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Memorial of Arthur Montgomery, 1909–1999

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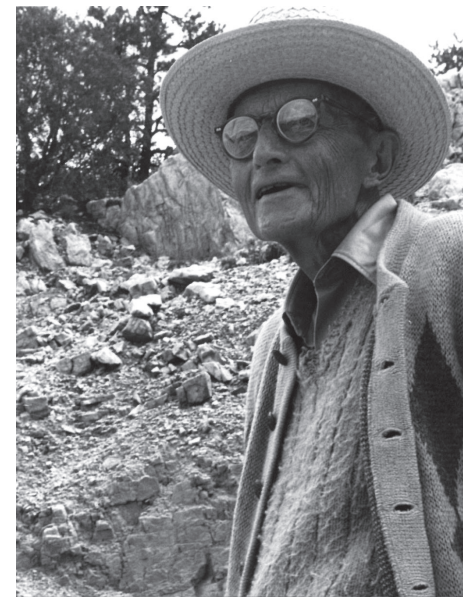
> "Minerals are not mere bits of inert matter. They hold within their being clues to their own creation and the pages of earth history; and they symbolize, as nothing else in the universe ever can, the marvelous architectural perfection of the atomic world hidden within a crystal."
>
> *Art Montgomery*

Arthur Montgomery, a Life Fellow of the Mineralogical Society of America and a Fellow of the Geological Society of America, died on December 31, 1999, in Albuquerque, New Mexico. Art was a man of a strongly held faith in God with an uncommon attention to the needs of others. As a mineral collector and dealer, field geologist, educator, and philanthropist, he touched the lives of many and conveyed his great love for the aesthetics and science of minerals. His loss marks the passing of a rare individual whose talent, generosity, and desire for anonymity are not to be matched in these modern times.



Art was born December 2, 1909 in New York City into a wealth and privilege that were rarely betrayed to those who knew him. He majored in Geology at Princeton receiving his A.B. degree in 1931. In the 1930s and 1940s, already an avid mineral collector, Art in collaboration with Edwin Over became a mineral dealer. The correspondence between Montgomery and Over is a rare read describing the work and adventures of these two men as they reopened classic localities and collected extraordinary specimens in the western United States and Alaska. There is a fine photograph of Art on the cover of *Reminiscences of a Mineralogist* (Montgomery 1997) at the Little Green Monster Mine, Fairfield, Utah, a classic variscite occurrence and the type locality for two new phosphate species, montgomeryite and overite (Larsen 1940). During the second World War, Art operated the Harding pegmatite mine as a source of much needed tantalum, lithium, and beryllium for the war effort. Mentored by Professor Charles Palache, Art began his graduate studies at Harvard in 1945 and received his Ph.D. in 1951, with a dissertation entitled "Pre-Cambrian Geology of the Picuris Range, north-central New Mexico." Art continued to operate the Harding mine during the 1950s as a source of beryllium for the nation's national defense programs. In 1951, Art joined the faculty at Lafayette College as an Associate Professor and retired in 1975 as a full professor. The time at Lafayette College was one of teaching and research, publishing numerous bulletins, field guides, and memoirs. Art received the Faculty Lecture Award for Superior Teaching at Lafayette in 1959, and six years later, he received the Ralph Digman Award of the National Association of Geology Teachers for "the improvement of earth-science teaching." He developed and maintained a nationally recognized mineral collection at Lafayette College. After retirement, Art played a pivotal role in the preservation of the Harding pegmatite mine for teaching and research, and in 1978 by an Act of Congress ownership was passed to the University of New Mexico. From 1978 to 1993, he volunteered on a full-time basis at the Trinidad State Nursing Home. After 1993, he lived in Albuquerque an active participant in a Christian fellowship.

The previous summary paragraph does little justice to Art's life and contributions to others, and so I will try to add some depth to a few of his efforts and accomplishments. I met Art in 1975 when he first approached the University of New Mexico with the proposal to donate the Harding mine to the University in order that the property be preserved for teaching and research. I knew little of Art or his previous accomplishments, and I was never to hear a word of these from Art. There were always hints from others, but Art's desire for privacy was generally honored by all who knew him. Only on the occasion of his death and the preparation of this memorial did I come to fully appreciate this unique and eccentric man.

