrees he began teaching, first at Colorado State and then at Cornell University. At the relatively young age of 36, he was already named full Professor and Head of the Surveying and Mapping Department at Cornell University.

What measures an educator's success? There are many criteria, but the greatest asset is the students. In addition to the hundreds, indeed thousands, of undergraduate students whom he taught, we assembled 24 Masters and 17 Ph.D. students. They studied a wide range of research activities both in surveying and photogrammetry. The gentleman provided an exceptional environment in which the student can excel.

I wonder how many of us remember if anyone other than Art's undergraduate students ever won the Bausch and Lomb Award! He did such an outstanding job getting those young people to document their ideas in the form of a paper for competition. I once thought it was "wired" to Cornell. But when Art when to Texas A&M, his students there began to win it. This convinced me that, without a doubt, it was Art's incredible ability. Then, of course, many of his graduate students won other awards, such as the Wild Heerbrugg, some more than once.

What better role model could he have played than to have at least eleven of these ex-students become professors, most if not all, quite successful and active in the field, making significant contributions to its development. Here are samples of what they say about him:

Professor Kam Wong, University of Illinois: "As a Professor at one of the premier universities in the world, Art McNair was never aloof, nor imposing... He loved photogrammetry! And he loved teaching! His professorial attitude was more like that of a fatherly figure. He was always approachable. He was always pointing the way to new challenges, like a beacon. His contributions to the profession of surveying and mapping in general, and photogrammetry in particular, are well documented. His tremen-

dous impact on the current and future practices of surveying and mapping is most evidenced by his former students. Art McNair always inspired me to be the best that I can be. I still subconsciously look for him at every annual meeting of the American Society for Photogrammetry and Remote Sensing."

Professor Bob Brock, Syracuse University: "One of the most important things to a profession is the education of its members. In order for this to happen, dedicated individuals must exist at universities and other places who are willing to establish and conduct the educational programs that are necessary for the maintenance and the advancement of the particular profession."

Professor McNair served this role well at Cornell for the benefit of all of us in the Surveying and Mapping Profession. This man was very special to all of us who studied under him at Cornell. His presence and dedication to teaching enabled us to come to a great university and to receive an excellent education in Surveying and Photogrammetry, while, at the same time, having the opportunity to benefit from the other fine programs that are available at Cornell.

Art was a wonderfully dedicated person who achieved many things during his life, and I am proud to have known him! I have many fond memories of time spent with him. In many ways, thanks to him, the Surveying and Mapping Profession is doing very well indeed, today."

Professor John McEntyre, Purdue University: "Art personified a true professional. He followed a strict code of ethics, kept abreast of new developments in surveying, participated very actively in professional societies in surveying and mapping, and by his example and leadership inspired those under his supervision to develop a positive professional attitude. Truly he made his mark in this world!"

Professor James Anderson, University of California at Berkeley, who was a Teaching Assistant to Art: "I still have a very clear recollection of my first meeting with Art McNair. The consequence of this meeting was that I changed my major from transportation to photogrammetry and followed a path that ultimately led to a career as an educator in photogrammetry and surveying. This is a decision which I have never regretted and there is no question but that this initial contact and the subsequent encouragement and support of Professor McNair were largely responsible not only for the original decision but also for the achievement of that objective."

My experience illustrates that no matter what pressures surrounded him, he *always* had time to spend with someone who had questions or needed advice. Not only that, he could carry it off in such a relaxed and friendly fashion, that the person dealing with him would come away feeling that here was a Professor who really cared about him and had all the time in the world to deal with that person's questions and problems.

Art handled his TAs in a very special way. We did not just assist, we taught the entire course on par with a regular faculty member. In other words we were given a course outline, the textbook and a class listing and told "go to it, the class is yours". Art's technique was to make us feel as much like regular faculty as possible and then really lay the work on us. This was good and bad. For me it was good because I felt as if I were doing something worth while and learned a tremendous amount.

He *had* to operate this way in order to run an undergraduate and graduate program by himself and with the help of George Lyon, and he did it very skillfully. He gave us the responsibility, pumped up our ego, and let us do the work, under his control of course, because we met every week with him and George and went through the week's work, so we were actually getting a course on 'how to teach in civil engineering.'"

Art always introduced his students to everyone he knew whenever possible. It is amazing how many prominent people I already knew by the time I finished my degree, thanks to this remarkable trait.

On a lighter note, here is what Professor Warren Philipson of Cornell recalls:

"Art and I worked on the geometric calibration of the world's largest radar/radio astronomy telescope reflector,



Art McNair as a young Cornell professor



Dedication page of Earth Science, 1974

located just south of Arecibo, in the karst topographic hills and sinkholes of northern Puerto Rico. (The work became my M.S. thesis). During a short visit to the site, Art decided that we should check out some of the original survey control points. He especially wanted to find points located on the tops of the brush-covered limestone hills.

It was a hot, sunny and uncharacteristically humid day. Since we were not surveying the entire area, I tried to dissuade him. Failing that, I thought, "Heck, I'm in my early 20s and he's in his mid-50s. No problem. He'll fade halfway up the first hill."

Well, that was the day that I learned—while huffing, puffing, dripping, and trying to catch up with Art—how he spent his summers: climbing and gold-mining in the Rockies of Colorado. (...That was also the last time I actually invited Art for a site visit)"

In addition to professors, other students achieved great success in their careers include and admiral in the NOAA Corps who is the Director of the Charting and Geodetic Services, and a president of a successful photogrammetric corporation.

Another measure of the man is his professional accomplishments as recognized by his peers. He was very involved in professional society activities from the beginning; starting in 1943 he helped organize the photogrammetrists in Denver resulting in the formation of the Rocky Mountain Society of Photogrammetry.

