

Memorial to Ernst Valdemar Antevs

1888-1974

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It was a hot summer afternoon in the late 1930s in southeastern Arizona. We had been “walking out” a dry wash leading into the San Pedro River flood plain. As I emerged from the wash clutching a fistful of notes in my hot, sweaty hand, I saw Ernst Antevs calmly and coolly sitting in the sparse shade of a mesquite tree. Although we had started together, Ernst soon left me far behind while I ran from bank to bank measuring and checking sediments as well as noting artifacts and bones exposed in the walls of the wash. Ernst had simply walked slowly down the center of the wash, scanning both banks as he went along. I sat down beside him and attempted to sort out my notes, with some difficulty. Finally Ernst took a small notebook from his pocket and showed me a sketch of the sedi-

ments and notes on the location of artifacts that he had made while sitting under the mesquite. His work had much more detail than did my crumpled notes, and I was in error on several locations. To say that he was very patient with me that afternoon is a severe understatement.

It was a refreshing experience that afternoon, listening to Ernst equate recent geologic events in southern Arizona, as well as elsewhere in the southwest, to the glacial varve chronology of Canada and northern Europe. This type of geologic-climatic research had been pioneered by Antevs, Kirk Bryan, and others; the era of this research was brought to a close by Ernst's death, after a long illness, on May 19, 1974. Small in stature but large in ability, this man brought an understanding to the chaotic and complex field of research on the depositional history of the late- and post-glacial period in the southwest United States.

I have often heard it said that Antevs was without humor, but nothing could be farther from the truth; no one enjoyed a dry Swedish joke, or a Polish one either, more than he. He often chuckled quietly over goof-ups made by himself or close associates. It was also said that it was difficult to understand Ernst when he spoke. There was truth in that statement, especially if one could understand only clipped New England English. But once you became accustomed to his quiet, somewhat pidgin English-Swedish, he came through clear, though not loud—seldom did he raise his voice.

Ernst was physically tireless. He was not above paddling his own canoe to reach a remote varve exposure in the Canadian wilderness, or pumping a railroad handcar, or riding horseback for days on end, or trudging miles under a hot desert sun.

Many people thought him to be a stubborn defender of his own theories—and he was. He was slow to reach conclusions, but he stuck by his own convictions until evidence came to light that could cause him to change his mind.

Ernst was born on November 20, 1888, on a farm near Vartofta, Sweden. Because of his particular talents and his way of doing things, his schoolmates at Skara gave him the

nickname of Antaeus, a giant from Greek mythology whose strength was renewed by contact with the earth. His interest in the geology of Sweden led him to the University of Stockholm. Geological studies at the University of Stockholm were then greatly influenced by Baron Gerard De Geer, the man who pioneered the study of glacial clay varves, a study he termed "geochronology." Antevs became one of De Geer's most promising students and assistants, along with Carlzon-Caldenius, Sandegren, Sauramo, and others. By 1912 De Geer and his associate Ragnar Lidén had worked out reasonably well the count of the yearly deposits made by the melting ice; De Geer had an approximate time series for the "retreat" of the last ice sheet in that area. Ernst was very interested in all aspects of this work. He spent part of 1916 broadening his education by working on the coal deposits of the Norwegian polar area of Bjørnøya (Bear Island). The presence of coal deposits in these far northern areas sharpened his interest in climates and the role they play in geologic processes.

In 1917, Ernst was awarded the Ph.D. in geology at the University of Stockholm. In 1918 he returned to the Arctic, particularly Svalbard (Spitsbergen)—an area of intense interest to De Geer—to do additional work on the coal deposits.

In 1920 De Geer visited the United States to study the varves of the Connecticut River valley and elsewhere in New England. Antevs came along, and stayed on to do independent research when De Geer returned to Sweden.

Antev's work in New England during the early 1920s was supported by a scholarship from Sverige Amerika Stiftelsen in Stockholm and a grant from the National Research Council in Washington, D.C. The American Geographical Society assisted primarily with publication of his work. Later his work in New England and Canada was supported not only by the National Research Council of Washington, but also by the Shaler Memorial Fund of Harvard University, the Geological Survey of Canada, a grant from the University of Stockholm, and the American Geographical Society. Ernst was a docent at the University of Stockholm from 1917 to 1935. He was also a research associate for the American Geographical Society (1921 to 1922), the Carnegie Institution of Washington (1922 to 1923, 1928 to 1929, and 1934 to 1940), the Geological Survey of Canada (1923 to 1924 and 1929 to 1930), and Harvard University (1924 to 1926).

The early years in America were extremely busy ones for Ernst. In 1922, at the request of John C. Merriam, he took time off from his travels in New England to visit the Great Basin in Utah, Nevada, and California to make a study of the deposits in the ancient Bonneville, Lahontan, and Mono lakes. As he once remarked, only a Swede or a fool would do this during July and August—which he did. He was also active in the study of tree growth and climates, including the climatic significance of rings in fossil woods.

Ernst could not, however, have been devoting all his energy and time to his studies, because in 1929, while working in Canada, he sent a telegram to Ada Bradford, a young widow from Auburn, Maine, whom he had met in the mid-twenties on a field trip in Connecticut. The telegram read, "Can Ada come to Canada?" "Yes, Ada can," was the reply. She went to Canada and they were married there. And Ada often remarked that she much preferred to be married to a Ph.D. degree than to earn one herself (she had been pursuing a master's degree in geography at Clark University at the time of her marriage). Ada was of considerable professional help to Ernst, assisting him in his writing and helping him "sort out his thoughts."