Art was foremost a teacher in the classroom and by example.

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The example that he set was one of unselfish and unflinching determination to do the right thing for science and by the students who wanted to understand science. In 1956, James L. Dyson, the chair of the Department of Geology at Lafayette, wrote to Art:

> "The painstaking effort you put into course preparation is truly phenomenal, and serves as an inspiration to students and faculty members alike. You devote more time to your teaching work than anyone who has ever served on this staff . . . . Your ability to see in many of the less gifted students a latent spark and then by dint of great effort to ignite it, and your willingness to devote endless hours and patience to all students who are willing to work and eager to learn are outstanding among your many attributes. They are the marks of a great teacher."

Art's reply is characteristic:

> "Whether what you say is true or not is not so important, for I know my own inadequacies too well, as your kindness and thoughtfulness in saying it. Much of the time I figure I am doing such a poor job of teaching and helping the Department and the College that I feel very discouraged and hardly know whether to keep going at it or not . . ."

During his time at Lafayette College, Art was not only an excellent teacher but he continued his geological investigations of northern New Mexico. His mineralogical work culminated in the publication of *The Mineralogy of Pennsylvania, 1922–1965* published by the Academy of Natural Sciences of Philadelphia in 1969. Art retired from Lafayette College in 1975, renowned for anonymous acts of generosity toward colleagues and students and recognized for the development of the mineralogical museum. To quote from President Bergethon's tribute to Art on the occasion of his retirement:

> "We have been challenged by your high-minded witness and blessed through your quiet living out of a deep religious faith."

In the same year as his retirement, 1975, Art authorized his attorney and the University of New Mexico to enter into discussions of the possibility of the University receiving the Harding pegmatite property as a gift for its preservation. The mine property included both patented and unpatented claims; thus, this gift involved the transfer of federal lands to a state. After several years, the transfer of the property had become hopelessly entangled in discussions between the University, the State of New Mexico, and various federal agencies. Fortunately, the solution was simple, an Act of Congress (Senate Bill 1403 sponsored by Pete Domenici), was signed into law by President Carter as part of Public Law 95-550 on October 30, 1978, transferring ownership to the University of New Mexico. The University continues to make this classic mineral locality available to the public at no charge, maintains a research collection of Harding material (many of the finest specimens provided by Art), and has preserved an archive of maps, reports, publications, oral histories, photographs, and correspondence related to the Harding mine. There may be no other locality in the United States for which so much historical, as well as scientific, material has been preserved. The Harding mine now hosts thousands of visitors each year and is a "must stop" for university groups on field trips to the southwest.

As remarkable and generous achievement as this is, once again, it is only a small part of the story. Art's connection to the Harding pegmatite began in 1942 when the United States was in such critical need of tantalum that there was an almost frantic search for domestic sources. Based on Professor Larsen's recollection of the occurrence of microlite, a relatively rare calcium tantalate, in the Harding mine dumps, Art went west to visit the mine. Art's arrival to the Dixon-Peñasco area of the Sangre de Cristos signaled an important change for these Hispanic villages of northern New Mexico. The mine had not been worked for nearly twenty years and was mostly overgrown. Art quickly identified the first small crystals of microlite and noted their abundance by the high specific gravity of some of the hand specimens. Success certainly required patience, a quality that did not come naturally to Art. He had to quit his position with his company, who had no interest in the mine, in order to mine the pegmatite on his own. In a very short time, based on his own enthusiastic appraisal and determination, Art entered into a lease-purchase agreement. Art worked side-by-side with local miners, lead by Flaudio Griego. In his own words,

> "The mining that ensued along the low east wall of the quarry surely was one of the strangest ever seen. Six men attacked the rock wall with chisels. The ore was far too valuable to be blasted. And it proved possible to chisel, pry, and hammer it out of the surrounding spodumene-rich rock by hand. Primitive mining, yes, but astonishing results were forthcoming."