In 1949, the Central New York region of ASP was chartered, and Art was elected its President in 1952. In 1961-62 Art served as President of the American Society of Photogrammetry. His principal theme that year was to bring ASP and ACSM into closer fusion because they need each other and can help one another.

In the intervening years, Professor McNair has served the society in many positions such as National Science Foundation/ASP Visiting Scientists Program, 1966-68. Since its beginning in 1975, he served on, including being Chairman of, the Committee on Evaluation for Certification of Professional Photogrammetrists. Art has represented our Society at numerous International Society for Photogrammetry meetings both in education and aerotriangulation. He was author-editor of the

chapter on Education in the 3rd Edition of the *Manual of Photogrammetry*. He received the highest honor which the Society can bestow on a member by being elected an Honorary Member in 1982.

The ASP Constitution and Bylaws state that "An HONORARY MEMBER shall be an individual who has rendered distinguished service to the society or who has attained distinction in the field of photogrammetry, photo interpretation, remote sensing or the related sciences, deserving of recognition by the society; and, shall be elected for life." In my view, not only was Professor McNair's service to our society outstanding, but he also attained distinction in the field.

How about, Art the human being? How do others who are not involved in his field remember him?

Professor Gordon Fisher, of the Structures Area, in Cornell's Civil Engineering, said Arthur was a friend and colleague of mine, and I had a great respect and affection for him. Art came to Cornell the year after I did after most of the "Old Guard" had passed on. So we were, together, the "new boys on the block." We were neighbors in the University South Hill faculty housing. Our families often visited each other, and I took pleasure many times in the joy and warmth of his home. Daughter Adrienne baby-sat my children. I watched Virginia grow up in her early years when she was school chum of my daughter.

One of the things that I have to smile about many times is the love that Art had to showing slides for his guests—usually for interminably long periods of time, and I think that this is perhaps the only bad habit he ever had. Art was a gentle man and a kind man, caring about people and secure in his religious faith. I think he never had a mean thought nor said an unkind word.

He was also very good at getting his students involved in ASP and ACSM activities. Jim Anderson for example ended up being secretary/treasurer, vice chairman, and chairman of the New York Central Region of ASP. He said "originally I had wanted no part of those jobs. He just went ahead and nominated you and the job was then yours almost by default. Ultimately, having been in those jobs really paid off for me, so his efforts were right on the mark in that case and in many others, I am sure.

I did not want to start this presentation with my own personal recollections lest I take the whole allotted time. This wonderful man did a lot for me. Take for example the fact that for each of the three summers during my graduate study, he arranged for me to visit USGS, USC&GS, and EMR Canada. In the fall following the first summer, we had a long discussion about some research works I did on the use of triplets. A few weeks later, I received a letter from the program chairman for the ASP annual meeting stating that MY PAPER had been accepted for presentation! I was dumfounded and down-right petrified. I took the letter and ran down to his office. In his very calm and reassuring demeanor he explained why he sent a short abstract, in my name, for that paper. "Ed," he said, "you have a natural gift for writing, and you did excellent work. Why don't you share it with others?" "But,



Receiving the Distinguished Honorary Member, 1982



Easter Sunday, 1957, with wife Dorothy and daughter Virginia

Professor McNair," I said, "I can't stand in front of all those people and give a paper." "Sure you can," he said; "Remember, when you are presenting something, YOU KNOW MORE ABOUT IT THAN THE AUDIENCE!" To this day, I consider this one act, however much I hated it at the time, to be one of the best favors he did for me. In fact, I almost always repeat this statement to my own students, particularly foreign students, when I *entice them* to present papers. However, I never had his courage in sending an abstract behind a student's back!

During the Cornell summer camp, I had another "thrill," when Art discovered that I did not know how to drive. "Ed, anything you put your mind to, you can do," he said. Next thing I knew, I was sitting behind the steering wheel of an old beat-up pick up truck, with Art in the passenger seat. "Drive," he said in his clear bell-like commanding voice. I was very scared, but also ashamed of backing down. He patiently and firmly showed me how to start, depress the clutch, etc. Mind you, we were not on a paved road; we were deep inside a forested area driving on a very rough and hilly trail. Never once did he reach for the steering wheel, had several bumps on his forehead from hitting the dash, but continued giving instructions. After half an hour, nearly dehydrated from all the perspiration, we terminated my first and only driving lesson. Although I may not have been able to take over driving a car on the highway, he accomplished one objective; he got me over any fear I may have had.

Art was a wonderful and caring human being who touched everyone who came in contact with him. His memory lives on in



With wife Dorothy in 1979

all of us who were fortunate to have known him. I am most privileged, indeed, to have been asked to share with you highlights of his life, and thankful to all those who provided me with recollections.

ARTHUR J. MCNAIR

- 1914 Born in Leadville, Colorado
- 1930 Finished High School (Age 16)
- 1934 B.S.C.E. (Special Honors), University of Colorado
- 1935 M.S.C.E. and Professional Degree
- 1935-49 Instructor, Assistant, and Associate Professor at Colorado State University
- 1949 Associate Professor, Cornell University
- 1950-79 Professor and Head of Surveying and Mapping, Cornell University
- 1979-80 Retired
- 1980-84 Visiting Professor, Texas A&M University
- 1962 NSF Faculty Fellow, Geodetic Institute, Sweden
- 1968 Fulbright Fellow, Polish Academy of Sciences
- 1968-70 Visiting Professor, Colorado School of Mines
- 1977 Fulbright Scholar, University of New England, Australia

—Edward M. Mikhail