During his trips to the west, particularly the Great Basin, Ernst began developing an interest in archeology, specifically in artifacts associated with late geologic events. In 1934 Edgar B. Howard—whom Ernst had met earlier—invited him to visit and to study the deposits at Clovis, New Mexico. The two also examined other "Early Man"

sites in Oklahoma, Texas, and Colorado. Ernst's first major publication on geologic-climatic dating, titled "Age of the Clovis Lake Clays," was published in 1935.

During his 1934 tour of the Early Man localities, Ernst met E. B. "Ted" Sayles of Abilene, Texas, who had since 1931 been working on the definition of cultures of southern Arizona with other members of the staff at Gila Pueblo, the archeological center at Globe, Arizona. This meeting with Sayles was to bring about a considerable change in the lives of the Antevs. In January of 1936 Ernst and Ada were invited by H. S. Gladwin, director at Gila Pueblo, to spend the winter there. The following year the Antevs built their home in Globe and named it "The Corral." With this move, Ernst became closely associated with Gila Pueblo, an association which lasted until the institution was disbanded in 1951. The Antevs continued to maintain their home at The Corral until their recent deaths.

His 1935 paper on the Clovis Lake clays and associated archeology drew widespread attention to the work he was helping to pioneer in geologic-climatic dating. Aside from the relatively short tree-ring chronology developed by A. E. Douglass at the University of Arizona, archeologists and sedimentologists had no way to date in calendar years anything beyond the 1,500-yr reach of the tree-ring series. Antevs, interpreting the climatic regimen necessary for the deposition of sediment, put together a chronology of periods during which climates in North America generally went through various stages of warmth, dryness, coolness, wetness, or combinations thereof. For the calendrical placement of these periods, he extrapolated from the Swedish and North American varve chronologies. This type of subjective interpretation and integration was probably the area where Ernst was at his best. He remained almost a "one-man show" in dating the Early Man sites in western North America.

In 1936, Ernst began to work closely with E. B. Sayles in research to define the Cochise culture. He took an active part in the archeological survey of southeastern Arizona and in the excavation of numerous sites identified with the geology and archeology relating to this culture; a report on these investigations was published by Gila Pueblo in 1941.

Largely through his efforts, scientists in allied fields cooperated in studying and identifying the bones, shells, charcoal, and wood as well as other fossil remains associated with the geology and archeology of these Early Man sites. Ernst's own studies at this time centered around the geology of the Naco and Lehner sites in southeastern Arizona and the Pine Lawn sites in southwestern New Mexico; he also continued to investigate the Cochise culture.

In 1939 Ernst became a U. S. citizen. In 1947 he was given the honor of being named leader of the Eighth Annual Biological Colloquium sponsored by the Oregon State Chapter of Phi Kappa Phi in Corvallis.

In general, Ernst's career could be divided into three phases: first, his early years working with varves and varve chronologies in Scandanavia, New England, and eastern Canada; second, his years spent in developing a geologic-climatic chronology for the post-Wisconsin period in North America, primarily for the purpose of dating Early Man sites. The third phase, during which he made critical comparisons and evaluations of various types of chronologies, was thrust upon him by the advent of radiocarbon dating. This probably most frustrating phase in his life came after the dating method was developed in 1948 by W. H. Libby at the University of Chicago.

Radiocarbon dating was itself plagued by many problems, especially in its early years, but there was good agreement between carbon dates and Antevs' dates on Early Man sites. When one considers that at that time people like Antevs and Bryan did not have

the modern instrumentation, techniques, and methodologies—including a vast array of supporting chronologies such as those given by present-day floral and faunal studies, radiocarbon dating, and other such methods—the accuracy of their estimates on past events was almost phenomenal. However, Antevs could never reconcile himself to the speed at which climatic changes could occur and the speed at which geologic processes could operate; he maintained a continuing quarrel with the radiocarbon dates on the termination of glaciation in Canada and the north-central United States.

In 1950 Ernst again teamed with E. B. Sayles in field work to reassess the Cochise culture. He assisted in the excavation of sites that established the Cazador stage in a geologic context succeeding the Sulphur Spring stage of this culture. During the early 1950s he again journeyed to southern Canada, where he assisted T. E. Lee in dating and in studying the geology of the Sheguiandah site that Lee was excavating.

During the mid-1950s poor health began curtailing Ernst's activities, especially his field work, and he turned more and more to theoretical considerations of geologic-climatic dating. However, he continued the practice (begun in the late 1940s) of coming to Tucson to give lectures and discussions in my classes at the University of Arizona. In 1957, when the Geochronology Laboratories were established at the University of Arizona, he was given an appointment of research associate in geochronology, a position he held until his death.

Ernst's last publications appeared in 1962, but he continued to work with Sayles on a more definitive report on the Cochise culture which is only now ready for publication. He had several manuscripts in mind but ill health prevented him from doing more than making notes on what he wanted to say. In May of 1965, the University of Arizona conferred on Ernst an honorary Doctor of Science degree.

Ernst's death brought to an end a long, colorful career which took him from the cold barren Arctic to hot desert lands. His wife Ada died on October 23, 1974. He is survived by his stepdaughter, Frances Olrich, of Newtonville, Massachusetts, and by three sisters, Ellen, Elsie, and Edit, all in Sweden.

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I wish to acknowledge the many friends of Ernst for their help in assembling this memorial, especially E. B. Sayles, who worked with Ernst for forty years.