At the end of the second World War, mining ceased, but the Harding mine was brought back to life when Art and Flaudio Griego became partners in the beryl-mining phase of the pegmatite's history. For years the abundant white beryl had gone unrecognized as beryl until "whitish spots" on the quarry wall were identified by Richard Jahns, then of the U.S. Geological Survey, as beryl. Art subsequently noted that one of the cores, Hole 22, of U.S. Bureau of Mines diamond-drilling program had penetrated a mass of beryl nearly five feet thick. In 1949 Flaudio and his cousin, Juan, drove a tunnel into the quarry wall toward Hole 22 and after more than seventy feet, little beryl was found. Beyand this point, however, the abundance of beryl increased until finally the entire right side of the tunnel was pure beryl. The mine produced on average 100 tons of beryl per year until the operations ceased in 1958.

Eliseo Griego (Flaudio's brother) was hired by the University of New Mexico in 1978 as the mine's first caretaker, and his son, Gilbert Griego, has that position today. When I arrived in Dixon, New Mexico, in 1975, Art was a much respected

member of this northern New Mexican community, as usual, his good deeds were only vaguely spoken of out of respect for his desire for privacy. I am told that in the 1940s he purchased property in Dixon that was donated for the construction of a public school and that he helped finance the construction of the school and the renovation of a local church. In the 1950s through the 1970s he established a scholarship fund so that local children could attend college. No records have survived of the number of scholarships. We have only a few memories of these acts of generosity, but Art is well remembered in this small village, not only for these quite acts of generosity, but because he treated each person with profound respect for their history and culture.

As part of the effort by the University of New Mexico to record the history of the mine, Art recorded in his own hand his recollections of the early days of mining at the Harding pegmatite,

> "For me the mine most of all was a marvelous adventure, with many to help it and many wonderful human associations and friends made, so it is most of all a human story."

Equally important was Art's role in the founding of the Friends of Mineralogy and his support for the creation of *The Mineralogical Record* both with the goal of supporting the efforts and interests of the amateur collector and mineralogist. John White (1995) has written a wonderful history of these early days, and records Art's reluctance to provide support for the initially proposed magazine. However, convinced of John White's good intentions, it was Art who paid for John White's trip to Tucson in 1970 to present his plans for the new mineral journal. This trip launched the journal that was to become *The Mineralogical Record,* and it was at the same meeting that the Friends of Mineralogy was founded.

Unknown to many of his friends in the mineralogical community, Art was one of the principal benefactors of the Fairchild Tropical Garden in Coral Gables, Florida. David Fairchild (1869–1954) was a noted plant explorer who in partnership with Colonel Robert Montgomery, Art Montgomery's father, founded the Fairchild Tropical Garden, opened to the public in 1938. The Garden with its 83 acres site was mostly deeded in 1959 to the Miami-Dade County. Art was an annual visitor to the Fairchild Garden donating his time and support. He initiated the Robert H. Montgomery Science Lecture Series, in honor of his father, during the 1950s and 1960s.

No memorial to Art would be complete without emphasizing his Christian faith. Art was committed to Christian principles throughout his life, but in 1976 he came in contact with a world-wide fellowship of Christians in Pennsylvania, and this began a new phase of life for Art. He continued actively in that faith after he retired to New Mexico and volunteered at a nursing home in Trinidad, Colorado, for five years. Those who knew him well, sensed the deep fullfillment he experienced during this time and could see the direct and personal way his faith was put into action. Art found great satisfaction in fellowship with like-minded Christians, including close friends, who were especially helpful to Art as he approached the end of his life.

Art was not an easy person to know or to work with. He set high standards for himself, and I always had the feeling that I had disappointed him with my less than efficient efforts on behalf of the preservation of Harding Pegmatite mine. Still, I looked forward to each meeting and opened each of his letters, the postscripts wrapped around the edges of each page, with a combination of anticipation and foreboding. Each letter meant that I had more work to do.

I only knew Art during the last third of his life; thus, I am grateful to Guy Hovis, Bob Smith, Phil Long, and Gilbert Griego for their help in preparing this memorial. I thank Terry Gugliotta for the photograph of Art taken at the Harding pegmatite in 1994.

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